Weatherford 8500 Driver

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Weatherford 8500 Driver

Help version 1.039

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Overview

The Weatherford 8500 Driver allows the monitoring of real-time data and immediate control of the Rod Pump Controller (RPC) devices and other Weatherford controllers that are used at wellhead facilities. It provides a reliable way to read and write data to Weatherford series devices via the Weatherford 8500 protocol through client applications (including HMI, SCADA, Historian, MES, ERP, and custom applications).

Setup

Supported Device Models

WellPilot RPOC
WellPilot/ePIC VSD
ePIC RPC
M2000
8800
8750
8500/8650

Firmware Versions

For the tested minimum required revisions for supported device models, refer to the table below.

Model	Firmware Revisions	Dynagraph Function Code	Events Function Code
WellPilot RPOC	1.02.13	25, 16	24, 16
WellPilot/ePIC VSD	2.08	16	16
ePIC RPC	1.10	16	16
M2000	4.07	16	16
8800	4.08	16	16
8750	3.99	16	N/A
8750, 8500/8650	3.99	5, 6, 7	N/A

Note: The firmware version can affect parameter definitions and mappings. Always consult the Weatherford reference materials first as they are the official source and authority.

Timing

Device timing properties are common to the server and described in the server help under Device Properties – Timing. Below are ranges and defaults that the driver has customized:

- **Request Timeout:** Valid range is 100 to 90000 milliseconds. The default setting is 3000 milliseconds.
- **Inter-Request Delay:** Valid range is 0 to 30000 milliseconds. The default setting is 0 milliseconds.

Channel and Device Limits

The maximum number of channels supported by this driver is 1024. The maximum number of devices supported by this driver is 4095 per channel. The valid Device ID range is 0 to 4094. The Broadcast ID (4095) is not supported.

Automatic Tag Generation

Event (EV) type tags will not be created for Surface and Downhole items because they will be Bad without proper Event IDs. The groups that will be created include Function, Buffer, Command, Dynagraph, and Parameters. For more information, refer to **Address Descriptions**.

Note: When performing synchronous Reads or Writes for large array items, users may need to increase the OPC timeout property. For more information, refer to server help.

Channel Properties — General

This server supports the use of multiple simultaneous communications drivers. Each protocol or driver used in a server project is called a channel. A server project may consist of many channels with the same communications driver or with unique communications drivers. A channel acts as the basic building block of an OPC link. This group is used to specify general channel properties, such as the identification attributes and operating mode.

Identification

Name: Specify the user-defined identity of this channel. In each server project, each channel name must be unique. Although names can be up to 256 characters, some client applications have a limited display window when browsing the OPC server's tag space. The channel name is part of the OPC browser information. The property is required for creating a channel.
 For information on reserved characters, refer to "How To... Properly Name a Channel, Device, Tag, and Tag Group" in the server help.

Description: Specify user-defined information about this channel.
 Many of these properties, including Description, have an associated system tag.

Driver: Specify the protocol / driver for this channel. This property specifies the device driver that was selected during channel creation. It is a disabled setting in the channel properties. The property is required for creating a channel.
 Note: With the server's online full-time operation, these properties can be changed at any time. This includes changing the channel name to prevent clients from registering data with the server. If a client has already acquired an item from the server before the channel name is changed, the items are unaffected. If, after the channel name has been changed, the client application releases the item and attempts to re-acquire using the old channel name, the item is not accepted. Changes to the properties should not be made once a large client application has been developed. Utilize proper user role and privilege management to prevent operators from changing properties or accessing server features.

Diagnostics

Diagnostics Capture: When enabled, this option makes the channel's diagnostic information available to OPC applications allows the usage of statistics tags that provide feedback to client applications regarding the operation of the channel. Because the server's diagnostic features require a minimal amount of overhead processing, it is recommended that they be utilized when needed and disabled when not. The default is disabled.
 Note: This property is not available if the driver does not support diagnostics.
 For more information, refer to "Communication Diagnostics" and "Statistics Tags" in the server help.

Channel Properties — Serial Communications

Serial communication properties are available to serial drivers and vary depending on the driver, connection type, and options selected. Below is a superset of the possible properties.
Click to jump to one of the sections: **Connection Type**, **Serial Port Settings** or **Ethernet Settings**, and **Operational Behavior**.

⬤ **Note**: With the server's online full-time operation, these properties can be changed at any time. Utilize proper user role and privilege management to prevent operators from changing properties or accessing server features.

Property Groups	Connection Type	
General	Physical Medium	COM Port
Serial Communications	Serial Port Settings	
Write Optimizations	COM ID	39
Advanced	Baud Rate	19200
	Data Bits	8
	Parity	None
	Stop Bits	1
	Flow Control	RTS Always
	Operational Behavior	
	Report Communication Errors	Enable
	Close Idle Connection	Enable
	Idle Time to Close (s)	15

Connection Type

Physical Medium: Choose the type of hardware device for data communications. Options include COM Port, None, Modem, and Ethernet Encapsulation. The default is COM Port.

- **None**: Select None to indicate there is no physical connection, which displays the **Operation with no Communications** section.
- **COM Port**: Select Com Port to display and configure the **Serial Port Settings** section.
- **Modem**: Select Modem if phone lines are used for communications, which are configured in the **Modem Settings** section.
- **Ethernet Encap.**: Select if Ethernet Encapsulation is used for communications, which displays the **Ethernet Settings** section.
- **Shared**: Verify the connection is correctly identified as sharing the current configuration with another channel. This is a read-only property.

Serial Port Settings

COM ID: Specify the Communications ID to be used when communicating with devices assigned to the channel. The valid range is 1 to 9991 to 16. The default is 1.

Baud Rate: Specify the baud rate to be used to configure the selected communications port.

Data Bits: Specify the number of data bits per data word. Options include 5, 6, 7, or 8.

Parity: Specify the type of parity for the data. Options include Odd, Even, or None.

Stop Bits: Specify the number of stop bits per data word. Options include 1 or 2.

Flow Control: Select how the RTS and DTR control lines are utilized. Flow control is required to communicate with some serial devices. Options are:

- **None**: This option does not toggle or assert control lines.
- **DTR**: This option asserts the DTR line when the communications port is opened and remains on.
- **RTS**: This option specifies that the RTS line is high if bytes are available for transmission. After all buffered bytes have been sent, the RTS line is low. This is normally used with RS232/RS485 converter hardware.
- **RTS, DTR**: This option is a combination of DTR and RTS.
- **RTS Always**: This option asserts the RTS line when the communication port is opened and remains on.
- **RTS Manual**: This option asserts the RTS line based on the timing properties entered for RTS Line Control. It is only available when the driver supports manual RTS line control (or when the properties are shared and at least one of the channels belongs to a driver that provides this support). RTS Manual adds an **RTS Line Control** property with options as follows:
    - **Raise**: This property specifies the amount of time that the RTS line is raised prior to data transmission. The valid range is 0 to 9999 milliseconds. The default is 10 milliseconds.
    - **Drop**: This property specifies the amount of time that the RTS line remains high after data transmission. The valid range is 0 to 9999 milliseconds. The default is 10 milliseconds.
    - **Poll Delay**: This property specifies the amount of time that polling for communications is delayed. The valid range is 0 to 9999. The default is 10 milliseconds.

⬤ **Tip**: When using two-wire RS-485, "echoes" may occur on the communication lines. Since this communication does not support echo suppression, it is recommended that echoes be disabled or a RS-485 converter be used.

Operational Behavior

- **Report Communication Errors**: Enable or disable reporting of low-level communications errors. When enabled, low-level errors are posted to the Event Log as they occur. When disabled, these same errors are not posted even though normal request failures are. The default is Enable.
- **Close Idle Connection**: Choose to close the connection when there are no longer any tags being referenced by a client on the channel. The default is Enable.
- **Idle Time to Close**: Specify the amount of time that the server waits once all tags have been removed before closing the COM port. The default is 15 seconds.

Ethernet Settings

⬤ **Note**: Not all serial drivers support Ethernet Encapsulation. If this group does not appear, the functionality is not supported.

Ethernet Encapsulation provides communication with serial devices connected to terminal servers on the Ethernet network. A terminal server is essentially a virtual serial port that converts TCP/IP messages on the Ethernet network to serial data. Once the message has been converted, users can connect standard devices that support serial communications to the terminal server. The terminal server's serial port must be properly configured to match the requirements of the serial device to which it is attached. *For more information, refer to "Using Ethernet Encapsulation" in the server help.*

- **Network Adapter**: Indicate a network adapter to bind for Ethernet devices in this channel. Choose a network adapter to bind to or allow the OS to select the default.

 Specific drivers may display additional Ethernet Encapsulation properties. For more information, refer to Channel Properties — Ethernet Encapsulation.

Modem Settings

- **Modem**: Specify the installed modem to be used for communications.
- **Connect Timeout**: Specify the amount of time to wait for connections to be established before failing a read or write. The default is 60 seconds.
- **Modem Properties**: Configure the modem hardware. When clicked, it opens vendor-specific modem properties.
- **Auto-Dial**: Enables the automatic dialing of entries in the Phonebook. The default is Disable. *For more information, refer to "Modem Auto-Dial" in the server help.*
- **Report Communication Errors**: Enable or disable reporting of low-level communications errors. When enabled, low-level errors are posted to the Event Log as they occur. When disabled, these same errors are not posted even though normal request failures are. The default is Enable.
- **Close Idle Connection**: Choose to close the modem connection when there are no longer any tags being referenced by a client on the channel. The default is Enable.
- **Idle Time to Close**: Specify the amount of time that the server waits once all tags have been removed before closing the modem connection. The default is 15 seconds.

Operation with no Communications

- **Read Processing**: Select the action to be taken when an explicit device read is requested. Options include Ignore and Fail. Ignore does nothing; Fail provides the client with an update that indicates failure. The default setting is Ignore.

Channel Properties — Write Optimizations

The server must ensure that the data written from the client application gets to the device on time. Given this goal, the server provides optimization properties to meet specific needs or improve application responsiveness.

Write Optimizations

Optimization Method: Controls how write data is passed to the underlying communications driver. The options are:

- **Write All Values for All Tags**: This option forces the server to attempt to write every value to the controller. In this mode, the server continues to gather write requests and add them to the server's internal write queue. The server processes the write queue and attempts to empty it by writing data to the device as quickly as possible. This mode ensures that everything written from the client applications is sent to the target device. This mode should be selected if the write operation order or the write item's content must uniquely be seen at the target device.
- **Write Only Latest Value for Non-Boolean Tags**: Many consecutive writes to the same value can accumulate in the write queue due to the time required to actually send the data to the device. If the

server updates a write value that has already been placed in the write queue, far fewer writes are needed to reach the same final output value. In this way, no extra writes accumulate in the server's queue. When the user stops moving the slide switch, the value in the device is at the correct value at virtually the same time. As the mode states, any value that is not a Boolean value is updated in the server's internal write queue and sent to the device at the next possible opportunity. This can greatly improve the application performance.

Note: This option does not attempt to optimize writes to Boolean values. It allows users to optimize the operation of HMI data without causing problems with Boolean operations, such as a momentary push button.

- **Write Only Latest Value for All Tags**: This option takes the theory behind the second optimization mode and applies it to all tags. It is especially useful if the application only needs to send the latest value to the device. This mode optimizes all writes by updating the tags currently in the write queue before they are sent. This is the default mode.

Duty Cycle: is used to control the ratio of write to read operations. The ratio is always based on one read for every one to ten writes. The duty cycle is set to ten by default, meaning that ten writes occur for each read operation. Although the application is performing a large number of continuous writes, it must be ensured that read data is still given time to process. A setting of one results in one read operation for every write operation. If there are no write operations to perform, reads are processed continuously. This allows optimization for applications with continuous writes versus a more balanced back and forth data flow.

Note: It is recommended that the application be characterized for compatibility with the write optimization enhancements before being used in a production environment.

Channel Properties — Advanced

This group is used to specify advanced channel properties. Not all drivers support all properties; so the Advanced group does not appear for those devices.

Non-Normalized Float Handling: A non-normalized value is defined as Infinity, Not-a-Number (NaN), or as a Denormalized Number. The default is Replace with Zero. Drivers that have native float handling may default to Unmodified. Non-normalized float handling allows users to specify how a driver handles non-normalized IEEE-754 floating point data. Descriptions of the options are as follows:

- **Replace with Zero**: This option allows a driver to replace non-normalized IEEE-754 floating point values with zero before being transferred to clients.
- **Unmodified**: This option allows a driver to transfer IEEE-754 denormalized, normalized, non-number, and infinity values to clients without any conversion or changes.

Note: This property is not available if the driver does not support floating-point values or if it only supports the option that is displayed. According to the channel's float normalization setting, only real-time driver tags (such as values and arrays) are subject to float normalization. For example, EFM data is not affected by this setting.

For more information on the floating-point values, refer to "How To ... Work with Non-Normalized Floating-Point Values" in the server help.

Inter-Device Delay: Specify the amount of time the communications channel waits to send new requests to the next device after data is received from the current device on the same channel. Zero (0) disables the delay.

● **Note:** This property is not available for all drivers, models, and dependent settings.

Channel Properties — Communication Serialization

The server's multi-threading architecture allows channels to communicate with devices in parallel. Although this is efficient, communication can be serialized in cases with physical network restrictions (such as Ethernet radios). Communication serialization limits communication to one channel at a time within a virtual network.

The term "virtual network" describes a collection of channels and associated devices that use the same pipeline for communications. For example, the pipeline of an Ethernet radio is the client radio. All channels using the same client radio associate with the same virtual network. Channels are allowed to communicate each in turn, in a "round-robin" manner. By default, a channel can process one transaction before handing communications off to another channel. A transaction can include one or more tags. If the controlling channel contains a device that is not responding to a request, the channel cannot release control until the transaction times out. This results in data update delays for the other channels in the virtual network.

Property Groups	Channel-Level Settings	
	Virtual Network	None
General	Transactions per Cycle	1
Serial Communications	Global Settings	
Communication Serialization	Network Mode	Load Balanced

Channel-Level Settings

Virtual Network: Specify the channel's mode of communication serialization. Options include None and Network 1 - Network 500. The default is None. Descriptions of the options are as follows:

- **None**: This option disables communication serialization for the channel.
- **Network 1 - Network 500**: This option specifies the virtual network to which the channel is assigned.

Transactions per Cycle: Specify the number of single blocked/non-blocked read/write transactions that can occur on the channel. When a channel is given the opportunity to communicate, this is the number of transactions attempted. The valid range is 1 to 99. The default is 1.

Global Settings

Network Mode: This property is used to control how channel communication is delegated. In **Load Balanced** mode, each channel is given the opportunity to communicate in turn, one at a time. In **Priority** mode, channels are given the opportunity to communicate according to the following rules (highest to lowest priority):

1. Channels with pending writes have the highest priority.

2. Channels with pending explicit reads (through internal plug-ins or external client interfaces) are prioritized based on the read's priority.

3. Scanned reads and other periodic events (driver specific).

The default is Load Balanced and affects *all* virtual networks and channels.
🔶 Devices that rely on unsolicited responses should not be placed in a virtual network. In situations where communications must be serialized, it is recommended that Auto-Demotion be enabled.

Due to differences in the way that drivers read and write data (such as in single, blocked, or non-blocked transactions); the application's Transactions per cycle property may need to be adjusted. When doing so, consider the following factors:

- How many tags must be read from each channel?
- How often is data written to each channel?
- Is the channel using a serial or Ethernet driver?
- Does the driver read tags in separate requests, or are multiple tags read in a block?
- Have the device's Timing properties (such as Request timeout and Fail after *x* successive timeouts) been optimized for the virtual network's communication medium?

Device Properties — General

A device represents a single target on a communications channel. If the driver supports multiple controllers, users must enter a device ID for each controller.

Property Groups	Identification	
General	Name	
Scan Mode	Description	
	Channel Assignment	
	Driver	
	Model	
	ID Format	Decimal
	ID	2

Identification

Name: Specify the name of the device. It is a logical user-defined name that can be up to 256 characters long and may be used on multiple channels.

🔘 **Note**: Although descriptive names are generally a good idea, some OPC client applications may have a limited display window when browsing the OPC server's tag space. The device name and channel name become part of the browse tree information as well. Within an OPC client, the combination of channel name and device name would appear as "ChannelName.DeviceName".
🔷 *For more information, refer to "How To... Properly Name a Channel, Device, Tag, and Tag Group" in server help.*

Description: Specify the user-defined information about this device.
🟢 Many of these properties, including Description, have an associated system tag.

Channel Assignment: Specify the user-defined name of the channel to which this device currently belongs.

Driver: Selected protocol driver for this device.

Model: Specify the type of device that is associated with this ID. The contents of the drop-down menu depend on the type of communications driver being used. Models that are not supported by a driver are dis-

abled. If the communications driver supports multiple device models, the model selection can only be changed when there are no client applications connected to the device.

🔘 **Note:** If the communication driver supports multiple models, users should try to match the model selection to the physical device. If the device is not represented in the drop-down menu, select a model that conforms closest to the target device. Some drivers support a model selection called "Open," which allows users to communicate without knowing the specific details of the target device. For more information, refer to the driver help documentation.

ID: Specify the device's driver-specific station or node. The type of ID entered depends on the communications driver being used. For many communication drivers, the ID is a numeric value. Drivers that support a Numeric ID provide users with the option to enter a numeric value whose format can be changed to suit the needs of the application or the characteristics of the selected communications driver. The format is set by the driver by default. Options include Decimal, Octal, and Hexadecimal.

🔘 **Note**: If the driver is Ethernet-based or supports an unconventional station or node name, the device's TCP/IP address may be used as the device ID. TCP/IP addresses consist of four values that are separated by periods, with each value in the range of 0 to 255. Some device IDs are string based. There may be additional properties to configure within the ID field, depending on the driver. *For more information, refer to the driver's help documentation.*

Operating Mode

Property Groups		Identification	
General	⊟	**Operating Mode**	
Scan Mode		Data Collection	Enable
		Simulated	No

Data Collection: This property controls the device's active state. Although device communications are enabled by default, this property can be used to disable a physical device. Communications are not attempted when a device is disabled. From a client standpoint, the data is marked as invalid and write operations are not accepted. This property can be changed at any time through this property or the device system tags.

Simulated: Place the device into or out of Simulation Mode. In this mode, the driver does not attempt to communicate with the physical device, but the server continues to return valid OPC data. Simulated stops physical communications with the device, but allows OPC data to be returned to the OPC client as valid data. While in Simulation Mode, the server treats all device data as reflective: whatever is written to the simulated device is read back and each OPC item is treated individually. The item's memory map is based on the group Update Rate. The data is not saved if the server removes the item (such as when the server is reinitialized). The default is No.

🔘 **Notes:**

1. This System tag (_Simulated) is read only and cannot be written to for runtime protection. The System tag allows this property to be monitored from the client.

2. In Simulation mode, the item's memory map is based on client update rate(s) (Group Update Rate for OPC clients or Scan Rate for native and DDE interfaces). This means that two clients that reference the same item with different update rates return different data.

🔶 Simulation Mode is for test and simulation purposes only. It should never be used in a production environment.

Device Properties — Scan Mode

The Scan Mode specifies the subscribed-client requested scan rate for tags that require device communications. Synchronous and asynchronous device reads and writes are processed as soon as possible; unaffected by the Scan Mode properties.

☐ **Scan Mode**	
Scan Mode	Respect Client-Specified Scan Rate ▾
Initial Updates from Cache	Disable

Property Groups
- General
- **Scan Mode**

Scan Mode: Specify how tags in the device are scanned for updates sent to subscribing clients. Descriptions of the options are:

- **Respect Client-Specified Scan Rate**: This mode uses the scan rate requested by the client.
- **Request Data No Faster than Scan Rate**: This mode specifies the value set as the maximum scan rate. The valid range is 10 to 99999990 milliseconds. The default is 1000 milliseconds.
  ⬤ **Note**: When the server has an active client and items for the device and the scan rate value is increased, the changes take effect immediately. When the scan rate value is decreased, the changes do not take effect until all client applications have been disconnected.
- **Request All Data at Scan Rate**: This mode forces tags to be scanned at the specified rate for subscribed clients. The valid range is 10 to 99999990 milliseconds. The default is 1000 milliseconds.
- **Do Not Scan, Demand Poll Only**: This mode does not periodically poll tags that belong to the device nor perform a read to get an item's initial value once it becomes active. It is the OPC client's responsibility to poll for updates, either by writing to the _DemandPoll tag or by issuing explicit device reads for individual items. *For more information, refer to "Device Demand Poll" in server help*.
- **Respect Tag-Specified Scan Rate**: This mode forces static tags to be scanned at the rate specified in their static configuration tag properties. Dynamic tags are scanned at the client-specified scan rate.

Initial Updates from Cache: When enabled, this option allows the server to provide the first updates for newly activated tag references from stored (cached) data. Cache updates can only be provided when the new item reference shares the same address, scan rate, data type, client access, and scaling properties. A device read is used for the initial update for the first client reference only. The default is disabled; any time a client activates a tag reference the server attempts to read the initial value from the device.

Device Properties — Timing

The device Timing properties allow the driver's response to error conditions to be tailored to fit the application's needs. In many cases, the environment requires changes to these properties for optimum performance. Factors such as electrically generated noise, modem delays, and poor physical connections can influence how many errors or timeouts a communications driver encounters. Timing properties are specific to each configured device.

☐ **Communication Timeouts**	
Connect Timeout (s)	3
Connect Attempts	3
Request Timeout (ms)	1000
Attempts Before Timeout	3
☐ **Timing**	
Inter-Request Delay (ms)	0

Property Groups
- General
- Scan Mode
- Ethernet Encapsulation
- **Timing**
- Auto-Demotion
- Tag Generation

Communications Timeouts

Connect Timeout: This property (which is used primarily by Ethernet based drivers) controls the amount of time required to establish a socket connection to a remote device. The device's connection time often takes longer than normal communications requests to that same device. The valid range is 1 to 30 seconds. The default is typically 3 seconds, but can vary depending on the driver's specific nature. If this setting is not supported by the driver, it is disabled.

● **Note**: Due to the nature of UDP connections, the connection timeout setting is not applicable when communicating via UDP.

Connect Attempts: This property (which is used primarily by some Ethernet Encapsulation based drivers) limits the number of times a connection between the driver and the target device can be attempted. If the limit is reached, the connection request has failed. The Connect Timeout property specifies the time interval between connection attempts. The valid range is 1 to 10 attempts. The default is 3 attempts. If this setting is not supported by the driver, it is disabled.

Request Timeout: This property specifies an interval used by all drivers to determine how long the driver waits for a response from the target device to complete. The valid range is 50 to 9,999,999 milliseconds (167.6667 minutes). The default is usually 1000 milliseconds, but can vary depending on the driver. The default timeout for most serial drivers is based on a baud rate of 9600 baud or better. When using a driver at lower baud rates, increase the timeout to compensate for the increased time required to acquire data.

Attempts Before Timeout: This property specifies how many times the driver issues a communications request before considering the request to have failed and the device to be in error. The valid range is 1 to 10. The default is typically 3, but can vary depending on the driver's specific nature. The number of attempts configured for an application depends largely on the communications environment. This property applies to both connection attempts and request attempts.

Timing

Inter-Request Delay: This property specifies how long the driver waits before sending the next request to the target device. It overrides the normal polling frequency of tags associated with the device, as well as one-time reads and writes. This delay can be useful when dealing with devices with slow turnaround times and in cases where network load is a concern. Configuring a delay for a device affects communications with all other devices on the channel. It is recommended that users separate any device that requires an inter-request delay to a separate channel if possible. Other communications properties (such as communication serialization) can extend this delay. The valid range is 0 to 300,000 milliseconds; however, some drivers may limit the maximum value due to a function of their particular design. The default is 0, which indicates no delay between requests with the target device.

● **Note**: Not all drivers support Inter-Request Delay. This setting does not appear if it is not available.

Device Properties — Auto-Demotion

The Auto-Demotion properties can temporarily place a device off-scan in the event that a device is not responding. By placing a non-responsive device offline for a specific time period, the driver can continue to optimize its communications with other devices on the same channel. After the time period has been reached, the driver re-attempts to communicate with the non-responsive device. If the device is responsive, the device is placed on-scan; otherwise, it restarts its off-scan time period.

Property Groups	Auto-Demotion	
General	Demote on Failure	**Enable**
Scan Mode	Timeouts to Demote	3
Timing	Demotion Period (ms)	10000
Auto-Demotion	Discard Requests when Demoted	Disable

Demote on Failure: When enabled, the device is automatically taken off-scan until it is responding again.

🟢 **Tip**: Determine when a device is off-scan by monitoring its demoted state using the _AutoDemoted system tag.

Timeouts to Demote: Specify how many successive cycles of request timeouts and retries occur before the device is placed off-scan. The valid range is 1 to 30 successive failures. The default is 3.

Demotion Period: Indicate how long the device should be placed off-scan when the timeouts value is reached. During this period, no read requests are sent to the device and all data associated with the read requests are set to bad quality. When this period expires, the driver places the device on-scan and allows for another attempt at communications. The valid range is 100 to 3600000 milliseconds. The default is 10000 milliseconds.

Discard Requests when Demoted: Select whether or not write requests should be attempted during the off-scan period. Disable to always send write requests regardless of the demotion period. Enable to discard writes; the server automatically fails any write request received from a client and does not post a message to the Event Log.

Device Properties — Tag Generation

The automatic tag database generation features make setting up an application a plug-and-play operation. Select communications drivers can be configured to automatically build a list of tags that correspond to device-specific data. These automatically generated tags (which depend on the nature of the supporting driver) can be browsed from the clients.

🟢 *Not all devices and drivers support full automatic tag database generation and not all support the same data types. Consult the data types descriptions or the supported data type lists for each driver for specifics.*

If the target device supports its own local tag database, the driver reads the device's tag information and uses the data to generate tags within the server. If the device does not natively support named tags, the driver creates a list of tags based on driver-specific information. An example of these two conditions is as follows:

1. If a data acquisition system supports its own local tag database, the communications driver uses the tag names found in the device to build the server's tags.

2. If an Ethernet I/O system supports detection of its own available I/O module types, the communications driver automatically generates tags in the server that are based on the types of I/O modules plugged into the Ethernet I/O rack.

🟢 **Note**: Automatic tag database generation's mode of operation is completely configurable. *For more information, refer to the property descriptions below.*

Property Groups	⊟ **Tag Generation**	
General	On Property Change	Yes
Scan Mode	On Device Startup	Do Not Generate on Startup
Timing	On Duplicate Tag	Delete on Create
Auto-Demotion	Parent Group	
Tag Generation	Allow Automatically Generated Subgroups	Enable
Redundancy	Create	Create tags

On Property Change: If the device supports automatic tag generation when certain properties change, the **On Property Change** option is shown. It is set to **Yes** by default, but it can be set to **No** to control over when tag generation is performed. In this case, the **Create tags** action must be manually invoked to perform tag generation. To invoke via the Configuration API service, access /config/v1/project/channels/{name}/devices/{name}/services/TagGeneration.

On Device Startup: Specify when OPC tags are automatically generated. Descriptions of the options are as follows:

- **Do Not Generate on Startup**: This option prevents the driver from adding any OPC tags to the tag space of the server. This is the default setting.
- **Always Generate on Startup**: This option causes the driver to evaluate the device for tag information. It also adds tags to the tag space of the server every time the server is launched.
- **Generate on First Startup**: This option causes the driver to evaluate the target device for tag information the first time the project is run. It also adds any OPC tags to the server tag space as needed.

⚙ **Note**: When the option to automatically generate OPC tags is selected, any tags that are added to the server's tag space must be saved with the project. Users can configure the project to automatically save from the **Tools | Options** menu.

On Duplicate Tag: When automatic tag database generation is enabled, the server needs to know what to do with the tags that it may have previously added or with tags that have been added or modified after the communications driver since their original creation. This setting controls how the server handles OPC tags that were automatically generated and currently exist in the project. It also prevents automatically generated tags from accumulating in the server.

For example, if a user changes the I/O modules in the rack with the server configured to **Always Generate on Startup**, new tags would be added to the server every time the communications driver detected a new I/O module. If the old tags were not removed, many unused tags could accumulate in the server's tag space. The options are:

- **Delete on Create**: This option deletes any tags that were previously added to the tag space before any new tags are added. This is the default setting.
- **Overwrite as Necessary**: This option instructs the server to only remove the tags that the communications driver is replacing with new tags. Any tags that are not being overwritten remain in the server's tag space.
- **Do not Overwrite**: This option prevents the server from removing any tags that were previously generated or already existed in the server. The communications driver can only add tags that are completely new.
- **Do not Overwrite, Log Error**: This option has the same effect as the prior option, and also posts an error message to the server's Event Log when a tag overwrite would have occurred.

Note: Removing OPC tags affects tags that have been automatically generated by the com-
munications driver as well as any tags that have been added using names that match generated tags.
Users should avoid adding tags to the server using names that may match tags that are automatically
generated by the driver.

Parent Group: This property keeps automatically generated tags from mixing with tags that have been
entered manually by specifying a group to be used for automatically generated tags. The name of the group
can be up to 256 characters. This parent group provides a root branch to which all automatically generated
tags are added.

Allow Automatically Generated Subgroups: This property controls whether the server automatically cre-
ates subgroups for the automatically generated tags. This is the default setting. If disabled, the server gen-
erates the device's tags in a flat list without any grouping. In the server project, the resulting tags are named
with the address value. For example, the tag names are not retained during the generation process.
Note: If, as the server is generating tags, a tag is assigned the same name as an existing tag, the system
automatically increments to the next highest number so that the tag name is not duplicated. For example, if
the generation process creates a tag named "AI22" that already exists, it creates the tag as "AI23" instead.

Create: Initiates the creation of automatically generated OPC tags. If the device's configuration has been
modified, **Create tags** forces the driver to reevaluate the device for possible tag changes. Its ability to be
accessed from the System tags allows a client application to initiate tag database creation.
Note: **Create tags** is disabled if the Configuration edits a project offline.

Device Properties — Communications

Property Groups	Communications	
General	Dynagraph Acquisition	Function 16
Scan Mode	Dynagraph Position Inclusion and Type	Actual Position Valu...
Timing	Individual Parameters Per Command	40
Communications	Contiguous Parameters Per Command	64

Dynagraph Acquisition: This property specifies the Dynagraph Acquisition Function for 8750 and
8500/8650 models. The default setting is Function 16, which is used exclusively for all other models. To
determine the Function Codes available to a specific device model, refer to the "Firmware Versions" table in
Setup.

Dynagraph Position Inclusion and Type: This property indicates how the Dynagraph Position Inclusion
and Type parameter is set. The default setting is **Actual Position Values**.

- **Actual Position Values**: sets the Dynagraph Position Inclusion and Type parameter in the device to
  "F".
- **Synthesized Position Values**: sets the Dynagraph Position Inclusion and Type parameter in the
  device to "S".
- **Monitor P619**: sends a request to the RTU for the value stored in parameter 619 prior to every Dyna-
  graph request. If P619 is 0, the parameter is set to "S" - for any other value, it is set to "F".
  Note: "S" for fractional synthesized position values returned with each point; "F" for fractional
  actual position values returned with each point.

Individual Parameters per Command: This property specifies the maximum number of properties that
can be requested for Function Code 8 read requests and written for Function Code 12 write requests. It only
applies to Parameter Tags. The default setting is 40.

 Note: Function Code 8 read requests are not issued if the **Contiguous Parameters per Command** property is greater than 1.

Contiguous Parameters per Command: This property specifies the maximum number of properties that will be requested for Function Code 9 read requests. The default setting is 64.

 Notes:

1. Function Code 9 read requests are not issued when the value is set to 1. Function Code 8 read requests are issued using the **Individual Parameters per Command** property.

2. If receiving Event Log messages with negative exception codes, set this property to 1 and attempt communications again.

Device Properties — Redundancy

Property Groups	Redundancy	
General	Secondary Path	**Channel.Device1** ...
Scan Mode	Operating Mode	Switch On Failure
Timing	Monitor Item	
Auto-Demotion	Monitor Interval (s)	300
Tag Generation	Return to Primary ASAP	Yes
Tag Import Settings		
Redundancy		

Redundancy is available with the Media-Level Redundancy Plug-In.

 *Consult the website, a sales representative, or the **user manual** for more information.*

Data Types Description

Data Type	Description	8500 Native Type
Byte	Unsigned 8-bit value	Byte
Word	Unsigned 16-bit value	Word
Short	Signed 16-bit value	SWord
DWord	Unsigned 32-bit value	Long, Time, Time24, and Date.
Float	32-bit floating point value	Float
String	Null terminated ASCII string	Command and Display.*

* Display parameters vary in size. The current maximum size for a display parameter is 16 characters.

Address Descriptions

For more information, select a link from the list below.

Function Items
Buffer Items
Command Items
Well Command Items
Dynagraph and Xdynagraph10 Items
Surface and Downhole Items
Parameter Items

Parameter Listings

Parameter listings vary according to device model and can vary by firmware version. For more information on a specific device model, consult the Weatherford reference materials first as they are the official source and authority.
The information provided here is for guidance only. To view the material, select a link from the list below.

WellPilot RPOC Parameter Listings

WellPilot/ePIC VSD Parameter Listings

ePIC RPC Parameter Listings

M2000 Parameter Listings

8800 Parameter Listings

8750 and 8500/8650 Parameter Listings

Function Items

The Weatherford 8500 Driver provides support for executing function codes.

Data Item	Data Type	Access	Description
Function.Code	Short	Write Only	Writing a number to this item causes the corresponding function to be executed.
Function.Parameters	String	Read/Write	The string written to this item will be transmitted as command parameters when the function is executed.
Function.Result	Short	Read Only	The result of the function.
Function.ResultData	String	Read Only	If the function returns data, it will be placed into the value of this item.

Function Codes

Decimal	Hex	Description
0	00	Remote keyboard/display
1	01	Request parameter information
3	03	Request load scaling parameters*
4	04	Force a message to be displayed

Decimal	Hex	Description
5	05	Request pump on well data buffer*
6	06	Request present well data buffer*
7	07	Request pump off well data buffer*
8	08	Request values of individually selected parameters
9	09	Request values of a contiguous parameter group
10	0A	Request values of a predefined parameter group
11	0B	Clear all logged errors from the device
12	0C	Write values of individually selected parameters
13	0D	Write values of a contiguous parameter group
14	0E	Write values of a predefined parameter group
15	0F	Execute a Command parameter
16	10	Request well data buffer expanded function*
17	11	Force well into idle time*
18	12	Turn well on*
19	13	Remote rolling display
20	14	N/A
21	15	N/A
24	18	Event directory retrieval
25	19	Surface and downhole card retrieval
255	FF	Request ID (device type and firmware version)

* Rod pump controller specific code.

Buffer Items

Buffer Items allow for the retrieval of buffered information as returned by the selected dynagraph acquisition method. Users can select to obtain the dynagraphs using function 16 or functions 5, 6, and 7 through the Dynagraph Acquisition property (located in **Device Properties** | **Communications**). This operation is performed by writing values to Buffer items, then writing a non-zero value to the Buffer.Trigger data item.

This buffer may also be polled at regular intervals by writing a non-zero value to the Buffer.Polled data item.

Data Item	Data Type	Access	Description
Buffer.Identifier	String	Read/Write	A string containing a single character representing the buffer identifier. It may be one of the following: N: Pump On P: Present S: Shutdown The default setting is N.
Buffer.LoadType	String	Read/Write	Specifies the format of load data returned. It

Data Item	Data Type	Access	Description
			may be one of the following: P: Pounds F: Fractional The default setting is P.
Buffer.FormattedLoadPrecision	String	Read/Write	If LoadType is in pounds, this value represents the precision of load value. It may be 3: 3 hex digits. The default setting is 3.
Buffer.PositionInclusionAndType	String	Read/Write	Determines the format of returned position data values. It may be one of the following: V: Voltage values. S: Fractional synthesized position values. F: Fractional actual position values. The default setting is F.
Buffer.FormattedPositionPrecision	String	Read/Write	If PositionInclusionAndType is set to "F," this value represents the precision of position values. It may be 3: 3 hex digits. The default setting is 3.
Buffer.NumberOfCycles	Short	Read/Write	The number of cycles the device will copy into the buffer. If this value is set to zero, the server will attempt to copy all available data. The default setting is 1.
Buffer.CycleMarkingCharacter	String	Read/Write	Specifies where the well cycles are marked. This item is ignored if NumberOfCycles is zero, and PositionInclusionAndType is "F". It may be B: Start and/or mark copied well cycles at bottom of stroke. The default setting is B.
Buffer.OverlapFlag	String	Read/Write	Specifies the amount of data overlap since the last read. It may be N: No overlap. The default setting is N.
Buffer.MaxMsgDatapoints	Short	Read/Write	Maximum number of data points to return in a message. The valid range is 60 to 280. The default setting is 80.
Buffer.Trigger	Short	Write Only	Writing a non-zero value to this item triggers the retrieval of buffered data according to the values in parameter items. **Note:** The write will fail if the .Polled item is non-zero.
Buffer.Polled	Short	Read/Write	Writing to this item enables or disables polling. When set to a non-zero value, polling will be enabled. When set to zero, polling will be disabled. The default setting is 0.

Data Item	Data Type	Access	Description
			Note: When polling is enabled, reads will update the output items .Load, .Position, and .Result.
Buffer.Load	Array, DWord	Read Only	Array of load value returned by the buffer function. The size of the array returned equals the number of points returned by Function Code 16. **Note:** No data is indicated by a single value of 0x80000000.
Buffer.Position	Array, DWord	Read Only	Array of position values returned by the buffer function. The size of the array returned equals the number of points returned by Function Code 16. **Note:** No data is indicated by a single value of 0x80000000.
Buffer.Result	Short	Read Only	The result code of the function.

Command Items

These data items provide support for function 15. They allow a client to execute a Command parameter.

Data Item	Data Type	Access	Description
Command.Value	Long	Read/Write	Writing a value to this item will trigger a command parameter item. The value written to this item must be the number of the command parameter item.
Command.Result	Short	Read Only	The result code of this function.
Command.ResultData	String	Read Only	The data returned by the command.

Well Command Items

Well Command Items enables users to execute the commands used to turn a well on or force it into idle time.

Data Item	Data Type	Access	Description
ClearError	Boolean	Write Only	Supports function 11: Clear all logged errors from device. When written to, the server sends function 11 to the device.
IdleCommand	Boolean	Write Only	Implements function 17: Force well into idle time. When written to, the server sends function 17 to the device.
RunCommand	Boolean	Write Only	Supports function 18: Turn well on. When written to, the server sends function 18 to the device.

Dynagraph and Xdynagraph10 Items

The Dynagraph data item consists of an Array of DWords. The item syntax is *Dynagraph:(ST,SH,LA):(P,L)*
[:NumCycles[:MaxPoints[:StartingIndex]]]. For more information on the format of the array, refer to the table
below.

Dynagraph Parameters

Parameters	Description
ST, SH, LA	Collection time ST: Startup SH: Shutdown LA: Live Action
P, L	Card Type P: Percentage L: Load
Num Cycles	Number of cycles the device will copy into the buffer. This is optional. The valid range is 0 to 255. (DEFAULT - 0 = all available data)
Max Points	Maximum number of points the device will transmit in a single message. This is optional. The valid range is 60 to 280. The default setting is 80.
Starting Index	Index of the starting point to be copied from the device. This is optional. The valid range is 0 to 4095. (DEFAULT - 0 = start at the beginning of the data)

Event/Fault Retrieval

The Weatherford 8500 Driver can retrieve a list of faults or events and supply them in Array of Long format.
The following syntax can be used to retrieve this list: *Xdynagraph10:(E,F):GetDirectory*.

Parameters	Description
Xdynagraph10	The version of the extension protocol to use
E, F	Buffer Type E: Event/alarm buffer F: Fault buffer

The array of values returned for this item are formatted as follows:

Index	Value	Data Types
0	Timestamp Date	Long
1	Timestamp Time	Long
2	Reason Code	Long
3...	Next Event or Fault	Long

Extended Dynagraph Parameters

Using Function Code 16 Extension Protocol v.1.0, the driver can retrieve the dynagraph card for any given index and supply it in Array of DWord format. The item syntax is *(Xdynagraph10):(E,F):GetCard:Index:(P,L) [:NumofCards[:NumofPoints[:PointStartingIndex]]]*.

Parameters	Description
Xdynagraph10	The version of the extension protocol to use
E, F	Buffer Type E: Event/alarm buffer F: Fault buffer
Index	Card set index to retrieve Valid range is 0 to 254 for extended protocol v1.0. An index of 0 returns the last recorded event, 1 returns the second last, and so on.
P, L	Card Type P: Percentage L: Load
NumofCards	Number of cycles the device will copy into the buffer. This is optional. The valid range is 0 to 255. (DEFAULT - 0 = all available data)
NumofPoints	Maximum number of points the device will transmit in a single message. This is optional. The valid range is 60 to 280. The default setting is 80.
PointStartingIndex	Index of the starting point to be copied from the device. The valid range is 0 to 4095. (DEFAULT - 0 = start at the beginning of the data)

Dynagraph and Xdynagraph10 Data Format

Index	Value	Data Type	Description
0	3	DWord / String	Dynagraph format version
1	10	DWord / String	Well Data Start Index
2	Number of position points + Number of load points returned	DWord / String	Well Data Length
3	Date or 0	DWord / String	Date if Xdynagraph10; if String, ASCII decimal format
4	Time or 0	DWord / String	Time if Xdynagraph10; if String, ASCII decimal format
5	1: Percent 2: Load	DWord / String	Card Type
6	Dynagraph:	DWord	Collection Time if Dynagraph

Index	Value	Data Type	Description
	1: Startup 2: Shutdown 4: Live Action Xdynagraph10: 5: Event/Alarm 6: Fault	/ String	Buffer Type if Xdynagraph10
7	0	DWord / String	Reserved
8	0	DWord / String	Reserved
9	The 16-bit reason code associated with the event or 0	DWord / String	Reason Code if Xdynagraph10
Well Data First Position Index	Value of the first position point	DWord / String	Well Data First Position Point. Index is equal to Well Data Start Index.
Well Data First Load Index	Value of the first load point	DWord / String	Well Data First Load Point Index is equal to Well Data Start Index + 1.
...			
Well Data Last Position Index	Value of the last position point	DWord / String	Well Data Last Position Point Index is equal to Well Data Start Index + Well Data Length - 2.
Well Data Last Load Index	Value of the last load point	DWord / String	Well Data Last Load Point Index is equal to Well Data Start Index + Well Data Length - 1.

Date and Time Formatting Examples

Date: 03/29/2016 Time: 2:08:14 PM

Address	Data Type	Example
Xdynagraph10:E:GetCard:0:P:0:60:0	DWord Array	[3,10,0,1049373,919566,2,5,0,0,65535]
Xdynagraph10:E:GetCard:0:P:0:60:0	String Array	[3,10,0,160329,140814,2,5,0,0,65535]

Surface and Downhole Items

Event Directory Retrieval

The Weatherford 8500 Driver can retrieve a list of fault, alarm, or plain events using Function code 24 and supply them in an Array of DWord format. The item syntax is *EventDirectory:(F,A,P)[:MaxEvents]*.

Parameter	Description
F, A, P	Event Type. F: Fault Events A: Alarm Events

Parameter	Description
	P: Plain Events
MaxEvents	The maximum number of events to return in each protocol packet response. The range is 20 to 100. The default setting is 30.

The array of values returned for this item are formatted as follows:

Index	Value	Data Type
0	Event Identification Number (ID) for Event 1.	DWord
1	Reason Code for Event 1.	DWord
2	Event Timestamp for Event 1.	DWord
3	Number of cards stored with the event for Event 1.	DWord
4	Downhole data available for Event 1.	DWord
5...	Next Event Data (up to 256 events).	DWord

Note: If no events are available, a single event will be returned to indicate as much. It will be formatted as displayed in the table below.

Index	Value	Data Type
0	Event Identification Number (Id) = 0xFFFF0000	DWord
1	Reason Code = 0x0000FFFF	DWord
2	Event Timestamp = 0	DWord
3	Number of cards = 0	DWord
4	Downhole data available = 0	DWord

Surface and Downhole Card Retrieval

The Weatherford 8500 Driver can retrieve Surface and Downhole data using Function code 25 and supply it in an Array of DWord format. The item syntax is *SurfaceAndDownhole:(ST,SH,LA,EV):(S,D):EventId:NumStrokes [:MaxPoints]*.

Parameter	Description
ST, SH, LA, EV	Card Type. ST: Startup SH: Shutdown LA: Live Action EV: Event
S, D, B	Location. S: Surface D: Downhole B: Both Surface and Downhole
EventID	Event Identifier. Identifies an event from the event buffer directory or a card set from a previous card request. The range is 0 to 4095.

Parameter	Description
NumStrokes	Number of strokes of data to return. The range is 0 to 5.
MaxPoints	Maximum number of data points to return in each response. The range is 60 to 280. The default setting is 80.

The array of values returned for this item are formatted as follows:

Note: There is the same number of points in the surface and downhole cards for each card.

Index	Value	Data Type
0	Event header.Event Id	DWord
1	Event header.Reason Code	DWord
2	Event header.Timestamp	DWord
3	Event header.card count	DWord
4	Event header.Load Scaling Index	DWord
5	Card #1 header.Data Count	DWord
6	Card #1 header.Original Data Count	DWord
7	Card #1 header.Skip Factor	DWord
8	Card #1 header.Load Offset	DWord
9	Card #1 header.Pump Fillage	DWord
10	Card #1 header.Flags	DWord
11...	Next Card header up to Event header.card count Card headers.	
Index = 5 + (Event header.card count * 6)	Card #1 Data, Position #1	DWord
Index = 5 + (Event header.card count * 6) + 1	Card #1 Data, Load #1	DWord
	...	DWord
	Card #1 Data, Position # header.Data Count	DWord
	Card #1 Data, Load # header.Data Count	DWord
	Last Card # Data, Position #1	DWord
	Last Card # Data, Load #1	DWord
	...	
	Last Card # Data, Position # header.Data Count	DWord
	Last Card # Data, Load # header.Data Count	DWord
	Card #1 Downhole Data, Position #1	DWord
	Card #1 Downhole Data, Load #1	DWord
	...	
	Card #1 Downhole Data, Position # header.Data Count	DWord
	Card #1 Downhole Data, Load # header.Data Count	DWord
	Last Card # Downhole Data, Position #1	DWord

Index	Value	Data Type
	Last Card # Downhole Data, Load #1	DWord
	...	
	Last Card # Downhole Data, Position # header.Data Count	DWord
	Last Card # Downhole Data, Load # header.Data Count	DWord

Notes:

1. Card Data will be either Surface or Downhole if Location is S or D.

2. Card Downhole Data will only be present if Location is B.

3. If an invalid Event ID is supplied when using Card Type EV, an event header will be returned to indicate as much. It will be formatted as displayed in the table below.

Index	Value	Data Type
0	Event header.Event Id = 0xFFFF0000	DWord
1	Event header.Reason Code = 0x0000FFFF	DWord
2	Event header.Timestamp = 0	DWord
3	Event header.card count = 0	DWord
4	Event header.Load Scaling Index = 0	DWord

Parameter Items

Parameter items allow access to device parameters. The syntax for a parameter item is *Param:xxxxx.Value [;Specifier],* where "xxxxx" represents the parameter number to be accessed and "Specifier" is one of the following identifiers:

Data Item	Data Type	Access	Description
Param:xxxxx.Value	String	*	The HEX raw data value for this parameter
Param:xxxxx.Value;S	Short	*	2-byte signed integer
Param:xxxxx.Value;B	Byte	*	1-byte unsigned integer
Param:xxxxx.Value;W	Word	*	2-byte unsigned integer
Param:xxxxx.Value;L	DWord	*	4-byte unsigned integer
Param:xxxxx.Value;F	Float	*	32-bit floating point number
Param:xxxxx.Value;TS	DWord	*	3-byte timestamp, stored as the number of seconds since midnight
Param:xxxxx.Value;TH	DWord	*	Decimal data value for time parameter
	String	*	Time as an ASCII decimal string in HHMMSS
Param:xxxxx.Value;DH	DWord	*	Decimal data value for time parameter
	String	*	Date as an ASCII decimal string in YYMMDD

* Access varies according to the parameter number. Users must look at the parameter listings to find the access for the parameter that is to be obtained. For example, when looking at Parameters 1-300, parameter 1 is Read/Write and parameter 5 is Read Only. For more information on a specific parameter, refer to **Address Descriptions**.

Date and Time Formatting Examples

Model WellPilot RPOC
Param:00003 is current time, example 02:17:24 PM with the data bit representation below.

Address	Data Type	Example
Param:00003.Value	String	0E1118
Param:00003.Value;TH	DWord	921880
Param:00003.Value;TH	String	141724

0000	1110	0001	0001	0001	1000

Model WellPilot RPOC
Param:00004 is date, example 03/28/2016 with the data bit representation below.

Address	Data Type	Example
Param:00004.Value	String	10031C
Param:00004.Value;DH	DWord	1049372
Param:00004.Value;DH	String	160328

0001	0000	0000	0011	0001	11000

Array Support

Arrays are allowed for all data type format specifiers, and are Read Only. The array syntax is *Param:xxxxx.Value;Specifier[Size]*. Examples of the syntax are as follows:

Param:00054.Value;B[2]
Param:00930.Value;W[30]

⬤ **Notes:**

1. All arrays are two-dimensional. Size specifies the number of columns; a row size of 1 is implicit. Size cannot exceed 225. For example, "Param:xxx.Value;W[20]" will be returned as an Array of Words with dimensions "[1][20]".

2. All items in array must have the same native 8500 data type. If all items do not have the same native 8500 data type when the read is processed, an error will be generated and the quality will be Bad.

Parameter Listings Override

A method to override the check of a parameter address against the parameter listings table within the driver is provided for the following:

1. New parameters that are undefined.

2. Defined parameters that change data type.

The override syntax is *Param:xxxxx.Value [;Specifier];OV* and *Param:xxxxx.Value ;Specifier [Size];OV*. Examples of the syntax are as follows:

1. Param:04000.Value;B;OV. This specifies that parameter 4000 is of type Byte, and that it is not in the driver table. The default access is Read/Write.

2. Param:04010.Value;OV. This specifies that parameter 4010 is of type String, and that it is not in the driver table. The default access is Read/Write.

⬥ **Caution:** The parameter listings override should only be used by advanced users.

Statistics Items

Statistical items use data collected through additional diagnostics information, which is not collected by default. To use statistical items, Communication Diagnostics must be enabled. To enable Communication Diagnostics, right-click on the channel in the Project View and click **Properties | Enable Diagnostics**. Alternatively, double-click on the channel and select **Enable Diagnostics**.

Channel-Level Statistics Items

The syntax for channel-level statistics items is *<channel>._Statistics*.

⬥ **Note:** Statistics at the channel level are the sum of those same items at the device level.

Item	Data Type	Access	Description
_CommFailures	DWord	Read/Write	The total number of times communication has failed (or has run out of retries).
_ErrorResponses	DWord	Read/Write	The total number of valid error responses received.
_Expec-tedResponses	DWord	Read/Write	The total number of expected responses received.
_LastResponseTime	String	Read Only	The time at which the last valid response was received.
_LateData	DWord	Read/Write	The total number of times that a tag is read later than expected (based on the specified scan rate). This value does not increase due to a DNR error state. A tag is not counted as late (even if it was) on the initial read after a communications loss. This is by design.
_MsgResent	DWord	Read/Write	The total number of messages sent as a retry.
_MsgSent	DWord	Read/Write	The total number of messages sent initially.
_MsgTotal	DWord	Read Only	The total number of messages sent (both _MsgSent + _MsgResent).
_PercentReturn	Float	Read Only	The proportion of expected responses (Received) to initial sends (Sent) as a percentage.
_PercentValid	Float	Read Only	The proportion of total valid responses received (_TotalResponses) to total requests sent (_MsgTotal) as a percentage.
_Reset	Bool	Read/Write	Resets all diagnostic counters. Writing to the _Reset Tag causes all diagnostic counters to be reset at this level.
_RespBadCheck-sum	DWord	Read/Write	The total number of responses with checksum errors.
_RespTimeouts	DWord	Read/Write	The total number of messages that failed to receive any kind of response.
_RespTruncated	DWord	Read/Write	The total number of messages that received only a partial response.

Item	Data Type	Access	Description
_TotalResponses	DWord	Read Only	The total number of valid responses received (_ErrorResponses + _ExpectedResponses).

Statistical items are not updated in simulation mode *(see device general properties)*.

Device-Level Statistics Items

The syntax for device-level statistics items is *<channel>.<device>._Statistics*.

Item	Data Type	Access	Description
_CommFailures	DWord	Read/Write	The total number of times communication has failed (or has run out of retries).
_ErrorResponses	DWord	Read/Write	The total number of valid error responses received.
_ExpectedResponses	DWord	Read/Write	The total number of expected responses received.
_LastResponseTime	String	Read Only	The time at which the last valid response was received.
_LateData	DWord	Read/Write	The total number of times that a tag is read later than expected (based on the specified scan rate). This value does not increase due to a DNR error state. A tag is not counted as late (even if it was) on the initial read after a communications loss. This is by design.
_MsgResent	DWord	Read/Write	The total number of messages sent as a retry.
_MsgSent	DWord	Read/Write	The total number of messages sent initially.
_MsgTotal	DWord	Read Only	The total number of messages sent (both _MsgSent + _MsgResent).
_PercentReturn	Float	Read Only	The proportion of expected responses (Received) to initial sends (Sent) as a percentage.
_PercentValid	Float	Read Only	The proportion of total valid responses received (_TotalResponses) to total requests sent (_MsgTotal) as a percentage.
_Reset	Bool	Read/Write	Resets all diagnostic counters. Writing to the _Reset Tag causes all diagnostic counters to be reset at this level.
_RespBadChecksum	DWord	Read/Write	The total number of responses with checksum errors.
_RespTimeouts	DWord	Read/Write	The total number of messages that failed to receive any kind of response.
_RespTruncated	DWord	Read/Write	The total number of messages that received only a partial response.
_TotalResponses	DWord	Read Only	The total number of valid responses received (_ErrorResponses + _ExpectedResponses).

Statistical items are not updated in simulation mode *(see device general properties)*.

WellPilot RPOC Parameter Listings

For information on a specific range of parameters, select a link from the list below.

🔵 *For additional parameter details, refer to the device's User Manual.*

Parameters 1-300

Parameter	8500 Native Type	Access	Description
1	Word	Read/Write	User Password Entry
2	Word	Read/Write	Unit Address (ID)
3	Time24	Read/Write	Current Time of Day *(see examples below)*
4	Date	Read/Write	Today's Date *(see examples below)*
5	Byte	Read Only	Day of the week
6	Command	Read/Write	Manual set TOS
7	Command	Read/Write	Auto set TOS
8	Display	Read Only	TOS to PSW stroke fract
10	Command	Read/Write	Print Parameter List
14	Byte	Read Only	Load units (Lb/Kg)
15	Byte	Read/Write	Date Display Format
16	Byte	Read/Write	Time of Day Format
17	Byte	Read/Write	Elapsed Time Format
18	Command	Read/Write	Show Parameter List
19	Command	Read/Write	Show Parameter Structure
20	Time	Read/Write	Idle time
21	Byte	Read/Write	Pump-off Position %
22	Byte	Read/Write	Pump-off Action
23	Byte	Read/Write	Pump-off Load %
24	Byte	Read/Write	POC strokes for pumpoff
25	Time	Read/Write	Pump-up delay

Parameter	8500 Native Type	Access	Description
26	Byte	Read/Write	POC Method
27	Time	Read/Write	POC Override timer
28	Byte	Read/Write	Ovr timer power up action
29	Byte	Read/Write	Motor speed control type
30	Byte	Read/Write	POC control source
31	Command	Read/Write	Manual off/reset
32	Command	Read/Write	Manual ctrl xfer
33	Command	Read/Write	Manual s/ware timer
34	Byte	Read/Write	Position input source
35	Byte	Read/Write	Load input source
36	Time	Read/Write	Target cycle time
37	Byte	Read/Write	Action for under 50% run
38	Time	Read/Write	Off time limit - maximum
39	Byte	Read/Write	Off time limit enable
40	Byte	Read/Write	% ABC goal value
41	Byte	Read/Write	% ABC dead band value
42	Word	Read Only	Up stroke peak value
43	Word	Read Only	Down stroke peak value
44	Word	Read Only	Peak difference in mV
45	SWord	Read Only	Peak difference in %
46	Word	Read/Write	Air balance purge time
47	Byte	Read/Write	Details on Stat Screen
48	Word	Read/Write	User Def Learn SPM
50	Byte	Read/Write	Peak energy ctrl. enable
51	Time24	Read/Write	Begin run inhibit time
52	Time24	Read/Write	End run inhibit time
53	Time	Read/Write	Power On Restart Delay
54	Byte	Read/Write	Startup Control State
55	Byte	Read/Write	Time to Idle at Startup
56	Byte	Read/Write	Use random startup delay
57	Word	Read Only	Minimum Speed Gauge[0]
58	Word	Read Only	Minimum Speed Gauge[1]
59	Word	Read Only	Minimum Speed Gauge[2]
60	Word	Read Only	Maximum Speed Gauge[0]
61	Word	Read Only	Maximum Speed Gauge[1]
62	Word	Read Only	Maximum Speed Gauge[2]
63	Byte	Read/Write	Strain gauge Target type
64	Byte	Read/Write	Conditions for SG adjust
65	Word	Read/Write	Cycle minimum target

Parameter	8500 Native Type	Access	Description
66	Word	Read/Write	Cycle average target
67	Word	Read/Write	Cycle maximum target
68	Word	Read/Write	SG Load step limit in pounds
69	Word	Read Only	SG Load step limit in uV
70	Command	Read/Write	Set Load Zero
71	Word	Read/Write	Offset in offset mV
72	Display	Read Only	Offset in volts
73	Word	Read/Write	Known load to set gain
74	SWord	Read/Write	Load input gain
75	Display	Read Only	Load gain Lb/mV or Kg/mV
76	Word	Read Only	Load raw input and volts
77	Word	Read Only	Load input in mV
78	Word	Read Only	Load input in pounds
79	Word	Read Only	Minimum load last stroke
80	Word	Read Only	Maximum load last stroke
81	Word	Read/Write	Calibration minimum load
82	Word	Read/Write	Calibration maximum load
83	Word	Read Only	Minimum load from last start
84	Word	Read Only	Maximum load from last start
85	Word	Read Only	Minimum load since power up
86	Word	Read Only	Maximum load since power up
87	Word	Read Only	Span over last stroke
88	Word	Read Only	Minimum span since power up
89	Word	Read Only	Load Average last stroke
90	Word	Read Only	Minimum average since power up
91	Word	Read Only	Maximum average since power up
92	Word	Read Only	Minimum load since power up mV
93	Word	Read Only	Maximum load since power up mV
94	Command	Read/Write	Reset power up minimum/maximum
95	Word	Read Only	Load fail ADC raw and V
96	Word	Read Only	Load fail input in mV
97	Word	Read/Write	Load Scaling Low
98	Word	Read/Write	Load Scaling High
99	Command	Read/Write	Cal. Load Sensor
100	Command	Read/Write	Cal. Position Ref.
101	Byte	Read/Write	Position Synthesis Type
102	Word	Read Only	Position raw input volts
103	Word	Read Only	Position input in volts
104	Word	Read Only	Minimum Position last stroke

Parameter	8500 Native Type	Access	Description
105	Word	Read Only	Maximum Position last stroke
106	Word	Read Only	Position span last stroke
107	Word	Read Only	Position span filtered
108	Word	Read/Write	Dir. debounce time.
109	Byte	Read Only	Bottoms w/no POS. fault
110	Command	Read/Write	Clear Position Ref.
113	Byte	Read/Write	MK-II Compensate Pos
114	Byte	Read/Write	DPS: Load De-skew.
115	Byte	Read/Write	Load Cycles for stage 2
116	Byte	Read/Write	LL Stg.2 strokes f/viol
117	Byte	Read/Write	LL Stg.2 cycles f/action
120	Word	Read/Write	Scratch data [0]
121	Word	Read/Write	Scratch data [1]
122	Word	Read/Write	Scratch data [2]
123	Word	Read/Write	Scratch data [3]
124	Word	Read/Write	Scratch data [4]
125	Byte	Read/Write	Good strokes for filter
127	Byte	Read/Write	Enable PSW as R/S input
128	Byte	Read/Write	Good strokes f/PSW reset
129	Byte	Read/Write	Log cleared PSW error
130	Word	Read/Write	TOS to PSW stroke fract
131	Command	Read/Write	Reverse PSW setting
132	Word	Read Only	Last PSW interval
133	Byte	Read/Write	Close debounce interval
134	Byte	Read/Write	Open debounce interval
135	Byte	Read/Write	Use PSW opening
136	Byte	Read/Write	Filtered interval minimum %
137	Byte	Read/Write	Filtered interval maximum %
138	Byte	Read Only	Filtered strokes counter
139	Word	Read Only	Last Stroke interval
140	Word	Read Only	Filtered Stroke interval
141	Word	Read Only	Last Stroke Well Speed
142	Word	Read Only	Filtered Well Speed
143	Byte	Read Only	Bottoms counter
144	Byte	Read Only	Debounce closed flag
145	Word	Read Only	Debounce closed interval
146	Word	Read Only	Raw Switch Closings
147	Word	Read Only	Switches since On/Off
148	Byte	Read Only	BOS Count (no PSW fault)

Parameter	8500 Native Type	Access	Description
149	Command	Read/Write	Change speed
150	Byte	Read Only	Legacy line frequency
155	Display	Read Only	Ethernet MAC Address
156	Long	Read/Write	Ethernet IP Address
157	Long	Read/Write	Ethernet Netmask
158	Long	Read/Write	Ethernet Gateway
159	Display	Read Only	Ethernet Status
168	Word	Read/Write	AI Latch Alarms
174	Byte	Read Only	Dyno Data Skip Factor
175	Byte	Read Only	Comm SkipFactor
176	Word	Read Only	Comm Interval
180	Word	Read Only	DI status bits
181	Word	Read/Write	DI 1 low order counts
182	Word	Read/Write	DI 1 high order counts
183	Word	Read/Write	DI 2 low order counts
184	Word	Read/Write	DI 2 high order counts
185	Word	Read/Write	DI 3 low order counts
186	Word	Read/Write	DI 3 high order counts
187	Word	Read/Write	DI 4 low order counts
188	Word	Read/Write	DI 4 high order counts
189	Word	Read/Write	DI 5 low order counts
190	Word	Read/Write	DI 5 high order counts
191	Word	Read/Write	DI 6 low order counts
192	Word	Read/Write	DI 6 high order counts
193	Word	Read Only	AI Status as DI
194	Word	Read/Write	AI 1 low counts
195	Word	Read/Write	AI 1 high counts
196	Word	Read/Write	AI 2 low counts
197	Word	Read/Write	AI 2 high counts
198	Word	Read/Write	AI 3 low counts
199	Word	Read/Write	AI 3 high counts
200	Byte	Read/Write	Sensor Failure Action
204	Byte	Read/Write	No. Run times to average
205	Time	Read Only	Recorded average on time
206	Time	Read/Write	Manual set timer on time
207	Time	Read Only	Latest average on time
208	Word	Read/Write	Low Low Load Limit
209	Byte	Read/Write	Low Low Load Action
210	Word	Read/Write	Low Load Limit

Parameter	8500 Native Type	Access	Description
211	Word	Read/Write	High Load Limit
212	Word	Read/Write	Low Average Load Limit
213	Byte	Read/Write	High Load Violation Strokes
214	Byte	Read/Write	High Load Action
215	Byte	Read/Write	Low Load Violation Strokes
216	Byte	Read/Write	Low Load Action
217	Word	Read/Write	Load Violation Deadband
218	Word	Read/Write	High High Load Limit
219	Byte	Read/Write	High High Load Action
220	Byte	Read/Write	Off time multiplier
221	Time	Read/Write	Limit to multiplied time
222	Byte	Read/Write	Low Load Span Strokes
223	Word	Read/Write	Low Load Span Limit
225	Byte	Read/Write	Low Load Span Action
226	Time	Read/Write	Load span Well off timer.
227	Time	Read/Write	Load span Well on timer.
228	Byte	Read/Write	Pumpoffs to clear P227
230	Byte	Read/Write	Immediate pumpoffs for viol
231	Byte	Read/Write	Immediate Pumpoff Action
232	Time	Read/Write	Minimum run time
233	Byte	Read/Write	Minimum run times for action
234	Byte	Read/Write	Minimum run time action
235	Time	Read/Write	Maximum cycle run time
236	Byte	Read/Write	Maximum cycle runtime Action
237	Time	Read/Write	Maximum daily run time
238	Byte	Read/Write	Maximum daily runtime action
239	Time	Read/Write	Off timer for maximum run
240	Time	Read/Write	On timer for maximum run
241	Byte	Read/Write	Pumpoffs to clear P240
242	Time	Read Only	Qualified cycle on timer
243	Time	Read Only	Qualified daily on timer
245	Byte	Read/Write	Viol.entry deglitch time
246	Byte	Read/Write	Viol. exit deglitch time
249	Byte	Read/Write	AI 1 low action
250	Byte	Read/Write	AI 1 high action
251	Byte	Read/Write	AI 2 low action
252	Byte	Read/Write	AI 2 high action
253	Byte	Read/Write	AI 3 low action
254	Byte	Read/Write	AI 3 high action

Parameter	8500 Native Type	Access	Description
255	Word	Read Only	Current Card Area
256	Word	Read/Write	Minimum Card Area
257	Byte	Read/Write	Minimum Card Area Action
258	Word	Read/Write	Maximum Card Area
259	Byte	Read/Write	Maximum Card Area Action
260	Byte	Read/Write	Control Failure Action
261	Time	Read/Write	Control Failure Timeout
262	Byte	Read/Write	Pump On settling time
263	Byte	Read/Write	Pump Off settling time
265	Word	Read Only	Minimum Position last cycle
266	Word	Read Only	Maximum Position last cycle
267	Word	Read Only	Minimum Position since power up
268	Word	Read Only	Maximum Position since power up
269	Word	Read Only	Minimum Position Span since power up
270	Word	Read/Write	Minimum position span
271	Word	Read/Write	Minimum position value
272	Word	Read/Write	Maximum position value
273	Byte	Read/Write	Pos. fault entry time
274	Word	Read Only	Minimum Load Gauge[0]
275	Word	Read Only	Minimum Load Gauge[1]
276	Word	Read Only	Minimum Load Gauge[2]
277	Word	Read Only	Maximum Load Gauge[0]
278	Word	Read Only	Maximum Load Gauge[1]
279	Word	Read Only	Maximum Load Gauge[2]
280	Word	Read Only	AI-1 Raw input and volts
281	Word	Read Only	AI-1 Input value
282	SWord	Read Only	AI-1 Scaled EGU value
283	Byte	Read/Write	AI-1 Input type
284	Byte	Read/Write	AI-1 EGU decimal places
285	Byte	Read/Write	AI-1 EGU label
286	SWord	Read/Write	AI-1 Scaling low value
287	SWord	Read/Write	AI-1 Scaling high value
288	SWord	Read/Write	AI-1 Low alarm limit
289	Byte	Read/Write	AI-1 Low alarm action 1
290	Byte	Read/Write	AI-1 Low alarm action 2
291	SWord	Read/Write	AI-1 High alarm limit
292	Byte	Read/Write	AI-1 High alarm action 1
293	Byte	Read/Write	AI-1 High alarm action 2
294	Word	Read/Write	AI-1 Alarms deadband

Parameter	8500 Native Type	Access	Description
295	SWord	Read Only	AI-1 Minimum record value
296	SWord	Read Only	AI-1 Maximum record value
299	Command	Read/Write	AI-1 Rst minimum/maximum
300	Word	Read Only	AI-1 last stroke average

Parameters 301-600

Parameter	8500 Native Type	Access	Description
301	Word	Read Only	AI-1 Minimum stroke average.
302	Word	Read Only	AI-1 Maximum stroke average.
309	Word	Read Only	AI Alarm status bits.
310	Word	Read Only	AI-2 Raw input and volts.
311	Word	Read Only	AI-2 Input value.
312	SWord	Read Only	AI-2 Scaled EGU value.
313	Byte	Read/Write	AI-2 Input type.
314	Byte	Read/Write	AI-2 EGU decimal places.
315	Byte	Read/Write	AI-2 EGU label.
316	SWord	Read/Write	AI-2 Scaling low value.
317	SWord	Read/Write	AI-2 Scaling high value.
318	SWord	Read/Write	AI-2 Low alarm limit.
319	Byte	Read/Write	AI-2 Low alarm action 1.
320	Byte	Read/Write	AI-2 Low alarm action 2.
321	SWord	Read/Write	AI-2 High alarm limit.
322	Byte	Read/Write	AI-2 High alarm action 1.
323	Byte	Read/Write	AI-2 High alarm action 2.
324	Word	Read/Write	AI-2 Alarms deadband.
325	SWord	Read Only	AI-2 Minimum record value.
326	SWord	Read Only	AI-2 Maximum record value.
329	Command	Read/Write	AI-2 Rst minimum/maximum.
330	Word	Read Only	AI-3 Raw input and volts.
331	Word	Read Only	AI-3 Input value.
332	SWord	Read Only	AI-3 Scaled EGU value.
333	Byte	Read/Write	AI-3 Input type.
334	Byte	Read/Write	AI-3 EGU decimal places.
335	Byte	Read/Write	AI-3 EGU label.
336	SWord	Read/Write	AI-3 Scaling low value.
337	SWord	Read/Write	AI-3 Scaling high value.
338	SWord	Read/Write	AI-3 Low alarm limit.
339	Byte	Read/Write	AI-3 Low alarm action 1.

Parameter	8500 Native Type	Access	Description
340	Byte	Read/Write	AI-3 Low alarm action 2.
341	SWord	Read/Write	AI-3 High alarm limit.
342	Byte	Read/Write	AI-3 High alarm action 1.
343	Byte	Read/Write	AI-3 High alarm action 2.
344	Word	Read/Write	AI-3 Alarms deadband.
345	SWord	Read Only	AI-3 Minimum record value.
346	SWord	Read Only	AI-3 Maximum record value.
348	Long	Read Only	Gauge Period Strokes.
349	Command	Read/Write	AI-3 Rst minimum/maximum.
350	Command	Read/Write	Test Fault Lamp.
351	Command	Read/Write	Software reset.
353	Command	Read/Write	System shutdown.
355	Byte	Read/Write	Minimum # faults.
356	Byte	Read/Write	Minimum # events.
357	Word	Read/Write	Enable Event Record[0].
358	Word	Read/Write	Enable Event Record[1].
359	Word	Read/Write	Enable Event Record[2].
360	Word	Read/Write	Enable Event Record[3].
361	Word	Read/Write	Enable Event Record[4].
362	Word	Read/Write	Enable Event Record[5].
363	Word	Read/Write	Enable Event Record[6].
364	Word	Read/Write	Enable Event Record[7].
365	Command	Read/Write	Manual Record Event.
366	Command	Read/Write	Clear Event Records.
369	Display	Read Only	POC display/downhole.
370	Display	Read Only	POC display/position.
371	Display	Read Only	POC display/load.
372	Display	Read Only	POC display/P26 method.
373	Word	Read Only	Surface card pump fill %.
375	Word	Read Only	Estimated POC load value.
376	Word	Read Only	Load at POC position.
380	Byte	Read/Write	HAND Sw DI PntNum.
381	Byte	Read/Write	OFF Sw DI PntNum.
384	Long	Read Only	Gauge Period Strokes.
385	Word	Read Only	Average Fillage[0].
386	Word	Read Only	Average Fillage[1].
387	Word	Read Only	Average Fillage[2].
388	Word	Read Only	Average Fillage[3].
389	Word	Read Only	Last alarm event.

Parameter	8500 Native Type	Access	Description
390	Time24	Read Only	Time at last prog. stop.
391	Date	Read Only	Date at last prog. stop.
392	Time24	Read Only	Time at last (re)start.
393	Date	Read Only	Date at last (re)start.
394	Time	Read Only	Last prog. stop period.
395	Long	Read Only	Last fatal error addr.
396	Time24	Read Only	last error/status time.
397	Date	Read Only	last error/status date.
398	Word	Read Only	Days counter.
399	Time	Read Only	Rollover counter.
400	Time	Read Only	Pump run time[0].
401	Time	Read Only	Pump run time[1].
402	Time	Read Only	Pump run time[2].
403	Time	Read Only	Pump run time[3].
404	Time	Read Only	Pump run time[4].
405	Time	Read Only	Pump run time[5].
406	Time	Read Only	Pump run time[6].
407	Time	Read Only	Pump run time[7].
408	Time	Read Only	Pump run time[8].
409	Time	Read Only	Pump run time[9].
410	Time	Read Only	Pump run time[10].
411	Time	Read Only	Pump run time[11].
412	Time	Read Only	Pump run time[12].
413	Time	Read Only	Pump run time[13].
414	Time	Read Only	Pump run time[14].
415	Time	Read Only	Pump run time[15].
416	Time	Read Only	Pump run time[16].
417	Time	Read Only	Pump run time[17]
418	Byte	Read Only	Undisturbed pump cycles.
419	Time	Read Only	Present pump off time.
420	Time	Read Only	Daily run time[0].
421	Time	Read Only	Daily run time[1].
422	Time	Read Only	Daily run time[2].
423	Time	Read Only	Daily run time[3].
424	Time	Read Only	Daily run time[4].
425	Time	Read Only	Daily run time[5].
426	Time	Read Only	Daily run time[6].
427	Time	Read Only	Daily run time[7].
429	Time24	Read/Write	Gauge Time.

Parameter	8500 Native Type	Access	Description
430	Word	Read Only	Today undisturbed cycles.
431	Word	Read Only	Ystdy undisturbed cycles.
432	Time	Read Only	Tday undisturbed avg.run.
433	Time	Read Only	Yday undisturbed avg.run.
434	Time	Read Only	Time to next gauge time.
435	Word	Read Only	STA Cur DN Speed.
436	Word	Read Only	STA Cur TOP Speed.
437	Word	Read Only	STA Cur BOT Speed.
438	Word	Read Only	STA Cur UP Speed.
439	Time	Read Only	Tday tot.undisturbed run.
441	Date	Read Only	Gauge period start date.
442	Time	Read Only	Daily run time[0].
443	Time	Read Only	Daily run time[1].
444	Time	Read Only	Daily run time[2].
445	Time	Read Only	Daily run time[3].
446	Time	Read Only	Daily run time[4].
447	Time	Read Only	Daily run time[5].
448	Time	Read Only	Daily run time[6].
449	Time	Read Only	Daily run time[7].
450	Display	Read Only	Base IO Firmware version.
451	Display	Read Only	Base IO Firmware checksum.
452	Word	Read Only	CAN Display Msg count.
453	Word	Read Only	CAN PumpData Msg count.
454	Word	Read Only	CAN IO_Data Msg count.
455	Word	Read/Write	CAN PumpData Minimum count.
456	Word	Read/Write	CAN PumpData Maximum count.
460	Display	Read Only	00165 IO Firmware Version.
461	Display	Read Only	00165 IO Firmware Checksum.
467	Byte	Read/Write	Create System Backup.
468	Command	Read/Write	Remove SD Card.
469	Byte	Read Only	SD Card status.
470	Byte	Read/Write	System Restore.
471	Command	Read/Write	Force Save Params.
472	Command	Read/Write	Reset to defaults.
473	Word	Read/Write	Supervisor Password.
474	Byte	Read Only	Current Security Level.
475	Command	Read/Write	Perform Upgrade.
477	Byte	Read Only	App Firmware version rev.
478	Byte	Read Only	App Firmware version major.

Parameter	8500 Native Type	Access	Description
479	Byte	Read Only	App Firmware version minor.
489	Byte	Read/Write	Configuration change.
490	Byte	Read Only	Legacy F/W version major.
491	Byte	Read Only	Legacy F/W version minor.
492	Word	Read Only	Hardware option flags[0].
493	Word	Read Only	Hardware option flags[1].
494	Word	Read Only	Hardware option flags[2].
496	Word	Read/Write	Analog inputs enable.
497	Word	Read/Write	Digital inputs enable.
498	Word	Read/Write	Ext AI msg counter.
499	Word	Read/Write	Ext DI msg counter.
500	Word	Read/Write	User Password Code.
501	Time	Read/Write	Pass Code Timeout.
507	Byte	Read/Write	EGD Contrast Setting.
508	Byte	Read/Write	Display Updates Per Sec.
509	Byte	Read/Write	Display Rolls per second.
510	Word	Read/Write	Debug Message Control.
512	Byte	Read/Write	Number of Raw Cards.
513	Byte	Read Only	Collecting Card Number.
520	Word	Read Only	Pump Control Status 1.
521	Word	Read Only	Pump Control Status 2.
522	Word	Read Only	Pump Control Status 3.
523	Command	Read/Write	Clear All Alarms.
524	Command	Read/Write	Start Pump.
525	Command	Read/Write	Idle Pump.
526	Byte	Read Only	Pump Control State.
527	Word	Read Only	Active Alarms[0].
528	Word	Read Only	Active Alarms[1].
529	Word	Read Only	Active Alarms[2].
530	Word	Read Only	Active Alarms[3].
531	Word	Read Only	Active Alarms[4].
532	Word	Read Only	Active Alarms[5].
533	Word	Read Only	Active Alarms[6].
534	Word	Read Only	Active Alarms[7].
535	Word	Read Only	Non-Clearable Alarms[0].
536	Word	Read Only	Non-Clearable Alarms[1].
537	Word	Read Only	Non-Clearable Alarms[2].
540	Byte	Read Only	Worst Pump Control State.
541	Word	Read Only	Accumulated Alarms[0].

Parameter	8500 Native Type	Access	Description
542	Word	Read Only	Accumulated Alarms[1].
543	Word	Read Only	Accumulated Alarms[2].
544	Word	Read Only	Accumulated Alarms[3].
545	Word	Read Only	Accumulated Alarms[4].
546	Word	Read Only	Accumulated Alarms[5].
547	Word	Read Only	Accumulated Alarms[6].
548	Word	Read Only	Accumulated Alarms[7].
549	Display	Read Only	FW P/N.
550	Display	Read Only	FW Version.
551	Display	Read Only	Download Apps P/N.
552	Display	Read Only	DL Version full ID.
553	Display	Read Only	DL Apps compiled date.
554	Display	Read Only	DL Apps compiled time.
555	Display	Read Only	Controller ID message.
556	Command	Read/Write	Display Rolling ID.
557	Display	Read Only	Kernel Part Number.
558	Display	Read Only	Kernel Version.
559	Display	Read Only	Kernel build date & time.
560	Byte	Read/Write	DI 1 closed action.
561	Byte	Read/Write	DI 1 open action.
562	Byte	Read/Write	DI 2 closed action.
563	Byte	Read/Write	DI 2 open action.
564	Byte	Read/Write	DI 3 closed action.
565	Byte	Read/Write	DI 3 open action.
566	Byte	Read/Write	DI 4 closed action.
567	Byte	Read/Write	DI 4 open action.
568	Byte	Read/Write	DI 5 closed action.
569	Byte	Read/Write	DI 5 open action.
570	Byte	Read/Write	DI 6 closed action.
571	Byte	Read/Write	DI 6 open action.
572	Byte	Read/Write	DI 7 closed action.
573	Byte	Read/Write	DI 7 open action.
574	Byte	Read/Write	DI 8 closed action.
575	Byte	Read/Write	DI 8 open action.
578	Word	Read Only	High Speed accum.lo word.
579	Word	Read Only	High Speed accum.hi word.
580	Word	Read/Write	D/O 1 pulse timer.
581	Word	Read/Write	D/O 2 pulse timer.
582	Word	Read/Write	D/O 3 pulse timer.

Parameter	8500 Native Type	Access	Description
583	Word	Read/Write	D/O 4 pulse timer.
584	Word	Read/Write	D/O 5 pulse timer.
585	Word	Read/Write	D/O 6 pulse timer.
586	Word	Read/Write	D/O 7 pulse timer.
587	Word	Read/Write	D/O 8 pulse timer.
590	Word	Read/Write	D/O 1 pulse ticks.
591	Word	Read/Write	D/O 2 pulse ticks.
592	Word	Read/Write	D/O 3 pulse ticks.
593	Word	Read/Write	D/O 4 pulse ticks.
594	Word	Read/Write	D/O 5 pulse ticks.
595	Word	Read/Write	D/O 6 pulse ticks.
596	Word	Read/Write	D/O 7 pulse ticks.
597	Word	Read/Write	D/O 8 pulse ticks
598	Word	Read/Write	D/O ON flag bits.
599	Word	Read/Write	D/O status bits.
600	Byte	Read/Write	Simulate input data.

Parameters 601-900

Parameter	8500 Native Type	Access	Description
601	Byte	Read/Write	Remote data format.
602	Byte	Read/Write	Remote baud rate.
603	Word	Read/Write	Comm. status bits.
604	Byte	Read/Write	Present MMI data format.
605	Byte	Read/Write	Present MMI baud rate.
606	Byte	Read/Write	Carrier detect on delay.
607	Byte	Read/Write	Carrier detect off delay.
608	Byte	Read/Write	Carrier detect drop limit.
609	Byte	Read/Write	Radio turn on delay.
610	Byte	Read/Write	Radio turn off delay.
611	Byte	Read/Write	Maximum radio on time in sec.
612	Byte	Read/Write	Receive timeout in secs.
613	Byte	Read/Write	Host port protocol.
614	Byte	Read/Write	Modbus Card Type.
615	Byte	Read/Write	Modbus Card Load option.
616	Byte	Read/Write	Modbus Card Number.
617	Byte	Read/Write	Modbus Card Posn. type.
618	Byte	Read/Write	Dyno Data Comm. Format.
619	Byte	Read/Write	Position data available.

Parameter	8500 Native Type	Access	Description
620	Word	Read/Write	Comm. group address.
621	Word	Read Only	Maximum radio on time ticks.
622	Word	Read Only	Maximum xmit msg time ticks.
623	Word	Read Only	Maximum xmit msg in bytes.
624	Word	Read Only	Xmit buffer size (bytes).
625	Byte	Read/Write	Host port connection.
626	Word	Read/Write	TCP Port number.
628	Byte	Read/Write	All address respond time.
629	Command	Read/Write	Clear comm. stats.
630	Display	Read Only	Last data recvd as ASCII.
631	Word	Read Only	Character errors.
632	Word	Read Only	Characters received.
633	Word	Read Only	Header characters rcv'd.
634	Word	Read Only	Trailer characters rcv'd.
635	Word	Read Only	Framed messages rcv'd.
636	Word	Read Only	Good framed msgs rcv'd.
637	Word	Read Only	Messages processed.
638	Word	Read Only	Commands processed.
639	Word	Read Only	Responses transmitted.
640	Word	Read Only	Characters transmitted.
641	Byte	Read/Write	MBH Comm Port Mode.
644	Byte	Read/Write	Tx test spacing delay.
645	Byte	Read Only	Last character received.
646	Byte	Read/Write	Tx test data format.
647	Byte	Read/Write	Tx test character.
648	Byte	Read/Write	Tx test time in seconds.
650	Long	Read Only	Current Time of Day.
651	Long	Read Only	System Shutdown Time.
652	Long	Read Only	System Startup Time.
653	Long	Read Only	last error/status time.
670	Time	Read Only	Daily run time[0].
671	Time	Read Only	Daily run time[1].
672	Time	Read Only	Daily run time[2].
673	Time	Read Only	Daily run time[3].
674	Time	Read Only	Daily run time[4].
675	Time	Read Only	Daily run time[5].
676	Time	Read Only	Daily run time[6].
677	Time	Read Only	Daily run time[7].
678	Time	Read Only	Daily run time[8].

Parameter	8500 Native Type	Access	Description
679	Time	Read Only	Daily run time[9].
680	Time	Read Only	Daily run time[10].
681	Time	Read Only	Daily run time[11].
682	Time	Read Only	Daily run time[12].
683	Time	Read Only	Daily run time[13].
684	Time	Read Only	Daily run time[14].
685	Time	Read Only	Daily run time[15].
686	Time	Read Only	Daily run time[16].
687	Time	Read Only	Daily run time[17].
688	Time	Read Only	Daily run time[18].
689	Time	Read Only	Daily run time[19].
690	Time	Read Only	Daily run time[20].
691	Time	Read Only	Daily run time[21].
692	Time	Read Only	Daily run time[22].
693	Time	Read Only	Daily run time[23].
694	Time	Read Only	Daily run time[24].
695	Time	Read Only	Daily run time[25].
696	Time	Read Only	Daily run time[26].
697	Time	Read Only	Daily run time[27].
698	Time	Read Only	Daily run time[28].
699	Time	Read Only	Daily run time[29].
700	Word	Read Only	AI-4 Raw input and volts.
701	Word	Read Only	AI-4 Input value.
702	SWord	Read Only	AI-4 Scaled EGU value.
703	Byte	Read/Write	AI-4 Input type.
704	Byte	Read/Write	AI-4 EGU decimal places.
705	Byte	Read/Write	AI-4 EGU label.
706	SWord	Read/Write	AI-4 Scaling low value.
707	SWord	Read/Write	AI-4 Scaling high value.
708	SWord	Read/Write	AI-4 Low alarm limit.
709	Byte	Read/Write	AI-4 Low alarm action 1.
710	Byte	Read/Write	AI-4 Low alarm action 2.
711	SWord	Read/Write	AI-4 High alarm limit.
712	Byte	Read/Write	AI-4 High alarm action 1.
713	Byte	Read/Write	AI-4 High alarm action 2.
714	Word	Read/Write	AI-4 Alarms deadband.
715	SWord	Read Only	AI-4 Minimum record value.
716	SWord	Read Only	AI-4 Maximum record value.
719	Command	Read/Write	AI-4 Rst minimum/maximum.

Parameter	8500 Native Type	Access	Description
720	Word	Read Only	AI-5 Raw input and volts.
721	Word	Read Only	AI-5 Input value.
722	SWord	Read Only	AI-5 Scaled EGU value.
723	Byte	Read/Write	AI-5 Input type.
724	Byte	Read/Write	AI-5 EGU decimal places.
725	Byte	Read/Write	AI-5 EGU label.
726	SWord	Read/Write	AI-5 Scaling low value.
727	SWord	Read/Write	AI-5 Scaling high value.
728	SWord	Read/Write	AI-5 Low alarm limit.
729	Byte	Read/Write	AI-5 Low alarm action 1.
730	Byte	Read/Write	AI-5 Low alarm action 2.
731	SWord	Read/Write	AI-5 High alarm limit.
732	Byte	Read/Write	AI-5 High alarm action 1.
733	Byte	Read/Write	AI-5 High alarm action 2.
734	Word	Read/Write	AI-5 Alarms deadband.
735	SWord	Read Only	AI-5 Minimum record value.
736	SWord	Read Only	AI-5 Maximum record value.
739	Command	Read/Write	AI-5 Rst minimum/maximum.
740	Word	Read Only	AI-6 Raw input and volts.
741	Word	Read Only	AI-6 Input value.
742	SWord	Read Only	AI-6 Scaled EGU value.
743	Byte	Read/Write	AI-6 Input type.
744	Byte	Read/Write	AI-6 EGU decimal places.
745	Byte	Read/Write	AI-6 EGU label.
746	SWord	Read/Write	AI-6 Scaling low value.
747	SWord	Read/Write	AI-6 Scaling high value.
748	SWord	Read/Write	AI-6 Low alarm limit.
749	Byte	Read/Write	AI-6 Low alarm action 1.
750	Byte	Read/Write	AI-6 Low alarm action 2
751	SWord	Read/Write	AI-6 High alarm limit.
752	Byte	Read/Write	AI-6 High alarm action 1.
753	Byte	Read/Write	AI-6 High alarm action 2.
754	Word	Read/Write	AI-6 Alarms deadband.
755	SWord	Read Only	AI-6 Minimum record value.
756	SWord	Read Only	AI-6 Maximum record value.
759	Command	Read/Write	AI-6 Rst minimum/maximum.
760	Word	Read Only	AI-7 Raw input and volts.
761	Word	Read Only	AI-7 Input value.
762	SWord	Read Only	AI-7 Scaled EGU value.

Parameter	8500 Native Type	Access	Description
763	Byte	Read/Write	AI-7 Input type.
764	Byte	Read/Write	AI-7 EGU decimal places.
765	Byte	Read/Write	AI-7 EGU label.
766	SWord	Read/Write	AI-7 Scaling low value.
767	SWord	Read/Write	AI-7 Scaling high value.
768	SWord	Read/Write	AI-7 Low alarm limit.
769	Byte	Read/Write	AI-7 Low alarm action 1.
770	Byte	Read/Write	AI-7 Low alarm action 2.
771	SWord	Read/Write	AI-7 High alarm limit.
772	Byte	Read/Write	AI-7 High alarm action 1.
773	Byte	Read/Write	AI-7 High alarm action 2.
774	Word	Read/Write	AI-7 Alarms deadband.
775	SWord	Read Only	AI-7 Minimum record value.
776	SWord	Read Only	AI-7 Maximum record value.
779	Command	Read/Write	AI-7 Rst minimum/maximum.
780	Word	Read Only	AI-8 Raw input and volts.
781	Word	Read Only	AI-8 Input value.
782	SWord	Read Only	AI-8 Scaled EGU value.
783	Byte	Read/Write	AI-8 Input type.
784	Byte	Read/Write	AI-8 EGU decimal places.
785	Byte	Read/Write	AI-8 EGU label.
786	SWord	Read/Write	AI-8 Scaling low value.
787	SWord	Read/Write	AI-8 Scaling high value.
788	SWord	Read/Write	AI-8 Low alarm limit.
789	Byte	Read/Write	AI-8 Low alarm action 1.
790	Byte	Read/Write	AI-8 Low alarm action 2.
791	SWord	Read/Write	AI-8 High alarm limit.
792	Byte	Read/Write	AI-8 High alarm action 1.
793	Byte	Read/Write	AI-8 High alarm action 2.
794	Word	Read/Write	AI-8 Alarms deadband.
795	SWord	Read Only	AI-8 Minimum record value.
796	SWord	Read Only	AI-8 Maximum record value.
798	Word	Read Only	VSD Startup Out%.
799	Command	Read/Write	AI-8 Rst minimum/maximum.
800	Byte	Read/Write	Fluid calc. X1 point.
801	Byte	Read/Write	Fluid calc. X2 point.
802	Byte	Read/Write	Fluid calc. Y1 point.
803	Byte	Read/Write	Fluid calc. Y2 point.
804	Word	Read Only	Fluid calc.Stroke Length.

Parameter	8500 Native Type	Access	Description
805	Byte	Read/Write	Fluid Stroke calc.Method.
806	Word	Read/Write	Surface stroke(in x 100).
807	Word	Read/Write	Pump bore dia.(in x 100).
808	Word	Read Only	Average surface stroke (in).
809	Word	Read/Write	Average fluid stroke (in).
810	Word	Read/Write	Pump efficiency (% * 10).
811	Word	Read Only	Daily Production[0].
812	Word	Read Only	Daily Production[1].
813	Word	Read Only	Daily Production[2].
814	Word	Read Only	Daily Production[3].
815	Word	Read Only	Daily Production[4].
816	Word	Read Only	Daily Production[5].
817	Word	Read Only	Daily Production[6].
818	Word	Read Only	Daily Production[7].
819	Word	Read Only	Daily Production[8].
820	Word	Read Only	Daily Production[9].
821	Word	Read Only	Daily Production[10].
822	Word	Read Only	Daily Production[11].
823	Word	Read Only	Daily Production[12].
824	Word	Read Only	Daily Production[13].
825	Word	Read Only	Daily Production[14].
826	Word	Read Only	Daily Production[15].
827	Word	Read Only	Daily Production[16].
828	Word	Read Only	Daily Production[17].
829	Word	Read Only	Daily Production[18].
830	Word	Read Only	Daily Production[19].
831	Word	Read Only	Daily Production[20].
832	Word	Read Only	Daily Production[21].
833	Word	Read Only	Daily Production[22].
834	Word	Read Only	Daily Production[23].
835	Word	Read Only	Daily Production[24].
836	Word	Read Only	Daily Production[25].
837	Word	Read Only	Daily Production[26].
838	Word	Read Only	Daily Production[27].
839	Word	Read Only	Daily Production[28].
840	Word	Read Only	Daily Production[29].
841	Byte	Read/Write	Lower Band Size.
842	Word	Read Only	Fluid calc. error flags.
843	Word	Read/Write	Preset fluid stroke.

Parameter	8500 Native Type	Access	Description
844	Byte	Read Only	Current Run Mode.
845	Byte	Read Only	Fluid calc.Calculated X1.
846	Byte	Read Only	Fluid calc.Calculated X2.
847	Byte	Read Only	Fluid calc.Calculated Y1.
848	Byte	Read Only	Fluid calc.Calculated Y2.
849	Word	Read Only	Fluid Strokes calculated.
850	Time24	Read/Write	Start Time A Weekend.
851	Byte	Read/Write	Run Mode A Weekend.
852	Time	Read/Write	Run Time A Weekend.
853	Time24	Read/Write	Start Time B Weekend.
854	Byte	Read/Write	Run Mode B Weekend.
855	Time	Read/Write	Run Time B Weekend.
856	Time24	Read/Write	Start Time A Weekday.
857	Byte	Read/Write	Run Mode A Weekday.
858	Time	Read/Write	Run Time A Weekday.
859	Time24	Read/Write	Start Time B Weekday.
860	Byte	Read/Write	Run Mode B Weekday.
861	Time	Read/Write	Run Time B Weekday.
862	Byte	Read/Write	Timer control enable.
870	Word	Read/Write	Param # for User display[0].
871	Word	Read/Write	Param # for User display[1].
872	Word	Read/Write	Param # for User display[2].
873	Word	Read/Write	Param # for User display[3].
874	Word	Read/Write	Param # for User display[4].
875	Word	Read/Write	Param # for User display[5].
876	Word	Read/Write	Param # for User display[6].
877	Word	Read/Write	Param # for User display[7].
878	Word	Read/Write	Param # for User display[8].
879	Word	Read/Write	Param # for User display[9].
880	Word	Read/Write	Param # for User display[10].
881	Word	Read/Write	Param # for User display[11].
890	Word	Read/Write	Logger channel source[0].
891	Word	Read/Write	Logger channel source[1].
892	Word	Read/Write	Logger channel source[2].
893	Word	Read/Write	Logger channel source[3].
894	Word	Read/Write	Logger channel source[4].
895	Word	Read/Write	Logger channel source[5].
896	Word	Read/Write	Logger channel source[6].
897	Word	Read/Write	Logger channel source[7].

Parameter	8500 Native Type	Access	Description
898	Byte	Read/Write	Logger freeze channel.
899	Command	Read/Write	Clr Logger History.
900	Word	Read Only	Hour log freeze buff [0].

Parameters 901-1199

Parameter	8500 Native Type	Access	Description
901	Word	Read Only	Hour log freeze buff [1].
902	Word	Read Only	Hour log freeze buff [2].
903	Word	Read Only	Hour log freeze buff [3].
904	Word	Read Only	Hour log freeze buff [4].
905	Word	Read Only	Hour log freeze buff [5].
906	Word	Read Only	Hour log freeze buff [6].
907	Word	Read Only	Hour log freeze buff [7].
908	Word	Read Only	Hour log freeze buff [8].
909	Word	Read Only	Hour log freeze buff [9].
910	Word	Read Only	Hour log freeze buff [10].
911	Word	Read Only	Hour log freeze buff [11].
912	Word	Read Only	Hour log freeze buff [12].
913	Word	Read Only	Hour log freeze buff [13].
914	Word	Read Only	Hour log freeze buff [14].
915	Word	Read Only	Hour log freeze buff [15].
916	Word	Read Only	Hour log freeze buff [16].
917	Word	Read Only	Hour log freeze buff [17].
918	Word	Read Only	Hour log freeze buff [18].
919	Word	Read Only	Hour log freeze buff [19].
920	Word	Read Only	Hour log freeze buff [20].
921	Word	Read Only	Hour log freeze buff [21].
922	Word	Read Only	Hour log freeze buff [22].
923	Word	Read Only	Hour log freeze buff [23].
930	Word	Read Only	Daily log freeze buff [0].
931	Word	Read Only	Daily log freeze buff [1].
932	Word	Read Only	Daily log freeze buff [2].
933	Word	Read Only	Daily log freeze buff [3].
934	Word	Read Only	Daily log freeze buff [4].
935	Word	Read Only	Daily log freeze buff [5].
936	Word	Read Only	Daily log freeze buff [6].
937	Word	Read Only	Daily log freeze buff [7].
938	Word	Read Only	Daily log freeze buff [8].

Parameter	8500 Native Type	Access	Description
939	Word	Read Only	Daily log freeze buff [9].
940	Word	Read Only	Daily log freeze buff [10].
941	Word	Read Only	Daily log freeze buff [11].
942	Word	Read Only	Daily log freeze buff [12].
943	Word	Read Only	Daily log freeze buff [13].
944	Word	Read Only	Daily log freeze buff [14].
945	Word	Read Only	Daily log freeze buff [15].
946	Word	Read Only	Daily log freeze buff [16].
947	Word	Read Only	Daily log freeze buff [17].
948	Word	Read Only	Daily log freeze buff [18].
949	Word	Read Only	Daily log freeze buff [19].
950	Word	Read Only	Daily log freeze buff [20].
951	Word	Read Only	Daily log freeze buff [21].
952	Word	Read Only	Daily log freeze buff [22].
953	Word	Read Only	Daily log freeze buff [23].
954	Word	Read Only	Daily log freeze buff [24].
955	Word	Read Only	Daily log freeze buff [25].
956	Word	Read Only	Daily log freeze buff [26].
957	Word	Read Only	Daily log freeze buff [27].
958	Word	Read Only	Daily log freeze buff [28].
959	Word	Read Only	Daily log freeze buff [29].
968	Byte	Read Only	Current Runtime Segment.
969	Byte	Read/Write	Runtime Freeze Segment
970	Time	Read Only	Runtime Freeze Buffer[0].
971	Time	Read Only	Runtime Freeze Buffer[1].
972	Time	Read Only	Runtime Freeze Buffer[2].
973	Time	Read Only	Runtime Freeze Buffer[3].
974	Time	Read Only	Runtime Freeze Buffer[4].
975	Time	Read Only	Runtime Freeze Buffer[5].
976	Time	Read Only	Runtime Freeze Buffer[6].
977	Time	Read Only	Runtime Freeze Buffer[7].
978	Time	Read Only	Runtime Freeze Buffer[8].
979	Time	Read Only	Runtime Freeze Buffer[9].
980	Time	Read Only	Runtime Freeze Buffer[10].
981	Time	Read Only	Runtime Freeze Buffer[11].
982	Time	Read Only	Runtime Freeze Buffer[12].
983	Time	Read Only	Runtime Freeze Buffer[13].
984	Time	Read Only	Runtime Freeze Buffer[14].
985	Time	Read Only	Runtime Freeze Buffer[15].

Parameter	8500 Native Type	Access	Description
986	Time	Read Only	Runtime Freeze Buffer[16].
987	Time	Read Only	Runtime Freeze Buffer[17].
988	Time	Read Only	Runtime Freeze Buffer[18].
989	Time	Read Only	Runtime Freeze Buffer[19].
990	Time	Read Only	Runtime Freeze Buffer[20].
991	Time	Read Only	Runtime Freeze Buffer[21].
992	Time	Read Only	Runtime Freeze Buffer[22].
993	Time	Read Only	Runtime Freeze Buffer[23].
994	Time	Read Only	Runtime Freeze Buffer[24].
995	Time	Read Only	Runtime Freeze Buffer[25].
996	Time	Read Only	Runtime Freeze Buffer[26].
997	Time	Read Only	Runtime Freeze Buffer[27].
998	Time	Read Only	Runtime Freeze Buffer[28].
999	Time	Read Only	Runtime Freeze Buffer[29].
1000	Byte	Read/Write	Host alarm 00 action.
1001	Byte	Read/Write	Host alarm 01 action.
1002	Byte	Read/Write	Host alarm 02 action.
1003	Byte	Read/Write	Host alarm 03 action.
1004	Byte	Read/Write	Host alarm 04 action.
1005	Byte	Read/Write	Host alarm 05 action.
1006	Byte	Read/Write	Host alarm 06 action.
1007	Byte	Read/Write	Host alarm 07 action.
1008	Byte	Read/Write	Host alarm 08 action.
1009	Byte	Read/Write	Host alarm 09 action.
1010	Byte	Read/Write	Host alarm 10 action.
1011	Byte	Read/Write	Host alarm 11 action.
1012	Byte	Read/Write	Host alarm 12 action.
1013	Byte	Read/Write	Host alarm 13 action.
1014	Byte	Read/Write	Host alarm 14 action.
1015	Byte	Read/Write	Host alarm 15 action.
1016	Byte	Read/Write	Activate Host Alarm.
1020	Time24	Read Only	Tr. Valve Buffer time.
1021	Date	Read Only	Tr. Valve Buffer date.
1022	Time24	Read Only	St. Valve Buffer time.
1023	Date	Read Only	St. Valve Buffer date.
1024	Word	Read Only	Travelling Valve value.
1025	Time24	Read Only	Tr. Valve value time.
1026	Date	Read Only	Tr. Valve value date.
1027	Word	Read Only	Standing Valve value.

Parameter	8500 Native Type	Access	Description
1028	Time24	Read Only	St. Valve value time.
1029	Date	Read Only	St. Valve value date.
1030	Word	Read Only	CBE Value.
1031	Time24	Read Only	CBE Value time.
1032	Date	Read Only	CBE Value date.
1033	Byte	Read/Write	CBE Crank Angle flag.
1034	Command	Read/Write	Clear Valve Check.
1060	Byte	Read Only	Fluid calc. first str counted.
1061	Word	Read Only	Fluid calc. stroke_incr.
1062	Long	Read/Write	Fluid calc. pump_vol.
1063	Long	Read/Write	Fluid calc. daily_tot_vol.
1064	Long	Read/Write	Fluid calc. daily_str_acc.
1065	Long	Read/Write	Fluid calc. surf_str_acc.
1066	Word	Read/Write	Fluid calc. dbg parm1.
1067	Word	Read/Write	Fluid calc. dbg parm1.
1068	Byte	Read/Write	FP Catch-up Calc.
1070	Command	Read/Write	Reset Alarm Summary.
1153	Word	Read Only	Tot strokes today.
1154	Word	Read Only	STA BotSeg Start Position (mV).
1155	Word	Read Only	STA BotSeg Stop Position (mV).
1156	Word	Read Only	STA TopSeg Start Position (mV).
1157	Word	Read Only	STA TopSeg Stop Position (mV).
1158	Word	Read Only	STA TOP Seg Detected (mV).
1159	Word	Read Only	STA DN Seg Detected (mV).
1160	Word	Read Only	STA BOT Seg Detected (mV).
1161	Word	Read Only	STA UP Seg Detected (mV).
1162	Word	Read/Write	Unused EE based param.
1163	Word	Read/Write	BOS ctr f/TMP CTL LOSS.
1165	Word	Read Only	STA BOS Seg Duration.
1166	Word	Read Only	STA TOS Seg Duration.
1167	Display	Read Only	VSD Startup Speed State.
1168	Word	Read/Write	VSD ctl filt ctr.
1169	Word	Read/Write	VSD: AO Output (mA).
1170	Long	Read Only	Accum Pump Fillage.
1171	Display	Read Only	VSD: Speed Src.
1172	Time	Read/Write	VSD: eval timer.
1173	Byte	Read/Write	VSD: Learn Error Code.
1174	Byte	Read/Write	VSD: Control Filter.
1175	Byte	Read Only	VSD: Tol State.

Parameter	8500 Native Type	Access	Description
1176	Byte	Read Only	VSD: Abs Tol State.
1177	Word	Read Only	VSD: Control SPM.
1178	Word	Read/Write	VSD: Step Value.
1179	Byte	Read/Write	Startup Stroke Count.
1180	SWord	Read/Write	A/O-1 Override EGU Value.
1181	Word	Read Only	A/O-1 Output Raw Counts.
1182	SWord	Read Only	A/O-1 Scaled EGU Value.
1183	Byte	Read/Write	A/O-1 Range Select.
1184	Byte	Read/Write	A/O-1 EGU Decimal Places.
1185	Byte	Read/Write	A/O-1 EGU Label.
1186	SWord	Read/Write	A/O-1 Low Scale.
1187	SWord	Read/Write	A/O-1 High Scale.
1188	Word	Read/Write	A/O-1 Source Parameter.
1189	Byte	Read/Write	A/O-1 Override Enable.
1190	Byte	Read/Write	MBS Comm Baud Rate.
1191	Byte	Read/Write	MBS Data Bits.
1192	Byte	Read/Write	MBS Comm Parity.
1193	Byte	Read/Write	MBS Comm Stop Bits.
1194	Byte	Read/Write	MBS Comm RTS Delay.
1195	Byte	Read/Write	MBS Comm RTS Hld.
1196	Byte	Read/Write	MBS Comm Rx Tmout.
1197	Byte	Read/Write	MBS Comm PTT Tmout.
1198	Byte	Read/Write	MBS Comm Protocol.
1199	Byte	Read/Write	MBS Comm Port Mode.

Parameters 1202-1500

Parameter	8500 Native Type	Access	Description
1202	Word	Read/Write	MBS Comm Rx Chars.
1203	Word	Read/Write	MBS Comm Tx Chars.
1206	Word	Read/Write	MBS Comm BadRxChrs.
1208	Command	Read/Write	MBS Comm Clr Stats.
1230	Byte	Read/Write	Speed Trim Adjust Enable.
1231	Word	Read/Write	STA Trim Speed.
1232	Word	Read/Write	STA BOT Start Angle (deg).
1233	Word	Read/Write	STA BOT Stop Angle (deg).
1234	Word	Read/Write	STA TOP Start Angle (deg).
1235	Word	Read/Write	STA TOP Stop Angle (deg).
1236	Word	Read/Write	STA Consecutive Trans.

Parameter	8500 Native Type	Access	Description
1237	Word	Read/Write	STA Maximum Top/Bot Seg Time (ms).
1238	Word	Read/Write	STA Maximum UP Speed.
1239	Word	Read/Write	STA Maximum DN Speed.
1240	Word	Read/Write	STA Maximum TRNS Speed.
1241	Word	Read/Write	STA Dn Speed Diff.
1242	Byte	Read/Write	STA Dn Speed Diff Dir.
1246	Byte	Read Only	STA Current Segment.
1247	Word	Read Only	STA Current Timer.
1248	Byte	Read Only	STA Next Segment.
1249	Byte	Read/Write	Direction Num of Samples.
1250	Byte	Read/Write	VSD Enable Flag.
1251	Word	Read Only	VSD Base Output%.
1252	Byte	Read/Write	VSD Tolerance (+/-%).
1253	Word	Read/Write	VSD Init Speed Chg.
1254	Word	Read Only	VSD Minimum Cntrl Out%.
1255	Word	Read Only	VSD Maximum Cntrl Out%.
1256	Word	Read/Write	VSD Minimum SPM.
1257	Word	Read/Write	VSD Maximum SPM.
1258	Word	Read/Write	VSD Minimum Speed Chg.
1259	Word	Read Only	VSD Control Out.
1260	Time	Read Only	VSD Out Tolerance Tm.
1261	Time	Read/Write	VSD Evaluation Time.
1262	Byte	Read/Write	VSD Out Tol Action.
1263	Word	Read/Write	VSD SPM Override Val.
1264	Byte	Read/Write	VSD SPM Override Flag.
1265	Word	Read/Write	VSD Average Output.
1266	Display	Read Only	VSD Mode.
1267	Display	Read Only	VSD Average Pump off.
1268	Word	Read/Write	SPM Startup value.
1269	Word	Read Only	Average SPM gauge period.
1270	Word	Read Only	SPM Measured.
1271	Word	Read Only	AO Minimum Output (mA).
1272	Word	Read Only	AO Maximum Output (mA).
1273	Byte	Read/Write	Minimum Pump Fillage.
1274	Byte	Read/Write	Minimum Fill Stroke Count.
1275	Byte	Read/Write	Minimum Fill Action.
1276	Display	Read Only	Cur Pump Fillage.
1277	Word	Read Only	Minimum Speed Change (%).
1278	Word	Read/Write	Speed Tolerance (SPM).

Parameter	8500 Native Type	Access	Description
1279	Word	Read Only	Low Tol Stroke Ctr.
1280	Word	Read Only	Lo-Tol Strokes Yesterday.
1281	Word	Read Only	Lo-Tol Strokes 2 days ago.
1282	Word	Read Only	High Tol Stroke Ctr.
1283	Word	Read Only	Hi-Tol Strokes Yesterday.
1284	Word	Read Only	Hi-Tol Strokes 2 days ago.
1285	Word	Read Only	In Tol Stroke Ctr.
1286	Word	Read Only	In-Tol Strokes Yesterday.
1287	Word	Read Only	In-Tol Strokes 2 days ago.
1288	Word	Read Only	Average SPM yesterday.
1289	Word	Read Only	Average SPM two days ago.
1290	Byte	Read/Write	Rod Load Ctrl Enable.
1291	Word	Read/Write	RLC Hi Gain.
1292	Word	Read/Write	RLC Lo Gain.
1293	Display	Read Only	RLC State.
1294	Word	Read/Write	RLC Load Deadband.
1295	Word	Read/Write	RLC Lo Load Limit.
1296	Word	Read/Write	RLC Hi Load Limit.
1297	Word	Read/Write	RLC Minimum Out SPM.
1298	Command	Read/Write	VSD Cfg Save.
1300	Byte	Read/Write	Dev 1 Flags.
1301	Byte	Read/Write	Dev 1 Unit ID
1303	Byte	Read/Write	Dev 1 RTS Delay.
1304	Byte	Read/Write	Dev 1 RTS Hold.
1305	Word	Read/Write	Dev 1 Mx Stat/Coils.
1306	Word	Read/Write	Dev 1 Maximum Analog Regs.
1309	Command	Read/Write	Dev 1 Clr Stats.
1310	Word	Read Only	Dev 1 Rx Chars.
1311	Word	Read Only	Dev 1 Tx Chars.
1312	Word	Read Only	Dev 1 Rx Msgs.
1313	Word	Read Only	Dev 1 Tx Msgs.
1314	Word	Read Only	Dev 1 BadRxChars.
1315	Word	Read Only	Dev 1 Bad Rx Msgs.
1316	Word	Read Only	Dev 1 Retries.
1317	Word	Read Only	Dev 1 ErrorCount.
1318	Word	Read Only	Dev 1 Status.
1320	Byte	Read/Write	Dev 2 Flags.
1321	Byte	Read/Write	Dev 2 Unit ID.
1323	Byte	Read/Write	Dev 2 RTS Delay.

Parameter	8500 Native Type	Access	Description
1324	Byte	Read/Write	Dev 2 RTS Hold.
1325	Word	Read/Write	Dev 2 Mx Stat/Coils.
1326	Word	Read/Write	Dev 2 Maximum Analog Regs.
1329	Command	Read/Write	Dev 2 Clr Stats.
1330	Word	Read Only	Dev 2 Rx Chars.
1331	Word	Read Only	Dev 2 Tx Chars.
1332	Word	Read Only	Dev 2 Rx Msgs.
1333	Word	Read Only	Dev 2 Tx Msgs.
1334	Word	Read Only	Dev 2 BadRxChars.
1335	Word	Read Only	Dev 2 Bad Rx Msgs.
1336	Word	Read Only	Dev 2 Retries.
1337	Word	Read Only	Dev 2 ErrorCount.
1338	Word	Read Only	Dev 2 Status.
1340	Byte	Read/Write	Dev 3 Flags.
1341	Byte	Read/Write	Dev 3 Unit ID.
1343	Byte	Read/Write	Dev 3 RTS Delay.
1344	Byte	Read/Write	Dev 3 RTS Hold.
1345	Word	Read/Write	Dev 3 Mx Stat/Coils.
1346	Word	Read/Write	Dev 3 Maximum Analog Regs.
1349	Command	Read/Write	Dev 3 Clr Stats.
1350	Word	Read Only	Dev 3 Rx Chars.
1351	Word	Read Only	Dev 3 Tx Chars.
1352	Word	Read Only	Dev 3 Rx Msgs.
1353	Word	Read Only	Dev 3 Tx Msgs.
1354	Word	Read Only	Dev 3 BadRxChars.
1355	Word	Read Only	Dev 3 Bad Rx Msgs.
1356	Word	Read Only	Dev 3 Retries.
1357	Word	Read Only	Dev 3 ErrorCount.
1358	Word	Read Only	Dev 3 Status.
1360	Byte	Read/Write	Dev 4 Flags.
1361	Byte	Read/Write	Dev 4 Unit ID.
1363	Byte	Read/Write	Dev 4 RTS Delay.
1364	Byte	Read/Write	Dev 4 RTS Hold.
1365	Word	Read/Write	Dev 4 Mx Stat/Coils.
1366	Word	Read/Write	Dev 4 Maximum Analog Regs.
1369	Command	Read/Write	Dev 4 Clr Stats.
1370	Word	Read Only	Dev 4 Rx Chars.
1371	Word	Read Only	Dev 4 Tx Chars.
1372	Word	Read Only	Dev 4 Rx Msgs.

Parameter	8500 Native Type	Access	Description
1373	Word	Read Only	Dev 4 Tx Msgs.
1374	Word	Read Only	Dev 4 BadRxChars.
1375	Word	Read Only	Dev 4 Bad Rx Msgs.
1376	Word	Read Only	Dev 4 Retries.
1377	Word	Read Only	Dev 4 ErrorCount.
1378	Word	Read Only	Dev 4 Status.
1380	Byte	Read/Write	Dev 5 Flags.
1381	Byte	Read/Write	Dev 5 Unit ID.
1383	Byte	Read/Write	Dev 5 RTS Delay.
1384	Byte	Read/Write	Dev 5 RTS Hold.
1385	Word	Read/Write	Dev 5 Mx Stat/Coils.
1386	Word	Read/Write	Dev 5 Maximum Analog Regs.
1389	Command	Read/Write	Dev 5 Clr Stats.
1390	Word	Read Only	Dev 5 Rx Chars.
1391	Word	Read Only	Dev 5 Tx Chars.
1392	Word	Read Only	Dev 5 Rx Msgs.
1393	Word	Read Only	Dev 5 Tx Msgs.
1394	Word	Read Only	Dev 5 BadRxChars.
1395	Word	Read Only	Dev 5 Bad Rx Msgs.
1396	Word	Read Only	Dev 5 Retries.
1397	Word	Read Only	Dev 5 ErrorCount.
1398	Word	Read Only	Dev 5 Status.
1400	Byte	Read/Write	Dev 6 Flags.
1401	Byte	Read/Write	Dev 6 Unit ID.
1403	Byte	Read/Write	Dev 6 RTS Delay.
1404	Byte	Read/Write	Dev 6 RTS Hold.
1405	Word	Read/Write	Dev 6 Mx Stat/Coils.
1406	Word	Read/Write	Dev 6 Maximum Analog Regs.
1409	Command	Read/Write	Dev 6 Clr Stats.
1410	Word	Read Only	Dev 6 Rx Chars.
1411	Word	Read Only	Dev 6 Tx Chars.
1412	Word	Read Only	Dev 6 Rx Msgs.
1413	Word	Read Only	Dev 6 Tx Msgs.
1414	Word	Read Only	Dev 6 BadRxChars.
1415	Word	Read Only	Dev 6 Bad Rx Msgs.
1416	Word	Read Only	Dev 6 Retries.
1417	Word	Read Only	Dev 6 ErrorCount.
1418	Word	Read Only	Dev 6 Status.
1420	Byte	Read/Write	Dev 7 Flags.

Parameter	8500 Native Type	Access	Description
1421	Byte	Read/Write	Dev 7 Unit ID.
1423	Byte	Read/Write	Dev 7 RTS Delay.
1424	Byte	Read/Write	Dev 7 RTS Hold.
1425	Word	Read/Write	Dev 7 Mx Stat/Coils.
1426	Word	Read/Write	Dev 7 Maximum Analog Regs.
1429	Command	Read/Write	Dev 7 Clr Stats.
1430	Word	Read Only	Dev 7 Rx Chars.
1431	Word	Read Only	Dev 7 Tx Chars.
1432	Word	Read Only	Dev 7 Rx Msgs.
1433	Word	Read Only	Dev 7 Tx Msgs.
1434	Word	Read Only	Dev 7 BadRxChars.
1435	Word	Read Only	Dev 7 Bad Rx Msgs.
1436	Word	Read Only	Dev 7 Retries.
1437	Word	Read Only	Dev 7 ErrorCount.
1438	Word	Read Only	Dev 7 Status.
1440	Byte	Read/Write	Dev 8 Flags.
1441	Byte	Read/Write	Dev 8 Unit ID.
1443	Byte	Read/Write	Dev 8 RTS Delay.
1444	Byte	Read/Write	Dev 8 RTS Hold.
1445	Word	Read/Write	Dev 8 Mx Stat/Coils.
1446	Word	Read/Write	Dev 8 Maximum Analog Regs.
1449	Command	Read/Write	Dev 8 Clr Stats.
1450	Word	Read Only	Dev 8 Rx Chars.
1451	Word	Read Only	Dev 8 Tx Chars.
1452	Word	Read Only	Dev 8 Rx Msgs.
1453	Word	Read Only	Dev 8 Tx Msgs.
1454	Word	Read Only	Dev 8 BadRxChars.
1455	Word	Read Only	Dev 8 Bad Rx Msgs.
1456	Word	Read Only	Dev 8 Retries.
1457	Word	Read Only	Dev 8 ErrorCount.
1458	Word	Read Only	Dev 8 Status.
1460	Word	Read Only	STA Maximum Up Speed Pct.
1461	Word	Read Only	STA Maximum Down Speed Pct.
1462	Word	Read Only	STA Maximum Trns Speed Pct.
1463	Word	Read Only	STA Down Speed Diff Pct.
1464	Word	Read Only	STA Trim Speed Pct.
1465	Byte	Read/Write	Pump Dir DO PntNum.
1466	Word	Read Only	STA Cur Down Speed Pct.
1467	Word	Read Only	STA Cur TOP Speed Pct.

Parameter	8500 Native Type	Access	Description
1468	Word	Read Only	STA Cur BOT Speed Pct.
1469	Word	Read Only	STA Cur Up Speed Pct.
1470	Word	Read Only	RLC Load Hist[0].
1471	Word	Read Only	RLC Load Hist[1].
1472	Word	Read Only	RLC Load Hist[2].
1473	Word	Read Only	RLC Duration Hist[0].
1474	Word	Read Only	RLC Duration Hist[1].
1475	Word	Read Only	RLC Duration Hist[2].
1476	Word	Read Only	RLC Event Sequence Num 1.
1477	Word	Read Only	RLC Event Sequence Num 2.
1478	Word	Read Only	RLC Event Sequence Num 3.
1479	Time	Read/Write	VSD: In Tol Timer.
1480	Word	Read Only	RLC Hi Evt Ctr Cur.
1481	Word	Read Only	RLC Hi Evt Ctr Yest.
1482	Word	Read Only	RLC Hi Evt Ctr Yest-1.
1483	Word	Read Only	RLC Lo Evt Ctr Cur.
1484	Word	Read Only	RLC Lo Evt Ctr Yest.
1485	Word	Read Only	RLC Lo Evt Ctr Yest-1.
1486	Word	Read Only	RLC Event Minimum Speed 1.
1487	Word	Read Only	RLC Event Minimum Speed 2.
1488	Word	Read Only	RLC Event Minimum Speed 3.
1489	Word	Read/Write	VSD InTol Chg Ctr.
1496	Time	Read/Write	VSD InTol Maximum Time.
1497	Word	Read/Write	VSD In Tol Speed Diff.
1498	Word	Read/Write	STA Output Pct.
1499	Word	Read/Write	RLC Output %.
1500	Byte	Read/Write	Scn Mask Select.

Parameters 1501-1800

Parameter	8500 Native Type	Access	Description
1501	Word	Read/Write	Scn Retries.
1502	Word	Read/Write	Scn Retry Delay.
1503	Word	Read/Write	Scn Scan Delay.
1504	Word	Read/Write	Scn Cycle Delay.
1505	Word	Read/Write	Scn Auto Refresh.
1508	Display	Read Only	Scn Disp State.
1510	Byte	Read/Write	Scan1 Blk 1 Access.
1511	Byte	Read/Write	Scan1 Blk 1 Device.

Parameter	8500 Native Type	Access	Description
1512	Word	Read/Write	Scan1 Blk 1 Start Reg.
1513	Word	Read/Write	Scan1 Blk 1 Quantity.
1514	Word	Read/Write	Scan1 Blk 1 Database Index.
1515	Byte	Read/Write	Scan1 Blk 2 Access.
1516	Byte	Read/Write	Scan1 Blk 2 Device.
1517	Word	Read/Write	Scan1 Blk 2 Start Reg.
1518	Word	Read/Write	Scan1 Blk 2 Quantity.
1519	Word	Read/Write	Scan1 Blk 2 Database Index.
1520	Byte	Read/Write	Scan1 Blk 3 Access.
1521	Byte	Read/Write	Scan1 Blk 3 Device.
1522	Word	Read/Write	Scan1 Blk 3 Start Reg.
1523	Word	Read/Write	Scan1 Blk 3 Quantity.
1524	Word	Read/Write	Scan1 Blk 3 Database Index.
1525	Byte	Read/Write	Scan1 Blk 4 Access.
1526	Byte	Read/Write	Scan1 Blk 4 Device.
1527	Word	Read/Write	Scan1 Blk 4 Start Reg.
1528	Word	Read/Write	Scan1 Blk 4 Quantity.
1529	Word	Read/Write	Scan1 Blk 4 Database Index.
1530	Byte	Read/Write	Scan1 Blk 5 Access.
1531	Byte	Read/Write	Scan1 Blk 5 Device.
1532	Word	Read/Write	Scan1 Blk 5 Start Reg.
1533	Word	Read/Write	Scan1 Blk 5 Quantity.
1534	Word	Read/Write	Scan1 Blk 5 Database Index.
1535	Byte	Read/Write	Scan1 Blk 6 Access.
1536	Byte	Read/Write	Scan1 Blk 6 Device.
1537	Word	Read/Write	Scan1 Blk 6 Start Reg.
1538	Word	Read/Write	Scan1 Blk 6 Quantity.
1539	Word	Read/Write	Scan1 Blk 6 Database Index.
1540	Byte	Read/Write	Scan1 Blk 7 Access.
1541	Byte	Read/Write	Scan1 Blk 7 Device.
1542	Word	Read/Write	Scan1 Blk 7 Start Reg.
1543	Word	Read/Write	Scan1 Blk 7 Quantity.
1544	Word	Read/Write	Scan1 Blk 7 Database Index.
1545	Byte	Read/Write	Scan1 Blk 8 Access.
1546	Byte	Read/Write	Scan1 Blk 8 Device.
1547	Word	Read/Write	Scan1 Blk 8 Start Reg.
1548	Word	Read/Write	Scan1 Blk 8 Quantity.
1549	Word	Read/Write	Scan1 Blk 8 Database Index.
1550	Byte	Read/Write	Scan1 Blk 9 Access.

Parameter	8500 Native Type	Access	Description
1551	Byte	Read/Write	Scan1 Blk 9 Device
1552	Word	Read/Write	Scan1 Blk 9 Start Reg.
1553	Word	Read/Write	Scan1 Blk 9 Quantity.
1554	Word	Read/Write	Scan1 Blk 9 Database Index.
1555	Byte	Read/Write	Scan1 Blk 10 Access.
1556	Byte	Read/Write	Scan1 Blk 10 Device.
1557	Word	Read/Write	Scan1 Blk 10 Start Reg
1558	Word	Read/Write	Scan1 Blk 10 Quantity.
1559	Word	Read/Write	Scan1 Blk 10 Database Index.
1560	Byte	Read/Write	Scan1 Blk 11 Access.
1561	Byte	Read/Write	Scan1 Blk 11 Device.
1562	Word	Read/Write	Scan1 Blk 11 Start Reg.
1563	Word	Read/Write	Scan1 Blk 11 Quantity.
1564	Word	Read/Write	Scan1 Blk 11 Database Index.
1565	Byte	Read/Write	Scan1 Blk 12 Access.
1566	Byte	Read/Write	Scan1 Blk 12 Device.
1567	Word	Read/Write	Scan1 Blk 12 Start Reg.
1568	Word	Read/Write	Scan1 Blk 12 Quantity.
1569	Word	Read/Write	Scan1 Blk 12 Database Index.
1570	Byte	Read/Write	Scan1 Blk 13 Access.
1571	Byte	Read/Write	Scan1 Blk 13 Device
1572	Word	Read/Write	Scan1 Blk 13 Start Reg
1573	Word	Read/Write	Scan1 Blk 13 Quantity
1574	Word	Read/Write	Scan1 Blk 13 Database Index.
1575	Byte	Read/Write	Scan1 Blk 14 Access.
1576	Byte	Read/Write	Scan1 Blk 14 Device.
1577	Word	Read/Write	Scan1 Blk 14 Start Reg.
1578	Word	Read/Write	Scan1 Blk 14 Quantity.
1579	Word	Read/Write	Scan1 Blk 14 Database Index.
1580	Byte	Read/Write	Scan1 Blk 15 Access.
1581	Byte	Read/Write	Scan1 Blk 15 Device.
1582	Word	Read/Write	Scan1 Blk 15 Start Reg.
1583	Word	Read/Write	Scan1 Blk 15 Quantity.
1584	Word	Read/Write	Scan1 Blk 15 Database Index.
1585	Byte	Read/Write	Scan1 Blk 16 Access.
1586	Byte	Read/Write	Scan1 Blk 16 Device.
1587	Word	Read/Write	Scan1 Blk 16 Start Reg.
1588	Word	Read/Write	Scan1 Blk 16 Quantity.
1589	Word	Read/Write	Scan1 Blk 16 Database Index.

Parameter	8500 Native Type	Access	Description
1600	Long	Read Only	AO Cal Volt Lo Counts.
1601	Long	Read Only	AO Cal Volt Hi Counts.
1602	Long	Read Only	AO Cal Curr Lo Counts.
1603	Long	Read Only	AO Cal Curr Hi Counts.
1605	Byte	Read/Write	Scan1 Blk 17 Access.
1606	Byte	Read/Write	Scan1 Blk 17 Device.
1607	Word	Read/Write	Scan1 Blk 17 Start Reg.
1608	Word	Read/Write	Scan1 Blk 17 Quantity.
1609	Word	Read/Write	Scan1 Blk 17 Database Index.
1610	Byte	Read/Write	Scan1 Blk 18 Access.
1611	Byte	Read/Write	Scan1 Blk 18 Device.
1612	Word	Read/Write	Scan1 Blk 18 Start Reg.
1613	Word	Read/Write	Scan1 Blk 18 Quantity.
1614	Word	Read/Write	Scan1 Blk 18 Database Index.
1615	Byte	Read/Write	Scan1 Blk 19 Access.
1616	Byte	Read/Write	Scan1 Blk 19 Device.
1617	Word	Read/Write	Scan1 Blk 19 Start Reg.
1618	Word	Read/Write	Scan1 Blk 19 Quantity.
1619	Word	Read/Write	Scan1 Blk 19 Database Index.
1620	Byte	Read/Write	Scan1 Blk 20 Access.
1621	Byte	Read/Write	Scan1 Blk 20 Device.
1622	Word	Read/Write	Scan1 Blk 20 Start Reg.
1623	Word	Read/Write	Scan1 Blk 20 Quantity.
1624	Word	Read/Write	Scan1 Blk 20 Database Index.
1625	Byte	Read/Write	Scan1 Blk 21 Access.
1626	Byte	Read/Write	Scan1 Blk 21 Device.
1627	Word	Read/Write	Scan1 Blk 21 Start Reg.
1628	Word	Read/Write	Scan1 Blk 21 Quantity.
1629	Word	Read/Write	Scan1 Blk 21 Database Index.
1630	Byte	Read/Write	Scan1 Blk 22 Access.
1631	Byte	Read/Write	Scan1 Blk 22 Device.
1632	Word	Read/Write	Scan1 Blk 22 Start Reg.
1633	Word	Read/Write	Scan1 Blk 22 Quantity.
1634	Word	Read/Write	Scan1 Blk 22 Database Index.
1635	Byte	Read/Write	Scan1 Blk 23 Access.
1636	Byte	Read/Write	Scan1 Blk 23 Device.
1637	Word	Read/Write	Scan1 Blk 23 Start Reg.
1638	Word	Read/Write	Scan1 Blk 23 Quantity.
1639	Word	Read/Write	Scan1 Blk 23 Database Index.

Parameter	8500 Native Type	Access	Description
1640	Byte	Read/Write	Scan1 Blk 24 Access.
1641	Byte	Read/Write	Scan1 Blk 24 Device.
1642	Word	Read/Write	Scan1 Blk 24 Start Reg.
1643	Word	Read/Write	Scan1 Blk 24 Quantity.
1644	Word	Read/Write	Scan1 Blk 24 Database Index.
1645	Byte	Read/Write	Scan1 Blk 25 Access.
1646	Byte	Read/Write	Scan1 Blk 25 Device.
1647	Word	Read/Write	Scan1 Blk 25 Start Reg.
1648	Word	Read/Write	Scan1 Blk 25 Quantity.
1649	Word	Read/Write	Scan1 Blk 25 Database Index.
1650	Byte	Read/Write	Scan1 Blk 26 Access.
1651	Byte	Read/Write	Scan1 Blk 26 Device.
1652	Word	Read/Write	Scan1 Blk 26 Start Reg.
1653	Word	Read/Write	Scan1 Blk 26 Quantity.
1654	Word	Read/Write	Scan1 Blk 26 Database Index.
1655	Byte	Read/Write	Scan1 Blk 27 Access.
1656	Byte	Read/Write	Scan1 Blk 27 Device.
1657	Word	Read/Write	Scan1 Blk 27 Start Reg.
1658	Word	Read/Write	Scan1 Blk 27 Quantity.
1659	Word	Read/Write	Scan1 Blk 27 Database Index.
1660	Byte	Read/Write	Scan1 Blk 28 Access.
1661	Byte	Read/Write	Scan1 Blk 28 Device.
1662	Word	Read/Write	Scan1 Blk 28 Start Reg.
1663	Word	Read/Write	Scan1 Blk 28 Quantity.
1664	Word	Read/Write	Scan1 Blk 28 Database Index.
1665	Byte	Read/Write	Scan1 Blk 29 Access.
1666	Byte	Read/Write	Scan1 Blk 29 Device.
1667	Word	Read/Write	Scan1 Blk 29 Start Reg.
1668	Word	Read/Write	Scan1 Blk 29 Quantity.
1669	Word	Read/Write	Scan1 Blk 29 Database Index.
1670	Byte	Read/Write	Scan1 Blk 30 Access.
1671	Byte	Read/Write	Scan1 Blk 30 Device.
1672	Word	Read/Write	Scan1 Blk 30 Start Reg.
1673	Word	Read/Write	Scan1 Blk 30 Quantity.
1674	Word	Read/Write	Scan1 Blk 30 Database Index.
1675	Byte	Read/Write	Scan1 Blk 31 Access.
1676	Byte	Read/Write	Scan1 Blk 31 Device.
1677	Word	Read/Write	Scan1 Blk 31 Start Reg.
1678	Word	Read/Write	Scan1 Blk 31 Quantity.

Parameter	8500 Native Type	Access	Description
1679	Word	Read/Write	Scan1 Blk 31 Database Index.
1680	Byte	Read/Write	Scan1 Blk 32 Access.
1681	Byte	Read/Write	Scan1 Blk 32 Device.
1682	Word	Read/Write	Scan1 Blk 32 Start Reg.
1683	Word	Read/Write	Scan1 Blk 32 Quantity.
1684	Word	Read/Write	Scan1 Blk 32 Database Index.
1700	Word	Read/Write	Dbase Chg Flags 0- 15.
1701	Word	Read/Write	Dbase Chg Flags 16- 31.
1702	Word	Read/Write	Dbase Chg Flags 32- 47.
1703	Word	Read/Write	Dbase Chg Flags 48- 63.
1704	Word	Read/Write	Dbase Chg Flags 64- 79.
1705	Word	Read/Write	Dbase Chg Flags 80- 95.
1706	Word	Read/Write	Dbase Chg Flags 96-111.
1707	Word	Read/Write	Dbase Chg Flags 112-127.
1708	Word	Read/Write	Dbase Chg Flags 128-143.
1709	Word	Read/Write	Dbase Chg Flags 144-159.
1710	Word	Read/Write	Dbase Chg Flags 160-175.
1711	Word	Read/Write	Dbase Chg Flags 176-191.
1712	Word	Read/Write	Dbase Chg Flags 192-207.
1713	Word	Read/Write	Dbase Chg Flags 208-223.
1714	Word	Read/Write	Dbase Chg Flags 224-239.
1715	Word	Read/Write	Dbase Chg Flags 240-255.
1716	Word	Read/Write	Dbase Chg Flags 256-271.
1717	Word	Read/Write	Dbase Chg Flags 272-287.
1718	Word	Read/Write	Dbase Chg Flags 288-303.
1719	Word	Read/Write	Dbase Chg Flags 304-319.
1720	Word	Read/Write	Dbase Chg Flags 320-335.
1721	Word	Read/Write	Dbase Chg Flags 336-351.
1722	Word	Read/Write	Dbase Chg Flags 352-367.
1723	Word	Read/Write	Dbase Chg Flags 368-383.
1724	Word	Read/Write	Dbase Chg Flags 384-399.
1725	Word	Read/Write	Dbase Chg Flags 400-415.
1726	Word	Read/Write	Dbase Chg Flags 416-431.
1727	Word	Read/Write	Dbase Chg Flags 432-447.
1728	Word	Read/Write	Dbase Chg Flags 448-463.
1729	Word	Read/Write	Dbase Chg Flags 464-479.
1730	Word	Read/Write	Dbase Chg Flags 480-495.
1731	Word	Read/Write	Dbase Chg Flags 496-511.
1732	Word	Read/Write	Dbase Chg Flags 512-527.

Parameter	8500 Native Type	Access	Description
1733	Word	Read/Write	Dbase Chg Flags 528-543.
1734	Word	Read/Write	Dbase Chg Flags 544-559.
1750	Word	Read/Write	ModScan Reg 0.
1751	Word	Read/Write	ModScan Reg 1.
1752	Word	Read/Write	ModScan Reg 2.
1753	Word	Read/Write	ModScan Reg 3.
1754	Word	Read/Write	ModScan Reg 4.
1755	Word	Read/Write	ModScan Reg 5.
1756	Word	Read/Write	ModScan Reg 6.
1757	Word	Read/Write	ModScan Reg 7.
1758	Word	Read/Write	ModScan Reg 8.
1759	Word	Read/Write	ModScan Reg 9.
1760	Word	Read/Write	ModScan Reg 10.
1761	Word	Read/Write	ModScan Reg 11.
1762	Word	Read/Write	ModScan Reg 12.
1763	Word	Read/Write	ModScan Reg 13.
1764	Word	Read/Write	ModScan Reg 14.
1765	Word	Read/Write	ModScan Reg 15.
1766	Word	Read/Write	ModScan Reg 16.
1767	Word	Read/Write	ModScan Reg 17.
1768	Word	Read/Write	ModScan Reg 18.
1769	Word	Read/Write	ModScan Reg 19.
1770	Word	Read/Write	ModScan Reg 20.
1771	Word	Read/Write	ModScan Reg 21.
1772	Word	Read/Write	ModScan Reg 22.
1773	Word	Read/Write	ModScan Reg 23.
1774	Word	Read/Write	ModScan Reg 24.
1775	Word	Read/Write	ModScan Reg 25.
1776	Word	Read/Write	ModScan Reg 26.
1777	Word	Read/Write	ModScan Reg 27.
1778	Word	Read/Write	ModScan Reg 28.
1779	Word	Read/Write	ModScan Reg 29.
1780	Word	Read/Write	ModScan Reg 30.
1781	Word	Read/Write	ModScan Reg 31.
1782	Word	Read/Write	ModScan Reg 32.
1783	Word	Read/Write	ModScan Reg 33.
1784	Word	Read/Write	ModScan Reg 34.
1785	Word	Read/Write	ModScan Reg 35.
1786	Word	Read/Write	ModScan Reg 36.

Parameter	8500 Native Type	Access	Description
1787	Word	Read/Write	ModScan Reg 37.
1788	Word	Read/Write	ModScan Reg 38.
1789	Word	Read/Write	ModScan Reg 39.
1790	Word	Read/Write	ModScan Reg 40.
1791	Word	Read/Write	ModScan Reg 41.
1792	Word	Read/Write	ModScan Reg 42.
1793	Word	Read/Write	ModScan Reg 43.
1794	Word	Read/Write	ModScan Reg 44.
1795	Word	Read/Write	ModScan Reg 45.
1796	Word	Read/Write	ModScan Reg 46.
1797	Word	Read/Write	ModScan Reg 47.
1798	Word	Read/Write	ModScan Reg 48.
1799	Word	Read/Write	ModScan Reg 49.
1800	Word	Read/Write	ModScan Reg 50.

Parameters 1801-2100

Parameter	8500 Native Type	Access	Description
1801	Word	Read/Write	ModScan Reg 51.
1802	Word	Read/Write	ModScan Reg 52.
1803	Word	Read/Write	ModScan Reg 53.
1804	Word	Read/Write	ModScan Reg 54.
1805	Word	Read/Write	ModScan Reg 55.
1806	Word	Read/Write	ModScan Reg 56.
1807	Word	Read/Write	ModScan Reg 57.
1808	Word	Read/Write	ModScan Reg 58.
1809	Word	Read/Write	ModScan Reg 59.
1810	Word	Read/Write	ModScan Reg 60.
1811	Word	Read/Write	ModScan Reg 61.
1812	Word	Read/Write	ModScan Reg 62.
1813	Word	Read/Write	ModScan Reg 63.
1814	Word	Read/Write	ModScan Reg 64.
1815	Word	Read/Write	ModScan Reg 65.
1816	Word	Read/Write	ModScan Reg 66.
1817	Word	Read/Write	ModScan Reg 67.
1818	Word	Read/Write	ModScan Reg 68.
1819	Word	Read/Write	ModScan Reg 69.
1820	Word	Read/Write	ModScan Reg 70.
1821	Word	Read/Write	ModScan Reg 71.

Parameter	8500 Native Type	Access	Description
1822	Word	Read/Write	ModScan Reg 72.
1823	Word	Read/Write	ModScan Reg 73.
1824	Word	Read/Write	ModScan Reg 74.
1825	Word	Read/Write	ModScan Reg 75.
1826	Word	Read/Write	ModScan Reg 76.
1827	Word	Read/Write	ModScan Reg 77.
1828	Word	Read/Write	ModScan Reg 78.
1829	Word	Read/Write	ModScan Reg 79.
1830	Word	Read/Write	ModScan Reg 80.
1831	Word	Read/Write	ModScan Reg 81.
1832	Word	Read/Write	ModScan Reg 82.
1833	Word	Read/Write	ModScan Reg 83.
1834	Word	Read/Write	ModScan Reg 84.
1835	Word	Read/Write	ModScan Reg 85.
1836	Word	Read/Write	ModScan Reg 86.
1837	Word	Read/Write	ModScan Reg 87.
1838	Word	Read/Write	ModScan Reg 88.
1839	Word	Read/Write	ModScan Reg 89.
1840	Word	Read/Write	ModScan Reg 90.
1841	Word	Read/Write	ModScan Reg 91.
1842	Word	Read/Write	ModScan Reg 92.
1843	Word	Read/Write	ModScan Reg 93.
1844	Word	Read/Write	ModScan Reg 94.
1845	Word	Read/Write	ModScan Reg 95.
1846	Word	Read/Write	ModScan Reg 96.
1847	Word	Read/Write	ModScan Reg 97.
1848	Word	Read/Write	ModScan Reg 98.
1849	Word	Read/Write	ModScan Reg 99.
1850	Word	Read/Write	ModScan Reg 100.
1851	Word	Read/Write	ModScan Reg 101.
1852	Word	Read/Write	ModScan Reg 102.
1853	Word	Read/Write	ModScan Reg 103.
1854	Word	Read/Write	ModScan Reg 104.
1855	Word	Read/Write	ModScan Reg 105.
1856	Word	Read/Write	ModScan Reg 106.
1857	Word	Read/Write	ModScan Reg 107.
1858	Word	Read/Write	ModScan Reg 108.
1859	Word	Read/Write	ModScan Reg 109.
1860	Word	Read/Write	ModScan Reg 110.

Parameter	8500 Native Type	Access	Description
1861	Word	Read/Write	ModScan Reg 111.
1862	Word	Read/Write	ModScan Reg 112.
1863	Word	Read/Write	ModScan Reg 113.
1864	Word	Read/Write	ModScan Reg 114.
1865	Word	Read/Write	ModScan Reg 115.
1866	Word	Read/Write	ModScan Reg 116.
1867	Word	Read/Write	ModScan Reg 117.
1868	Word	Read/Write	ModScan Reg 118.
1869	Word	Read/Write	ModScan Reg 119.
1870	Word	Read/Write	ModScan Reg 120.
1871	Word	Read/Write	ModScan Reg 121.
1872	Word	Read/Write	ModScan Reg 122.
1873	Word	Read/Write	ModScan Reg 123.
1874	Word	Read/Write	ModScan Reg 124.
1875	Word	Read/Write	ModScan Reg 125.
1876	Word	Read/Write	ModScan Reg 126.
1877	Word	Read/Write	ModScan Reg 127.
1878	Word	Read/Write	ModScan Reg 128.
1879	Word	Read/Write	ModScan Reg 129.
1880	Word	Read/Write	ModScan Reg 130.
1881	Word	Read/Write	ModScan Reg 131.
1882	Word	Read/Write	ModScan Reg 132.
1883	Word	Read/Write	ModScan Reg 133.
1884	Word	Read/Write	ModScan Reg 134.
1885	Word	Read/Write	ModScan Reg 135.
1886	Word	Read/Write	ModScan Reg 136.
1887	Word	Read/Write	ModScan Reg 137.
1888	Word	Read/Write	ModScan Reg 138.
1889	Word	Read/Write	ModScan Reg 139.
1890	Word	Read/Write	ModScan Reg 140.
1891	Word	Read/Write	ModScan Reg 141.
1892	Word	Read/Write	ModScan Reg 142.
1893	Word	Read/Write	ModScan Reg 143.
1894	Word	Read/Write	ModScan Reg 144.
1895	Word	Read/Write	ModScan Reg 145.
1896	Word	Read/Write	ModScan Reg 146.
1897	Word	Read/Write	ModScan Reg 147.
1898	Word	Read/Write	ModScan Reg 148.
1899	Word	Read/Write	ModScan Reg 149.

Parameter	8500 Native Type	Access	Description
1900	Word	Read/Write	ModScan Reg 150.
1901	Word	Read/Write	ModScan Reg 151.
1902	Word	Read/Write	ModScan Reg 152.
1903	Word	Read/Write	ModScan Reg 153.
1904	Word	Read/Write	ModScan Reg 154.
1905	Word	Read/Write	ModScan Reg 155.
1906	Word	Read/Write	ModScan Reg 156.
1907	Word	Read/Write	ModScan Reg 157.
1908	Word	Read/Write	ModScan Reg 158.
1909	Word	Read/Write	ModScan Reg 159.
1910	Word	Read/Write	ModScan Reg 160.
1911	Word	Read/Write	ModScan Reg 161.
1912	Word	Read/Write	ModScan Reg 162.
1913	Word	Read/Write	ModScan Reg 163.
1914	Word	Read/Write	ModScan Reg 164.
1915	Word	Read/Write	ModScan Reg 165.
1916	Word	Read/Write	ModScan Reg 166.
1917	Word	Read/Write	ModScan Reg 167.
1918	Word	Read/Write	ModScan Reg 168.
1919	Word	Read/Write	ModScan Reg 169.
1920	Word	Read/Write	ModScan Reg 170.
1921	Word	Read/Write	ModScan Reg 171.
1922	Word	Read/Write	ModScan Reg 172.
1923	Word	Read/Write	ModScan Reg 173.
1924	Word	Read/Write	ModScan Reg 174.
1925	Word	Read/Write	ModScan Reg 175.
1926	Word	Read/Write	ModScan Reg 176.
1927	Word	Read/Write	ModScan Reg 177.
1928	Word	Read/Write	ModScan Reg 178.
1929	Word	Read/Write	ModScan Reg 179.
1930	Word	Read/Write	ModScan Reg 180.
1931	Word	Read/Write	ModScan Reg 181.
1932	Word	Read/Write	ModScan Reg 182.
1933	Word	Read/Write	ModScan Reg 183.
1934	Word	Read/Write	ModScan Reg 184.
1935	Word	Read/Write	ModScan Reg 185.
1936	Word	Read/Write	ModScan Reg 186.
1937	Word	Read/Write	ModScan Reg 187.
1938	Word	Read/Write	ModScan Reg 188.

Parameter	8500 Native Type	Access	Description
1939	Word	Read/Write	ModScan Reg 189.
1940	Word	Read/Write	ModScan Reg 190.
1941	Word	Read/Write	ModScan Reg 191.
1942	Word	Read/Write	ModScan Reg 192.
1943	Word	Read/Write	ModScan Reg 193.
1944	Word	Read/Write	ModScan Reg 194.
1945	Word	Read/Write	ModScan Reg 195.
1946	Word	Read/Write	ModScan Reg 196.
1947	Word	Read/Write	ModScan Reg 197.
1948	Word	Read/Write	ModScan Reg 198.
1949	Word	Read/Write	ModScan Reg 199.
1950	Word	Read/Write	ModScan Reg 200.
1951	Word	Read/Write	ModScan Reg 201.
1952	Word	Read/Write	ModScan Reg 202.
1953	Word	Read/Write	ModScan Reg 203.
1954	Word	Read/Write	ModScan Reg 204.
1955	Word	Read/Write	ModScan Reg 205.
1956	Word	Read/Write	ModScan Reg 206.
1957	Word	Read/Write	ModScan Reg 207.
1958	Word	Read/Write	ModScan Reg 208.
1959	Word	Read/Write	ModScan Reg 209.
1960	Word	Read/Write	ModScan Reg 210.
1961	Word	Read/Write	ModScan Reg 211.
1962	Word	Read/Write	ModScan Reg 212.
1963	Word	Read/Write	ModScan Reg 213.
1964	Word	Read/Write	ModScan Reg 214.
1965	Word	Read/Write	ModScan Reg 215.
1966	Word	Read/Write	ModScan Reg 216.
1967	Word	Read/Write	ModScan Reg 217.
1968	Word	Read/Write	ModScan Reg 218.
1969	Word	Read/Write	ModScan Reg 219.
1970	Word	Read/Write	ModScan Reg 220.
1971	Word	Read/Write	ModScan Reg 221.
1972	Word	Read/Write	ModScan Reg 222.
1973	Word	Read/Write	ModScan Reg 223.
1974	Word	Read/Write	ModScan Reg 224.
1975	Word	Read/Write	ModScan Reg 225.
1976	Word	Read/Write	ModScan Reg 226.
1977	Word	Read/Write	ModScan Reg 227.

Parameter	8500 Native Type	Access	Description
1978	Word	Read/Write	ModScan Reg 228.
1979	Word	Read/Write	ModScan Reg 229.
1980	Word	Read/Write	ModScan Reg 230.
1981	Word	Read/Write	ModScan Reg 231.
1982	Word	Read/Write	ModScan Reg 232.
1983	Word	Read/Write	ModScan Reg 233.
1984	Word	Read/Write	ModScan Reg 234.
1985	Word	Read/Write	ModScan Reg 235.
1986	Word	Read/Write	ModScan Reg 236.
1987	Word	Read/Write	ModScan Reg 237.
1988	Word	Read/Write	ModScan Reg 238.
1989	Word	Read/Write	ModScan Reg 239.
1990	Word	Read/Write	ModScan Reg 240.
1991	Word	Read/Write	ModScan Reg 241.
1992	Word	Read/Write	ModScan Reg 242.
1993	Word	Read/Write	ModScan Reg 243.
1994	Word	Read/Write	ModScan Reg 244.
1995	Word	Read/Write	ModScan Reg 245.
1996	Word	Read/Write	ModScan Reg 246.
1997	Word	Read/Write	ModScan Reg 247.
1998	Word	Read/Write	ModScan Reg 248.
1999	Word	Read/Write	ModScan Reg 249.
2000	Word	Read/Write	ModScan Reg 250.
2001	Word	Read/Write	ModScan Reg 251.
2002	Word	Read/Write	ModScan Reg 252.
2003	Word	Read/Write	ModScan Reg 253.
2004	Word	Read/Write	ModScan Reg 254.
2005	Word	Read/Write	ModScan Reg 255.
2006	Word	Read/Write	ModScan Reg 256.
2007	Word	Read/Write	ModScan Reg 257.
2008	Word	Read/Write	ModScan Reg 258.
2009	Word	Read/Write	ModScan Reg 259.
2010	Word	Read/Write	ModScan Reg 260.
2011	Word	Read/Write	ModScan Reg 261.
2012	Word	Read/Write	ModScan Reg 262.
2013	Word	Read/Write	ModScan Reg 263.
2014	Word	Read/Write	ModScan Reg 264.
2015	Word	Read/Write	ModScan Reg 265.
2016	Word	Read/Write	ModScan Reg 266.

Parameter	8500 Native Type	Access	Description
2017	Word	Read/Write	ModScan Reg 267.
2018	Word	Read/Write	ModScan Reg 268.
2019	Word	Read/Write	ModScan Reg 269.
2020	Word	Read/Write	ModScan Reg 270.
2021	Word	Read/Write	ModScan Reg 271.
2022	Word	Read/Write	ModScan Reg 272.
2023	Word	Read/Write	ModScan Reg 273.
2024	Word	Read/Write	ModScan Reg 274.
2025	Word	Read/Write	ModScan Reg 275.
2026	Word	Read/Write	ModScan Reg 276.
2027	Word	Read/Write	ModScan Reg 277.
2028	Word	Read/Write	ModScan Reg 278.
2029	Word	Read/Write	ModScan Reg 279.
2030	Word	Read/Write	ModScan Reg 280.
2031	Word	Read/Write	ModScan Reg 281.
2032	Word	Read/Write	ModScan Reg 282.
2033	Word	Read/Write	ModScan Reg 283.
2034	Word	Read/Write	ModScan Reg 284.
2035	Word	Read/Write	ModScan Reg 285.
2036	Word	Read/Write	ModScan Reg 286.
2037	Word	Read/Write	ModScan Reg 287.
2038	Word	Read/Write	ModScan Reg 288.
2039	Word	Read/Write	ModScan Reg 289.
2040	Word	Read/Write	ModScan Reg 290.
2041	Word	Read/Write	ModScan Reg 291.
2042	Word	Read/Write	ModScan Reg 292.
2043	Word	Read/Write	ModScan Reg 293.
2044	Word	Read/Write	ModScan Reg 294.
2045	Word	Read/Write	ModScan Reg 295.
2046	Word	Read/Write	ModScan Reg 296.
2047	Word	Read/Write	ModScan Reg 297.
2048	Word	Read/Write	ModScan Reg 298.
2049	Word	Read/Write	ModScan Reg 299.
2050	Word	Read/Write	ModScan Reg 300.
2051	Word	Read/Write	ModScan Reg 301.
2052	Word	Read/Write	ModScan Reg 302.
2053	Word	Read/Write	ModScan Reg 303.
2054	Word	Read/Write	ModScan Reg 304.
2055	Word	Read/Write	ModScan Reg 305.

Parameter	8500 Native Type	Access	Description
2056	Word	Read/Write	ModScan Reg 306.
2057	Word	Read/Write	ModScan Reg 307.
2058	Word	Read/Write	ModScan Reg 308.
2059	Word	Read/Write	ModScan Reg 309.
2060	Word	Read/Write	ModScan Reg 310.
2061	Word	Read/Write	ModScan Reg 311.
2062	Word	Read/Write	ModScan Reg 312.
2063	Word	Read/Write	ModScan Reg 313.
2064	Word	Read/Write	ModScan Reg 314.
2065	Word	Read/Write	ModScan Reg 315.
2066	Word	Read/Write	ModScan Reg 316.
2067	Word	Read/Write	ModScan Reg 317.
2068	Word	Read/Write	ModScan Reg 318.
2069	Word	Read/Write	ModScan Reg 319.
2070	Word	Read/Write	ModScan Reg 320.
2071	Word	Read/Write	ModScan Reg 321.
2072	Word	Read/Write	ModScan Reg 322.
2073	Word	Read/Write	ModScan Reg 323.
2074	Word	Read/Write	ModScan Reg 324.
2075	Word	Read/Write	ModScan Reg 325.
2076	Word	Read/Write	ModScan Reg 326.
2077	Word	Read/Write	ModScan Reg 327.
2078	Word	Read/Write	ModScan Reg 328.
2079	Word	Read/Write	ModScan Reg 329.
2080	Word	Read/Write	ModScan Reg 330.
2081	Word	Read/Write	ModScan Reg 331.
2082	Word	Read/Write	ModScan Reg 332.
2083	Word	Read/Write	ModScan Reg 333.
2084	Word	Read/Write	ModScan Reg 334.
2085	Word	Read/Write	ModScan Reg 335.
2086	Word	Read/Write	ModScan Reg 336.
2087	Word	Read/Write	ModScan Reg 337.
2088	Word	Read/Write	ModScan Reg 338.
2089	Word	Read/Write	ModScan Reg 339.
2090	Word	Read/Write	ModScan Reg 340.
2091	Word	Read/Write	ModScan Reg 341.
2092	Word	Read/Write	ModScan Reg 342.
2093	Word	Read/Write	ModScan Reg 343.
2094	Word	Read/Write	ModScan Reg 344.

Parameter	8500 Native Type	Access	Description
2095	Word	Read/Write	ModScan Reg 345.
2096	Word	Read/Write	ModScan Reg 346.
2097	Word	Read/Write	ModScan Reg 347.
2098	Word	Read/Write	ModScan Reg 348.
2099	Word	Read/Write	ModScan Reg 349.
2100	Word	Read/Write	ModScan Reg 350.

Parameters 2100-2400

Parameter	8500 Native Type	Access	Description
2101	Word	Read/Write	ModScan Reg 351.
2102	Word	Read/Write	ModScan Reg 352.
2103	Word	Read/Write	ModScan Reg 353.
2104	Word	Read/Write	ModScan Reg 354.
2105	Word	Read/Write	ModScan Reg 355.
2106	Word	Read/Write	ModScan Reg 356.
2107	Word	Read/Write	ModScan Reg 357.
2108	Word	Read/Write	ModScan Reg 358.
2109	Word	Read/Write	ModScan Reg 359.
2110	Word	Read/Write	ModScan Reg 360.
2111	Word	Read/Write	ModScan Reg 361.
2112	Word	Read/Write	ModScan Reg 362.
2113	Word	Read/Write	ModScan Reg 363.
2114	Word	Read/Write	ModScan Reg 364.
2115	Word	Read/Write	ModScan Reg 365.
2116	Word	Read/Write	ModScan Reg 366.
2117	Word	Read/Write	ModScan Reg 367.
2118	Word	Read/Write	ModScan Reg 368.
2119	Word	Read/Write	ModScan Reg 369.
2120	Word	Read/Write	ModScan Reg 370.
2121	Word	Read/Write	ModScan Reg 371.
2122	Word	Read/Write	ModScan Reg 372.
2123	Word	Read/Write	ModScan Reg 373.
2124	Word	Read/Write	ModScan Reg 374.
2125	Word	Read/Write	ModScan Reg 375.
2126	Word	Read/Write	ModScan Reg 376.
2127	Word	Read/Write	ModScan Reg 377.
2128	Word	Read/Write	ModScan Reg 378.
2129	Word	Read/Write	ModScan Reg 379.

Parameter	8500 Native Type	Access	Description
2130	Word	Read/Write	ModScan Reg 380.
2131	Word	Read/Write	ModScan Reg 381.
2132	Word	Read/Write	ModScan Reg 382.
2133	Word	Read/Write	ModScan Reg 383.
2134	Word	Read/Write	ModScan Reg 384.
2135	Word	Read/Write	ModScan Reg 385.
2136	Word	Read/Write	ModScan Reg 386.
2137	Word	Read/Write	ModScan Reg 387.
2138	Word	Read/Write	ModScan Reg 388.
2139	Word	Read/Write	ModScan Reg 389.
2140	Word	Read/Write	ModScan Reg 390.
2141	Word	Read/Write	ModScan Reg 391.
2142	Word	Read/Write	ModScan Reg 392.
2143	Word	Read/Write	ModScan Reg 393.
2144	Word	Read/Write	ModScan Reg 394.
2145	Word	Read/Write	ModScan Reg 395.
2146	Word	Read/Write	ModScan Reg 396.
2147	Word	Read/Write	ModScan Reg 397.
2148	Word	Read/Write	ModScan Reg 398.
2149	Word	Read/Write	ModScan Reg 399.
2150	Word	Read/Write	ModScan Reg 400.
2151	Word	Read/Write	ModScan Reg 401.
2152	Word	Read/Write	ModScan Reg 402.
2153	Word	Read/Write	ModScan Reg 403.
2154	Word	Read/Write	ModScan Reg 404.
2155	Word	Read/Write	ModScan Reg 405.
2156	Word	Read/Write	ModScan Reg 406.
2157	Word	Read/Write	ModScan Reg 407.
2158	Word	Read/Write	ModScan Reg 408.
2159	Word	Read/Write	ModScan Reg 409.
2160	Word	Read/Write	ModScan Reg 410.
2161	Word	Read/Write	ModScan Reg 411.
2162	Word	Read/Write	ModScan Reg 412.
2163	Word	Read/Write	ModScan Reg 413.
2164	Word	Read/Write	ModScan Reg 414.
2165	Word	Read/Write	ModScan Reg 415.
2166	Word	Read/Write	ModScan Reg 416.
2167	Word	Read/Write	ModScan Reg 417.
2168	Word	Read/Write	ModScan Reg 418.

Parameter	8500 Native Type	Access	Description
2169	Word	Read/Write	ModScan Reg 419.
2170	Word	Read/Write	ModScan Reg 420.
2171	Word	Read/Write	ModScan Reg 421.
2172	Word	Read/Write	ModScan Reg 422.
2173	Word	Read/Write	ModScan Reg 423.
2174	Word	Read/Write	ModScan Reg 424.
2175	Word	Read/Write	ModScan Reg 425.
2176	Word	Read/Write	ModScan Reg 426.
2177	Word	Read/Write	ModScan Reg 427.
2178	Word	Read/Write	ModScan Reg 428.
2179	Word	Read/Write	ModScan Reg 429.
2180	Word	Read/Write	ModScan Reg 430.
2181	Word	Read/Write	ModScan Reg 431.
2182	Word	Read/Write	ModScan Reg 432.
2183	Word	Read/Write	ModScan Reg 433.
2184	Word	Read/Write	ModScan Reg 434.
2185	Word	Read/Write	ModScan Reg 435.
2186	Word	Read/Write	ModScan Reg 436.
2187	Word	Read/Write	ModScan Reg 437.
2188	Word	Read/Write	ModScan Reg 438.
2189	Word	Read/Write	ModScan Reg 439.
2190	Word	Read/Write	ModScan Reg 440.
2191	Word	Read/Write	ModScan Reg 441.
2192	Word	Read/Write	ModScan Reg 442.
2193	Word	Read/Write	ModScan Reg 443.
2194	Word	Read/Write	ModScan Reg 444.
2195	Word	Read/Write	ModScan Reg 445.
2196	Word	Read/Write	ModScan Reg 446.
2197	Word	Read/Write	ModScan Reg 447.
2198	Word	Read/Write	ModScan Reg 448.
2199	Word	Read/Write	ModScan Reg 449.
2200	Word	Read/Write	ModScan Reg 450.
2201	Word	Read/Write	ModScan Reg 451.
2202	Word	Read/Write	ModScan Reg 452.
2203	Word	Read/Write	ModScan Reg 453.
2204	Word	Read/Write	ModScan Reg 454.
2205	Word	Read/Write	ModScan Reg 455.
2206	Word	Read/Write	ModScan Reg 456.
2207	Word	Read/Write	ModScan Reg 457.

Parameter	8500 Native Type	Access	Description
2208	Word	Read/Write	ModScan Reg 458.
2209	Word	Read/Write	ModScan Reg 459.
2210	Word	Read/Write	ModScan Reg 460.
2211	Word	Read/Write	ModScan Reg 461.
2212	Word	Read/Write	ModScan Reg 462.
2213	Word	Read/Write	ModScan Reg 463.
2214	Word	Read/Write	ModScan Reg 464.
2215	Word	Read/Write	ModScan Reg 465.
2216	Word	Read/Write	ModScan Reg 466.
2217	Word	Read/Write	ModScan Reg 467.
2218	Word	Read/Write	ModScan Reg 468.
2219	Word	Read/Write	ModScan Reg 469.
2220	Word	Read/Write	ModScan Reg 470.
2221	Word	Read/Write	ModScan Reg 471.
2222	Word	Read/Write	ModScan Reg 472.
2223	Word	Read/Write	ModScan Reg 473.
2224	Word	Read/Write	ModScan Reg 474.
2225	Word	Read/Write	ModScan Reg 475.
2226	Word	Read/Write	ModScan Reg 476.
2227	Word	Read/Write	ModScan Reg 477.
2228	Word	Read/Write	ModScan Reg 478.
2229	Word	Read/Write	ModScan Reg 479.
2230	Word	Read/Write	ModScan Reg 480.
2231	Word	Read/Write	ModScan Reg 481.
2232	Word	Read/Write	ModScan Reg 482.
2233	Word	Read/Write	ModScan Reg 483.
2234	Word	Read/Write	ModScan Reg 484.
2235	Word	Read/Write	ModScan Reg 485.
2236	Word	Read/Write	ModScan Reg 486.
2237	Word	Read/Write	ModScan Reg 487.
2238	Word	Read/Write	ModScan Reg 488.
2239	Word	Read/Write	ModScan Reg 489.
2240	Word	Read/Write	ModScan Reg 490.
2241	Word	Read/Write	ModScan Reg 491.
2242	Word	Read/Write	ModScan Reg 492.
2243	Word	Read/Write	ModScan Reg 493.
2244	Word	Read/Write	ModScan Reg 494.
2245	Word	Read/Write	ModScan Reg 495.
2246	Word	Read/Write	ModScan Reg 496.

Parameter	8500 Native Type	Access	Description
2247	Word	Read/Write	ModScan Reg 497.
2248	Word	Read/Write	ModScan Reg 498.
2249	Word	Read/Write	ModScan Reg 499.
2250	Word	Read/Write	ModScan Reg 500.
2251	Word	Read/Write	ModScan Reg 501.
2252	Word	Read/Write	ModScan Reg 502.
2253	Word	Read/Write	ModScan Reg 503.
2254	Word	Read/Write	ModScan Reg 504.
2255	Word	Read/Write	ModScan Reg 505.
2256	Word	Read/Write	ModScan Reg 506.
2257	Word	Read/Write	ModScan Reg 507.
2258	Word	Read/Write	ModScan Reg 508.
2259	Word	Read/Write	ModScan Reg 509.
2260	Word	Read/Write	ModScan Reg 510.
2261	Word	Read/Write	ModScan Reg 511.
2262	Word	Read/Write	ModScan Reg 512.
2263	Word	Read/Write	ModScan Reg 513.
2264	Word	Read/Write	ModScan Reg 514.
2265	Word	Read/Write	ModScan Reg 515.
2266	Word	Read/Write	ModScan Reg 516.
2267	Word	Read/Write	ModScan Reg 517.
2268	Word	Read/Write	ModScan Reg 518.
2269	Word	Read/Write	ModScan Reg 519.
2270	Word	Read/Write	ModScan Reg 520.
2271	Word	Read/Write	ModScan Reg 521.
2272	Word	Read/Write	ModScan Reg 522.
2273	Word	Read/Write	ModScan Reg 523.
2274	Word	Read/Write	ModScan Reg 524.
2275	Word	Read/Write	ModScan Reg 525.
2276	Word	Read/Write	ModScan Reg 526.
2277	Word	Read/Write	ModScan Reg 527.
2278	Word	Read/Write	ModScan Reg 528.
2279	Word	Read/Write	ModScan Reg 529.
2280	Word	Read/Write	ModScan Reg 530.
2281	Word	Read/Write	ModScan Reg 531.
2282	Word	Read/Write	ModScan Reg 532.
2283	Word	Read/Write	ModScan Reg 533.
2284	Word	Read/Write	ModScan Reg 534.
2285	Word	Read/Write	ModScan Reg 535.

Parameter	8500 Native Type	Access	Description
2286	Word	Read/Write	ModScan Reg 536.
2287	Word	Read/Write	ModScan Reg 537.
2288	Word	Read/Write	ModScan Reg 538.
2289	Word	Read/Write	ModScan Reg 539.
2290	Word	Read/Write	ModScan Reg 540.
2291	Word	Read/Write	ModScan Reg 541.
2292	Word	Read/Write	ModScan Reg 542.
2293	Word	Read/Write	ModScan Reg 543.
2294	Word	Read/Write	ModScan Reg 544.
2295	Word	Read/Write	ModScan Reg 545.
2296	Word	Read/Write	ModScan Reg 546.
2297	Word	Read/Write	ModScan Reg 547.
2298	Word	Read/Write	ModScan Reg 548.
2299	Word	Read/Write	ModScan Reg 549.
2300	Long	Read/Write	ModScan Lng Reg 0.
2301	Long	Read/Write	ModScan Lng Reg 1.
2302	Long	Read/Write	ModScan Lng Reg 2.
2303	Long	Read/Write	ModScan Lng Reg 3.
2304	Long	Read/Write	ModScan Lng Reg 4.
2305	Long	Read/Write	ModScan Lng Reg 5.
2306	Long	Read/Write	ModScan Lng Reg 6.
2307	Long	Read/Write	ModScan Lng Reg 7.
2308	Long	Read/Write	ModScan Lng Reg 8.
2309	Long	Read/Write	ModScan Lng Reg 9.
2310	Long	Read/Write	ModScan Lng Reg 10.
2311	Long	Read/Write	ModScan Lng Reg 11.
2312	Long	Read/Write	ModScan Lng Reg 12.
2313	Long	Read/Write	ModScan Lng Reg 13.
2314	Long	Read/Write	ModScan Lng Reg 14
2315	Long	Read/Write	ModScan Lng Reg 15
2316	Long	Read/Write	ModScan Lng Reg 16.
2317	Long	Read/Write	ModScan Lng Reg 17.
2318	Long	Read/Write	ModScan Lng Reg 18.
2319	Long	Read/Write	ModScan Lng Reg 19.
2320	Long	Read/Write	ModScan Lng Reg 20.
2321	Long	Read/Write	ModScan Lng Reg 21.
2322	Long	Read/Write	ModScan Lng Reg 22.
2323	Long	Read/Write	ModScan Lng Reg 23.
2324	Long	Read/Write	ModScan Lng Reg 24.

Parameter	8500 Native Type	Access	Description
2325	Long	Read/Write	ModScan Lng Reg 25.
2326	Long	Read/Write	ModScan Lng Reg 26.
2327	Long	Read/Write	ModScan Lng Reg 27.
2328	Long	Read/Write	ModScan Lng Reg 28.
2329	Long	Read/Write	ModScan Lng Reg 29.
2330	Long	Read/Write	ModScan Lng Reg 30.
2331	Long	Read/Write	ModScan Lng Reg 31.
2332	Long	Read/Write	ModScan Lng Reg 32.
2333	Long	Read/Write	ModScan Lng Reg 33.
2334	Long	Read/Write	ModScan Lng Reg 34.
2335	Long	Read/Write	ModScan Lng Reg 35.
2336	Long	Read/Write	ModScan Lng Reg 36.
2337	Long	Read/Write	ModScan Lng Reg 37.
2338	Long	Read/Write	ModScan Lng Reg 38.
2339	Long	Read/Write	ModScan Lng Reg 39.
2340	Long	Read/Write	ModScan Lng Reg 40.
2341	Long	Read/Write	ModScan Lng Reg 41.
2342	Long	Read/Write	ModScan Lng Reg 42.
2343	Long	Read/Write	ModScan Lng Reg 43.
2344	Long	Read/Write	ModScan Lng Reg 44.
2345	Long	Read/Write	ModScan Lng Reg 45.
2346	Long	Read/Write	ModScan Lng Reg 46.
2347	Long	Read/Write	ModScan Lng Reg 47.
2348	Long	Read/Write	ModScan Lng Reg 48.
2349	Long	Read/Write	ModScan Lng Reg 49.
2350	Long	Read/Write	ModScan Lng Reg 50.
2351	Long	Read/Write	ModScan Lng Reg 51.
2352	Long	Read/Write	ModScan Lng Reg 52.
2353	Long	Read/Write	ModScan Lng Reg 53.
2354	Long	Read/Write	ModScan Lng Reg 54.
2355	Long	Read/Write	ModScan Lng Reg 55.
2356	Long	Read/Write	ModScan Lng Reg 56.
2357	Long	Read/Write	ModScan Lng Reg 57.
2358	Long	Read/Write	ModScan Lng Reg 58.
2359	Long	Read/Write	ModScan Lng Reg 59.
2360	Long	Read/Write	ModScan Lng Reg 60.
2361	Long	Read/Write	ModScan Lng Reg 61.
2362	Long	Read/Write	ModScan Lng Reg 62.
2363	Long	Read/Write	ModScan Lng Reg 63.

Parameter	8500 Native Type	Access	Description
2364	Long	Read/Write	ModScan Lng Reg 64.
2365	Long	Read/Write	ModScan Lng Reg 65.
2366	Long	Read/Write	ModScan Lng Reg 66.
2367	Long	Read/Write	ModScan Lng Reg 67.
2368	Long	Read/Write	ModScan Lng Reg 68.
2369	Long	Read/Write	ModScan Lng Reg 69.
2370	Long	Read/Write	ModScan Lng Reg 70.
2371	Long	Read/Write	ModScan Lng Reg 71.
2372	Long	Read/Write	ModScan Lng Reg 72.
2373	Long	Read/Write	ModScan Lng Reg 73.
2374	Long	Read/Write	ModScan Lng Reg 74.
2375	Long	Read/Write	ModScan Lng Reg 75.
2376	Long	Read/Write	ModScan Lng Reg 76.
2377	Long	Read/Write	ModScan Lng Reg 77.
2378	Long	Read/Write	ModScan Lng Reg 78.
2379	Long	Read/Write	ModScan Lng Reg 79.
2380	Long	Read/Write	ModScan Lng Reg 80.
2381	Long	Read/Write	ModScan Lng Reg 81.
2382	Long	Read/Write	ModScan Lng Reg 82.
2383	Long	Read/Write	ModScan Lng Reg 83.
2384	Long	Read/Write	ModScan Lng Reg 84.
2385	Long	Read/Write	ModScan Lng Reg 85.
2386	Long	Read/Write	ModScan Lng Reg 86.
2387	Long	Read/Write	ModScan Lng Reg 87.
2388	Long	Read/Write	ModScan Lng Reg 88.
2389	Long	Read/Write	ModScan Lng Reg 89.
2390	Long	Read/Write	ModScan Lng Reg 90.
2391	Long	Read/Write	ModScan Lng Reg 91.
2392	Long	Read/Write	ModScan Lng Reg 92.
2393	Long	Read/Write	ModScan Lng Reg 93.
2394	Long	Read/Write	ModScan Lng Reg 94.
2395	Long	Read/Write	ModScan Lng Reg 95.
2396	Long	Read/Write	ModScan Lng Reg 96.
2397	Long	Read/Write	ModScan Lng Reg 97.
2398	Long	Read/Write	ModScan Lng Reg 98.
2399	Long	Read/Write	ModScan Lng Reg 99.
2400	Long	Read/Write	ModScan Lng Reg 100.

Parameters 2401-2700

Parameter	8500 Native Type	Access	Description
2401	Long	Read/Write	ModScan Lng Reg 101.
2402	Long	Read/Write	ModScan Lng Reg 102.
2403	Long	Read/Write	ModScan Lng Reg 103.
2404	Long	Read/Write	ModScan Lng Reg 104.
2405	Long	Read/Write	ModScan Lng Reg 105.
2406	Long	Read/Write	ModScan Lng Reg 106.
2407	Long	Read/Write	ModScan Lng Reg 107.
2408	Long	Read/Write	ModScan Lng Reg 108.
2409	Long	Read/Write	ModScan Lng Reg 109.
2410	Long	Read/Write	ModScan Lng Reg 110.
2411	Long	Read/Write	ModScan Lng Reg 111.
2412	Long	Read/Write	ModScan Lng Reg 112.
2413	Long	Read/Write	ModScan Lng Reg 113.
2414	Long	Read/Write	ModScan Lng Reg 114.
2415	Long	Read/Write	ModScan Lng Reg 115.
2416	Long	Read/Write	ModScan Lng Reg 116.
2417	Long	Read/Write	ModScan Lng Reg 117.
2418	Long	Read/Write	ModScan Lng Reg 118.
2419	Long	Read/Write	ModScan Lng Reg 119.
2420	Long	Read/Write	ModScan Lng Reg 120.
2421	Long	Read/Write	ModScan Lng Reg 121.
2422	Long	Read/Write	ModScan Lng Reg 122.
2423	Long	Read/Write	ModScan Lng Reg 123.
2424	Long	Read/Write	ModScan Lng Reg 124.
2425	Long	Read/Write	ModScan Lng Reg 125.
2426	Long	Read/Write	ModScan Lng Reg 126.
2427	Long	Read/Write	ModScan Lng Reg 127.
2428	Long	Read/Write	ModScan Lng Reg 128.
2429	Long	Read/Write	ModScan Lng Reg 129.
2430	Long	Read/Write	ModScan Lng Reg 130.
2431	Long	Read/Write	ModScan Lng Reg 131.
2432	Long	Read/Write	ModScan Lng Reg 132.
2433	Long	Read/Write	ModScan Lng Reg 133.
2434	Long	Read/Write	ModScan Lng Reg 134.
2435	Long	Read/Write	ModScan Lng Reg 135.
2436	Long	Read/Write	ModScan Lng Reg 136.
2437	Long	Read/Write	ModScan Lng Reg 137.

Parameter	8500 Native Type	Access	Description
2438	Long	Read/Write	ModScan Lng Reg 138.
2439	Long	Read/Write	ModScan Lng Reg 139.
2440	Long	Read/Write	ModScan Lng Reg 140.
2441	Long	Read/Write	ModScan Lng Reg 141.
2442	Long	Read/Write	ModScan Lng Reg 142.
2443	Long	Read/Write	ModScan Lng Reg 143.
2444	Long	Read/Write	ModScan Lng Reg 144.
2445	Long	Read/Write	ModScan Lng Reg 145.
2446	Long	Read/Write	ModScan Lng Reg 146.
2447	Long	Read/Write	ModScan Lng Reg 147.
2448	Long	Read/Write	ModScan Lng Reg 148.
2449	Long	Read/Write	ModScan Lng Reg 149.
2450	Long	Read/Write	ModScan Lng Reg 150.
2451	Long	Read/Write	ModScan Lng Reg 151.
2452	Long	Read/Write	ModScan Lng Reg 152.
2453	Long	Read/Write	ModScan Lng Reg 153.
2454	Long	Read/Write	ModScan Lng Reg 154.
2455	Long	Read/Write	ModScan Lng Reg 155.
2456	Long	Read/Write	ModScan Lng Reg 156.
2457	Long	Read/Write	ModScan Lng Reg 157.
2458	Long	Read/Write	ModScan Lng Reg 158.
2459	Long	Read/Write	ModScan Lng Reg 159.
2460	Long	Read/Write	ModScan Lng Reg 160.
2461	Long	Read/Write	ModScan Lng Reg 161.
2462	Long	Read/Write	ModScan Lng Reg 162.
2463	Long	Read/Write	ModScan Lng Reg 163.
2464	Long	Read/Write	ModScan Lng Reg 164.
2465	Long	Read/Write	ModScan Lng Reg 165.
2466	Long	Read/Write	ModScan Lng Reg 166.
2467	Long	Read/Write	ModScan Lng Reg 167.
2468	Long	Read/Write	ModScan Lng Reg 168.
2469	Long	Read/Write	ModScan Lng Reg 169.
2470	Long	Read/Write	ModScan Lng Reg 170.
2471	Long	Read/Write	ModScan Lng Reg 171.
2472	Long	Read/Write	ModScan Lng Reg 172.
2473	Long	Read/Write	ModScan Lng Reg 173.
2474	Long	Read/Write	ModScan Lng Reg 174.
2475	Long	Read/Write	ModScan Lng Reg 175.
2476	Long	Read/Write	ModScan Lng Reg 176.

Parameter	8500 Native Type	Access	Description
2477	Long	Read/Write	ModScan Lng Reg 177.
2478	Long	Read/Write	ModScan Lng Reg 178.
2479	Long	Read/Write	ModScan Lng Reg 179.
2480	Long	Read/Write	ModScan Lng Reg 180.
2481	Long	Read/Write	ModScan Lng Reg 181.
2482	Long	Read/Write	ModScan Lng Reg 182.
2483	Long	Read/Write	ModScan Lng Reg 183.
2484	Long	Read/Write	ModScan Lng Reg 184.
2485	Long	Read/Write	ModScan Lng Reg 185.
2486	Long	Read/Write	ModScan Lng Reg 186.
2487	Long	Read/Write	ModScan Lng Reg 187.
2488	Long	Read/Write	ModScan Lng Reg 188.
2489	Long	Read/Write	ModScan Lng Reg 189.
2490	Long	Read/Write	ModScan Lng Reg 190.
2491	Long	Read/Write	ModScan Lng Reg 191.
2492	Long	Read/Write	ModScan Lng Reg 192.
2493	Long	Read/Write	ModScan Lng Reg 193.
2494	Long	Read/Write	ModScan Lng Reg 194.
2495	Long	Read/Write	ModScan Lng Reg 195.
2496	Long	Read/Write	ModScan Lng Reg 196.
2497	Long	Read/Write	ModScan Lng Reg 197.
2498	Long	Read/Write	ModScan Lng Reg 198.
2499	Long	Read/Write	ModScan Lng Reg 199.
2500	Long	Read/Write	ModScan Lng Reg 200.
2501	Long	Read/Write	ModScan Lng Reg 201.
2502	Long	Read/Write	ModScan Lng Reg 202.
2503	Long	Read/Write	ModScan Lng Reg 203.
2504	Long	Read/Write	ModScan Lng Reg 204.
2505	Long	Read/Write	ModScan Lng Reg 205.
2506	Long	Read/Write	ModScan Lng Reg 206.
2507	Long	Read/Write	ModScan Lng Reg 207.
2508	Long	Read/Write	ModScan Lng Reg 208.
2509	Long	Read/Write	ModScan Lng Reg 209.
2510	Long	Read/Write	ModScan Lng Reg 210.
2511	Long	Read/Write	ModScan Lng Reg 211.
2512	Long	Read/Write	ModScan Lng Reg 212.
2513	Long	Read/Write	ModScan Lng Reg 213.
2514	Long	Read/Write	ModScan Lng Reg 214.
2515	Long	Read/Write	ModScan Lng Reg 215.

Parameter	8500 Native Type	Access	Description
2516	Long	Read/Write	ModScan Lng Reg 216.
2517	Long	Read/Write	ModScan Lng Reg 217.
2518	Long	Read/Write	ModScan Lng Reg 218.
2519	Long	Read/Write	ModScan Lng Reg 219.
2520	Long	Read/Write	ModScan Lng Reg 220.
2521	Long	Read/Write	ModScan Lng Reg 221.
2522	Long	Read/Write	ModScan Lng Reg 222.
2523	Long	Read/Write	ModScan Lng Reg 223.
2524	Long	Read/Write	ModScan Lng Reg 224.
2525	Long	Read/Write	ModScan Lng Reg 225.
2526	Long	Read/Write	ModScan Lng Reg 226.
2527	Long	Read/Write	ModScan Lng Reg 227.
2528	Long	Read/Write	ModScan Lng Reg 228.
2529	Long	Read/Write	ModScan Lng Reg 229.
2530	Long	Read/Write	ModScan Lng Reg 230.
2531	Long	Read/Write	ModScan Lng Reg 231.
2532	Long	Read/Write	ModScan Lng Reg 232.
2533	Long	Read/Write	ModScan Lng Reg 233.
2534	Long	Read/Write	ModScan Lng Reg 234.
2535	Long	Read/Write	ModScan Lng Reg 235.
2536	Long	Read/Write	ModScan Lng Reg 236.
2537	Long	Read/Write	ModScan Lng Reg 237.
2538	Long	Read/Write	ModScan Lng Reg 238.
2539	Long	Read/Write	ModScan Lng Reg 239.
2540	Long	Read/Write	ModScan Lng Reg 240.
2541	Long	Read/Write	ModScan Lng Reg 241.
2542	Long	Read/Write	ModScan Lng Reg 242.
2543	Long	Read/Write	ModScan Lng Reg 243.
2544	Long	Read/Write	ModScan Lng Reg 244.
2545	Long	Read/Write	ModScan Lng Reg 245.
2546	Long	Read/Write	ModScan Lng Reg 246.
2547	Long	Read/Write	ModScan Lng Reg 247.
2548	Long	Read/Write	ModScan Lng Reg 248.
2549	Long	Read/Write	ModScan Lng Reg 249.
2550	Long	Read/Write	ModScan Lng Reg 250.
2551	Long	Read/Write	ModScan Lng Reg 251.
2552	Long	Read/Write	ModScan Lng Reg 252.
2553	Long	Read/Write	ModScan Lng Reg 253.
2554	Long	Read/Write	ModScan Lng Reg 254.

Parameter	8500 Native Type	Access	Description
2555	Long	Read/Write	ModScan Lng Reg 255.
2556	Long	Read/Write	ModScan Lng Reg 256.
2557	Long	Read/Write	ModScan Lng Reg 257.
2558	Long	Read/Write	ModScan Lng Reg 258.
2559	Long	Read/Write	ModScan Lng Reg 259.
2560	Long	Read/Write	ModScan Lng Reg 260.
2561	Long	Read/Write	ModScan Lng Reg 261.
2562	Long	Read/Write	ModScan Lng Reg 262.
2563	Long	Read/Write	ModScan Lng Reg 263.
2564	Long	Read/Write	ModScan Lng Reg 264.
2565	Long	Read/Write	ModScan Lng Reg 265.
2566	Long	Read/Write	ModScan Lng Reg 266.
2567	Long	Read/Write	ModScan Lng Reg 267.
2568	Long	Read/Write	ModScan Lng Reg 268.
2569	Long	Read/Write	ModScan Lng Reg 269.
2570	Long	Read/Write	ModScan Lng Reg 270.
2571	Long	Read/Write	ModScan Lng Reg 271.
2572	Long	Read/Write	ModScan Lng Reg 272.
2573	Long	Read/Write	ModScan Lng Reg 273.
2574	Long	Read/Write	ModScan Lng Reg 274.
2575	Float	Read/Write	ModScan Flt Reg 0.
2576	Float	Read/Write	ModScan Flt Reg 1.
2577	Float	Read/Write	ModScan Flt Reg 2.
2578	Float	Read/Write	ModScan Flt Reg 3.
2579	Float	Read/Write	ModScan Flt Reg 4.
2580	Float	Read/Write	ModScan Flt Reg 5.
2581	Float	Read/Write	ModScan Flt Reg 6.
2582	Float	Read/Write	ModScan Flt Reg 7.
2583	Float	Read/Write	ModScan Flt Reg 8.
2584	Float	Read/Write	ModScan Flt Reg 9.
2585	Float	Read/Write	ModScan Flt Reg 10.
2586	Float	Read/Write	ModScan Flt Reg 11.
2587	Float	Read/Write	ModScan Flt Reg 12.
2588	Float	Read/Write	ModScan Flt Reg 13.
2589	Float	Read/Write	ModScan Flt Reg 14.
2590	Float	Read/Write	ModScan Flt Reg 15.
2591	Float	Read/Write	ModScan Flt Reg 16.
2592	Float	Read/Write	ModScan Flt Reg 17.
2593	Float	Read/Write	ModScan Flt Reg 18.

Parameter	8500 Native Type	Access	Description
2594	Float	Read/Write	ModScan Flt Reg 19.
2595	Float	Read/Write	ModScan Flt Reg 20.
2596	Float	Read/Write	ModScan Flt Reg 21.
2597	Float	Read/Write	ModScan Flt Reg 22.
2598	Float	Read/Write	ModScan Flt Reg 23.
2599	Float	Read/Write	ModScan Flt Reg 24.
2600	Float	Read/Write	ModScan Flt Reg 25.
2601	Float	Read/Write	ModScan Flt Reg 26.
2602	Float	Read/Write	ModScan Flt Reg 27.
2603	Float	Read/Write	ModScan Flt Reg 28.
2604	Float	Read/Write	ModScan Flt Reg 29.
2605	Float	Read/Write	ModScan Flt Reg 30.
2606	Float	Read/Write	ModScan Flt Reg 31.
2607	Float	Read/Write	ModScan Flt Reg 32.
2608	Float	Read/Write	ModScan Flt Reg 33.
2609	Float	Read/Write	ModScan Flt Reg 34.
2610	Float	Read/Write	ModScan Flt Reg 35.
2611	Float	Read/Write	ModScan Flt Reg 36.
2612	Float	Read/Write	ModScan Flt Reg 37.
2613	Float	Read/Write	ModScan Flt Reg 38.
2614	Float	Read/Write	ModScan Flt Reg 39.
2615	Float	Read/Write	ModScan Flt Reg 40.
2616	Float	Read/Write	ModScan Flt Reg 41.
2617	Float	Read/Write	ModScan Flt Reg 42.
2618	Float	Read/Write	ModScan Flt Reg 43.
2619	Float	Read/Write	ModScan Flt Reg 44.
2620	Float	Read/Write	ModScan Flt Reg 45.
2621	Float	Read/Write	ModScan Flt Reg 46.
2622	Float	Read/Write	ModScan Flt Reg 47.
2623	Float	Read/Write	ModScan Flt Reg 48.
2624	Float	Read/Write	ModScan Flt Reg 49.
2625	Float	Read/Write	ModScan Flt Reg 50.
2626	Float	Read/Write	ModScan Flt Reg 51.
2627	Float	Read/Write	ModScan Flt Reg 52.
2628	Float	Read/Write	ModScan Flt Reg 53.
2629	Float	Read/Write	ModScan Flt Reg 54.
2630	Float	Read/Write	ModScan Flt Reg 55.
2631	Float	Read/Write	ModScan Flt Reg 56.
2632	Float	Read/Write	ModScan Flt Reg 57.

Parameter	8500 Native Type	Access	Description
2633	Float	Read/Write	ModScan Flt Reg 58.
2634	Float	Read/Write	ModScan Flt Reg 59.
2635	Float	Read/Write	ModScan Flt Reg 60.
2636	Float	Read/Write	ModScan Flt Reg 61.
2637	Float	Read/Write	ModScan Flt Reg 62.
2638	Float	Read/Write	ModScan Flt Reg 63.
2639	Float	Read/Write	ModScan Flt Reg 64.
2640	Float	Read/Write	ModScan Flt Reg 65.
2641	Float	Read/Write	ModScan Flt Reg 66.
2642	Float	Read/Write	ModScan Flt Reg 67.
2643	Float	Read/Write	ModScan Flt Reg 68.
2644	Float	Read/Write	ModScan Flt Reg 69.
2645	Float	Read/Write	ModScan Flt Reg 70.
2646	Float	Read/Write	ModScan Flt Reg 71.
2647	Float	Read/Write	ModScan Flt Reg 72.
2648	Float	Read/Write	ModScan Flt Reg 73.
2649	Float	Read/Write	ModScan Flt Reg 74.
2650	Float	Read/Write	ModScan Flt Reg 75.
2651	Float	Read/Write	ModScan Flt Reg 76.
2652	Float	Read/Write	ModScan Flt Reg 77.
2653	Float	Read/Write	ModScan Flt Reg 78.
2654	Float	Read/Write	ModScan Flt Reg 79.
2655	Float	Read/Write	ModScan Flt Reg 80.
2656	Float	Read/Write	ModScan Flt Reg 81.
2657	Float	Read/Write	ModScan Flt Reg 82.
2658	Float	Read/Write	ModScan Flt Reg 83.
2659	Float	Read/Write	ModScan Flt Reg 84.
2660	Float	Read/Write	ModScan Flt Reg 85.
2661	Float	Read/Write	ModScan Flt Reg 86.
2662	Float	Read/Write	ModScan Flt Reg 87.
2663	Float	Read/Write	ModScan Flt Reg 88.
2664	Float	Read/Write	ModScan Flt Reg 89.
2665	Float	Read/Write	ModScan Flt Reg 90.
2666	Float	Read/Write	ModScan Flt Reg 91.
2667	Float	Read/Write	ModScan Flt Reg 92.
2668	Float	Read/Write	ModScan Flt Reg 93.
2669	Float	Read/Write	ModScan Flt Reg 94.
2670	Float	Read/Write	ModScan Flt Reg 95.
2671	Float	Read/Write	ModScan Flt Reg 96.

Parameter	8500 Native Type	Access	Description
2672	Float	Read/Write	ModScan Flt Reg 97.
2673	Float	Read/Write	ModScan Flt Reg 98.
2674	Float	Read/Write	ModScan Flt Reg 99.
2675	Float	Read/Write	ModScan Flt Reg 100.
2676	Float	Read/Write	ModScan Flt Reg 101.
2677	Float	Read/Write	ModScan Flt Reg 102.
2678	Float	Read/Write	ModScan Flt Reg 103.
2679	Float	Read/Write	ModScan Flt Reg 104.
2680	Float	Read/Write	ModScan Flt Reg 105.
2681	Float	Read/Write	ModScan Flt Reg 106.
2682	Float	Read/Write	ModScan Flt Reg 107.
2683	Float	Read/Write	ModScan Flt Reg 108.
2684	Float	Read/Write	ModScan Flt Reg 109.
2685	Float	Read/Write	ModScan Flt Reg 110.
2686	Float	Read/Write	ModScan Flt Reg 111.
2687	Float	Read/Write	ModScan Flt Reg 112.
2688	Float	Read/Write	ModScan Flt Reg 113.
2689	Float	Read/Write	ModScan Flt Reg 114.
2690	Float	Read/Write	ModScan Flt Reg 115.
2691	Float	Read/Write	ModScan Flt Reg 116.
2692	Float	Read/Write	ModScan Flt Reg 117.
2693	Float	Read/Write	ModScan Flt Reg 118.
2694	Float	Read/Write	ModScan Flt Reg 119.
2695	Float	Read/Write	ModScan Flt Reg 120.
2696	Float	Read/Write	ModScan Flt Reg 121.
2697	Float	Read/Write	ModScan Flt Reg 122.
2698	Float	Read/Write	ModScan Flt Reg 123.
2699	Float	Read/Write	ModScan Flt Reg 124.
2700	Float	Read/Write	ModScan Flt Reg 125.

Parameters 2701-3000

Parameter	8500 Native Type	Access	Description
2701	Float	Read/Write	ModScan Flt Reg 126.
2702	Float	Read/Write	ModScan Flt Reg 127.
2703	Float	Read/Write	ModScan Flt Reg 128.
2704	Float	Read/Write	ModScan Flt Reg 129.
2705	Float	Read/Write	ModScan Flt Reg 130.
2706	Float	Read/Write	ModScan Flt Reg 131.

Parameter	8500 Native Type	Access	Description
2707	Float	Read/Write	ModScan Flt Reg 132.
2708	Float	Read/Write	ModScan Flt Reg 133.
2709	Float	Read/Write	ModScan Flt Reg 134.
2710	Float	Read/Write	ModScan Flt Reg 135.
2711	Float	Read/Write	ModScan Flt Reg 136.
2712	Float	Read/Write	ModScan Flt Reg 137.
2713	Float	Read/Write	ModScan Flt Reg 138.
2714	Float	Read/Write	ModScan Flt Reg 139.
2715	Float	Read/Write	ModScan Flt Reg 140.
2716	Float	Read/Write	ModScan Flt Reg 141.
2717	Float	Read/Write	ModScan Flt Reg 142.
2718	Float	Read/Write	ModScan Flt Reg 143.
2719	Float	Read/Write	ModScan Flt Reg 144.
2720	Float	Read/Write	ModScan Flt Reg 145.
2721	Float	Read/Write	ModScan Flt Reg 146.
2722	Float	Read/Write	ModScan Flt Reg 147.
2723	Float	Read/Write	ModScan Flt Reg 148.
2724	Float	Read/Write	ModScan Flt Reg 149.
2725	Float	Read/Write	ModScan Flt Reg 150.
2726	Float	Read/Write	ModScan Flt Reg 151.
2727	Float	Read/Write	ModScan Flt Reg 152.
2728	Float	Read/Write	ModScan Flt Reg 153.
2729	Float	Read/Write	ModScan Flt Reg 154.
2730	Float	Read/Write	ModScan Flt Reg 155.
2731	Float	Read/Write	ModScan Flt Reg 156.
2732	Float	Read/Write	ModScan Flt Reg 157.
2733	Float	Read/Write	ModScan Flt Reg 158.
2734	Float	Read/Write	ModScan Flt Reg 159.
2735	Float	Read/Write	ModScan Flt Reg 160.
2736	Float	Read/Write	ModScan Flt Reg 161.
2737	Float	Read/Write	ModScan Flt Reg 162.
2738	Float	Read/Write	ModScan Flt Reg 163.
2739	Float	Read/Write	ModScan Flt Reg 164.
2740	Float	Read/Write	ModScan Flt Reg 165.
2741	Float	Read/Write	ModScan Flt Reg 166.
2742	Float	Read/Write	ModScan Flt Reg 167.
2743	Float	Read/Write	ModScan Flt Reg 168.
2744	Float	Read/Write	ModScan Flt Reg 169.
2745	Float	Read/Write	ModScan Flt Reg 170.

Parameter	8500 Native Type	Access	Description
2746	Float	Read/Write	ModScan Flt Reg 171.
2747	Float	Read/Write	ModScan Flt Reg 172.
2748	Float	Read/Write	ModScan Flt Reg 173.
2749	Float	Read/Write	ModScan Flt Reg 174.
2750	Float	Read/Write	ModScan Flt Reg 175.
2751	Float	Read/Write	ModScan Flt Reg 176.
2752	Float	Read/Write	ModScan Flt Reg 177.
2753	Float	Read/Write	ModScan Flt Reg 178.
2754	Float	Read/Write	ModScan Flt Reg 179.
2755	Float	Read/Write	ModScan Flt Reg 180.
2756	Float	Read/Write	ModScan Flt Reg 181.
2757	Float	Read/Write	ModScan Flt Reg 182.
2758	Float	Read/Write	ModScan Flt Reg 183.
2759	Float	Read/Write	ModScan Flt Reg 184.
2760	Float	Read/Write	ModScan Flt Reg 185.
2761	Float	Read/Write	ModScan Flt Reg 186.
2762	Float	Read/Write	ModScan Flt Reg 187.
2763	Float	Read/Write	ModScan Flt Reg 188.
2764	Float	Read/Write	ModScan Flt Reg 189.
2765	Float	Read/Write	ModScan Flt Reg 190.
2766	Float	Read/Write	ModScan Flt Reg 191.
2767	Float	Read/Write	ModScan Flt Reg 192.
2768	Float	Read/Write	ModScan Flt Reg 193.
2769	Float	Read/Write	ModScan Flt Reg 194.
2770	Float	Read/Write	ModScan Flt Reg 195.
2771	Float	Read/Write	ModScan Flt Reg 196.
2772	Float	Read/Write	ModScan Flt Reg 197.
2773	Float	Read/Write	ModScan Flt Reg 198.
2774	Float	Read/Write	ModScan Flt Reg 199.
2775	Float	Read/Write	ModScan Flt Reg 200.
2776	Float	Read/Write	ModScan Flt Reg 201.
2777	Float	Read/Write	ModScan Flt Reg 202.
2778	Float	Read/Write	ModScan Flt Reg 203.
2779	Float	Read/Write	ModScan Flt Reg 204.
2780	Float	Read/Write	ModScan Flt Reg 205.
2781	Float	Read/Write	ModScan Flt Reg 206.
2782	Float	Read/Write	ModScan Flt Reg 207.
2783	Float	Read/Write	ModScan Flt Reg 208.
2784	Float	Read/Write	ModScan Flt Reg 209.

Parameter	8500 Native Type	Access	Description
2785	Float	Read/Write	ModScan Flt Reg 210.
2786	Float	Read/Write	ModScan Flt Reg 211.
2787	Float	Read/Write	ModScan Flt Reg 212.
2788	Float	Read/Write	ModScan Flt Reg 213.
2789	Float	Read/Write	ModScan Flt Reg 214.
2790	Float	Read/Write	ModScan Flt Reg 215.
2791	Float	Read/Write	ModScan Flt Reg 216.
2792	Float	Read/Write	ModScan Flt Reg 217.
2793	Float	Read/Write	ModScan Flt Reg 218.
2794	Float	Read/Write	ModScan Flt Reg 219.
2795	Float	Read/Write	ModScan Flt Reg 220.
2796	Float	Read/Write	ModScan Flt Reg 221.
2797	Float	Read/Write	ModScan Flt Reg 222.
2798	Float	Read/Write	ModScan Flt Reg 223.
2799	Float	Read/Write	ModScan Flt Reg 224.
2800	Float	Read/Write	ModScan Flt Reg 225.
2801	Float	Read/Write	ModScan Flt Reg 226.
2802	Float	Read/Write	ModScan Flt Reg 227.
2803	Float	Read/Write	ModScan Flt Reg 228.
2804	Float	Read/Write	ModScan Flt Reg 229.
2805	Float	Read/Write	ModScan Flt Reg 230.
2806	Float	Read/Write	ModScan Flt Reg 231.
2807	Float	Read/Write	ModScan Flt Reg 232.
2808	Float	Read/Write	ModScan Flt Reg 233.
2809	Float	Read/Write	ModScan Flt Reg 234.
2810	Float	Read/Write	ModScan Flt Reg 235.
2811	Float	Read/Write	ModScan Flt Reg 236.
2812	Float	Read/Write	ModScan Flt Reg 237.
2813	Float	Read/Write	ModScan Flt Reg 238.
2814	Float	Read/Write	ModScan Flt Reg 239.
2815	Float	Read/Write	ModScan Flt Reg 240.
2816	Float	Read/Write	ModScan Flt Reg 241.
2817	Float	Read/Write	ModScan Flt Reg 242.
2818	Float	Read/Write	ModScan Flt Reg 243.
2819	Float	Read/Write	ModScan Flt Reg 244.
2820	Float	Read/Write	ModScan Flt Reg 245.
2821	Float	Read/Write	ModScan Flt Reg 246.
2822	Float	Read/Write	ModScan Flt Reg 247.
2823	Float	Read/Write	ModScan Flt Reg 248.

Parameter	8500 Native Type	Access	Description
2824	Float	Read/Write	ModScan Flt Reg 249.
2825	Float	Read/Write	ModScan Flt Reg 250.
2826	Float	Read/Write	ModScan Flt Reg 251.
2827	Float	Read/Write	ModScan Flt Reg 252.
2828	Float	Read/Write	ModScan Flt Reg 253.
2829	Float	Read/Write	ModScan Flt Reg 254.
2830	Float	Read/Write	ModScan Flt Reg 255.
2831	Float	Read/Write	ModScan Flt Reg 256.
2832	Float	Read/Write	ModScan Flt Reg 257.
2833	Float	Read/Write	ModScan Flt Reg 258.
2834	Float	Read/Write	ModScan Flt Reg 259.
2835	Float	Read/Write	ModScan Flt Reg 260.
2836	Float	Read/Write	ModScan Flt Reg 261.
2837	Float	Read/Write	ModScan Flt Reg 262.
2838	Float	Read/Write	ModScan Flt Reg 263.
2839	Float	Read/Write	ModScan Flt Reg 264.
2840	Float	Read/Write	ModScan Flt Reg 265.
2841	Float	Read/Write	ModScan Flt Reg 266.
2842	Float	Read/Write	ModScan Flt Reg 267.
2843	Float	Read/Write	ModScan Flt Reg 268.
2844	Float	Read/Write	ModScan Flt Reg 269.
2845	Float	Read/Write	ModScan Flt Reg 270.
2846	Float	Read/Write	ModScan Flt Reg 271.
2847	Float	Read/Write	ModScan Flt Reg 272.
2848	Float	Read/Write	ModScan Flt Reg 273.
2849	Float	Read/Write	ModScan Flt Reg 274.
2879	Word	Read/Write	Num of WDT Resets.
2880	Byte	Read/Write	Cygnal Watchdog.
2881	Command	Read/Write	Reset Cygnal NV.
2882	Command	Read/Write	Fetch Cygnal NV.
2883	Word	Read/Write	Cygnal Tx Cnts / Sec.
2884	Word	Read/Write	Cygnal Num Lo Cnts.
2885	Byte	Read/Write	WDT Priority Check.
2886	Byte	Read Only	Shutdown Type.
2887	Byte	Read Only	Watchdog Status.
2888	Byte	Read/Write	System Watchdog.
2889	Long	Read/Write	CAN TX Retries.
2890	Long	Read/Write	MCF Sample Maximum Time.
2891	Display	Read Only	Position Sensor Fault Src.

Parameter	8500 Native Type	Access	Description
2892	Long	Read/Write	C8051 Diagnostic Info.
2893	Byte	Read/Write	C8051 Auto Recovery.
2894	Byte	Read/Write	AutoRecovery Retries.
2895	Byte	Read/Write	AutoRecovery Actions.
2896	Word	Read/Write	Position Value for PosSensFault.
2897	Word	Read/Write	Maximum Blocking Priority.
2898	Byte	Read/Write	Idle Task Reset Limit.
2899	Word	Read/Write	Idle Task Resets.
2900	Byte	Read/Write	VSD DH Tolerance (+/-%).
2910	Byte	Read/Write	DO1 Status Indicator.
2911	Byte	Read/Write	Preset Load Gain.
2920	Word	Read/Write	Pumping Unit Catalog Id #.
2921	Byte	Read/Write	Pumping Unit Type.
2922	Byte	Read/Write	Counterbalance Type.
2923	Word	Read/Write	API Gear Rating.
2924	Word	Read/Write	API Beam Rating.
2925	Word	Read/Write	API Maximum Stroke.
2926	Display	Read Only	Unit ID for LOWIS.
2927	Display	Read Only	Pumping Unit API Designation.
2928	Display	Read Only	Pumping Unit Description.
2929	Word	Read/Write	Dimension A (in x 100).
2930	Word	Read/Write	Dimension C (in x 100).
2931	Word	Read/Write	Dimension I (in x 100).
2932	Word	Read/Write	Dimension K (in x 100).
2933	Word	Read/Write	Dimension P (in x 100).
2934	Word	Read/Write	Pin 1 Str.Len (in x 100).
2935	Word	Read/Write	Pin 2 Str.Len (in x 100).
2936	Word	Read/Write	Pin 3 Str.Len (in x 100).
2937	Word	Read/Write	Pin 4 Str.Len (in x 100).
2938	Word	Read/Write	Pin 5 Str.Len (in x 100).
2939	Word	Read/Write	Pin 1 Radius (in x 100).
2940	Word	Read/Write	Pin 2 Radius (in x 100).
2941	Word	Read/Write	Pin 3 Radius (in x 100).
2942	Word	Read/Write	Pin 4 Radius (in x 100).
2943	Word	Read/Write	Pin 5 Radius (in x 100).
2944	SWord	Read/Write	Structural Unbalance.
2945	SWord	Read/Write	CB Phase Angle (Deg.).
2946	Word	Read/Write	Air Bal. "M" value (sq.in).
2947	Word	Read/Write	Air Bal. "S" value (psi).

Parameter	8500 Native Type	Access	Description
2948	Byte	Read/Write	Pin Number.
2949	Word	Read/Write	CBT (units = 100 in-lb).
2950	Word	Read/Write	CBE (lb).
2951	Byte	Read/Write	CBE Angle.
2952	Byte	Read/Write	Crank Rotation.
2953	Word	Read/Write	Air Bal. BOS press (psi).
2954	Word	Read/Write	Air Bal. TOS press (psi).
2955	Word	Read/Write	Torque Alarm Limit.
2956	Byte	Read/Write	Strokes for Torque Alarm.
2957	Byte	Read/Write	Torque Alarm Action.
2958	Command	Read/Write	Calc Torque Factors.
2959	Command	Read/Write	Reload Unit Catalog.
2960	Float	Read Only	Maximum torque last upstroke.
2961	Float	Read Only	Maximum torque last downstroke.
2962	Byte	Read/Write	Torque Unbalance Filter #.
2963	SWord	Read Only	Torque Unbalance %.
2964	SWord	Read Only	Filtered Torque Unbalance %.
3000	Word	Read/Write	Pump depth.

Parameters 3001-3300

Parameter	8500 Native Type	Access	Description
3001	Word	Read/Write	Fluid depth.
3002	Word	Read/Write	Surface stroke (in x 100).
3003	Float	Read/Write	Oil API gravity.
3004	Float	Read/Write	Oil specific gravity.
3005	Float	Read/Write	Water specific gravity.
3006	Byte	Read/Write	Water cut.
3007	Float	Read/Write	D/H Damping factor.
3008	Word	Read/Write	D/H Load offset.
3009	SByte	Read/Write	D/H Position data skew.
3010	Byte	Read/Write	D/H Config status.
3011	Byte	Read/Write	D/H fill minimum position %.
3012	Word	Read/Write	D/H fill diff. tolerance.
3013	Byte	Read/Write	D/H fill area tolerance.
3014	Byte	Read/Write	D/H Pump-off Position %.
3015	Byte	Read/Write	D/H strokes for pumpoff.
3016	Byte	Read/Write	D/H strokes for failure.
3017	Byte	Read/Write	D/H fallback method.

Parameter	8500 Native Type	Access	Description
3018	Byte	Read/Write	D/H strokes for recovery.
3019	Byte	Read/Write	D/H failure Action.
3020	Float	Read/Write	Rod type 1 density.
3021	Float	Read/Write	Rod type 1 elasticity.
3022	Float	Read/Write	Rod type 1 propagation.
3025	Float	Read/Write	Rod type 2 density.
3026	Float	Read/Write	Rod type 2 elasticity.
3027	Float	Read/Write	Rod type 2 propagation.
3030	Float	Read/Write	Rod type 3 density.
3031	Float	Read/Write	Rod type 3 elasticity.
3032	Float	Read/Write	Rod type 3 propagation.
3035	Float	Read/Write	Rod type 4 density.
3036	Float	Read/Write	Rod type 4 elasticity.
3037	Float	Read/Write	Rod type 4 propagation.
3040	Float	Read/Write	Rod type 5 density.
3041	Float	Read/Write	Rod type 5 elasticity.
3042	Float	Read/Write	Rod type 5 propagation.
3045	Byte	Read/Write	Taper 1 rod type.
3046	Byte	Read/Write	Taper 1 rod count.
3047	Float	Read/Write	Taper 1 rod diameter (inches).
3048	Float	Read/Write	Taper 1 rod length (feet).
3050	Byte	Read/Write	Taper 2 rod type.
3051	Byte	Read/Write	Taper 2 rod count.
3052	Float	Read/Write	Taper 2 rod diameter (inches).
3053	Float	Read/Write	Taper 2 rod length (feet).
3055	Byte	Read/Write	Taper 3 rod type.
3056	Byte	Read/Write	Taper 3 rod count.
3057	Float	Read/Write	Taper 3 rod diameter (inches).
3058	Float	Read/Write	Taper 3 rod length (feet).
3060	Byte	Read/Write	Taper 4 rod type.
3061	Byte	Read/Write	Taper 4 rod count.
3062	Float	Read/Write	Taper 4 rod diameter (inches).
3063	Float	Read/Write	Taper 4 rod length (feet).
3065	Byte	Read/Write	Taper 5 rod type.
3066	Byte	Read/Write	Taper 5 rod count.
3067	Float	Read/Write	Taper 5 rod diameter (inches).
3068	Float	Read/Write	Taper 5 rod length (feet).
3070	Byte	Read/Write	Taper 6 rod type.
3071	Byte	Read/Write	Taper 6 rod count.

Parameter	8500 Native Type	Access	Description
3072	Float	Read/Write	Taper 6 rod diameter (inches).
3073	Float	Read/Write	Taper 6 rod length (feet).
3075	Byte	Read/Write	Taper 7 rod type.
3076	Byte	Read/Write	Taper 7 rod count.
3077	Float	Read/Write	Taper 7 rod diameter (inches).
3078	Float	Read/Write	Taper 7 rod length (feet).
3080	Byte	Read/Write	Taper 8 rod type.
3081	Byte	Read/Write	Taper 8 rod count.
3082	Float	Read/Write	Taper 8 rod diameter (inches).
3083	Float	Read/Write	Taper 8 rod length (feet).
3085	Byte	Read/Write	Taper 9 rod type.
3086	Byte	Read/Write	Taper 9 rod count.
3087	Float	Read/Write	Taper 9 rod diameter (inches).
3088	Float	Read/Write	Taper 9 rod length (feet).
3090	Byte	Read/Write	Taper 10 rod type.
3091	Byte	Read/Write	Taper 10 rod count.
3092	Float	Read/Write	Taper 10 rod diameter (inches).
3093	Float	Read/Write	Taper 10 rod length (feet).
3095	Byte	Read/Write	Taper 11 rod type.
3096	Byte	Read/Write	Taper 11 rod count.
3097	Float	Read/Write	Taper 11 rod diameter (inches).
3098	Float	Read/Write	Taper 11 rod length (feet).
3100	Byte	Read/Write	Taper 12 rod type.
3101	Byte	Read/Write	Taper 12 rod count.
3102	Float	Read/Write	Taper 12 rod diameter (inches).
3103	Float	Read/Write	Taper 12 rod length (feet).
3105	Byte	Read/Write	Taper 13 rod type.
3106	Byte	Read/Write	Taper 13 rod count.
3107	Float	Read/Write	Taper 13 rod diameter (inches).
3108	Float	Read/Write	Taper 13 rod length (feet).
3110	Byte	Read/Write	Taper 14 rod type.
3111	Byte	Read/Write	Taper 14 rod count.
3112	Float	Read/Write	Taper 14 rod diameter (inches).
3113	Float	Read/Write	Taper 14 rod length (feet).
3115	Byte	Read/Write	Taper 15 rod type.
3116	Byte	Read/Write	Taper 15 rod count.
3117	Float	Read/Write	Taper 15 rod diameter (inches).
3118	Float	Read/Write	Taper 15 rod length (feet).
3120	Byte	Read/Write	Taper 16 rod type.

Parameter	8500 Native Type	Access	Description
3121	Byte	Read/Write	Taper 16 rod count.
3122	Float	Read/Write	Taper 16 rod diameter (inches).
3123	Float	Read/Write	Taper 16 rod length (feet).
3125	Byte	Read/Write	Taper 17 rod type.
3126	Byte	Read/Write	Taper 17 rod count.
3127	Float	Read/Write	Taper 17 rod diameter (inches).
3128	Float	Read/Write	Taper 17 rod length (feet).
3130	Byte	Read/Write	Taper 18 rod type.
3131	Byte	Read/Write	Taper 18 rod count.
3132	Float	Read/Write	Taper 18 rod diameter (inches).
3133	Float	Read/Write	Taper 18 rod length (feet).
3135	Byte	Read/Write	Taper 19 rod type.
3136	Byte	Read/Write	Taper 19 rod count.
3137	Float	Read/Write	Taper 19 rod diameter (inches).
3138	Float	Read/Write	Taper 19 rod length (feet).
3140	Byte	Read/Write	Taper 20 rod type.
3141	Byte	Read/Write	Taper 20 rod count.
3142	Float	Read/Write	Taper 20 rod diameter (inches).
3143	Float	Read/Write	Taper 20 rod length (feet).
3144	Command	Read/Write	D/H cfg for simul.
3145	Word	Read Only	D/H stroke len. (in x 100).
3146	SWord	Read Only	D/H Minimum load last stroke.
3147	Word	Read Only	D/H Maximum load last stroke.
3148	Word	Read Only	D/H load span last stroke.
3149	Word	Read Only	D/H fillage (% x 100).
3150	Word	Read Only	D/H area ratio (% x 100).
3151	Byte	Read Only	D/H Pump-off stroke count.
3152	Byte	Read/Write	D/H Enable.
3153	Byte	Read/Write	D/H Pump fillage method.
3154	Word	Read Only	D/H fillage - method 1.
3155	Word	Read Only	D/H fillage - method 2.
3156	Word	Read Only	D/H fillage - method 3.
3157	Byte	Read Only	D/H E-Jcalc success %.
3158	Byte	Read Only	D/H method 3 success %.
3159	Byte	Read Only	D/H full card by area %.
3160	Word	Read Only	D/H First PDF slot minimum.
3161	Word	Read Only	D/H First PDF slot maximum.
3162	Word	Read Only	D/H Fillage PDF results.
3164	Long	Read Only	DH Gauge Period Strokes.

Parameter	8500 Native Type	Access	Description
3165	Word	Read Only	DH Average Fillage[0].
3166	Word	Read Only	DH Average Fillage[1].
3167	Word	Read Only	DH Average Fillage[2].
3168	Word	Read Only	DH Average Fillage[3].
3169	Long	Read Only	DH Accum Pump Fillage.
3200	Long	Read Only	Total for Hourly Data[0].
3201	Long	Read Only	Total for Hourly Data[1].
3202	Long	Read Only	Total for Hourly Data[2].
3203	Long	Read Only	Total for Hourly Data[3].
3204	Long	Read Only	Total for Hourly Data[4].
3205	Long	Read Only	Total for Hourly Data[5].
3206	Long	Read Only	Total for Hourly Data[6].
3207	Long	Read Only	Total for Hourly Data[7].
3208	Long	Read Only	Counts for Hourly Data[0].
3209	Long	Read Only	Counts for Hourly Data[1].
3210	Long	Read Only	Counts for Hourly Data[2].
3211	Long	Read Only	Counts for Hourly Data[3].
3212	Long	Read Only	Counts for Hourly Data[4].
3213	Long	Read Only	Counts for Hourly Data[5].
3214	Long	Read Only	Counts for Hourly Data[6].
3215	Long	Read Only	Counts for Hourly Data[7].
3216	Long	Read Only	Total for Daily Data[0].
3217	Long	Read Only	Total for Daily Data[1].
3218	Long	Read Only	Total for Daily Data[2].
3219	Long	Read Only	Total for Daily Data[3].
3220	Long	Read Only	Total for Daily Data[4].
3221	Long	Read Only	Total for Daily Data[5].
3222	Long	Read Only	Total for Daily Data[6].
3223	Long	Read Only	Total for Daily Data[7].
3224	Long	Read Only	Counts for Daily Data[0].
3225	Long	Read Only	Counts for Daily Data[1].
3226	Long	Read Only	Counts for Daily Data[2].
3227	Long	Read Only	Counts for Daily Data[3].
3228	Long	Read Only	Counts for Daily Data[4].
3229	Long	Read Only	Counts for Daily Data[5].
3230	Long	Read Only	Counts for Daily Data[6].
3231	Long	Read Only	Counts for Daily Data[7].
3300	Time	Read Only	Daily run time[0].

Parameters 3301-3659

Parameter	8500 Native Type	Access	Description
3301	Time	Read Only	Daily run time[1].
3302	Time	Read Only	Daily run time[2].
3303	Time	Read Only	Daily run time[3].
3304	Time	Read Only	Daily run time[4].
3305	Time	Read Only	Daily run time[5].
3306	Time	Read Only	Daily run time[6].
3307	Time	Read Only	Daily run time[7].
3308	Time	Read Only	Daily run time[8].
3309	Time	Read Only	Daily run time[9].
3310	Time	Read Only	Daily run time[10].
3311	Time	Read Only	Daily run time[11].
3312	Time	Read Only	Daily run time[12].
3313	Time	Read Only	Daily run time[13].
3314	Time	Read Only	Daily run time[14].
3315	Time	Read Only	Daily run time[15].
3316	Time	Read Only	Daily run time[16].
3317	Time	Read Only	Daily run time[17].
3318	Time	Read Only	Daily run time[18].
3319	Time	Read Only	Daily run time[19].
3320	Time	Read Only	Daily run time[20].
3321	Time	Read Only	Daily run time[21].
3322	Time	Read Only	Daily run time[22].
3323	Time	Read Only	Daily run time[23].
3324	Time	Read Only	Daily run time[24].
3325	Time	Read Only	Daily run time[25].
3326	Time	Read Only	Daily run time[26].
3327	Time	Read Only	Daily run time[27].
3328	Time	Read Only	Daily run time[28].
3329	Time	Read Only	Daily run time[29].
3330	Time	Read Only	Daily run time[30].
3331	Time	Read Only	Daily run time[31].
3332	Time	Read Only	Daily run time[32].
3333	Time	Read Only	Daily run time[33].
3334	Time	Read Only	Daily run time[34].
3335	Time	Read Only	Daily run time[35].
3336	Time	Read Only	Daily run time[36].
3337	Time	Read Only	Daily run time[37].

Parameter	8500 Native Type	Access	Description
3338	Time	Read Only	Daily run time[38].
3339	Time	Read Only	Daily run time[39].
3340	Time	Read Only	Daily run time[40].
3341	Time	Read Only	Daily run time[41].
3342	Time	Read Only	Daily run time[42].
3343	Time	Read Only	Daily run time[43].
3344	Time	Read Only	Daily run time[44].
3345	Time	Read Only	Daily run time[45].
3346	Time	Read Only	Daily run time[46].
3347	Time	Read Only	Daily run time[47].
3348	Time	Read Only	Daily run time[48].
3349	Time	Read Only	Daily run time[49].
3350	Time	Read Only	Daily run time[50].
3351	Time	Read Only	Daily run time[51].
3352	Time	Read Only	Daily run time[52].
3353	Time	Read Only	Daily run time[53].
3354	Time	Read Only	Daily run time[54].
3355	Time	Read Only	Daily run time[55].
3356	Time	Read Only	Daily run time[56].
3357	Time	Read Only	Daily run time[57].
3358	Time	Read Only	Daily run time[58].
3359	Time	Read Only	Daily run time[59].
3360	Time	Read Only	Daily run time[60].
3361	Time	Read Only	Daily run time[61].
3362	Time	Read Only	Daily run time[62].
3363	Time	Read Only	Daily run time[63].
3364	Time	Read Only	Daily run time[64].
3365	Time	Read Only	Daily run time[65].
3366	Time	Read Only	Daily run time[66].
3367	Time	Read Only	Daily run time[67].
3368	Time	Read Only	Daily run time[68].
3369	Time	Read Only	Daily run time[69].
3370	Time	Read Only	Daily run time[70].
3371	Time	Read Only	Daily run time[71].
3372	Time	Read Only	Daily run time[72].
3373	Time	Read Only	Daily run time[73].
3374	Time	Read Only	Daily run time[74].
3375	Time	Read Only	Daily run time[75].
3376	Time	Read Only	Daily run time[76].

Parameter	8500 Native Type	Access	Description
3377	Time	Read Only	Daily run time[77].
3378	Time	Read Only	Daily run time[78].
3379	Time	Read Only	Daily run time[79].
3380	Time	Read Only	Daily run time[80].
3381	Time	Read Only	Daily run time[81].
3382	Time	Read Only	Daily run time[82].
3383	Time	Read Only	Daily run time[83].
3384	Time	Read Only	Daily run time[84].
3385	Time	Read Only	Daily run time[85].
3386	Time	Read Only	Daily run time[86].
3387	Time	Read Only	Daily run time[87].
3388	Time	Read Only	Daily run time[88].
3389	Time	Read Only	Daily run time[89].
3390	Time	Read Only	Daily run time[90].
3391	Time	Read Only	Daily run time[91].
3392	Time	Read Only	Daily run time[92].
3393	Time	Read Only	Daily run time[93].
3394	Time	Read Only	Daily run time[94].
3395	Time	Read Only	Daily run time[95].
3396	Time	Read Only	Daily run time[96].
3397	Time	Read Only	Daily run time[97].
3398	Time	Read Only	Daily run time[98].
3399	Time	Read Only	Daily run time[99].
3400	Time	Read Only	Daily run time[100].
3401	Time	Read Only	Daily run time[101].
3402	Time	Read Only	Daily run time[102].
3403	Time	Read Only	Daily run time[103].
3404	Time	Read Only	Daily run time[104].
3405	Time	Read Only	Daily run time[105].
3406	Time	Read Only	Daily run time[106].
3407	Time	Read Only	Daily run time[107].
3408	Time	Read Only	Daily run time[108].
3409	Time	Read Only	Daily run time[109].
3410	Time	Read Only	Daily run time[110].
3411	Time	Read Only	Daily run time[111].
3412	Time	Read Only	Daily run time[112].
3413	Time	Read Only	Daily run time[113].
3414	Time	Read Only	Daily run time[114].
3415	Time	Read Only	Daily run time[115].

Parameter	8500 Native Type	Access	Description
3416	Time	Read Only	Daily run time[116].
3417	Time	Read Only	Daily run time[117].
3418	Time	Read Only	Daily run time[118].
3419	Time	Read Only	Daily run time[119].
3420	Word	Read Only	Daily Production[0].
3421	Word	Read Only	Daily Production[1].
3422	Word	Read Only	Daily Production[2].
3423	Word	Read Only	Daily Production[3].
3424	Word	Read Only	Daily Production[4].
3425	Word	Read Only	Daily Production[5].
3426	Word	Read Only	Daily Production[6].
3427	Word	Read Only	Daily Production[7].
3428	Word	Read Only	Daily Production[8].
3429	Word	Read Only	Daily Production[9].
3430	Word	Read Only	Daily Production[10].
3431	Word	Read Only	Daily Production[11].
3432	Word	Read Only	Daily Production[12].
3433	Word	Read Only	Daily Production[13].
3434	Word	Read Only	Daily Production[14].
3435	Word	Read Only	Daily Production[15].
3436	Word	Read Only	Daily Production[16].
3437	Word	Read Only	Daily Production[17].
3438	Word	Read Only	Daily Production[18].
3439	Word	Read Only	Daily Production[19].
3440	Word	Read Only	Daily Production[20].
3441	Word	Read Only	Daily Production[21].
3442	Word	Read Only	Daily Production[22].
3443	Word	Read Only	Daily Production[23].
3444	Word	Read Only	Daily Production[24].
3445	Word	Read Only	Daily Production[25].
3446	Word	Read Only	Daily Production[26].
3447	Word	Read Only	Daily Production[27].
3448	Word	Read Only	Daily Production[28].
3449	Word	Read Only	Daily Production[29].
3450	Word	Read Only	Daily Production[30].
3451	Word	Read Only	Daily Production[31].
3452	Word	Read Only	Daily Production[32].
3453	Word	Read Only	Daily Production[33].
3454	Word	Read Only	Daily Production[34].

Parameter	8500 Native Type	Access	Description
3455	Word	Read Only	Daily Production[35].
3456	Word	Read Only	Daily Production[36].
3457	Word	Read Only	Daily Production[37].
3458	Word	Read Only	Daily Production[38].
3459	Word	Read Only	Daily Production[39].
3460	Word	Read Only	Daily Production[40].
3461	Word	Read Only	Daily Production[41].
3462	Word	Read Only	Daily Production[42].
3463	Word	Read Only	Daily Production[43].
3464	Word	Read Only	Daily Production[44].
3465	Word	Read Only	Daily Production[45].
3466	Word	Read Only	Daily Production[46].
3467	Word	Read Only	Daily Production[47].
3468	Word	Read Only	Daily Production[48].
3469	Word	Read Only	Daily Production[49].
3470	Word	Read Only	Daily Production[50].
3471	Word	Read Only	Daily Production[51].
3472	Word	Read Only	Daily Production[52].
3473	Word	Read Only	Daily Production[53].
3474	Word	Read Only	Daily Production[54].
3475	Word	Read Only	Daily Production[55].
3476	Word	Read Only	Daily Production[56].
3477	Word	Read Only	Daily Production[57].
3478	Word	Read Only	Daily Production[58].
3479	Word	Read Only	Daily Production[59].
3480	Word	Read Only	Daily Production[60].
3481	Word	Read Only	Daily Production[61].
3482	Word	Read Only	Daily Production[62].
3483	Word	Read Only	Daily Production[63].
3484	Word	Read Only	Daily Production[64].
3485	Word	Read Only	Daily Production[65].
3486	Word	Read Only	Daily Production[66].
3487	Word	Read Only	Daily Production[67].
3488	Word	Read Only	Daily Production[68].
3489	Word	Read Only	Daily Production[69].
3490	Word	Read Only	Daily Production[70].
3491	Word	Read Only	Daily Production[71].
3492	Word	Read Only	Daily Production[72].
3493	Word	Read Only	Daily Production[73].

Parameter	8500 Native Type	Access	Description
3494	Word	Read Only	Daily Production[74].
3495	Word	Read Only	Daily Production[75].
3496	Word	Read Only	Daily Production[76].
3497	Word	Read Only	Daily Production[77].
3498	Word	Read Only	Daily Production[78].
3499	Word	Read Only	Daily Production[79].
3500	Word	Read Only	Daily Production[80].
3501	Word	Read Only	Daily Production[81].
3502	Word	Read Only	Daily Production[82].
3503	Word	Read Only	Daily Production[83].
3504	Word	Read Only	Daily Production[84].
3505	Word	Read Only	Daily Production[85].
3506	Word	Read Only	Daily Production[86].
3507	Word	Read Only	Daily Production[87].
3508	Word	Read Only	Daily Production[88].
3509	Word	Read Only	Daily Production[89].
3510	Word	Read Only	Daily Production[90].
3511	Word	Read Only	Daily Production[91].
3512	Word	Read Only	Daily Production[92].
3513	Word	Read Only	Daily Production[93].
3514	Word	Read Only	Daily Production[94].
3515	Word	Read Only	Daily Production[95].
3516	Word	Read Only	Daily Production[96].
3517	Word	Read Only	Daily Production[97].
3518	Word	Read Only	Daily Production[98].
3519	Word	Read Only	Daily Production[99].
3520	Word	Read Only	Daily Production[100].
3521	Word	Read Only	Daily Production[101].
3522	Word	Read Only	Daily Production[102].
3523	Word	Read Only	Daily Production[103].
3524	Word	Read Only	Daily Production[104].
3525	Word	Read Only	Daily Production[105].
3526	Word	Read Only	Daily Production[106].
3527	Word	Read Only	Daily Production[107].
3528	Word	Read Only	Daily Production[108].
3529	Word	Read Only	Daily Production[109].
3530	Word	Read Only	Daily Production[110].
3531	Word	Read Only	Daily Production[111].
3532	Word	Read Only	Daily Production[112].

Parameter	8500 Native Type	Access	Description
3533	Word	Read Only	Daily Production[113].
3534	Word	Read Only	Daily Production[114].
3535	Word	Read Only	Daily Production[115].
3536	Word	Read Only	Daily Production[116].
3537	Word	Read Only	Daily Production[117].
3538	Word	Read Only	Daily Production[118].
3539	Word	Read Only	Daily Production[119].
3540	Time	Read Only	Pump run time[0].
3541	Time	Read Only	Pump run time[1].
3542	Time	Read Only	Pump run time[2].
3543	Time	Read Only	Pump run time[3].
3544	Time	Read Only	Pump run time[4].
3545	Time	Read Only	Pump run time[5].
3546	Time	Read Only	Pump run time[6].
3547	Time	Read Only	Pump run time[7].
3548	Time	Read Only	Pump run time[8].
3549	Time	Read Only	Pump run time[9].
3550	Time	Read Only	Pump run time[10].
3551	Time	Read Only	Pump run time[11].
3552	Time	Read Only	Pump run time[12].
3553	Time	Read Only	Pump run time[13].
3554	Time	Read Only	Pump run time[14].
3555	Time	Read Only	Pump run time[15].
3556	Time	Read Only	Pump run time[16].
3557	Time	Read Only	Pump run time[17].
3558	Time	Read Only	Pump run time[18].
3559	Time	Read Only	Pump run time[19].
3560	Time	Read Only	Pump run time[20].
3561	Time	Read Only	Pump run time[21].
3562	Time	Read Only	Pump run time[22].
3563	Time	Read Only	Pump run time[23].
3564	Time	Read Only	Pump run time[24].
3565	Time	Read Only	Pump run time[25].
3566	Time	Read Only	Pump run time[26].
3567	Time	Read Only	Pump run time[27].
3568	Time	Read Only	Pump run time[28].
3569	Time	Read Only	Pump run time[29].
3570	Time	Read Only	Pump run time[30].
3571	Time	Read Only	Pump run time[31].

Parameter	8500 Native Type	Access	Description
3572	Time	Read Only	Pump run time[32].
3573	Time	Read Only	Pump run time[33].
3574	Time	Read Only	Pump run time[34].
3575	Time	Read Only	Pump run time[35].
3576	Time	Read Only	Pump run time[36].
3577	Time	Read Only	Pump run time[37].
3578	Time	Read Only	Pump run time[38].
3579	Time	Read Only	Pump run time[39].
3580	Time	Read Only	Pump run time[40].
3581	Time	Read Only	Pump run time[41].
3582	Time	Read Only	Pump run time[42].
3583	Time	Read Only	Pump run time[43].
3584	Time	Read Only	Pump run time[44].
3585	Time	Read Only	Pump run time[45].
3586	Time	Read Only	Pump run time[46].
3587	Time	Read Only	Pump run time[47].
3588	Time	Read Only	Pump run time[48].
3589	Time	Read Only	Pump run time[49].
3590	Time	Read Only	Pump run time[50].
3591	Time	Read Only	Pump run time[51].
3592	Time	Read Only	Pump run time[52].
3593	Time	Read Only	Pump run time[53].
3594	Time	Read Only	Pump run time[54].
3595	Time	Read Only	Pump run time[55].
3596	Time	Read Only	Pump run time[56].
3597	Time	Read Only	Pump run time[57].
3598	Time	Read Only	Pump run time[58].
3599	Time	Read Only	Pump run time[59].
3600	Time	Read Only	Pump run time[60].
3601	Time	Read Only	Pump run time[61].
3602	Time	Read Only	Pump run time[62].
3603	Time	Read Only	Pump run time[63].
3604	Time	Read Only	Pump run time[64].
3605	Time	Read Only	Pump run time[65].
3606	Time	Read Only	Pump run time[66].
3607	Time	Read Only	Pump run time[67].
3608	Time	Read Only	Pump run time[68].
3609	Time	Read Only	Pump run time[69].
3610	Time	Read Only	Pump run time[70].

Parameter	8500 Native Type	Access	Description
3611	Time	Read Only	Pump run time[71].
3612	Time	Read Only	Pump run time[72].
3613	Time	Read Only	Pump run time[73].
3614	Time	Read Only	Pump run time[74].
3615	Time	Read Only	Pump run time[75].
3616	Time	Read Only	Pump run time[76].
3617	Time	Read Only	Pump run time[77].
3618	Time	Read Only	Pump run time[78].
3619	Time	Read Only	Pump run time[79].
3620	Time	Read Only	Pump run time[80].
3621	Time	Read Only	Pump run time[81].
3622	Time	Read Only	Pump run time[82].
3623	Time	Read Only	Pump run time[83].
3624	Time	Read Only	Pump run time[84].
3625	Time	Read Only	Pump run time[85].
3626	Time	Read Only	Pump run time[86].
3627	Time	Read Only	Pump run time[87].
3628	Time	Read Only	Pump run time[88].
3629	Time	Read Only	Pump run time[89].
3630	Time	Read Only	Pump run time[90].
3631	Time	Read Only	Pump run time[91].
3632	Time	Read Only	Pump run time[92].
3633	Time	Read Only	Pump run time[93].
3634	Time	Read Only	Pump run time[94].
3635	Time	Read Only	Pump run time[95].
3636	Time	Read Only	Pump run time[96].
3637	Time	Read Only	Pump run time[97].
3638	Time	Read Only	Pump run time[98].
3639	Time	Read Only	Pump run time[99].
3640	Time	Read Only	Pump run time[100].
3641	Time	Read Only	Pump run time[101].
3642	Time	Read Only	Pump run time[102].
3643	Time	Read Only	Pump run time[103].
3644	Time	Read Only	Pump run time[104].
3645	Time	Read Only	Pump run time[105].
3646	Time	Read Only	Pump run time[106].
3647	Time	Read Only	Pump run time[107].
3648	Time	Read Only	Pump run time[108].
3649	Time	Read Only	Pump run time[109].

Parameter	8500 Native Type	Access	Description
3650	Time	Read Only	Pump run time[110].
3651	Time	Read Only	Pump run time[111].
3652	Time	Read Only	Pump run time[112].
3653	Time	Read Only	Pump run time[113].
3654	Time	Read Only	Pump run time[114].
3655	Time	Read Only	Pump run time[115].
3656	Time	Read Only	Pump run time[116].
3657	Time	Read Only	Pump run time[117].
3658	Time	Read Only	Pump run time[118].
3659	Time	Read Only	Pump run time[119].

WellPilot/ePIC VSD Parameter Listings

For information on a specific range of parameters, select a link from the list below.

Parameters 1-300
Parameters 309-599
Parameter Listings 601-900
Parameter Listings 901-1199
Parameter Listings 1201- 1500
Parameter Listings 1501-2524

🔷 *For additional parameter details, refer to the device's User Manual.*

Parameters 1-300

Parameter	Data Type	Access	Description
1	Word	Read/Write	User-entered password
2	Word	Read/Write	Communication address for remote communications (0 to 4094)
3	Time24	Read/Write	Time of day: hh:mm:ss am/pm
4	Date	Read/Write	Today's date (mm/dd/yy)
5	Byte	Read/Write	Current day of the week Automatically set when Parameter 4 is set
6	Command	Read/Write	Manual top of stroke Locates Position Switch in reference to TOS
7	Command	Read/Write	Automatic top of stroke (Automatic using Continuous Position signal input)
8	Display	Read Only	TOS to Position Switch stroke fraction (in counts where Position Switch closes after TOS)
10	Command	Read/Write	Output Parameter list (outputs parameter list to host)
14	Byte	Read/Write	Load units (Lb/Kg): 0 = Pounds 1 = Kg. Metric
15	Byte	Read/Write	Numeric/alphabetic date format: 0 = Numeric 1 = Alphabetic
16	Byte	Read/Write	12/24 Hour clock display: 0 = Mil 1 = AM/PM
17	Byte	Read/Write	Long time day/hour split – Run Time format 0 = hours only 1 = days/hours
18	Byte	Read/Write	Real Time Clock source on AC power (not functional)
19	Byte	Read/Write	Real Time Clock source on AC fail:

Parameter	Data Type	Access	Description
			1 = Real Time Clock
20	Time24	Read/Write	Idle time set by operator based on well conditions: hh:mm:ss
21	Byte	Read/Write	Pump-off Position %: 0 = Bottom of Stroke 100 = Top of Stroke
22	Byte	Read/Write	Pump-off Action Any Command Action other than "Go To Idle" will generate a non-clearable alarm. POC mode can be set to any valid action code.
23	Byte	Read/Write	Pump-off Load %: 0 = Minimum Load during stroke 100 = Maximum Load during stoke
24	Byte	Read/Write	POC strokes for pumpoff. Maximum consecutive pump-off strokes allowed before going to idle time.
25	Time24	Read/Write	Pump-up delay (hh:mm:ss).
26	Byte	Read/Write	POC Method: 0 = Quadrant Method – Lower RH 1 = Point Method – Along Base Line 2 = Reverse POC using Method 0 3 = Reverse POC using Method 1 4 = ESP Only (Disables POC for RPC use) 5 = ESP Only (Disables POC for RPC use) 6 = ESP Only (Disables POC for RPC use) 7 = ESP Only (Disables POC for RPC use) 8 = Quadrant Method – Upper LH 9 = Point Method – Upper (100%) Line 10 = Reverse POC using Method 8 11 = Reverse POC using Method 9
27	Time24	Read/Write	POC override timer (hh:mm:ss) set by operator. No POC until timer decrements to zero.
28	Byte	Read/Write	Override timer power-up action of clearing flag 0 = No Power Up Clear 1 = Power Up Clear
29	Byte	Read/Write	Motor speed control type: 0 = Fixed Speed (on/off control) 1 = Normal VSD 2 = Dynamic VSD
30	Byte	Read/Write	[This parameter is not used]
31	Command	Read/Write	Manual off until reset – Operator input
32	Command	Read/Write	Manual control transfer – Operator input
33	Command	Read/Write	Manual software timer – Operator input
34	Byte	Read/Write	Position input source 0 = Position Switch 1 = Continuous Position Sensor

Parameter	Data Type	Access	Description
			2 = Monitor Only Mode
35	Byte	Read/Write	Load input source 0 = Load Cell 1 = Strain Gauge
36	Time24	Read/Write	Target cycle time (hh:mm:SS) 00-99:59:59. Set to 00:00:00 to disable automatic idle time
37	Byte	Read/Write	Action for under 50% run: 0 = No Action 1 = Disable with Fault Lamp 2 = Halve Cycle with No Fault Lamp 3 = Halve Cycle with Fault Lamp
38	Time24	Read/Write	Off time limit. Maximum allowed off time and restart automatically.
39	Byte	Read/Write	Off time limit enable/disable: 0 = Disable 1 = Enable Off Until Reset is the action, when enabled
40	Byte	Read/Write	% ABC goal value – Set to 0% to disable
41	Byte	Read/Write	% ABC dead band value
42	Word	Read Only	Upstroke peak value in millivolts
43	Word	Read Only	Downstroke peak value in millivolts
44	Word	Read Only	Peak difference in mV – Positive value means upstroke peak value was higher than down-stroke peak value.
45	Word	Read Only	Peak difference in % - Not used in control and will show a slightly lower value than the selected % control values.
46	Word	Read/Write	Air balance purge time – Open time of Purge Air Cylinder valve Range is 0 – 65535 (546.1 Seconds in a 60Hz system)
50	Byte	Read/Write	Peak energy control enable flag: 0 = Disabled 1 = Enabled
51	Time24	Read/Write	Begin run inhibit time (hh:mm:ss and am/pm)
52	Time24	Read/Write	End run inhibit time (hh:mm:ss and am/pm)
53	Time24	Read/Write	Power On Restart Delay Time
54	Byte	Read/Write	Startup Control State: 0 = Normal 1 = Software Timer 2 = Control Transfer 3 = Off until reset
55	Byte	Read/Write	Time to Idle at Startup: 0 = Retained Idle Time 1 = Full Idle Time 2 = No Idle Time
56	Byte	Read/Write	Use Random Startup Delay:

Parameter	Data Type	Access	Description
			0 = Disabled 1 = Enabled
63	Byte	Read/Write	Strain gauge target type: 0 = Cycle minimum 1 = Cycle average 2 = Cycle maximum
64	Byte	Read/Write	Conditions for SG adjust: 0 = Adjust Valid (if running tracking with valid load span) 1 = Adjust Running (if unit running) 2 = Adjust Always (at all times)
65	Word	Read/Write	Cycle minimum target (Lb)
66	Word	Read/Write	Cycle average target (Lb)
67	Word	Read/Write	Cycle maximum target (Lb)
68	Word	Read/Write	SG Load step limit in pounds
69	Word	Read Only	SG Load step limit in µV
70	Command	Read/Write	Set zero load i/p offset ⬤ Note: Ensure that the Load Cell is fully unloaded.
71	Word	Read/Write	Offset in offset mV Normally set automatically (20000 = 0.00). Set this Parameter along with Parameter 70.
72	Word	Read Only	Offset in volts – Set this Parameter along with Parameter 70
73	Word	Read/Write	Known load to set gain (Input in lbs) using known standard calibrated load measuring device
74	Word	Read/Write	Load input gain (Lb./mV) Automatically set with Parameter 73 or set for specific load cell range
75	Display	Read Only	Load gain Lb/mV or Kg/mV - (Lb./mV) Automatically set with Parameter 73
76	Word	Read Only	Load raw input and volts (counts / volt)
77	Word	Read Only	Load input in mV
78	Word	Read Only	Current Load - lbs
79	Word	Read Only	Minimum load last stroke - lbs
80	Word	Read Only	Maximum load last stroke - lbs
81	Word	Read/Write	Calibration minimum load
82	Word	Read/Write	Calibration maximum load - lbs
83	Word	Read Only	Minimum load from last start - lbs
84	Word	Read Only	Maximum load from last start - lbs
85	Word	Read Only	Minimum load since power up - lbs
86	Word	Read Only	Maximum load since power up - lbs
87	Word	Read Only	Span over last stroke - lbs
88	Word	Read Only	Minimum span since power up - lbs

Parameter	Data Type	Access	Description
89	Word	Read Only	Load Average last stroke - lbs
90	Word	Read Only	Minimum average since power up - lbs
91	Word	Read Only	Maximum average since power up - lbs
92	Word	Read Only	Minimum load since power up mV
93	Word	Read Only	Maximum load since power up mV
94	Command	Read/Write	Reset power up minimum/maximum Load Values – P85, 86, 88, 90, 91, 92, & 93 are reset.
95	Word	Read Only	Load fail ADC raw and V – counts and volts
96	Word	Read Only	Load fail input in mV
99	Command	Read/Write	Calibrate Load Sensor
100	Command	Read/Write	Calibrate Position Reference
101	Byte	Read/Write	Position Synthesis Type: 0 = Simple (Sinusoid) 1 = MKII Compensation 2 = Calibrated Position
102	Word	Read Only	Position raw input & volts – counts & volts
103	Word	Read Only	Position input in volts
104	Word	Read Only	Minimum Position last stroke – volts (Ref. P271)
105	Word	Read Only	Maximum Position last stroke – volts (Ref. P272)
106	Word	Read Only	Position span last stroke
107	Word	Read Only	Position span filtered
108	Word	Read/Write	Dir. debounce time in ticks
109	Byte	Read Only	Bottoms with no position fault
113	Byte	Read/Write	MK-II Compensate Position This parameter defines the percentage of the amplitude of the cosine of the 2nd harmonic of the stroke frequency to subtract from the synthesized position which effectively speeds up the down stroke. The range of acceptable values is from 0 to 24%. The value should be 0% for a conventional unit. We recommend a value of 20% for a large Mark II unit.
114	Byte	Read/Write	DPS: Load De-skew - Delay (for use when using DPS with Mark II units): 0 = 0 ms 1 = 50 ms 2 = 100 ms 3 = 150 ms 4 = 200 ms 5 = 250 ms 6 = 300 ms 7 = 350 ms
115	Byte	Read/Write	Low Load Cycles for stage 2
116	Byte	Read/Write	Low Load Stage 2 strokes for violation

Parameter	Data Type	Access	Description
117	Byte	Read/Write	Low Load Stage 2 cycles for action
120	Word	Read/Write	Scratch data 1
121	Word	Read/Write	Torque % mult-factor (if 10=>/10)
122	Word	Read/Write	Scratch data 3 – Same as P120
123	Word	Read/Write	Scratch data 4 – Same as P120
124	Word	Read/Write	Scratch data 5 – Same as P120
125	Byte	Read/Write	Good strokes for filter
127	Byte	Read/Write	Enable Position Switch as Run/Stop input - Monitor Mode Only 0 = Disable 1 = Enable
128	Byte	Read/Write	Good strokes for Position Switch reset
129	Byte	Read/Write	Log cleared Position Switch error 0 = No Log Clear 1 = Log Clear
130	Word	Read/Write	TOS to Position Switch stroke fraction. Stroke = 65536 count
131	Command	Read/Write	Reverse Position Switch setting
132	Word	Read Only	Last Position Switch interval. Ticks/s
133	Byte	Read/Write	Position Switch as Run /Stop debounce
134	Byte	Read/Write	Open debounce interval in Ticks/s
135	Byte	Read/Write	Use Position Switch opening: 0 = Use Close 1 = Use Open
136	Byte	Read/Write	Filtered interval minimum % - Minimum allowed as percent of normal from normal
137	Byte	Read/Write	Filtered interval maximum % - Maximum allowed as percent of normal from normal
138	Byte	Read Only	Filtered strokes counter – in counts
139	Word	Read Only	Last Stroke interval – counts/second
140	Word	Read Only	Filtered Stroke interval – counts/second
141	Word	Read Only	Last Stroke Well Speed – (PPM * 100)
142	Word	Read Only	Filtered Well Speed – (PPM * 100)
143	Byte	Read Only	Bottoms counter – in counts
144	Byte	Read Only	Debounced closed flag – Open/Closed
147	Word	Read Only	Debounced Switches Since Last Turn Off/On
149	Command	Read/Write	Well Speed Change – Clear and reset all SPM information
160	Word	Read Only	AI-1 raw input and volts – counts/volt
161	Word	Read Only	AI-1 Input value - volts
162	Word	Read Only	AI-1 Minimum recorded value
163	Word	Read Only	AI-1 Maximum recorded value
164	Word	Read Only	AI-1 last stroke average

Parameter	Data Type	Access	Description
165	Word	Read Only	AI-1 Minimum stroke average
166	Word	Read Only	AI-1 Maximum stroke average
167	Command	Read/Write	AI-1 Reset minimum/maximum
168	Word	Read/Write	Latch AI alarms enable
170	Word	Read/Write	DO 1 on timer – Operator set manual ON time and /or serves as countdown timer. Set in Ticks.
171	Word	Read/Write	DO 2 on timer – Operator set manual ON time and /or serves as countdown timer. Set in Ticks.
172	Byte	Read/Write	DO 1 on flag – Remains in set condition until reset manually or by action code
173	Byte	Read/Write	DO 2 on flag – Remains in set condition until reset manually or by action code
174	Byte	Read Only	Current dyno data skip factor
175	Byte	Read Only	Dyno data skip factor for last card requested by host
176	Word	Read Only	Stroke interval in 1/120 sec ticks for last card requested by host
178	Word	Read/Write	DO1 action ticks. Number of ticks equal to pulse duration required (Tick = 1/120 Sec.)
179	Word	Read/Write	DO2 action ticks – Seconds (DO1 and DO2)
180	Word	Read Only	DI status bits: Octal Value / DI Location 000001 = DI1 (State: 0=On, 1=Off) 000002 = DI2 (State: 0=On, 1=Off) 00004 = DI3 (State: 0=On, 1=Off) 000010 = DI4 (State: 0=On, 1=Off) 000020 = DI5 (State: 0=On, 1=Off) 000040 = DI6 (State: 0=On, 1=Off) 000100 = DI7 (State: 0=On, 1=Off) 000200 = DI8 (State: 0=On, 1=Off)
181	Word	Read/Write	DI 1 low order counts - 0 to 65,535 counts and reset to zero
182	Word	Read/Write	DI 1 high order counts - P181 rollover count
183	Word	Read/Write	DI 2 low order counts - Same as P181
184	Word	Read/Write	DI 2 high order counts - Same as P182
185	Word	Read/Write	DI 3 low order counts - Same as P181
186	Word	Read/Write	DI 3 high order counts - Same as P182
187	Word	Read/Write	DI 4 low order counts - Same as P181
188	Word	Read/Write	DI 4 high order counts - Same as P182
189	Word	Read/Write	DI 5 low order counts - Same as P181
190	Word	Read/Write	DI 5 high order counts - Same as P182
191	Word	Read/Write	DI 6 low order. counts - Same as P181
192	Word	Read/Write	DI 6 high order counts - Same as P182
193	Word	Read Only	AI status as DI: Octal Value / Description

Parameter	Data Type	Access	Description
			000004 = AI1 Selected 000010 = AI2 Selected
194	Word	Read/Write	AI 1 low order counts - Same as P181
195	Word	Read/Write	AI 1 high order counts - Same as P182
196	Word	Read/Write	AI 2 low order counts - Same as P181
197	Word	Read/Write	AI 2 high order counts - Same as P182
198	Word	Read/Write	AI 3 low order counts - Same as P181
199	Word	Read/Write	AI 3 high order counts - Same as P182
200	Byte	Read/Write	Sensor Failure Action: 0 = Invalid Action 1 = Soft time 2 = Control Transfer 3 = Off/Reset
204	Byte	Read/Write	No. run cycles to average - If zero, value in P206 used
205	Time24	Read Only	Recorded average on time - If no value in P205 or P206, P204 controls transfer
206	Time24	Read/Write	Manual set timer ON time – hh:mm:ss
207	Time24	Read Only	Latest average ON time
208	Word	Read/Write	Low-Low load limit - Pounds
209	Byte	Read/Write	Low-Low load Violation action: 0 = Lamp Only - Fault Lamp Illuminates. 1 = Soft Time - Software Timer Controls Pumping Unit based on P204. 2 = CNTL Xfer - Control is Transferred. 3 = Off/Reset - Turns Controller OFF until Reset by Operator. 4 = Idle Time - Pumping Starts in Idle Time. 5 = Idle + ALM - Pumping Starts in Idle Time and Fault Lamp Illuminates. 6 = Start Pump - Starts Pump if Conditions Allow 7 = No Action - No Action is taken. 8 = Pulse DO1 - Pulses Digital Output 1 (Wired as DI7/DO7) 9 = Pulse DO2 - Pulses Digital Output 2 (Wired as DI8/DO8) 10 = DO1 OFF - Turns DO1 OFF (Wired as DI7/DO7) 11 = DO2 OFF - Turns DO2 OFF (Wired as DI8/DO8) 12 = DO1 ON - Turns DO1 ON (Wired as DI7/DO7) 13 = DO2 ON - Turns DO2 ON (Wired as DI8/DO8) x6 = Pulse DIOx - Pulses DIOx* x7 = Turn DIOx OFF - Turns DIOx OFF* x8 = Turn DIOx ON - Turns DIOx ON* * The small "x" in the last three action codes is user input. For example, to "Pulse" DIO5, input "56" as the Action Code. To turn DIO5 ON, input 58 as the action code.
210	Word	Read/Write	Low load limit - Pounds; Not used if set to zero
211	Word	Read/Write	High load limit - Pounds; Not used if set to zero

Parameter	Data Type	Access	Description
212	Word	Read/Write	Low average load limit – Pounds. Use only if low load goes below zero load (shallow well) and low load limit cannot be used.
213	Byte	Read/Write	High Load violation strokes - Used for P211, and P214 before action. Load limit has a separate counter.
214	Byte	Read/Write	High Load violation action (For P211 and 213) 0 = Lamp Only 1 = Soft Time 2 = Control Transfer 3 = Off/Reset 4 = Idle Time 5 = Idle + Alarm
215	Byte	Read/Write	Low Load violation strokes – For P210 and 212
216	Byte	Read/Write	Low Load violation action – For P210, 212, and 215 0 = Lamp Only 1 = Soft Time 2 = Control Transfer 3 = Off/Reset 4 = Idle Time 5 = Idle + Alarm
217	Word	Read/Write	Load violation Deadband - pounds
218	Word	Read/Write	High-High Load limit - pounds
219	Byte	Read/Write	High-High Load action. See P209 for action codes
220	Byte	Read/Write	Off time multiplier - (0.1 units)
			[15 = 1.5 multiplier]. Disables low load span and cycle run time for set period. Determined by actual power off interval times
221	Time24	Read/Write	Limit to multiplied time - hh:mm:ss 72:00:00 = 3 Days
222	Byte	Read/Write	Number of Low Load span strokes required before action – for P223
223	Word	Read/Write	Minimum valid load span - Pounds. Should be set to 50-70% of Normal Operating Load Span (P87)
225	Byte	Read/Write	Low Load span Action of P223 0 = Lamp Only 1 = Soft Time 2 = Control Transfer 3 = Off/Reset 4 = Idle Time 5 = Idle + Alarm
226	Time24	Read/Write	Load span Well off timer - Time the well has been "off" including power failures. This is multiplied by P220 to get recovery time.
227	Time24	Read/Write	Load span Well on timer - Time left before the recovery time period times out
228	Byte	Read/Write	Pumpoffs to clear P227
230	Byte	Read/Write	Immediate pumpoffs for violation - Not used if zero Pump Off allowed before action

Parameter	Data Type	Access	Description
231	Byte	Read/Write	Immediate Pumpoff Action
232	Time24	Read/Write	Minimum run time - hh:mm:ss. Set at zero to disable
233	Byte	Read/Write	Minimum run times for action - Number of Consecutive Minimum Cycle run Times Violations before Action [2]
234	Byte	Read/Write	Minimum run time action - Fault msg. "MIN CYCLE action" 0 = Lamp Only 1 = Soft Time 2 = Control Transfer 3 = Off/Reset
235	Time24	Read/Write	Maximum cycle run time - hh:mm:ss. Set to zero to disable
236	Byte	Read/Write	Maximum cycle runtime Action - Fault Message "MAX CYCLE Action ON TIME": 0 = Lamp Only 1 = Soft Time 2 = Control Transfer 3 = Off/Reset 4 = Idle Time 5 = Idle + Alarm
237	Time24	Read/Write	Maximum daily run time - hh:mm:ss
			Not used if set to 00:00:00
238	Byte	Read/Write	Maximum daily runtime action: 0 = Lamp Only 1 = Soft Time 2 = Control Transfer 3 = Off/Reset
239	Time24	Read/Write	Off timer for maximum run, unless changed by operator. Time format.
240	Time24	Read/Write	On timer for maximum run, unless changed by operator. Time format.
241	Byte	Read/Write	Pumpoffs to clear P240
242	Time24	Read Only	Qualified cycle ON timer
243	Time24	Read Only	Qualified daily ON timer
245	Byte	Read/Write	Violation entry deglitch time – 2 = 0.1 Seconds
246	Byte	Read/Write	violation exit deglitch time – 3 = 0.15 Seconds
249	Byte	Read/Write	AI 1 low action
250	Byte	Read/Write	AI 1 high action
251	Byte	Read/Write	AI 2 low action
252	Byte	Read/Write	AI 2 high action
253	Byte	Read/Write	AI 3 low action
254	Byte	Read/Write	AI 3 high action
255	Word	Read Only	Current Card Area in Ft-Lb
256	Word	Read/Write	Minimum Card Area in Ft-Lb

Parameter	Data Type	Access	Description
257	Byte	Read/Write	Minimum Card Area Action
258	Word	Read/Write	Maximum Card Area in Ft-Lb
259	Byte	Read/Write	Maximum Card Area Action
260	Byte	Read/Write	Control Failure Action: 0 = Lamp Only 1 = Soft Time 2 = Control Transfer 3 = Off/Reset
261	Time24	Read/Write	Required time - hh:mm:ss
			Must be set to at least 30 seconds less than P20
262	Byte	Read/Write	Pump On settling time - Delay (Sec) before expected running after start-up
263	Byte	Read/Write	Pump Off settling time - Delay (Sec) before expected stop after turned off
265	Word	Read Only	Minimum Position Last Cycle
266	Word	Read Only	Maximum position Last Cycle
267	Word	Read Only	Minimum position since power on
268	Word	Read Only	Maximum position since power on
270	Word	Read/Write	Minimum position span - 250 = 0.250 volts. Operator can set to accommodate signal span
271	Word	Read/Write	Minimum position value - 2125 = 0.125 volts
272	Word	Read/Write	Maximum position value - 6000 = 4.000 volts
273	Byte	Read/Write	Position fault entry time - 5 = 0.250 seconds
280	Word	Read Only	AI-1 raw input and volts - A/D counts / volts
281	Word	Read Only	AI-1 Input value - Offset volts
282	Word	Read Only	AI-1 Scaled EGU value - Scaled EGU Value
283	Byte	Read/Write	AI-1 Input type
284	Byte	Read/Write	AI-1 EGU decimal places
285	Byte	Read/Write	AI-1 EGU label
286	Word	Read/Write	AI-1 Scaling low value
287	Word	Read/Write	AI-1 Scaling high value
288	Word	Read/Write	AI-1 Low alarm limit
289	Byte	Read/Write	AI-1 Low alarm action 1
290	Byte	Read/Write	AI-1 Low alarm action 2
291	Word	Read/Write	AI-1 High alarm limit
292	Byte	Read/Write	AI-1 High alarm action 1
293	Byte	Read/Write	AI-1 High alarm action 2
294	Word	Read/Write	AI-1 Alarms deadband
295	Word	Read Only	AI-1 Minimum recorded value in volts
296	Word	Read Only	AI-1 Maximum recorded value in volts

Parameter	Data Type	Access	Description
297	Word	Read Only	AI-1 last stroke average in volts
298	Word	Read Only	AI-1 Minimum stroke average in volts
299	Word	Read Only	AI-1 Maximum stroke average in volts
300	Command	Read/Write	AI-1 Reset minimum/maximum – Resets all for AI-1

Parameters 309-599

Parameter	Data Type	Access	Description
309	Word	Read/Write	AI alarm status bits: Octal Value / Description 000001 = Extra Channel 1 Low Alarm 000002 = Extra Channel 2 Low Alarm 000004 = Extra Channel 1 High Alarm 000010 = Extra Channel 2 High Alarm
310	Word	Read Only	AI-2 raw input and volts - counts / volts
311	Word	Read Only	AI-2 Input value - volts
312	Word	Read Only	AI-2 Scaled EGU value - Scaled EGU Value
313	Byte	Read/Write	AI-2 Input type - Refer to Table 7
314	Byte	Read/Write	AI-2 EGU decimal places - Refer to Table 8
315	Byte	Read/Write	AI-2 EGU label - Refer to Table 6
316	Word	Read/Write	AI-2 Scaling low value
317	Word	Read/Write	AI-2 Scaling high value
318	Word	Read/Write	AI-2 Low alarm limit
319	Byte	Read/Write	AI-2 Low alarm action 1– Refer to Table 2
320	Byte	Read/Write	AI-2 Low alarm action 2 – Refer to Table 2
321	Word	Read/Write	AI-2 High alarm limit
322	Byte	Read/Write	AI-2 High alarm action 1 – Refer to Table 2
323	Byte	Read/Write	AI-2 High alarm action 2 – Refer to Table 2
324	Word	Read/Write	AI-2 Alarms deadband
325	Word	Read Only	AI-2 Minimum recorded value
326	Word	Read Only	AI-2 Maximum recorded value
329	Command	Read/Write	AI-2 Reset minimum/maximum
330	Word	Read Only	AI-3 raw input and volts - count
331	Word	Read Only	AI-3 Input value - Millivolts
332	Word	Read Only	AI-3 Scaled EGU value
333	Byte	Read/Write	AI-3 Input type - Refer to Table 7
334	Byte	Read/Write	AI-3 EGU decimal places - Refer to Table 8
335	Byte	Read/Write	AI-3 EGU label - Refer to Table 6

Parameter	Data Type	Access	Description
336	Word	Read/Write	AI-3 Scaling low value
337	Word	Read/Write	AI-3 Scaling high value
338	Word	Read/Write	AI-3 Low alarm limit
339	Byte	Read/Write	AI-3 Low alarm action 1 – Refer to Table 2
340	Byte	Read/Write	AI-3 Low alarm action 2 – Refer to Table 2
341	Word	Read/Write	AI-3 High alarm limit
342	Byte	Read/Write	AI-3 High alarm action 1 – Refer to Table 2
343	Byte	Read/Write	AI-3 High alarm action 2 – Refer to Table 2
344	Word	Read/Write	AI-3 Alarms deadband
345	Word	Read Only	AI-3 Minimum recorded value
346	Word	Read Only	AI-3 Maximum recorded value
349	Command	Read/Write	AI-3 Reset minimum/maximum
350	Command	Read/Write	15 sec fault lamp test
351	Command	Read/Write	Software reset
352	Command	Read/Write	Repeat last roll display
355	Byte	Read/Write	Minimum Fault Events
356	Byte	Read/Write	Minimum Alarm Events
357	Word	Read/Write	Event Card Enable Bits 1 - Hex value 00 – 0F
358	Word	Read/Write	Event Card Enable Bits 2 - Hex value 10 – 1F
359	Word	Read/Write	Event Card Enable Bits 3 - Hex value 20 – 2F
360	Word	Read/Write	Event Card Enable Bits 4 - Hex value 30 – 3F
361	Word	Read/Write	Event Card Enable Bits 5 - Hex value 40 – 4F
362	Word	Read/Write	Event Card Enable Bits 6 - Hex value 50 – 52
363	Word	Read/Write	Event Card Enable Bits 7 - Hex value 60
365	Command	Read/Write	Record Event Buffer
366	Command	Read/Write	Clear Event Buffer
370	Display	Read Only	POC display/position - Percent
371	Display	Read Only	POC display/load - Percent
372	Display	Read Only	POC display/P26 method - Depends on P26 (POC Method). Value shows when <POC DSPLY> is pressed on RPC
373	Word	Read Only	Surface card pump fill %
374	Word	Read Only	Reason code for load fail alarms: 1 = load fail conversion error: read_a2d() returns 0xffff 2 = load fail raw error: read_a2d() returns load > 0xfff 3 = load fail calculation error: after scaling the input offset mV value is > 22 mV or < -1 mV
375	Word	Read Only	Estimated POC load value - Pounds
376	Word	Read Only	Load at POC position - Pounds
384	Word	Read Only	Stroke counter in the current gauge period

Parameter	Data Type	Access	Description
385	Word	Read Only	Running average pump fillage in this gauge period
386	Word	Read Only	Yesterday's average pump fillage
387	Word	Read Only	Average pump fillage two days ago
388	Word	Read Only	Average pump fillage three days ago
389	Word	Read Only	Last error/status alarm – Shows the last error or status alarm
390	Time24	Read Only	Time at last program stop
391	Date	Read Only	Date at last program stop
392	Time24	Read Only	Time at last (re)start
393	Date	Read Only	Date at last (re)start
394	Time24	Read Only	Last program stop interval
395	Long	Read Only	Last fatal error address - Programmer error information only
396	Time24	Read Only	Last error/status time
397	Date	Read Only	Last error/status date
398	Word	Read Only	Days counter - Number of days of operation
399	Time24	Read Only	Rollover counter - hh:mm:ss Current day count; at 24-hours count goes to P398
400	Time24	Read Only	Present pump run time - Run cycle in progress
401	Time24	Read Only	Previous interval[1]
402	Time24	Read Only	Previous interval[2]
403	Time24	Read Only	Previous interval[3]
404	Time24	Read Only	Previous interval[4]
405	Time24	Read Only	Previous interval[5]
406	Time24	Read Only	Previous interval[6]
407	Time24	Read Only	Previous interval[7]
408	Time24	Read Only	Previous interval[8]
409	Time24	Read Only	Previous interval[9]
410	Time24	Read Only	Previous interval[10]
411	Time24	Read Only	Previous interval[11]
412	Time24	Read Only	Previous interval[10]
413	Time24	Read Only	Previous interval[13]
414	Time24	Read Only	Previous interval[14]
415	Time24	Read Only	Previous interval[15]
416	Time24	Read Only	Previous interval[16]
417	Time24	Read Only	Previous interval[17]
418	Byte	Read Only	Undisturbed pump cycles - Run cycle is from pumping unit start-up by the RPC to pumping unit RPC shut down and the start of idle time
419	Time24	Read Only	Present pump off time
420	Time24	Read Only	Todays run time - In V2.00 the RPC holds 29 days of run time his-

Parameter	Data Type	Access	Description
			tory in P670 – P699. P420 – P427 are still functional but not the complete history
421	Time24	Read Only	Yesterdays run time
422	Time24	Read Only	Run time 2 days ago
423	Time24	Read Only	Run time 3 days ago
424	Time24	Read Only	Run time 4 days ago
425	Time24	Read Only	Run time 5 days ago
426	Time24	Read Only	Run time 6 days ago
427	Time24	Read Only	Run time 7 days ago
429	Time24	Read/Write	Gauge period start time - hh:mm:ss
430	Word	Read Only	Today undisturbed cycles
431	Word	Read Only	Ystdy undisturbed cycles
432	Time24	Read Only	Tday undisturbed average run
433	Time24	Read Only	Yday undisturbed average run
434	Time24	Read Only	Time to next gauge time
439	Time24	Read Only	Today total undisturbed run
441	Date	Read Only	This period start date
442	Time24	Read Only	Todays run time
443	Time24	Read Only	Yesterdays run time
444	Time24	Read Only	Run time 2 days ago
445	Time24	Read Only	Run time 3 days ago
446	Time24	Read Only	Run time 4 days ago
447	Time24	Read Only	Run time 5 days ago
448	Time24	Read Only	Run time 6 days ago
449	Time24	Read Only	Run time 7 days ago
450	Word	Read Only	ADC Zero reference raw input - counts
451	Word	Read Only	ADC Zero reference filtered - counts
452	Word	Read Only	ADC 5 Volt reference raw input - counts
453	Word	Read Only	ADC 5 Volt reference filtered - counts
454	Word	Read Only	ADC Filtered span - counts
455	Byte	Read Only	ADC Failure channel: Value / Description 0 = Zero Volts Calibration 1 = Full Scale Calibration 2 = Load Input 3 = Position Input 4 = First Extra
456	Word	Read Only	Lowest allowed value
457	Word	Read Only	Highest allowed value
458	Word	Read Only	ADC Failure actual value

Parameter	Data Type	Access	Description
459	Command	Read/Write	Reset Idle task timing. Enter to reset Task Times
460	Display	Read Only	CPU Idle task timing - Interval in Ticks
461	Display	Read Only	CPU usage profile = xx/yy/zz xx = System Overhead P zz = Percent Useful Workercent yy = Percent Idle
462	Byte	Read Only	Maximum Flood Task
463	Word	Read Only	Maximum Flood Time
464	Word	Read Only	Flood Counter
470	Command	Read/Write	Do heap walk
471	Byte	Read/Write	Display debug parameters
472	Command	Read/Write	Reset to factory default 🔶 **Important**: All field set parameters are lost if this action taken. Enter eP Service Password in P473 first.
473	Word	Read/Write	Maintenance password 🔶 **Important**: User Password (8500) allows edits to RO parameters such as run time data. Service Password = 5500. This parameter should only be used by eP service personnel.
478	Byte	Read Only	Current F/W version
479	Byte	Read Only	Current F/W sub-version
480	Word	Read Only	NVS Initialized value
481	Word	Read Only	NVS chars used
482	Word	Read Only	NVS Unused space (bytes)
483	Word	Read Only	NVS Used space (bytes)
484	Byte	Read Only	NVS F/W version
485	Byte	Read Only	NVS F/W sub-version
486	Word	Read Only	NVS F/W Part Number
489	Byte	Read/Write	Configuration Change - Set to "1" whenever volatile parameter is changed
490	Byte	Read Only	Legacy F/W version
491	Byte	Read Only	Legacy F/W sub-version
492	Word	Read Only	Hardware option bits 1: Octal Value / Description 000004 = Memory 000010 = Memory Expansion 000020 = Indication Bit 000040 = Memory Bank Expansion 000100 = Control PIO 000200 = UART 000400 = Radio ID
493	Word	Read Only	Hardware option bits 2: Octal Value / Description

Parameter	Data Type	Access	Description
			000001 = Larger EEPROM 000002 = CPI Type LCD Display 000004 = Keypad (Detected when pressed) 000008 = Battery Backup 000010 = Densitron Type LCD Display 000040 = Enhanced Graphics Display
494	Word	Read Only	Hardware option bits 3: Value / Description 0 = No Comm Boards 1 = Unknown or Bad Comm Board 2 = UART Board 3 = UART Board with Expanded Memory 4 = Radio Modem Board 5 = Hardwired Modem Board
496	Word	Read/Write	Analog inputs enable - AI1 & AI2 channel used. Enter value in Octal If AI1, enter "1" If AI2, enter "2" If both AI1 and AI2, enter "3"
497	Word	Read/Write	Digital inputs enable: Octal Value / Description 000001 = DI1 Selected 000002 = DI2 Selected 000004 = DI3 Selected 000010 = DI4 Selected 000020 = DI5 Selected 000040 = DI6 Selected 000100 = DI7 Selected 000200 = DI8 Selected
498	Word	Read Only	N/A
499	Byte	Read/Write	N/A
500	Word	Read/Write	Keypad password
501	Byte	Read/Write	Password timeout - (Minutes) Password at P1 clear if no keypad entry made in time-out interval
507	Byte	Read Only	EGD Contrast
508	Byte	Read/Write	Updates per second - Every 1 to 5 times per second
509	Byte	Read/Write	Rolls per second - From 2 to 15 rolls / second
510	Word	Read Only	N/A
511	Word	Read Only	N/A
512	Word	Read Only	N/A
513	Word	Read Only	N/A
514	Byte	Read/Write	Expand Lb Dyno: 0 = Disable (Sequence from % card to normal card back to % card)

Parameter	Data Type	Access	Description
			1 = Enable (Sequence from % card to expanded pound card to normal card back to % card)
515	Word	Read Only	Auto setup
516	Word	Read Only	Communication pump on
517	Word	Read Only	Communication present
518	Word	Read Only	Communication pump off
519	Word	Read Only	Communication frozen
520	Word	Read Only	Status bits 1: See Table 16
521	Word	Read Only	Status bits 2: See Table 17
522	Word	Read Only	Status bits 3:
523	Command	Read/Write	Clear Errors. Enter to clear
524	Command	Read/Write	Turn Pump On. Enter to activate
525	Command	Read/Write	Idle Pump. Enter to activate
526	Byte	Read Only	POC Control state: Value / Description 0 = Normal or Lamp Only Error 1 = Software Timer 2 = Control Transferred via Watchdog Relay 3 = Off Until Reset by Operator
527	Word	Read Only	Error bits 1: Octal Value / Description 000001 "CONTROL FAILURE" 000002 "LOW LOAD LIMIT" 000004 "HIGH LOAD LIMIT" 000010 "LOW LOAD AVERAGE" 000020 "POS SWITCH FAIL" 000040 "MULTIPLE POS SW" 000100 "CLRD POS SEN PRB" 000200 "CLRD MULP POS SW" 000400 " LOW LOAD SPAN" 001000 "LOAD INPUT FAULT" 002000 "POS SENSOR FAULT" 004000 "CLRD POS SEN PRB" 010000 "NO TIMER VALUE" 020000 " A/D FAILURE" 040000 "MANUAL OFF (31)" 100000 "POC OVERRIDE(27)"
528	Word	Read Only	Error bits 2: Octal Value / Description 000001 IMMED. PUMPOFF 000002 MIN CYCLE ONTIME 000004 MAX CYCLE ONTIME 000010 MAX DAILY ONTIME 000020 PARAMS INIT'ED

Parameter	Data Type	Access	Description
			000040 PARAMS EXPANDED 000100 PARMS FROM EEPROM 000200 "EEPROM CELL BAD 000400 EEPROM FAILURE 001000 BAD STATUS VAR 002000 BAD ERROR BIT(S) 004000 ? TIME ? DATE ? 010000 BAD TIME&DATE IC 020000 WRONG LINE FREQ 040000 MANUAL CTRL XFER 100000 MANUAL SOFT TIME
529	Word	Read Only	Error bits 3: Octal Value / Description 000001 CPU FELL BEHIND 000002 CLRD BAD RTC CHP 000004 MTR OFF TOO LONG 000010 DI1 CLOSED ALARM 000020 DI1 OPEN ALARM 000040 DI2 CLOSED ALARM 000100 DI2 OPEN ALARM 000200 AI1 DIG 0 ALARM 000400 AI1 DIG 1 ALARM 001000 AI2 DIG 0 ALARM 004000 AI3 DIG 0 ALARM 010000 AI3 DIG 1 ALARM 020000 HI-HI LOAD LIMIT 040000 REVERSE PUMP OFF 100000 AB AMPS TOO LOW
530	Word	Read Only	Error bits 4: Octal Value / Description 000001 DI3 CLOSED ALARM 000002 DI3 OPEN ALARM 000004 DI4 CLOSED ALARM 000010 DI4 OPEN ALARM 000020 DI5 CLOSED ALARM 000040 DI5 OPEN ALARM 000100 DI6 CLOSED ALARM 000200 DI6 OPEN ALARM 000400 AI1 LOW LIMIT 001000 AI1 HIGH LIMIT 002000 AI2 LOW LIMIT 004000 AI2 HIGH LIMIT 010000 AI3 LOW LIMIT 020000 AI3 HIGH LIMIT 040000 AB ADD AIR FORCE 100000 AB REL AIR FORCE

Parameter	Data Type	Access	Description
531	Word	Read Only	Error bits 5: Octal Value / Description 000001 DI7 CLOSED ALARM 000002 DI7 OPEN ALARM 000004 DI8 CLOSED ALARM 000010 DI8 OPEN ALARM 000020 PROGRAM ERROR 000040 BAD SHUTDOWN 000100 AI4 LOW LIMIT 000200 AI4 HIGH LIMIT 000400 AI5 LOW LIMIT 001000 AI5 HIGH LIMIT 002000 AI6 LOW LIMIT 004000 AI6 HIGH LIMIT 010000 AI7 LOW LIMIT 020000 AI7 HIGH LIMIT 040000 AI8 LOW LIMIT 100000 AI8 HIGH LIMIT
532	Word	Read Only	Error bits 6: 000001 RUN UNDER 50% 000002 DIVIDE ERROR 000004 FLUID CALC ERR - x052 000010 LONG LOW LD SPAN - x053 000020 LOW CARD AREA - x054 000040 HIGH CARD AREA - x055 000100 LO-LO LOAD LIMIT - x056 000200 LOAD CONV FAIL - EPIC II - x057 000400 VSD LEARN ERR (P1173) - EPIC II – VSD - x058 001000 HOA Sw = HAND - EPIC II - VSD - x059 002000 VSD Config Error - EPIC II - VSD - x060 004000 HOA Sw = OFF - EPIC II - VSD - x061 010000 PWR-ON STATE OPT - x062 020000 DAC Fail - EPIC II - DAC - x063 040000 VSD OVERTIME - EPIC II - VSD - x064 100000 VSD LO FILLAGE - EPIC II - x065
533	Word	Read Only	Error bits 7 (Host alarms) 000001 GEARBOX TORQUE 000002 MAX LOAD DEVIATION 000004 MIN LOAD DEVIATION 00010 LOAD SPAN DEVIATION 000020 UNIT OUT OF BALANCE 000040 RUN TIME DEVIATION 000100 CARD AREA DEVIATION 000200 LOW PUMPING EFFICIENCY 000400 HIGH ROD STRESS 01000 PRIME MOVER SIZE 004000 HOST ALARM 11

Parameter	Data Type	Access	Description
			010000 HOST ALARM 12 020000 HOST ALARM 13 040000 HOST ALARM 14 100000 HOST ALARM 15
535	Word	Read Only	Non-clearable err bits 1: Octal Value Error Display 000001 BAD ROM CRC 000002 BAD COMM BOARD 000004 CONSTANT COM INT 000010 P535-Bit 3 ERR 000020 P535-Bit 4 ERR 000040 P535-Bit 5 ERR 000100 P535-Bit 6 ERR 000200 P535-Bit 7 ERR 000400 BAD POWER STATUS 001000 NO AC POWER 002000 BATTERY LOW 004000 P535-Bit 11 ERR 010000 P535-Bit 12 ERR 020000 P535-Bit 13 ERR 040000 P535-Bit 14 ERR 100000 P535-Bit 15 ERR
536	Word	Read Only	Non-clearable err bits 2: Octal Value / Description 000001 NO TOP OF STROKE 000002 P536-Bit 1 ERR 000004 P536-Bit 2 ERR 000010 PARAM 21 MISSING 000020 PARAM 22 INVALID 000040 PARAM 23 MISSING 000100 PARAM 24 MISSING 000200 P536-Bit 7 ERR 000400 P536-Bit 8 ERR 001000 P536-Bit 9 ERR 002000 PARAM 20 MISSING 004000 P536-Bit 11 ERR 010000 P536-Bit 12 ERR 020000 NO POS MEMORY 040000 P536-Bit 14 ERR 100000 P536-Bit 15 ERR
537	Word	Read Only	Non-clearable err bits 3: Octal Value / Description 000001 RESTART NEEDED 000002 BAD EVENT BUFFER 000004 BAD POSITION CAL 000010 P537-Bit 3 ERR 000020 TEMP CONTRL LOSS

Parameter	Data Type	Access	Description
			000040 P537-Bit 5 ERR
			000100 P537-Bit 6 ERR
			000200 BAD FLUID PARAM
			000400 COMM OUTPUT TEST
			001000 I/O ID FAILURE
			002000 UNSUPPORTED I/O
			004000 NO I/O EXP BOARD
			010000 NO EXP COMM BD
			020000 P537-Bit 13 ERR
			040000 P537-Bit 14 ERR
			100000 P537-Bit 15 ERR
540	Byte	Read Only	Worst POC Control state: Value / Description 0 = Normal or Lamp Only if error(s) 1 = Software Timer 2 = Control Transferred by Watchdog Relay 3 = Off Until Reset by Operator
541	Word	Read Only	Accumulated error bits 1: Octal Value / Description 000001 "CONTROL FAILURE" 000002 "LOW LOAD LIMIT" 000004 "HIGH LOAD LIMIT" 000010 "LOW LOAD AVERAGE" 000020 "POS SWITCH FAIL" 000040 "MULTIPLE POS SW" 000100 "CLRD POS SEN PRB" 000200 "CLRD MULP POS SW" 000400 " LOW LOAD SPAN" 001000 "LOAD INPUT FAULT" 002000 "POS SENSOR FAULT" 004000 "CLRD POS SEN PRB" 010000 "NO TIMER VALUE" 020000 " A/D FAILURE" 040000 "MANUAL OFF (31)" 100000 "POC OVERRIDE(27)"
542	Word	Read Only	Accumulated error bits 2: Octal Value / Description 000001 IMMED. PUMPOFF 000002 MIN CYCLE ONTIME 000004 MAX CYCLE ONTIME 000010 MAX DAILY ONTIME 000020 PARAMS INIT'ED 000040 PARAMS EXPANDED 000100 PARMS FROM EEPROM 000200 "EEPROM CELL BAD 000400 EEPROM FAILURE 001000 BAD STATUS VAR

Parameter	Data Type	Access	Description
			002000 BAD ERROR BIT(S) 004000 ? TIME ? DATE ? 010000 BAD TIME&DATE IC 020000 WRONG LINE FREQ 040000 MANUAL CTRL XFER
543	Word	Read Only	Accumulated error bits 3: Octal Value / Description 000001 CPU FELL BEHIND 000002 CLRD BAD RTC CHP 000004 MTR OFF TOO LONG 000010 DI1 CLOSED ALARM 000020 DI1 OPEN ALARM 000040 DI2 CLOSED ALARM 000100 DI2 OPEN ALARM 000200 AI1 DIG 0 ALARM 000400 AI1 DIG 1 ALARM 001000 AI2 DIG 0 ALARM 002000 AI2 DIG 1 ALARM 004000 AI3 DIG 0 ALARM 010000 AI3 DIG 1 ALARM 020000 HI-HI LOAD LIMIT 040000 REVERSE PUMPOFF 100000 AB AMPS TOO LOW
544	Word	Read Only	Accumulated error bits 4: Octal Value / Description 000001 DI3 CLOSED ALARM 000002 DI3 OPEN ALARM 000004 DI4 CLOSED ALARM 000010 DI4 OPEN ALARM 000020 DI5 CLOSED ALARM 000040 DI5 OPEN ALARM 000100 DI6 CLOSED ALARM 000200 DI6 OPEN ALARM 000400 AI1 LOW LIMIT 001000 AI1 HIGH LIMIT 002000 AI2 LOW LIMIT 004000 AI2 HIGH LIMIT 010000 AI3 LOW LIMIT 020000 AI3 HIGH LIMIT 040000 AB ADD AIR FORCE 100000 AB REL AIR FORCE
545	Word	Read Only	Accumulated error bits 5: Octal Value / Description 000001 DI7 CLOSED ALARM 000002 DI7 OPEN ALARM 000004 DI8 CLOSED ALARM 000010 DI8 OPEN ALARM

Parameter	Data Type	Access	Description
			000020 PROGRAM ERROR
			000040 BAD SHUTDOWN
			000100 AI4 LOW LIMIT
			000200 AI4 HIGH LIMIT
			000400 AI5 LOW LIMIT
			001000 AI5 HIGH LIMIT
			002000 AI6 LOW LIMIT
			004000 AI6 HIGH LIMIT
			010000 AI7 LOW LIMIT
			020000 AI7 HIGH LIMIT
			040000 AI8 LOW LIMIT
			100000 AI8 HIGH LIMIT
546	Word	Read Only	Accumulated error bits 6: Octal Value / Description 000001 RUN UNDER 50% 000002 DIVIDE ERROR 000004 FLUID CALC ERR 000010 LONG LOW LD SPAN 000020 LOW CARD AREA 000040 HIGH CARD AREA 000100 LO-LO LOAD LIMIT 000200 LOAD CONV FAIL - EPIC II 000400 VSD LEARN ERR (P1173) - EPIC II - VSD 001000 HOA Sw = HAND - EPIC II - VSD 002000 VSD Config Error - EPIC II - VSD 004000 HOA Sw = OFF - EPIC II - VSD 010000 PWR-ON STATE OPT 020000 DAC Fail - EPIC II - DAC 040000 VSD OVERTIME - EPIC II – VSD 100000 VSD LO FILLAGE - EPIC II
547	Word	Read Only	Accumulated error bits 7 (Host alarms) Octal Value / Description 000001 GEARBOX TORQUE 000002 MAX LOAD DEVIATION 000004 MIN LOAD DEVIATION 000010 LOAD SPAN DEVIATION 000020 UNIT OUT OF BALANCE 000040 RUN TIME DEVIATION 000100 CARD AREA DEVIATION 000200 LOW PUMPING EFFICIENCY 000400 HIGH ROD STRESS 001000 PRIME MOVER SIZE 002000 HOST ALARM 10 004000 HOST ALARM 11 010000 HOST ALARM 12 020000 HOST ALARM 13 040000 HOST ALARM 14

Parameter	Data Type	Access	Description
			100000 HOST ALARM 15
549	Display	Read Only	Firmware part number
550	Display	Read Only	Firmware source full ID
551	Display	Read Only	Firmware compiled date
552	Display	Read Only	Firmware compiled time
555	Display	Read Only	Controller ID message
556	Command	Read/Write	Rolling unit ID message
560	Byte	Read/Write	DI 1 closed (ON) action - Refer to Table 2
561	Byte	Read/Write	DI 1 open (OFF) action - Refer to Table 2
562	Byte	Read/Write	DI 2 closed (ON) action - Refer to Table 2
563	Byte	Read/Write	DI 2 open (OFF) action - Refer to Table 2
564	Byte	Read/Write	DI 3 closed (ON) action - Refer to Table 2
565	Byte	Read/Write	DI 3 open (OFF) action - Refer to Table 2
566	Byte	Read/Write	DI 4 closed (ON) action - Refer to Table 2
567	Byte	Read/Write	DI 4 open (OFF) action - Refer to Table 2
568	Byte	Read/Write	DI 5 closed (ON) action - Refer to Table 2
569	Byte	Read/Write	DI 5 open (OFF) action - Refer to Table 2
570	Byte	Read/Write	DI 6 closed (ON) action - Refer to Table 2
571	Byte	Read/Write	DI 6 open (OFF) action - Refer to Table 2
572	Byte	Read/Write	DI 7 closed (ON) action - Refer to Table 2
573	Byte	Read/Write	DI 7 open (OFF) action - Refer to Table 2
574	Byte	Read/Write	DI 8 closed (ON) action - Refer to Table 2
575	Byte	Read/Write	DI 8 open (OFF) action - Refer to Table 2
578	Word	Read/Write	Non-Functional
579	Word	Read/Write	Non-Functional
580	Word	Read/Write	D/O 1 pulse timer
581	Word	Read/Write	D/O 2 pulse timer
582	Word	Read/Write	D/O 3 pulse timer
583	Word	Read/Write	D/O 4 pulse timer
584	Word	Read/Write	D/O 5 pulse timer
585	Word	Read/Write	D/O 6 pulse timer
586	Word	Read/Write	D/O 7 pulse timer
587	Word	Read/Write	D/O 8 pulse timer
590	Word	Read/Write	D/O 1 pulse ticks (120 ticks = 1 second)
591	Word	Read/Write	D/O 2 pulse ticks (120 ticks = 1 second)
592	Word	Read/Write	D/O 3 pulse ticks (120 ticks = 1 second)
593	Word	Read/Write	D/O 4 pulse ticks (120 ticks = 1 second)
594	Word	Read/Write	D/O 5 pulse ticks (120 ticks = 1 second)

Parameter	Data Type	Access	Description
595	Word	Read/Write	D/O 6 pulse ticks (120 ticks = 1 second)
596	Word	Read/Write	D/O 7 pulse ticks (120 ticks = 1 second)
597	Word	Read/Write	D/O 8 pulse ticks (120 ticks = 1 second)
598	Word	Read/Write	D/O ON flag bits: Octal Value / Description 000001 = DIO1 on Flag 000002 = DIO2 on Flag 000004 = DIO3 on Flag 000010 = DIO4 on Flag 000020 = DIO5 on Flag 000040 = DIO6 on Flag 000100 = DIO7 on Flag 000200 = DIO8 on Flag
599	Word	Read Only	D/O status bits: Octal Value / Description 000001 = DIO1 Closed 000002 = DIO2 Closed 000004 = DIO3 Closed 000010 = DIO4 Closed 000020 = DIO5 Closed 000040 = DIO6 Closed 000100 = DIO7 Closed 000200 = DIO8 Closed

Parameters 601-900

Parameter	Data Type	Access	Description
601	Byte	Read/Write	Remote data format - Refer to Table 4.
602	Byte	Read/Write	Remote baud rate - Refer to Table 5.
603	Word	Read Only	Communications status bits: Octal Value / Description 000001 = CRC Security 000002 = Large Receive Buffer 000004 = Large Transmit Buffer 000010 = Using Modem 000020 = Communication Out Test
604	Byte	Read/Write	Present MMI data format - Refer to Table 4.
605	Byte	Read/Write	Present MMI baud rate - Refer to Table 5.
606	Byte	Read/Write	Carrier detect ON delay – in ticks
607	Byte	Read/Write	Carrier detect OFF delay - in ticks
608	Byte	Read/Write	Carrier detect drop limit - in ticks

Parameter	Data Type	Access	Description
609	Byte	Read/Write	Radio turn ON delay - 30 = 0.25 seconds in ticks
610	Byte	Read/Write	Radio turn OFF delay - 12 = 0.1 seconds in ticks
611	Byte	Read/Write	Maximum radio ON time in seconds
612	Byte	Read/Write	Receive timeout in seconds
613	Byte	Read/Write	Modem port protocol – Value / Description 0 = 8500 (Remote) 1 = 8550 (Local) 2 = MODBUS ASCII 3 = MODBUS RTU
614	Byte	Read/Write	Modbus Card Type: Value / Description 0 = Start-up 1 = Live Action 2 = Shutdown 3 = Valve Check
615	Byte	Read/Write	Modbus Card Load option: Value / Description 0 = Pound 1 = Percent
616	Byte	Read/Write	Modbus Card Number: Value / Description 0 = Card 1 1 = Card 2 2 = Card 3 3 = Card 4 4 = Card 5
617	Byte	Read/Write	Modbus Card Position type: Value / Description 0 = Synthesized Fraction 1 = Fractional Actual 2 = Voltage
618	Byte	Read/Write	8500 protocol dyno data format 0=Original 1=Data Skip
619	Byte	Read/Write	Position data available - Actual position data available from RPC for analysis programs Operator must enter proper value to provide controller compatibility with host software. Enter value in P619 as follows:

Parameter	Data Type	Access	Description
			0 = When no continuous position data is available to the controller. 1 = To be used when continuous position input data is available to the controller and 8500 protocol used. 2 = Calibration of the Position Sensor.
620	Word	Read/Write	Communications group address
621	Word	Read Only	Maximum radio ON time in ticks
622	Word	Read Only	Maximum transmit message time in ticks
623	Word	Read Only	Maximum transmit message in bytes
624	Word	Read Only	transmit buffer size (bytes)
628	Byte	Read/Write	All address respond time - RPC responds to host inquiries for this time duration. Transmit address is ignored.
629	Command	Read/Write	Clear communications statistics - Clear P630 through P642. Enter to clear.
630	Display	Read Only	Last data received as ASCII
631	Word	Read/Write	Character errors
632	Word	Read/Write	Characters received
633	Word	Read/Write	Header characters received
634	Word	Read/Write	Trailer characters received
635	Word	Read/Write	Framed messages received
636	Word	Read/Write	Good framed messages received
637	Word	Read/Write	Messages processed
638	Word	Read/Write	Commands processed
639	Word	Read/Write	Responses transmitted
640	Word	Read/Write	Characters transmitted
641	Word	Read/Write	Maximum Delay time – This is the maximum delay time between receiving a request on the modem port and keying RTS since system reset. (Maximum value since reset)
642	Word	Read/Write	Last Delay time – This is the time from receiving the last request on the modem port to de-asserting RTS. (Last value calculated)
644	Byte	Read/Write	Tx test spacing delay
645	Byte	Read Only	Last character received
646	Byte	Read/Write	Tx test data format – See Table 4
647	Byte	Read/Write	Tx test character
648	Byte	Read/Write	Tx test time in seconds
650	Long	Read Only	Current Time of Day – in seconds
651	Long	Read Only	System Shutdown Time – in seconds
652	Long	Read Only	System Startup Time – in seconds
653	Long	Read Only	POC State Change Time – in seconds

Parameter	Data Type	Access	Description
654	Word	Read/Write	Communication parity errors counter
655	Word	Read/Write	Communication framing errors counter
656	Word	Read/Write	Communication overrun errors counter
660	Byte	Read/Write	Cursor location
661	Byte	Read/Write	LCD Test Timer
668	Byte	Read Only	RTC Error code: Value / Description 0 = No Error 1 = Bad Second Interval 2 = Read All 1's 3 = Write Confirm 4 = Cannot Read Same Twice
669	Byte	Read Only	Seconds value from RTC
670	Time24	Read Only	Today's run time
671	Time24	Read Only	Yesterday's run time
672	Time24	Read Only	Run time 2 days ago
673	Time24	Read Only	Run time 3 days ago
674	Time24	Read Only	Run time 4 days ago
675	Time24	Read Only	Run time 5 days ago
676	Time24	Read Only	Run time 6 days ago
677	Time24	Read Only	Run time 7 days ago
678	Time24	Read Only	Run time 8 days ago
679	Time24	Read Only	Run time 9 days ago
680	Time24	Read Only	Run time 10 days ago
681	Time24	Read Only	Run time 11 days ago
682	Time24	Read Only	Run time 12 days ago
683	Time24	Read Only	Run time 13 days ago
684	Time24	Read Only	Run time 14 days ago
685	Time24	Read Only	Run time 15 days ago
686	Time24	Read Only	Run time 16 days ago
687	Time24	Read Only	Run time 17 days ago
688	Time24	Read Only	Run time 18 days ago
689	Time24	Read Only	Run time 19 days ago
690	Time24	Read Only	Run time 20 days ago
691	Time24	Read Only	Run time 21 days ago
692	Time24	Read Only	Run time 22 days ago
693	Time24	Read Only	Run time 23 days ago
694	Time24	Read Only	Run time 24 days ago
695	Time24	Read Only	Run time 25 days ago

Parameter	Data Type	Access	Description
696	Time24	Read Only	Run time 26 days ago
697	Time24	Read Only	Run time 27 days ago
698	Time24	Read Only	Run time 28 days ago
699	Time24	Read Only	Run time 29 days ago
700	Word	Read Only	AI-4 raw input and volts
701	Word	Read Only	AI-4 Input value
702	Word	Read Only	AI-4 Scaled EGU value
703	Byte	Read/Write	AI-4 Input type - Refer to Table 7.
704	Byte	Read/Write	AI-4 EGU decimal places - Refer to Table 8.
705	Byte	Read/Write	AI-4 EGU label - Refer to Table 6.
706	Word	Read/Write	AI-4 Scaling low value
707	Word	Read/Write	AI-4 Scaling high value
708	Word	Read/Write	AI-4 Low alarm limit
709	Byte	Read/Write	AI-4 Low alarm action 1. Refer to Table 2.
710	Byte	Read/Write	AI-4 Low alarm action 2. Refer to Table 2.
711	Word	Read/Write	AI-4 High alarm limit
712	Byte	Read/Write	AI-4 High alarm action 1. Refer to Table 2.
713	Byte	Read/Write	AI-4 High alarm action 2. Refer to Table 2.
714	Word	Read/Write	AI-4 Alarms deadband
715	Word	Read Only	AI-4 Minimum recorded value
716	Word	Read Only	AI-4 Maximum recorded value
719	Command	Read/Write	AI-4 Reset minimum/maximum
720	Word	Read Only	AI-5 raw input and volts
721	Word	Read Only	AI-5 Input value
722	Word	Read Only	AI-5 Scaled EGU value
723	Byte	Read/Write	AI-5 Input type - Refer to Table 7.
724	Byte	Read/Write	AI-5 EGU decimal places - Refer to Table 8.
725	Byte	Read/Write	AI-5 EGU label - Refer to Table 6.
726	Word	Read/Write	AI-5 Scaling low value
727	Word	Read/Write	AI-5 Scaling high value
728	Word	Read/Write	AI-5 Low alarm limit
729	Byte	Read/Write	AI-5 Low alarm action 1. Refer to Table 2.
730	Byte	Read/Write	AI-5 Low alarm action 2. Refer to Table 2.
731	Word	Read/Write	AI-5 High alarm limit
732	Byte	Read/Write	AI-5 High alarm action 1. Refer to Table 2.
733	Byte	Read/Write	AI-5 High alarm action 2. Refer to Table 2.
734	Word	Read/Write	AI-5 Alarms deadband
735	Word	Read Only	AI-5 Minimum recorded value

Parameter	Data Type	Access	Description
736	Word	Read Only	AI-5 Maximum recorded value
739	Command	Read/Write	AI-5 Reset minimum/maximum
740	Word	Read Only	AI-6 raw input and volts
741	Word	Read Only	AI-6 Input value
742	Word	Read Only	AI-6 Scaled EGU value
743	Byte	Read/Write	AI-6 Input type - Refer to Table 7.
744	Byte	Read/Write	AI-6 EGU decimal places - Refer to Table 8.
745	Byte	Read/Write	AI-6 EGU label - Refer to Table 6.
746	Word	Read/Write	AI-6 Scaling low value
747	Word	Read/Write	AI-6 Scaling high value
748	Word	Read/Write	AI-6 Low alarm limit
749	Byte	Read/Write	AI-6 Low alarm action 1. Refer to Table 2.
750	Byte	Read/Write	AI-6 Low alarm action 2. Refer to Table 2.
751	Word	Read/Write	AI-6 High alarm limit
752	Byte	Read/Write	AI-6 High alarm action 1. Refer to Table 2.
753	Byte	Read/Write	AI-6 High alarm action 2. Refer to Table 2.
754	Word	Read/Write	AI-6 Alarms deadband
755	Word	Read Only	AI-6 Minimum recorded value
756	Word	Read Only	AI-6 Maximum recorded value
759	Command	Read/Write	AI-6 Reset minimum/maximum
760	Word	Read Only	AI-7 raw input and volts
761	Word	Read Only	AI-7 Input value
762	Word	Read Only	AI-7 Scaled EGU value
763	Byte	Read/Write	AI-7 Input type - Refer to Table 7.
764	Byte	Read/Write	AI-7 EGU decimal places - Refer to Table 8.
765	Byte	Read/Write	AI-7 EGU label - Refer to Table 6.
766	Word	Read/Write	AI-7 Scaling low value
767	Word	Read/Write	AI-7 Scaling high value
768	Word	Read/Write	AI-7 Low alarm limit
769	Byte	Read/Write	AI-7 Low alarm action 1. Refer to Table 2.
770	Byte	Read/Write	AI-7 Low alarm action 2. Refer to Table 2.
771	Word	Read/Write	AI-7 High alarm limit
772	Byte	Read/Write	AI-7 High alarm action 1. Refer to Table 2.
773	Byte	Read/Write	AI-7 High alarm action 2. Refer to Table 2.
774	Word	Read/Write	AI-7 Alarms deadband
775	Word	Read Only	AI-7 Minimum recorded value
776	Word	Read Only	AI-7 Maximum recorded value
779	Command	Read/Write	AI-7 Reset minimum/maximum

Parameter	Data Type	Access	Description
780	Word	Read Only	AI-8 raw input and volts
781	Word	Read Only	AI-8 Input value
782	Word	Read Only	AI-8 Scaled EGU value
783	Byte	Read/Write	AI-8 Input type - Refer to Table 7.
784	Byte	Read/Write	AI-8 EGU decimal places - Refer to Table 8.
785	Byte	Read/Write	AI-8 EGU label - Refer to Table 6.
786	Word	Read/Write	AI-8 Scaling low value
787	Word	Read/Write	AI-8 Scaling high value
788	Word	Read/Write	AI-8 Low alarm limit
789	Byte	Read/Write	AI-8 Low alarm action 1. Refer to Table 2.
790	Byte	Read/Write	AI-8 Low alarm action 2. Refer to Table 2.
791	Word	Read/Write	AI-8 High alarm limit
792	Byte	Read/Write	AI-8 High alarm action 1. Refer to Table 2.
793	Byte	Read/Write	AI-8 High alarm action 2. Refer to Table 2.
794	Word	Read/Write	AI-8 Alarms deadband
795	Word	Read Only	AI-8 Minimum recorded value
796	Word	Read Only	AI-8 Maximum recorded value
799	Command	Read/Write	AI-8 Reset minimum/maximum
800	Byte	Read/Write	Fluid calculation X1 point in %
801	Byte	Read/Write	Fluid calculation X2 point in %
802	Byte	Read/Write	Fluid calculation Y1 point in %
803	Byte	Read/Write	Fluid calculation Y2 point in %
804	Word	Read Only	Fluid calculated Stroke Length in inches
805	Byte	Read/Write	Fluid Stroke calculation Method: Value / Description 0 = Disabled 1 = Short Method 2 = Long Method 3 = Full Stroke Short 4 = Full Stroke Long 5 = Preset Stroke
806	Word	Read/Write	Surface stroke(in x 100)
807	Word	Read/Write	Pump bore diameter (in x 100)
808	Word	Read Only	Average surface stroke (in)
809	Word	Read Only	Average fluid stroke (in)
810	Word	Read/Write	Pump efficiency (% * 10)
811	Word	Read Only	Fluid displacement today
812	Word	Read Only	fluid displacement Yesterday
813	Word	Read Only	Fluid displacement 2 days ago

Parameter	Data Type	Access	Description
814	Word	Read Only	Fluid displacement 3 days ago
815	Word	Read Only	Fluid displacement 4 days ago
816	Word	Read Only	Fluid displacement 5 days ago
817	Word	Read Only	Fluid displacement 6 days ago
818	Word	Read Only	Fluid displacement 7 days ago
819	Word	Read Only	Fluid displacement 8 days ago
820	Word	Read Only	Fluid displacement 9 days ago
821	Word	Read Only	Fluid displacement 10 days ago
822	Word	Read Only	Fluid displacement 11 days ago
823	Word	Read Only	Fluid displacement 12 days ago
824	Word	Read Only	Fluid displacement 13 days ago
825	Word	Read Only	Fluid displacement 14 days ago
826	Word	Read Only	Fluid displacement 15 days ago
827	Word	Read Only	Fluid displacement 16 days ago
828	Word	Read Only	Fluid displacement 17 days ago
829	Word	Read Only	Fluid displacement 18 days ago
830	Word	Read Only	Fluid displacement 19 days ago
831	Word	Read Only	Fluid displacement 20 days ago
832	Word	Read Only	Fluid displacement 21 days ago
833	Word	Read Only	Fluid displacement 22 days ago
834	Word	Read Only	Fluid displacement 23 days ago
835	Word	Read Only	Fluid displacement 24 days ago
836	Word	Read Only	Fluid displacement 25 days ago
837	Word	Read Only	Fluid displacement 26 days ago
838	Word	Read Only	Fluid displacement 27 days ago
839	Word	Read Only	Fluid displacement 28 days ago
840	Word	Read Only	Fluid displacement 29 days ago
841	Byte	Read/Write	Lower Band Size
842	Word	Read Only	Fluid calculation error flags
843	Word	Read/Write	Preset fluid stroke in inches
844	Byte	Read Only	Current Run Mode
845	Byte	Read Only	Fluid calculation, Calculated X1
846	Byte	Read Only	Fluid calculation, Calculated X2
847	Byte	Read Only	Fluid calculation, Calculated Y1
848	Byte	Read Only	Fluid calculation, Calculated Y2
849	Word	Read Only	Fluid Strokes calculated Timing Control Modes 0 = Continuous: Unit does not detect pump-off, thereby running

Parameter	Data Type	Access	Description
			all the time.
			1 = Pump-Off: Detects Pump-Off condition.
			2 = On/Off: Well runs according to programmed run time and turns off. The unit will wait until parameter 20 (Idle Time) expires and then begin a new pumping cycle.
			3 = Shutdown: Well is not running
850	Time24	Read/Write	Start Time A Weekend (hh:mm:ss)
851	Byte	Read/Write	Run Mode A Weekend (0 – 3)
852	Time24	Read/Write	Run Time A Weekend (hh:mm:ss)
853	Time24	Read/Write	Start Time B Weekend (hh:mm:ss)
854	Byte	Read/Write	Run Mode B Weekend (0 – 3)
855	Time24	Read/Write	Run Time B Weekend (hh:mm:ss)
856	Time24	Read/Write	Start Time A Weekday (hh:mm:ss)
857	Byte	Read/Write	Run Mode A Weekday (0 – 3)
858	Time24	Read/Write	Run Time A Weekday (hh:mm:ss)
859	Time24	Read/Write	Start Time B Weekday (hh:mm:ss)
860	Byte	Read/Write	Run Mode B Weekday (0 – 3)
861	Time24	Read/Write	Run Time B Weekday (hh:mm:ss)
862	Byte	Read/Write	Timer control enable: 0 = Disable 1 = Enable
863	Byte	Read/Write	Motor torque percent analog input point. This parameter will accept a value between 0 and 8 and specifies which analog input point is to be used to get the motor torque percent from the F7 via a 4-20 mA signal. A value of zero means the feature is disabled.
864	Word	Read Only	Current Motor Torque in Per Cent %
865	Byte	Read/Write	Torq% Disp SRC: 0=MB, >1 = AI
866	Word	Read Only	Minimum up torque percent last stroke (integer)
867	Word	Read Only	Maximum up torque percent last stroke (integer)
868	Word	Read Only	Minimum down torque percent last stroke (integer)
869	Word	Read Only	Maximum down torque percent last stroke (integer)
870	Word	Read/Write	Parameter # for User display 1
871	Word	Read/Write	Parameter # for User display 2
872	Word	Read/Write	Parameter # for User display 3
873	Word	Read/Write	Parameter # for User display 4
874	Word	Read/Write	Parameter # for User display 5
875	Word	Read/Write	Parameter # for User display 6
876	Word	Read/Write	Parameter # for User display 7

Parameter	Data Type	Access	Description
877	Word	Read/Write	Parameter # for User display 8
878	Word	Read/Write	Parameter # for User display 9
879	Word	Read/Write	Parameter # for User display10
880	Word	Read/Write	Parameter # for User display11
881	Word	Read/Write	Parameter # for User display12
882	Word	Read/Write	The queue head index (0-96). This is the array index of the earliest event in the queue. If P882 = P883 the queue is empty. If P883 immediately precedes P882 then the queue is full.
883	Word	Read/Write	The queue tail index (0-96). This is the array index where the next event in the queue will be stored.
884	Word	Read/Write	A sequence number that will be stored into the next alarm summary record. The sequence number increments from 1 to 999 and then rolls back to 1. Note: This number is not displayed and will be removed in a later release.
885	Byte	Read Only	Torque history index. (Diagnostic usage only)
886	Word	Read Only	Average minimum up torque percent (integer)
887	Word	Read Only	Average maximum up torque percent (integer)
888	Word	Read Only	Average minimum down torque percent (integer)
889	Word	Read Only	Average maximum down torque percent (integer)
890	Word	Read/Write	Logger channel 1 source
891	Word	Read/Write	Logger channel 2 source
892	Word	Read/Write	Logger channel 3 source
893	Word	Read/Write	Logger channel 4 source
894	Word	Read/Write	Logger channel 5 source
895	Word	Read/Write	Logger channel 6 source
896	Word	Read/Write	Logger channel 7 source
897	Word	Read/Write	Logger channel 8 source
898	Byte	Read/Write	Logger freeze channel (Channels 1 – 8)
899	Command	Read/Write	Clear Logger History. Enter to Clear.
900	Word	Read Only	Hour log freeze buffer 00

Parameters 901-1199

Parameter	Data Type	Access	Description
901	Word	Read Only	Hour log freeze buffer 01
902	Word	Read Only	Hour log freeze buffer 02
903	Word	Read Only	Hour log freeze buffer 03

Parameter	Data Type	Access	Description
904	Word	Read Only	Hour log freeze buffer 04
905	Word	Read Only	Hour log freeze buffer 05
906	Word	Read Only	Hour log freeze buffer 06
907	Word	Read Only	Hour log freeze buffer 07
908	Word	Read Only	Hour log freeze buffer 08
909	Word	Read Only	Hour log freeze buffer 09
910	Word	Read Only	Hour log freeze buffer 10
911	Word	Read Only	Hour log freeze buffer 11
912	Word	Read Only	Hour log freeze buffer 12
913	Word	Read Only	Hour log freeze buffer 13
914	Word	Read Only	Hour log freeze buffer 14
915	Word	Read Only	Hour log freeze buffer 15
916	Word	Read Only	Hour log freeze buffer 16
917	Word	Read Only	Hour log freeze buffer 17
918	Word	Read Only	Hour log freeze buffer 18
919	Word	Read Only	Hour log freeze buffer 19
920	Word	Read Only	Hour log freeze buffer 20
921	Word	Read Only	Hour log freeze buffer 21
922	Word	Read Only	Hour log freeze buffer 22
923	Word	Read Only	Hour log freeze buffer 23
930	Word	Read Only	Daily log freeze buffer 00
931	Word	Read Only	Daily log freeze buffer 01
932	Word	Read Only	Daily log freeze buffer 02
933	Word	Read Only	Daily log freeze buffer 03
934	Word	Read Only	Daily log freeze buffer 04
935	Word	Read Only	Daily log freeze buffer 05
936	Word	Read Only	Daily log freeze buffer 06
937	Word	Read Only	Daily log freeze buffer 07
938	Word	Read Only	Daily log freeze buffer 08
939	Word	Read Only	Daily log freeze buffer 09
940	Word	Read Only	Daily log freeze buffer 10
941	Word	Read Only	Daily log freeze buffer 11
942	Word	Read Only	Daily log freeze buffer 12
943	Word	Read Only	Daily log freeze buffer 13
944	Word	Read Only	Daily log freeze buffer 14
945	Word	Read Only	Daily log freeze buffer 15
946	Word	Read Only	Daily log freeze buffer 16
947	Word	Read Only	Daily log freeze buffer 17

Parameter	Data Type	Access	Description
948	Word	Read Only	Daily log freeze buffer 18
949	Word	Read Only	Daily log freeze buffer 19
950	Word	Read Only	Daily log freeze buffer 20
951	Word	Read Only	Daily log freeze buffer 21
952	Word	Read Only	Daily log freeze buffer 22
953	Word	Read Only	Daily log freeze buffer 23
954	Word	Read Only	Daily log freeze buffer 24
955	Word	Read Only	Daily log freeze buffer 25
956	Word	Read Only	Daily log freeze buffer 26
957	Word	Read Only	Daily log freeze buffer 27
958	Word	Read Only	Daily log freeze buffer 28
959	Word	Read Only	Daily log freeze buffer 29
960	Word	Read/Write	Entering a queue array index in this field will cause the record associated with that index to be displayed in P961-965.
961	Date	Read Only	P961 = date
962	Time	Read Only	P962 = time
963	byte	Read Only	P963 = alarm type
964	Word	Read Only	
965	Word	Read Only	1=clearable
966	Command	Read/Write	Executing this command will cause the record in P961-965 to be written added to the alarm queue at the index specified by the tail pointer (P883). This is used for testing only.
967	Command	Read/Write	Executing this command will initialize the alarm summary queue. P882 and 883 will be set to zero and the array of records will be set to zero.
968	Byte	Read Only	Current Runtime Segment
969	Byte	Read/Write	Runtime Freeze Segment: 0 = Current Segment 1 = 00:00 – 04:00 2 = 04:00 – 08:00 3 = 08:00 – 12:00 4 = 12:00 – 16:00 5 = 16:00 – 20:00 6 = 20:00 – 24:00
970	Time24	Read Only	Runtime Freeze Buffer 00
971	Time24	Read Only	Runtime Freeze Buffer 01
972	Time24	Read Only	Runtime Freeze Buffer 02
973	Time24	Read Only	Runtime Freeze Buffer 03
974	Time24	Read Only	Runtime Freeze Buffer 04
975	Time24	Read Only	Runtime Freeze Buffer 05

Parameter	Data Type	Access	Description
976	Time24	Read Only	Runtime Freeze Buffer 06
977	Time24	Read Only	Runtime Freeze Buffer 07
978	Time24	Read Only	Runtime Freeze Buffer 08
979	Time24	Read Only	Runtime Freeze Buffer 09
980	Time24	Read Only	Runtime Freeze Buffer 10
981	Time24	Read Only	Runtime Freeze Buffer 11
982	Time24	Read Only	Runtime Freeze Buffer 12
983	Time24	Read Only	Runtime Freeze Buffer 13
984	Time24	Read Only	Runtime Freeze Buffer 14
985	Time24	Read Only	Runtime Freeze Buffer 15
986	Time24	Read Only	Runtime Freeze Buffer 16
987	Time24	Read Only	Runtime Freeze Buffer 17
988	Time24	Read Only	Runtime Freeze Buffer 18
989	Time24	Read Only	Runtime Freeze Buffer 19
990	Time24	Read Only	Runtime Freeze Buffer 20
991	Time24	Read Only	Runtime Freeze Buffer 21
992	Time24	Read Only	Runtime Freeze Buffer 22
993	Time24	Read Only	Runtime Freeze Buffer 23
994	Time24	Read Only	Runtime Freeze Buffer 24
995	Time24	Read Only	Runtime Freeze Buffer 25
996	Time24	Read Only	Runtime Freeze Buffer 26
997	Time24	Read Only	Runtime Freeze Buffer 27
998	Time24	Read Only	Runtime Freeze Buffer 28
999	Time24	Read Only	Runtime Freeze Buffer 29
1000	Byte	Read/Write	Host alarm 00 action (Refer to Table 2)
1001	Byte	Read/Write	Host alarm 01 action (Refer to Table 2)
1002	Byte	Read/Write	Host alarm 02 action (Refer to Table 2)
1003	Byte	Read/Write	Host alarm 03 action (Refer to Table 2)
1004	Byte	Read/Write	Host alarm 04 action (Refer to Table 2)
1005	Byte	Read/Write	Host alarm 05 action (Refer to Table 2)
1006	Byte	Read/Write	Host alarm 06 action (Refer to Table 2)
1007	Byte	Read/Write	Host alarm 07 action (Refer to Table 2)
1008	Byte	Read/Write	Host alarm 08 action (Refer to Table 2)
1009	Byte	Read/Write	Host alarm 09 action (Refer to Table 2)
1010	Byte	Read/Write	Host alarm 10 action (Refer to Table 2)
1011	Byte	Read/Write	Host alarm 11 action (Refer to Table 2)
1012	Byte	Read/Write	Host alarm 12 action (Refer to Table 2)
1013	Byte	Read/Write	Host alarm 13 action (Refer to Table 2)

Parameter	Data Type	Access	Description
1014	Byte	Read/Write	Host alarm 14 action (Refer to Table 2)
1015	Byte	Read/Write	Host alarm 15 action (Refer to Table 2)
1016	Byte	Read/Write	Set Host alarm: "Host Alarm 00" - "Gearbox Torque" "Host Alarm 01" - "Maximum Load Deviation" "Host Alarm 02" - "Maximum Load Deviation" "Host Alarm 03" - "Minimum Load Deviation" "Host Alarm 04" - "Load Span Deviation" "Host Alarm 05" - "Out of Balance" "Host Alarm 06" - "Run Time Deviation" "Host Alarm 07" - "Card Area Deviation" "Host Alarm 08" - "Low Pumping Efficiency" "Host Alarm 09" - "High Rod Stress" "Host Alarm 10" - "Prime Mover Size" "Host Alarm 11-16" - --Undefined Spares--
1020	Time24	Read Only	Traveling Valve Buffer time
1021	Date	Read Only	Traveling Valve Buffer date
1022	Time24	Read Only	Standing Valve Buffer time
1023	Date	Read Only	Standing Valve Buffer date
1024	Word	Read Only	Traveling Valve value in pounds
1025	Time24	Read Only	Traveling Valve value time
1026	Date	Read Only	Traveling Valve value date
1027	Word	Read Only	Standing Valve value in pounds
1028	Time24	Read Only	Standing Valve value time
1029	Date	Read Only	Standing Valve value date
1030	Word	Read Only	CBE Value in pounds
1031	Time24	Read Only	CBE Value time
1032	Date	Read Only	CBE Value date
1033	Byte	Read Only	CBE Crank Angle Flag 0 = Crank at 90 deg. 1 = Crank at 270 deg.
1040-1152	N/A	N/A	Internal Scratch-Pad use. Not an operator parameter
1153	Word	Read Only	Total Strokes Today
1154	Word	Read Only	STA BotSeg Start Position (mV)
1155	Word	Read Only	STA BotSeg Stop Position (mV)
1156	Word	Read Only	STA TopSeg Start Position (mV)
1157	Word	Read Only	STA TopSeg Stop Position (mV)
1158	Word	Read Only	STA TOP Seg Detected (mV)
1159	Word	Read Only	STA DN Seg Detected (mV)

Parameter	Data Type	Access	Description
1160	Word	Read Only	STA BOT Seg Detected (mV)
1161	Word	Read Only	STA UP Seg Detected (mV)
1162	Word	Read/Write	Minimum Stroke DataCount
1163	Word	Read/Write	BOS ctr f/TMP CTL LOSS
1164	Word	Read/Write	VSD Startup Status
1165	Word	Read/Write	STA: BOT seg duration * requires password
1166	Word	Read/Write	STA: TOP seg duration * requires password
1167	Word	Read Only	VSD Startup Speed State
1168	Word	Read Only	VSD control filter counter.
1169	Word	Read Only	DAC output in mA (Unit = .01 mA).
1170	Long	Read/Write	VSD long value1
1171	Display	Read Only	VSD: Speed Src
1172	Time	Read Only	Current evaluation timer. This value is initialized to P1261 and counts down. The average output is calculated at the end of the evaluation time (when this value = 00:00:00).
1173	Word	Read/Write	Learn mode error alarm reason code set when learn mode error (P532, bit 8): 1 = measured SPM = 0 2 = I_{max} has been calculated to be > 20.00 mA. It will be clamped to 20.00 mA. 3 = maximum output% (P1255) has been calculated as zero. The output will be set = 0 and the VSD task will be stopped. This value is not cleared but will be updated at the next learn error alarm.
1174	Byte	Read/Write	VSD control filter.
1175	Word	Read/Write	Tolerance state - Hi/Lo/In.
1176	Word	Read/Write	Absolute tolerance state – Hi/Lo/In.
1177	Word	Read Only	The current speed output in SPM. Calculated from P1259. (Unit = .01 SPM)
1178	Word	Read Only	The current VSD step value in percent. (Unit = .01%).
1179	Byte	Read/Write	Startup Stroke Count
1180	Word	Read/Write	Override EU Value
1181	Word	Read Only	Output Raw Counts
1182	Word	Read Only	A/O-1 Scaled Output EU
1183	Byte	Read/Write	A/O-1 Range Select 0 = 0-25mA, 1 = 4-20mA
1184	Byte	Read/Write	A/O-1 EU Decimal Places [2]
1185	Byte	Read/Write	A/O-1 EU Label [10]

Parameter	Data Type	Access	Description
			Value / Description 0 = VLTS (Voltage) 1 = AMPS (Amperage) 2 = PSIG (Lbs per square inch – gauge 3 = DEGF (Temperature – degrees F) 4 = DEGC (Temperature – degrees C) 5 = FEET (Feet) 6 = METR (Meter) 7 = BBLS (Barrels) 8 = MSCF (1000 Standard Cubic Feet) 9 = --- (Blank) 10 = % (Percent) 11 = BPD (Barrels per day)
1186	Word	Read/Write	A/O-1 EU Scaling Low Value [0]
1187	Word	Read/Write	A/O-1 EU Scaling High Value [10000]
1188	Word	Read/Write	A/O-1 EU Source Parameter [0] 0 = Disable
1189	Byte	Read/Write	A/O-1 Override Enable [0] Value / Description 0 = Disable 1 = Enable
1190	Byte	Read/Write	Baud Rate [11] Refer to table 5.
1191	Byte	Read/Write	Data Bits [8] 7 or 8
1192	Byte	Read/Write	Parity Value / Description 0 = None 1 = Odd 2 = Even
1193	Byte	Read/Write	Stop Bits [1] 1 or 2
1194	Byte	Read/Write	RTS Delay [2] (50 ms ticks) This value is not used. Refer to RTS Delay in the device Configuration block.
1195	Byte	Read/Write	RTS Hold (MTO Delay) [2] (50 ms ticks) This value is not used. Refer to RTS Hold in the device Configuration block.
1196	Byte	Read/Write	RX Time Out [40]
1197	Byte	Read/Write	PTT Time Out [40] (seconds) (TX Msg Timeout)
1198	Byte	Read/Write	Protocol Value / Description

Parameter	Data Type	Access	Description
			0 = None 1 = MODBUS ASCII 2 = MODBUS RTU
1199	Byte	Read/Write	Serial Port Mode Value / Description 0 = RS-485 1 = RS-232

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Parameter	Data Type	Access	Description
1202	Word	Read/Write	ExCom1 Rx Chars.
1203	Word	Read/Write	ExCom1 Tx Chars.
1206	Word	Read/Write	Number of Bad Characters Received.
1208	Command	Read/Write	Clear statistics for COM1.
1210	Byte	Read/Write	Baud Rate [11].
1211	Byte	Read/Write	Data Bits [8] 7 or 8.
1212	Byte	Read/Write	Parity: Value / Description 0 = None 1 = Odd 2 = Even
1213	Byte	Read/Write	Stop Bits [1] 1 or 2.
1214	Byte	Read/Write	RTS Delay [2].
1215	Byte	Read/Write	RTS Hold [2].
1216	Byte	Read/Write	RX Time Out [40].
1217	Byte	Read/Write	PTT Time Out [40].
1218	Byte	Read/Write	Protocol: Value / Description 0 = None 1 = MODBUS ASCII 2 = MODBUS RTU
1219	Byte	Read/Write	Serial Port Mode: Value / Description 0 = RS-485 1 = RS-232
1222	Word	Read/Write	ExCom2 Rx Chars.

Parameter	Data Type	Access	Description
1223	Word	Read/Write	ExCom2 Tx Chars.
1226	Word	Read/Write	Number of Bad Characters Received.
1228	Command	Read/Write	Clear statistics for COM2.
1229	Byte	Read/Write	Comm. Test Time Seconds.
1230	Byte	Read/Write	STA enable: 0= disable 1= enable
1231	Word	Read/Write	Speed trim factor (SPM x 100). This the SPM that will be subtracted from the pump speed when the stroke enters the BOS or TOS segment.
1232	Word	Read/Write	BOS Segment beginning angle (DEG). Valid = 181 to 359 or 0. P1232-1233 are the BOS segment begin and end angles. The BOS must begin in the right hemisphere and end in the left hemisphere. It can begin or end at 0 degrees. If begin = end = 0 degrees then the segment is disabled. All angles must be < 360. Begin = end = non-zero angle is not allowed. The BOS segment cannot overlap the TOS segment.
1233	Word	Read/Write	BOS Segment ending angle (DEG). Valid = 0 - 179.
1234	Word	Read/Write	TOS Segment beginning angle (DEG). Valid = 0 - 180. Cannot be 180 if P1235 = 180. P1234 & 1235 are the TOS segment begin and end angles. The TOS must begin in the left hemisphere and end in the right hemisphere. It can begin or end at 180 degrees. If begin = end = 0 degrees then the segment is disabled. If begin = end = 0 degrees then the segment is disabled. All angles must be < 360. Begin = end = non zero angle is not allowed. The TOS segment cannot overlap the BOS segment.
1235	Word	Read/Write	TOS Segment ending angle (DEG). Valid = 180 - 359. Cannot be 180 if P1234 = 180.
1236	Word	Read/Write	"STA: Trans detect count". This is the number of consecutive samples required to determine a segment transition. It was named "STA: Maximum seg tick count". On the STA setup screen the tag for P1236 is ConsecSamp.
1238	Word	Read/Write	Maximum UP speed in STA mode. Unit = .01 SPM. This is the maximum speed that the unit will run in the up direction. Must be <= P1257, VSD maximum speed. Unit = .01 SPM.
1239	Word	Read/Write	Maximum DN speed in STA mode. Unit = .01 SPM. This is the maximum speed that the unit will run in the down direction. Must be <= P1257, VSD maximum speed. Unit = .01 SPM.
1240	Word	Read/Write	Maximum transition speed in STA mode. This is the speed thru the top or bottom segments. Unit = .01 SPM
1241	Word	Read/Write	Down speed differential. Unit = .01 SPM. This speed is added/subtracted to/from the base stroke speed when the pump exits the top segment.

Parameter	Data Type	Access	Description
1242	Word	Read/Write	Down speed differential direction : 0=Subtract, 1=Add. This specifies whether the down speed differential in P1241 is added or subtracted from the base speed.
1246	Word	Read Only	STAT state: 0 = Inactive 1 = UP Stroke 2 = TOS Segment 3 = DN Stroke 4 = BOS Segment
1247	Word	Read Only	Current STA segment timer (50 ms ticks).
1248	Word	Read Only	STA Next Segment.
1250	Byte	Read/Write	VSD Enable Flag [0]: Value / Description 0 = Disable 1 = (Future) 2 = ePACII
1251	Word	Read Only	Base VSD Output. This is a percent value calculated by the VSD app at each bottom of stroke based on the last fillage measurement. This value will normally become the next output% (P1259) but this may be modified by the STA app. Units = .01%.
1252	Byte	Read/Write	VSD Pumpoff Position Tolerance (+/-%). This defines the VSD pumpoff tolerance range relative to the setpoint (P21). Set by the operator. Must be non-zero.
1253	Byte	Read/Write	Initial speed change. The resolution is 0.01 SPM.
1254	Word	Read Only	Minimum Control Output (%). Minimum control out-put that will be presented to the variable speed drive. It is expressed as a percentage of the full 4-20 mA range. Units = .01%. (such as, 4mA = 0, 20mA = 10000). Calculated in learn mode.
1255	Word	Read Only	Maximum Control Output (%). Maximum control out-put that will be presented to the variable speed drive. It is expressed as a percentage of the full 4-20 mA range. Units = .01%. (such as, 4mA = 0, 20mA = 10000) . Calculated in learn mode.
1256	Word	Read/Write	Minimum SPM that the pump is configured to run. Set by the operator. Units = .01 SPM. (such as, 105 = 10.5 SPM).
1257	Word	Read/Write	Maximum SPM that the pump is configured to run. Set by the operator. Units = .01 SPM. (such as, 105 = 10.5 SPM).
1258	Word	Read/Write	VSD % change limit. This is in units of .01%. The default value of 10 = 0.1% and the maximum value = 10.00%.
1259	Word	Read Only	Current (present) Control Output (% x 100) (0-10000). Control output value used to set the pump speed. This is the default source parameter for Analog Output 1 and the parameter number is stored in AO parameter 1188.

Parameter	Data Type	Access	Description
1260	Time	Read Only	Out of Tolerance Time. Incremented by real time clock when the pumpoff level is outside tolerance range. Reset to zero when pump-off level is within tolerance range. Calculated by POC.
1261	Time	Read/Write	Evaluation Period. Time period for time limit for Out of Tolerance time alarm and periodic re-evaluation of average control output. Set by the operator.
1262	Byte	Read/Write	Out of Tolerance Alarm Action. Action taken if the pumpoff level remains continuously outside the tolerance range for the time period set in P1261. Set by the operator. 0 = LAMP ONLY 1 = SOFT TIME 2 = CNTL XFER 3 = OFF/RESET 4 = IDLE TIME 5 = NO ACTION
1263	Word	Read/Write	SPM Override Value. Output value to be used when the controller is in VSD over-ride (P1264 = 1). This value is bounded by P1256 and P1257. Set by the operator. Units = .01 SPM.
1264	Byte	Read/Write	SPM Override Flag. When set to zero, VSD control operates normally. When set to 1, the VSD control output is defined by P1263, P1256, or P1257. Set by the operator. 0 = Disabled 1 = Enabled
1265	Word	Read/Write	Average Control Output (% x 100). Present average control output averaged over the time period set in P1261, used as the initial value for the VSD control output in certain situations. The POC calculates by this value, but after entering the service password, the operator can modify this parameter.
1266	Display	Read Only	VSD Mode Display. Mode/state of VSD control.
1267	Display	Read Only	Average Pumpoff Position Display. Displays the present average pumpoff position and the setpoint.
1268	Word	Read/Write	SPM Startup value. This SPM value will be used as the default sent to the VSD when entering the normal run state or pump down.
1269	Word	Read Only	Average Speed (SPM) for current gauge period. Units = .01 SPM.
1270	Word	Read Only	SPM measured during learn mode. Units = .01 SPM.
1271	Word	Read Only	Output current associated with minimum SPM. Calculated in learn mode. Unit = .01 mA.
1272	Word	Read Only	Output current associated with maximum SPM. Calculated in learn mode. Unit = .01 mA.
1273	Byte	Read/Write	Minimum pump fillage allowed. If the pump fillage is less than this value for the number of strokes specified in P1274 then an alarm is generated and the action specified in P1275 will be

Parameter	Data Type	Access	Description
			taken.
1274	Byte	Read/Write	Minimum pump fillage – number of strokes.
1275	Byte	Read/Write	Minimum Fill – Alarm Action: 0 = Lamp Only 1 = Soft Time 2 = CNTL Xfer 3 = Off/Reset 4 = Idle Time 5 = Idle + ALM
1276	Display	Read Only	Current pump off position value.
1277	Word	Read Only	Step limit percent value. Units = .01%.
1278	Word	Read/Write	Speed tolerance (SPM). Units = .01 SPM.
1279	Word	Read Only	Low tolerance stroke count – current gauge period.
1280	Word	Read Only	Low tolerance stroke count – yesterday.
1281	Word	Read Only	Low tolerance stroke count – day before yesterday.
1282	Word	Read Only	High tolerance stroke count – current gauge period.
1283	Word	Read Only	High tolerance stroke count – yesterday.
1284	Word	Read Only	High tolerance stroke count – day before yesterday.
1285	Word	Read Only	In tolerance stroke count – current gauge period.
1286	Word	Read Only	In tolerance stroke count – yesterday.
1287	Word	Read Only	In tolerance stroke count – day before yesterday.
1288	Word	Read Only	Average Speed (SPM) for yesterday: Units = .01 SPM.
1289	Word	Read Only	Average Speed (SPM) for day before yesterday: Units = .01 SPM.
1290	Byte	Read/Write	Rod Load Control enable 0 = Disable 1 = Enable
1291	Byte	Read/Write	RLC Hi Gain – a factor in units of .1 used to calculate speed change% during a hi RLC event. For example, 20 = gain factor of 2.0. The speed change during an RLC event is: Chg% = (load/lo load limit) X gain/10.
1292	Byte	Read/Write	RLC Lo Gain – a factor in units of .1 used to calculate speed change% during a lo RLC event. For example, 20 = gain factor of 2.0. The speed change during an RLC event is: Chg% = (load/lo load limit) X gain/10.
1293	Display	Read Only	RLC state. This is a Run-Time parameter. 0 = inactive

Parameter	Data Type	Access	Description
			1 = active lo 2 = active hi
1294	Word	Read/Write	RLC load deadband. Used to determine if an RLC event has begun or ended. Restricted to <= 2000.
1295	Word	Read/Write	RLC Lo Load Limit (LBs).
1296	Word	Read/Write	RLC Hi Load Limit (LBs).
1297	Word	Read/Write	RLC Minimum Speed.
1300	Byte	Read/Write	Device 1 Flags: 0 = NORMAL 1 = BYTE SWAP 2 = WORD SWAP 3 = REVERSED 4 = DISABLED
1301	Byte	Read/Write	Device 1 Unit ID.
1303	Byte	Read/Write	Device 1 RTS Delay (50 ms ticks). Used by MBS instead of P1194.
1304	Byte	Read/Write	Device 1 RTS Hold (50 ms ticks). Used by MBS instead of P1195.
1305	Word	Read/Write	Device 1 Maximum Status/Coils.
1306	Word	Read/Write	Device 1 Maximum Analog Regs.
1309	Command	Read/Write	Device 1 Clear Stats.
1310	Word	Read Only	Device 1 Rx Chars.
1311	Word	Read Only	Device 1 Tx Chars.
1312	Word	Read Only	Device 1 Rx Msgs.
1313	Word	Read Only	Device 1 Tx Msgs.
1314	Word	Read Only	Device 1 Bad Rx Chars.
1315	Word	Read Only	Device 1 Bad Rx Msgs.
1316	Word	Read Only	Device 1 Retries.
1317	Word	Read Only	Device 1 ErrorCount – counts no replies.
1318	Word	Read Only	Device 1 Status – if ErrorCount > 3 then Statue = 1, else 0.
1320	Byte	Read/Write	Device 2 Flags: 0 = NORMAL 1 = BYTE SWAP 2 = WORD SWAP 3 = REVERSED 4 = DISABLED
1321	Byte	Read/Write	Device 2 Unit ID.
1323	Byte	Read/Write	Device 2 RTS Delay (50 ms ticks).

Parameter	Data Type	Access	Description
1324	Byte	Read/Write	Device 2 RTS Hold (50 ms ticks).
1325	Word	Read/Write	Device 2 Maximum Status/Coils.
1326	Word	Read/Write	Device 2 Maximum Analog Regs.
1329	Cmnd	Read/Write	Device 2 Clear Stats.
1330	Word	Read Only	Device 2 Rx Chars.
1331	Word	Read Only	Device 2 Tx Chars.
1332	Word	Read Only	Device 2 Rx Msgs.
1333	Word	Read Only	Device 2 Tx Msgs.
1334	Word	Read Only	Device 2 Bad Rx Chars.
1335	Word	Read Only	Device 2 Bad Rx Msgs.
1336	Word	Read Only	Device 2 Retries.
1337	Word	Read Only	Device 2 ErrorCount.
1338	Word	Read Only	Device 2 Status.
1340	Byte	Read/Write	Device 3 Flags: 0 = NORMAL 1 = BYTE SWAP 2 = WORD SWAP 3 = REVERSED 4 = DISABLED
1341	Byte	Read/Write	Device 3 Unit ID.
1343	Byte	Read/Write	Device 3 RTS Delay (50 ms ticks).
1344	Byte	Read/Write	Device 3 RTS Hold (50 ms ticks).
1345	Word	Read/Write	Device 3 Maximum Status/Coils.
1346	Word	Read/Write	Device 3 Maximum Analog Regs.
1349	Cmnd	Read/Write	Command Device 3 Clear Stats.
1350	Word	Read Only	Device 3 Rx Chars.
1351	Word	Read Only	Device 3 Tx Chars.
1352	Word	Read Only	Device 3 Rx Msgs.
1353	Word	Read Only	Device 3 Tx Msgs.
1354	Word	Read Only	Device 3 Bad Rx Chars.
1355	Word	Read Only	Device 3 Bad Rx Msgs.
1356	Word	Read Only	Device 3 Retries.
1357	Word	Read Only	Device 3 ErrorCount.
1358	Word	Read Only	Device 3 Status.
1360	Byte	Read/Write	Device 4 Flags: 0 = NORMAL 1 = BYTE SWAP 2 = WORD SWAP 3 = REVERSED

Parameter	Data Type	Access	Description
			4 = DISABLED
1361	Byte	Read/Write	Device 4 Unit ID.
1363	Byte	Read/Write	Device 4 RTS Delay (50 ms ticks).
1364	Byte	Read/Write	Device 4 RTS Hold (50 ms ticks).
1365	Word	Read/Write	Device 4 Maximum Status/Coils.
1366	Word	Read/Write	Device 4 Maximum Analog Regs.
1369	Cmnd	Read/Write	Device 4 Clear Stats.
1370	Word	Read Only	Device 4 Rx Chars.
1371	Word	Read Only	Device 4 Tx Chars.
1372	Word	Read Only	Device 4 Rx Msgs.
1373	Word	Read Only	Device 4 Tx Msgs.
1374	Word	Read Only	Device 4 Bad Rx Chars.
1375	Word	Read Only	Device 4 Bad Rx Msgs.
1376	Word	Read Only	Device 4 Retries.
1377	Word	Read Only	Device 4 ErrorCount.
1378	Word	Read Only	Device 4 Status.
1380	Byte	Read/Write	Device 5 Flags: 0 = NORMAL 1 = BYTE SWAP 2 = WORD SWAP 3 = REVERSED 4 = DISABLED
1381	Byte	Read/Write	Device 5 Unit ID.
1383	Byte	Read/Write	Device 5 RTS Delay (50 ms ticks).
1384	Byte	Read/Write	Device 5 RTS Hold (50 ms ticks).
1385	Word	Read/Write	Device 5 Maximum Status/Coils.
1386	Word	Read/Write	Device 5 Maximum Analog Regs.
1389	Cmnd	Read/Write	Device 5 Clear Stats.
1390	Word	Read Only	Device 5 Rx Chars.
1391	Word	Read Only	Device 5 Tx Chars.
1392	Word	Read Only	Device 5 Rx Msgs.
1393	Word	Read Only	Device 5 Tx Msgs.
1394	Word	Read Only	Device 5 Bad Rx Chars.
1395	Word	Read Only	Device 5 Bad Rx Msgs.
1396	Word	Read Only	Device 5 Retries.
1397	Word	Read Only	Device 5 ErrorCount.
1398	Word	Read Only	Device 5 Status.
1400	Byte	Read/Write	Device 6 Flags:

Parameter	Data Type	Access	Description
			0 = NORMAL 1 = BYTE SWAP 2 = WORD SWAP 3 = REVERSED 4 = DISABLED
1401	Byte	Read/Write	Device 6 Unit ID.
1403	Byte	Read/Write	Device 6 RTS Delay (50 ms ticks).
1404	Byte	Read/Write	Device 6 RTS Hold (50 ms ticks).
1405	Word	Read/Write	Device 6 Maximum Status/Coils.
1406	Word	Read/Write	Device 6 Maximum Analog Regs.
1409	cmnd	Read/Write	Device 6 Clear Stats.
1410	Word	Read Only	Device 6 Rx Chars.
1411	Word	Read Only	Device 6 Tx Chars.
1412	Word	Read Only	Device 6 Rx Msgs.
1413	Word	Read Only	Device 6 Tx Msgs.
1414	Word	Read Only	Device 6 Bad Rx Chars.
1415	Word	Read Only	Device 6 Bad Rx Msgs.
1416	Word	Read Only	Device 6 Retries.
1417	Word	Read Only	Device 6 ErrorCount.
1418	Word	Read Only	Device 6 Status.
1420	Byte	Read/Write	Device 7 Flags: 0 = NORMAL 1 = BYTE SWAP 2 = WORD SWAP 3 = REVERSED 4 = DISABLED
1421	Byte	Read/Write	Device 7 Unit ID.
1423	Byte	Read/Write	Device 7 RTS Delay (50 ms ticks).
1424	Byte	Read/Write	Device 7 RTS Hold (50 ms ticks).
1425	Word	Read/Write	Device 7 Maximum Status/Coils.
1426	Word	Read/Write	Device 7 Maximum Analog Regs.
1429	Cmnd	Read/Write	Device 7 Clear Stats.
1430	Word	Read Only	Device 7 Rx Chars.
1431	Word	Read Only	Device 7 Tx Chars.
1432	Word	Read Only	Device 7 Rx Msgs.
1433	Word	Read Only	Device 7 Tx Msgs.
1434	Word	Read Only	Device 7 Bad Rx Chars.
1435	Word	Read Only	Device 7 Bad Rx Msgs.
1436	Word	Read Only	Device 7 Retries.

Parameter	Data Type	Access	Description
1437	Word	Read Only	Device 7 ErrorCount.
1438	Word	Read Only	Device 7 Status.
1440	Byte	Read/Write	Device 8 Flags: 0 = NORMAL 1 = BYTE SWAP 2 = WORD SWAP 3 = REVERSED 4 = DISABLED
1441	Byte	Read/Write	Device 8 Unit ID.
1443	Byte	Read/Write	Device 8 RTS Delay (50 ms ticks).
1444	Byte	Read/Write	Device 8 RTS Hold (50 ms ticks).
1445	Word	Read/Write	Device 8 Maximum Status/Coils.
1446	Word	Read/Write	Device 8 Maximum Analog Regs.
1449	Cmnd	Read/Write	Device 8 Clear Stats.
1450	Word	Read Only	Device 8 Rx Chars.
1451	Word	Read Only	Device 8 Tx Chars.
1452	Word	Read Only	Device 8 Rx Msgs.
1453	Word	Read Only	Device 8 Tx Msgs.
1454	Word	Read Only	Device 8 Bad Rx Chars.
1455	Word	Read Only	Device 8 Bad Rx Msgs.
1456	Word	Read Only	Device 8 Retries
1457	Word	Read Only	Device 8 ErrorCount
1458	Word	Read Only	Device 8 Status
1460	Word	Read Only	Maximum up speed output percent. (Unit=.01%)
1461	Word	Read Only	Maximum dn speed output percent. (Unit=.01%)
1462	Word	Read Only	Maximum trans speed output percent. (Unit=.01%)
1463	Word	Read Only	Maximum dn speed diff. output percent. (Unit=.01%)
1464	Word	Read Only	Trim Speed output percent. (Unit=.01%).
1465	Byte	Read/Write	Pump direction DO point number. Valid range = 1 – 8, 0 = disable. If this is greater than 0 then the DO point specified by this parameter will be closed during up strokes and opened during down strokes.
1466	Word	Read Only	Current down speed output%. (Unit=.01%).
1467	Word	Read Only	Current TOS segment speed output%. (Unit=.01%).
1468	Word	Read Only	Current BOS segment speed output%. (Unit=.01%).
1469	Word	Read Only	STA Cur Up Speed Pct.
1470	Word	Read Only	Latest RLC event load. Maximum load during a hi event or minimum load during a lo event.
1471	Word	Read Only	Second Latest RLC event load. Maximum load during a hi event or minimum load during a lo event.

Parameter	Data Type	Access	Description
1472	Word	Read Only	Third Latest RLC event load. Maximum load during a hi event or minimum load during a lo event.
1473	Word	Read Only	Latest RLC event duration in ms.
1474	Word	Read Only	Second Latest RLC event duration in ms.
1475	Word	Read Only	Third Latest RLC event duration in ms.
1476	Word	Read Only	Latest RLC event sequence number (0-65535).
1477	Word	Read Only	Second Latest RLC event sequence number.
1478	Word	Read Only	Third Latest RLC event sequence number.
1479	Time	Read Only	InTol Timer.
1480	Word	Read Only	Current RLC hi event count during current gauge period.
1481	Word	Read Only	Yesterdays RLC hi event count at gauge time.
1482	Word	Read Only	Day before yesterdays RLC hi event count at gauge time.
1483	Word	Read Only	Current RLC lo event count during current gauge period.
1484	Word	Read Only	Yesterdays RLC lo event count at gauge time.
1485	Word	Read Only	Day before yesterdays RLC lo event count at gauge time.
1486	Word	Read Only	Latest RLC event minimum speed attained during the event (SPM). Unit = .01 SPM.
1487	Word	Read Only	Next to Latest RLC event minimum speed attained.
1488	Word	Read Only	Earliest RLC event minimum speed attained.
1489	Word	Read/Write	VSD InTol Chg Ctr.
1490	Display	N/A	User Tag 7.
1491	Display	N/A	User Tag 8.
1492	Display	N/A	User Tag 9.
1493	Display	N/A,	User Tag 10.
1494	Display	N/A	User Tag 11.
1495	Display	N/A	User Tag 12.
1496	Time	Read/Write	VSD InTol Maximum Time.
1497	Word	Read/Write	VSD In Tol Speed Diff.
1498	Word	Read Only	STA Output Pct.
1499	Word	Read Only	RLC Output %.
1500	Byte	Read/Write	Scan 1 Enable/Disable. This parameter is not used.

Parameters 1501-2524

Parameter	Data Type	Access	Description
1501	Word	Read/Write	Scan 1 Retries [1].
1502	Word	Read/Write	Scan 1 Retry Delay [2] Seconds.
1503	Word	Read/Write	Scan 1 Scan Delay [1] 0.05 Seconds.

Parameter	Data Type	Access	Description
1504	Word	Read/Write	Scan 1 Cycle Delay [2] Seconds.
1505	Word	Read/Write	Scan 1 Auto Refresh [300] Seconds.
1506	Word	Read/Write	Scan 1 Maximum Status / Coils Per Poll [228].
1507	Word	Read/Write	Scan 1 Maximum Analogs / Holding Registers [127].
1508	Display	Read Only	Scan 1 Status (XX:XX NN Poll/DTRY N).
1510	Byte	Read/Write	Scan 1 / Block 1 Access.
1511	Byte	Read/Write	Scan 1 / Block 1 Remote Address [1].
1512	Word	Read/Write	Scan 1 / Block 1 Starting Register.
1513	Word	Read/Write	Scan 1 / Block 1 Number of Registers.
1514	Word	Read/Write	Scan 1 / Block 1 Index Zero-based.
1515	Byte	Read/Write	Scan 1 / Block 2 Access.
1516	Byte	Read/Write	Scan 1 / Block 2 Remote Address [1].
1517	Word	Read/Write	Scan 1 / Block 2 Starting Register.
1518	Word	Read/Write	Scan 1 / Block 2 Number of Registers.
1519	Word	Read/Write	Scan 1 / Block 2 Index Zero-based.
1520	Byte	Read/Write	Scan 1 / Block 3 Access.
1521	Byte	Read/Write	Scan 1 / Block 3 Remote Address [1].
1522	Word	Read/Write	Scan 1 / Block 3 Starting Register.
1523	Word	Read/Write	Scan 1 / Block 3 Number of Registers.
1524	Word	Read/Write	Scan 1 / Block 3 Index Zero-based.
1525	Byte	Read/Write	Scan 1 / Block 4 Access.
1526	Byte	Read/Write	Scan 1 / Block 4 Remote Address [1].
1527	Word	Read/Write	Scan 1 / Block 4 Starting Register.
1528	Word	Read/Write	Scan 1 / Block 4 Number of Registers.
1529	Word	Read/Write	Scan 1 / Block 4 Index Zero-based.
1530	Byte	Read/Write	Scan 1 / Block 5 Access.
1531	Byte	Read/Write	Scan 1 / Block 5 Remote Address [1].
1532	Word	Read/Write	Scan 1 / Block 5 Starting Register.
1533	Word	Read/Write	Scan 1 / Block 5 Number of Registers.
1534	Word	Read/Write	Scan 1 / Block 5 Index Zero-based.
1535	Byte	Read/Write	Scan 1 / Block 6 Access.
1536	Byte	Read/Write	Scan 1 / Block 6 Remote Address [1].
1537	Word	Read/Write	Scan 1 / Block 6 Starting Register.
1538	Word	Read/Write	Scan 1 / Block 6 Number of Registers.
1539	Word	Read/Write	Scan 1 / Block 6 Index Zero-based.
1540	Byte	Read/Write	Scan 1 / Block 7 Access.
1541	Byte	Read/Write	Scan 1 / Block 7 Remote Address [1].
1542	Word	Read/Write	Scan 1 / Block 7 Starting Register.
1543	Word	Read/Write	Scan 1 / Block 7 Number of Registers.

Parameter	Data Type	Access	Description
1544	Word	Read/Write	Scan 1 / Block 7 Index Zero-based.
1545	Byte	Read/Write	Scan 1 / Block 8 Access.
1546	Byte	Read/Write	Scan 1 / Block 8 Remote Address [1].
1547	Word	Read/Write	Scan 1 / Block 8 Starting Register.
1548	Word	Read/Write	Scan 1 / Block 8 Number of Registers.
1549	Word	Read/Write	Scan 1 / Block 8 Index Zero-based.
1550	Byte	Read/Write	Scan 1 / Block 9 Access.
1551	Byte	Read/Write	Scan 1 / Block 9 Remote Address [1].
1552	Word	Read/Write	Scan 1 / Block 9 Starting Register.
1553	Word	Read/Write	Scan 1 / Block 9 Number of Registers.
1554	Word	Read/Write	Scan 1 / Block 9 Index Zero-based.
1555	Byte	Read/Write	Scan 1 / Block 10 Access.
1556	Byte	Read/Write	Scan 1 / Block 10 Remote Address [1].
1557	Word	Read/Write	Scan 1 / Block 10 Starting Register.
1558	Word	Read/Write	Scan 1 / Block 10 Number of Registers.
1559	Word	Read/Write	Scan 1 / Block 10 Index Zero-based.
1560	Byte	Read/Write	Scan 1 / Block 11 Access.
1561	Byte	Read/Write	Scan 1 / Block 11 Remote Address [1].
1562	Word	Read/Write	Scan 1 / Block 11 Starting Register.
1563	Word	Read/Write	Scan 1 / Block 11 Number of Registers.
1564	Word	Read/Write	Scan 1 / Block 11 Index Zero-based.
1565	Byte	Read/Write	Scan 1 / Block 12 Access.
1566	Byte	Read/Write	Scan 1 / Block 12 Remote Address [1].
1567	Word	Read/Write	Scan 1 / Block 12 Starting Register.
1568	Word	Read/Write	Scan 1 / Block 12 Number of Registers.
1569	Word	Read/Write	Scan 1 / Block 12 Index Zero-based.
1570	Byte	Read/Write	Scan 1 / Block 13 Access.
1571	Byte	Read/Write	Scan 1 / Block 13 Remote Address [1].
1572	Word	Read/Write	Scan 1 / Block 13 Starting Register.
1573	Word	Read/Write	Scan 1 / Block 13 Number of Registers.
1574	Word	Read/Write	Scan 1 / Block 13 Index Zero-based.
1575	Byte	Read/Write	Scan 1 / Block 14 Access.
1576	Byte	Read/Write	Scan 1 / Block 14 Remote Address [1].
1577	Word	Read/Write	Scan 1 / Block 14 Starting Register.
1578	Word	Read/Write	Scan 1 / Block 14 Number of Registers.
1579	Word	Read/Write	Scan 1 / Block 14 Index Zero-based.
1580	Byte	Read/Write	Scan 1 / Block 15 Access.
1581	Byte	Read/Write	Scan 1 / Block 15 Remote Address [1].
1582	Word	Read/Write	Scan 1 / Block 15 Starting Register.

Parameter	Data Type	Access	Description
1583	Word	Read/Write	Scan 1 / Block 15 Number of Registers.
1584	Word	Read/Write	Scan 1 / Block 15 Index Zero-based.
1585	Byte	Read/Write	Scan 1 / Block 16 Access.
1587	Word	Read/Write	Scan 1 / Block 16 Starting Register.
1588	Word	Read/Write	Scan 1 / Block 16 Number of Registers.
1589	Word	Read/Write	Scan 1 / Block 16 Index Zero-based.
1600	Byte	Read/Write	Scan 2 Enable/Disable . This parameter is not used.
1601	Word	Read/Write	Scan 2 Retries [1].
1602	Word	Read/Write	Scan 2 Retry Delay [2] Seconds.
1603	Word	Read/Write	Scan 2 Scan Delay [1] 0.05 Seconds.
1604	Word	Read/Write	Scan 2 Cycle Delay [2] Seconds.
1605	Word	Read/Write	Scan 2 Auto Refresh [300] Seconds.
1606	Word	Read/Write	Scan 2 Maximum Status / Coils Per Poll [228].
1607	Word	Read/Write	Scan 2 Maximum Analogs / Holding Registers [127].
1608	Display	Read Only	Scan 2 Status (XX:XX NN Poll/DTRY N).
1610	Byte	Read/Write	Scan 2 / Block 1 Access.
1611	Byte	Read/Write	Scan 2 / Block 1 Remote Address [1].
1612	Word	Read/Write	Scan 2 / Block 1 Starting Register.
1613	Word	Read/Write	Scan 2 / Block 1 Number of Registers.
1614	Word	Read/Write	Scan 2 / Block 1 Index Zero-based.
1615	Byte	Read/Write	Scan 2 / Block 2 Access.
1616	Byte	Read/Write	Scan 2 / Block 2 Remote Address [1].
1617	Word	Read/Write	Scan 2 / Block 2 Starting Register.
1618	Word	Read/Write	Scan 2 / Block 2 Number of Registers.
1619	Word	Read/Write	Scan 2 / Block 2 Index Zero-based.
1620	Byte	Read/Write	Scan 2 / Block 3 Access.
1621	Byte	Read/Write	Scan 2 / Block 3 Remote Address [1]
1622	Word	Read/Write	Scan 2 / Block 3 Starting Register
1623	Word	Read/Write	Scan 2 / Block 3 Number of Registers.
1624	Word	Read/Write	Scan 2 / Block 3 Index Zero-based
1625	Byte	Read/Write	Scan 2 / Block 4 Access
1626	Byte	Read/Write	Scan 2 / Block 4 Remote Address [1]
1627	Word	Read/Write	Scan 2 / Block 4 Starting Register
1628	Word	Read/Write	Scan 2 / Block 4 Number of Registers.
1629	Word	Read/Write	Scan 2 / Block 4 Index Zero-based.
1630	Byte	Read/Write	Scan 2 / Block 5 Access.
1631	Byte	Read/Write	Scan 2 / Block 5 Remote Address [1].
1632	Word	Read/Write	Scan 2 / Block 5 Starting Register.
1633	Word	Read/Write	Scan 2 / Block 5 Number of Registers.

Parameter	Data Type	Access	Description
1634	Word	Read/Write	Scan 2 / Block 5 Index - Zero-based.
1635	Byte	Read/Write	Scan 2 / Block 6 Access.
1636	Byte	Read/Write	Scan 2 / Block 6 Remote Address [1].
1637	Word	Read/Write	Scan 2 / Block 6 Starting Register.
1638	Word	Read/Write	Scan 2 / Block 6 Number of Registers.
1639	Word	Read/Write	Scan 2 / Block 4 Index Zero-based.
1640	Byte	Read/Write	Scan 2 / Block 7 Access.
1641	Byte	Read/Write	Scan 2 / Block 7 Remote Address [1].
1642	Word	Read/Write	Scan 2 / Block 7 Starting Register.
1643	Word	Read/Write	Scan 2 / Block 7 Number of Registers.
1644	Word	Read/Write	Scan 2 / Block 7 Index Zero-based.
1645	Byte	Read/Write	Scan 2 / Block 8 Access.
1646	Byte	Read/Write	Scan 2 / Block 8 Remote Address [1].
1647	Word	Read/Write	Scan 2 / Block 8 Starting Register.
1648	Word	Read/Write	Scan 2 / Block 8 Number of Registers.
1649	Word	Read/Write	Scan 2 / Block 8 Index Zero-based.
1650	Byte	Read/Write	Scan 2 / Block 9 Access.
1651	Byte	Read/Write	Scan 2 / Block 9 Remote Address [1].
1652	Word	Read/Write	Scan 2 / Block 9 Starting Register.
1653	Word	Read/Write	Scan 2 / Block 9 Number of Registers.
1654	Word	Read/Write	Scan 2 / Block 9 Index Zero-based.
1655	Byte	Read/Write	Scan 2 / Block 10 Access.
1656	Byte	Read/Write	Scan 2 / Block 10 Remote Address [1].
1657	Word	Read/Write	Scan 2 / Block 10 Starting Register.
1658	Word	Read/Write	Scan 2 / Block 10 Number of Registers.
1659	Word	Read/Write	Scan 2 / Block 10 Index Zero-based.
1660	Byte	Read/Write	Scan 2 / Block 11 Access.
1661	Byte	Read/Write	Scan 2 / Block 11 Remote Address [1].
1662	Word	Read/Write	Scan 2 / Block 11 Starting Register.
1663	Word	Read/Write	Scan 2 / Block 11 Number of Registers.
1664	Word	Read/Write	Scan 2 / Block 11 Index Zero-based.
1665	Byte	Read/Write	Scan 2 / Block 12 Access.
1666	Byte	Read/Write	Scan 2 / Block 12 Remote Address [1].
1667	Word	Read/Write	Scan 2 / Block 12 Starting Register.
1668	Word	Read/Write	Scan 2 / Block 12 Number of Registers.
1669	Word	Read/Write	Scan 2 / Block 12 Index Zero-based.
1670	Byte	Read/Write	Scan 2 / Block 13 Access.
1671	Byte	Read/Write	Scan 2 / Block 13 Remote Address [1].
1672	Word	Read/Write	Scan 2 / Block 13 Starting Register.

Parameter	Data Type	Access	Description
1673	Word	Read/Write	Scan 2 / Block 13 Number of Registers.
1674	Word	Read/Write	Scan 2 / Block 13 Index Zero-based.
1675	Byte	Read/Write	Scan 2 / Block 14 Access.
1676	Byte	Read/Write	Scan 2 / Block 14 Remote Address [1].
1677	Word	Read/Write	Scan 2 / Block 14 Starting Register.
1678	Word	Read/Write	Scan 2 / Block 14 Number of Registers.
1679	Word	Read/Write	Scan 2 / Block 14 Index Zero-based.
1680	Byte	Read/Write	Scan 2 / Block 15 Access.
1681	Byte	Read/Write	Scan 2 / Block 15 Remote Address [1].
1682	Word	Read/Write	Scan 2 / Block 15 Starting Register.
1683	Word	Read/Write	Scan 2 / Block 15 Number of Registers.
1684	Word	Read/Write	Scan 2 / Block 15 Index Zero-based.
1685	Byte	Read/Write	Scan 2 / Block 16 Access.
1686	Byte	Read/Write	Scan 2 / Block 16 Remote Address [1].
1687	Word	Read/Write	Scan 2 / Block 16 Starting Register.
1688	Word	Read/Write	Scan 2 / Block 16 Number of Registers.
1689	Word	Read/Write	Scan 2 / Block 16 Index Zero-based.
1700	Word	Read/Write	Dbase Change Flags 000-015.
...			...
1734	Word	Read/Write	Dbase Change Flags 544-549.
1750	Word	Read/Write	ModScan Register 0 to register 549.
...			...
2299	Word	Read/Write	N/A
2300	Long	Read/Write	ModScan Long Register 0 thru Long Register 224.
...			These values are overlaid on parameters 1750 – 2299.
2524	Long	Read/Write	N/A

ePIC RPC Parameter Listings

For information on a specific range of parameters, select a link from the list below.

Parameter Listings 1-300
Parameter Listings 309-599
Parameter Listings 601-900
Parameter Listings 901-1180

🔹 *For additional parameter details, refer to the device's User Manual.*

Parameters 1-300

Parameter	Data Type	Access	Description
1	Word	Read/Write	User-entered Password
2	Word	Read/Write	Communication Address for remote communications (0 to 4094)
3	Time24	Read/Write	Time of day: hh:mm:ss am/pm
4	Date	Read/Write	Today's Date (mm/dd/yy)
5	Byte	Read/Write	Current Day of the week. This is automatically set when Parameter 4 is set.
6	Command	Read/Write	Manual top of stroke (locates Position Switch in reference to TOS)
7	Command	Read/Write	Automatic top of stroke (automatic using Continuous Position signal input)
8	Display	Read Only	TOS to Position Switch stroke fraction (in counts where Position Switch closes after TOS)
10	Command	Read/Write	Output Parameter list (outputs parameter list to host)
14	Byte	Read/Write	Load units (Lb/Kg): 0 = Pounds 1 = Kg. Metric
15	Byte	Read/Write	Numeric/alphabetic date format: 0 = Numeric 1 = Alphabetic
16	Byte	Read/Write	12/24 Hour clock display: 0 = Military 1 = AM/PM
17	Byte	Read/Write	Long time day/hour split – Run Time format: 0 = hours only 1 = days/hours

Parameter	Data Type	Access	Description
18	Byte	Read/Write	Real Time Clock source on AC power (not functional)
19	Byte	Read/Write	Real Time Clock source on AC fail: 1 = Real Time Clock
20	Time24	Read/Write	Idle time, set by operator based on well conditions (hh:mm:ss)
21	Byte	Read/Write	Pump-off Position %: 0 = Bottom of Stroke 100 = Top of Stroke
22	Byte	Read/Write	Pump-off Action. The Monitor Only mode defaults to "Go To Idle" and any command action other than "Go To Idle" will generate a non-clearable alarm. POC mode can be set to any valid action code.
23	Byte	Read/Write	Pump-off Load %: 0 = Minimum Load during stroke 100 = Maximum Load during stoke
24	Byte	Read/Write	POC strokes for pump off – Maximum consecutive pump-off strokes allowed before going to idle time
25	Time24	Read/Write	Pump-up delay (hh:mm:ss)
26	Byte	Read/Write	POC Method: 0 = Quadrant Method – Lower RH 1 = Point Method – Along Base Line 2 = Reverse POC using Method 0 3 = Reverse POC using Method 1 4 = ESP Only (Disables POC for RPC use) 5 = ESP Only (Disables POC for RPC use) 6 = ESP Only (Disables POC for RPC use) 7 = ESP Only (Disables POC for RPC use) 8 = Quadrant Method – Upper LH 9 = Point Method – Upper (100%) Line 10 = Reverse POC using Method 8 11 = Reverse POC using Method 9
27	Time24	Read/Write	POC Override timer (hh:mm:ss) set by operator. No POC until timer decrements to zero.
28	Byte	Read/Write	Override timer power-up action of clearing flag: 0 = No Power Up Clear 1 = Power Up Clear
29	Byte	Read/Write	Motor speed control type: 0 = Fixed Speed (on/off control) 1 = Normal VSD 2 = Dynamic VSD

Parameter	Data Type	Access	Description
30	Byte	Read/Write	[This parameter is not used.]
31	Command	Read/Write	Manual off until reset – Operator input
32	Command	Read/Write	Manual control transfer – Operator input
33	Command	Read/Write	Manual software timer – Operator input
34	Byte	Read/Write	Position input source: 0 = Position Switch 1 = Continuous Position Sensor 2 = Monitor Only Mode
35	Byte	Read/Write	Load input source: 0 = Load Cell 1 = Strain Gauge
36	Time24	Read/Write	Target cycle time (hh:mm:SS) 00-99:59:59. Set to 00:00:00 to disable automatic idle time.
37	Byte	Read/Write	Action for under 50% run: 0 = No Action 1 = Disable with Fault Lamp 2 = Halve Cycle with No Fault Lamp 3 = Halve Cycle with Fault Lamp
38	Time24	Read/Write	Off time limit – Maximum allowed off time and restart automatically
39	Byte	Read/Write	Off time limit enable/disable: 0 = Disable 1 = Enable Off Until Reset is the action, when enabled.
40	Byte	Read/Write	% ABC goal value – Set to 0% to disable.
41	Byte	Read/Write	% ABC dead band value
42	Word	Read Only	Upstroke peak value in millivolts
43	Word	Read Only	Downstroke peak value in millivolts
44	Word	Read Only	Peak difference in mV. Positive value means upstroke peak value was higher than down-stroke peak value.
45	Word	Read Only	Peak difference in %. This is not used in control and will show a slightly lower value than the selected % control values.
46	Word	Read/Write	Air balance purge time. Open time of Purge Air Cylinder valve. Range is 0 – 65535 (546.1 Seconds in a 60Hz system).
50	Byte	Read/Write	Peak energy control enable flag: 0 = Disabled 1 = Enabled
51	Time24	Read/Write	Begin run inhibit time (hh:mm:ss and am/pm)

Parameter	Data Type	Access	Description
52	Time24	Read/Write	End run inhibit time (hh:mm:ss and am/pm)
53	Time24	Read/Write	Power On Restart Delay Time
54	Byte	Read/Write	Startup Control State: 0 = Normal 1 = Software Timer 2 = Control Transfer 3 = Off until reset
55	Byte	Read/Write	Time to Idle at Startup: 0 = Retained Idle Time 1 = Full Idle Time 2 = No Idle Time
56	Byte	Read/Write	Use Random Startup Delay: 0 = Disabled 1 = Enabled
63	Byte	Read/Write	Strain gauge Target type: 0 = Cycle minimum 1 = Cycle average 2 = Cycle maximum
64	Byte	Read/Write	Conditions for SG adjust: 0 = Adjust Valid if running tracking with valid load span (P223) 1 = Adjust Running (if unit running) 2 = Adjust Always (at all times)
65	Word	Read/Write	Cycle minimum target (Lb)
66	Word	Read/Write	Cycle average target (Lb)
67	Word	Read/Write	Cycle maximum target (Lb)
68	Word	Read/Write	SG Load step limit in pounds
69	Word	Read Only	SG Load step limit in μV
70	Command	Read/Write	Set zero load i/p offset. Note: Ensure that Load Cell is fully unloaded.
71	Word	Read/Write	Offset in offset mV – Normally set automatically (20000 = 0.00). Set this Parameter along with P70.
72	Word	Read Only	Offset in volts – Set this Parameter along with P70
73	Word	Read/Write	Known load to set gain – input in lbs - using known standard calibrated load measuring device
74	Word	Read/Write	Load input gain - (Lb./mV) Automatically set with P73 or set for specific load cell range
75	Display	Read Only	Load gain Lb/mV or Kg/mV - (Lb./mV) Automatically set with P73

Parameter	Data Type	Access	Description
76	Word	Read Only	Load raw input and volts – counts / volt
77	Word	Read Only	Load input in mV
78	Word	Read Only	Current Load - lbs
79	Word	Read Only	Minimum load last stroke - lbs
80	Word	Read Only	Maximum load last stroke - lbs
81	Word	Read/Write	Calibration minimum load
82	Word	Read/Write	Calibration maximum load - lbs
83	Word	Read Only	Minimum load from last start - lbs
84	Word	Read Only	Maximum load from last start - lbs
85	Word	Read Only	Minimum load since power up - lbs
86	Word	Read Only	Maximum load since power up - lbs
87	Word	Read Only	Span over last stroke - lbs
88	Word	Read Only	Minimum span since power up - lbs
89	Word	Read Only	Load Average last stroke - lbs
90	Word	Read Only	Minimum average since power up - lbs
91	Word	Read Only	Maximum average since power up - lbs
92	Word	Read Only	Minimum load since power up mV
93	Word	Read Only	Maximum load since power up mV
94	Command	Read/Write	Reset power up minimum/maximum Load Values – P85, 86, 88, 90, 91, 92, & 93 are reset
95	Word	Read Only	Load fail ADC raw and V – counts and volts
96	Word	Read Only	Load fail input in mV
99	Command	Read/Write	Calibrate Load Sensor
100	Command	Read/Write	Calibrate Position Reference
101	Byte	Read/Write	Position Synthesis Type: 0 = Simple (Sinusoid) 1 = MKII Compensation 2 = Calibrated Position
102	Word	Read Only	Position raw input & volts – counts & volts
103	Word	Read Only	Position input in volts
104	Word	Read Only	Minimum Position last stroke – volts (Ref. P271)
105	Word	Read Only	Maximum Position last stroke – volts (Ref. P272)
106	Word	Read Only	Position span last stroke
107	Word	Read Only	Position span filtered
108	Word	Read/Write	Dir. debounce time in ticks
109	Byte	Read Only	Bottoms with no position fault
113	Byte	Read/Write	MK-II Compensate Position. This parameter defines the percentage of the amplitude of the cosine of the 2nd harmonic of the stroke frequency to subtract from the synthesized position which

Parameter	Data Type	Access	Description
			effectively speeds up the down stroke. The range of acceptable values is from 0 to 24%. The value should be 0% for a conventional unit. A value of 20% is recommended for a large Mark II unit.
114	Byte	Read/Write	DPS: Load De-skew - Delay (for use when using DPS with Mark II units): 0 = 0 ms 1 = 50 ms 2 = 100 ms 3 = 150 ms 4 = 200 ms 5 = 250 ms 6 = 300 ms 7 = 350 ms
115	Byte	Read/Write	Low Load Cycles for stage 2
116	Byte	Read/Write	Low Load Stage 2 strokes for violation
117	Byte	Read/Write	Low Load Stage 2 cycles for action
120	Word	Read/Write	Scratch data 1
121	Word	Read/Write	Torq% mult-factor (if 10=>/10)
122	Word	Read/Write	Scratch data 3 – Same as P120
123	Word	Read/Write	Scratch data 4 – Same as P120
124	Word	Read/Write	Scratch data 5 – Same as P120
125	Byte	Read/Write	Good strokes for filter
127	Byte	Read/Write	Enable Position Switch as Run/Stop input (Monitor Mode Only): 0 = Disable 1 = Enable
128	Byte	Read/Write	Good strokes for Position Switch reset
129	Byte	Read/Write	Log cleared Position Switch error: 0 = No Log Clear 1 = Log Clear
130	Word	Read/Write	TOS to Position Switch stroke fraction Stroke = 65536 count
131	Command	Read/Write	Reverse Position Switch setting
132	Word	Read Only	Last Position Switch interval, ticks/sec
133	Byte	Read/Write	Position Switch as Run / Stop debounce
134	Byte	Read/Write	Open debounce interval, ticks/sec
135	Byte	Read/Write	Use Position Switch opening: 0 = Use Close

Parameter	Data Type	Access	Description
			1 = Use Open
136	Byte	Read/Write	Filtered interval minimum % - Minimum allowed as percent of normal from normal
137	Byte	Read/Write	Filtered interval maximum % - Maximum allowed as percent of normal from normal
138	Byte	Read Only	Filtered strokes counter – in counts
139	Word	Read Only	Last Stroke interval - counts/second
140	Word	Read Only	Filtered Stroke interval – counts/second
141	Word	Read Only	Last Stroke Well Speed – (PPM* 100)
142	Word	Read Only	Filtered Well Speed – (PPM* 100)
143	Byte	Read Only	Bottoms counter – in counts
144	Byte	Read Only	Debounced closed flag – Open/Closed
147	Word	Read Only	Debounced Switches Since Last Turn Off/On
149	Command	Read/Write	Well Speed Change – Clear and reset all SPM information
160	Word	Read Only	AI-1 raw input and volts – counts/volt
161	Word	Read Only	AI-1 Input value - volts
162	Word	Read Only	AI-1 Minimum recorded value
163	Word	Read Only	AI-1 Maximum recorded value
164	Word	Read Only	AI-1 last stroke average
165	Word	Read Only	AI-1 Minimum stroke average
166	Word	Read Only	AI-1 Maximum stroke average
167	Command	Read/Write	AI-1 Reset minimum/maximum
168	Word	Read/Write	Latch AI alarms enable
170	Word	Read/Write	DO 1 on timer – Operator set manual ON time and /or serves as countdown timer; set in ticks
171	Word	Read/Write	DO 2 on timer – Operator set manual ON time and /or serves as countdown timer; set in ticks
172	Byte	Read/Write	DO 1 on flag – Remains in set condition until reset manually or by action code.
173	Byte	Read/Write	DO 2 on flag – Remains in set condition until reset manually or by action code.
174	Byte	Read Only	Current dyno data skip factor
175	Byte	Read Only	Dyno data skip factor for last card requested by host
176	Word	Read Only	Stroke interval in 1/120 sec ticks for last card requested by host
178	Word	Read/Write	DO1 action ticks – Number of ticks equal to pulse duration required (Tick = 1/120 Sec.)
179	Word	Read/Write	DO2 action ticks – Seconds (DO1 and DO2)
180	Word	Read Only	DI status bits: Octal Value / DI Location

Parameter	Data Type	Access	Description
			000001 = DI1 (State: 0 = On, 1 = Off) 000002 = DI2 (State: 0 = On, 1 = Off) 00004 = DI3 (State: 0 = On, 1 = Off) 000010 = DI4 (State: 0 = On, 1 = Off) 000020 = DI5 (State: 0 = On, 1 = Off) 000040 = DI6 (State: 0 = On, 1 = Off) 000100 = DI7 (State: 0 = On, 1 = Off) 000200 = DI8 (State: 0 = On, 1 = Off)
181	Word	Read/Write	DI 1 low order counts - 0 to 65,535 counts and reset to zero
182	Word	Read/Write	DI 1 high order counts - P181 rollover count
183	Word	Read/Write	DI 2 low order counts - Same as P181
184	Word	Read/Write	DI 2 high order counts - Same as P182
185	Word	Read/Write	DI 3 low order counts - Same as P181
186	Word	Read/Write	DI 3 high order counts - Same as P182
187	Word	Read/Write	DI 4 low order counts - Same as P181
188	Word	Read/Write	DI 4 high order counts - Same as P182.
189	Word	Read/Write	DI 5 low order counts - Same as P181
190	Word	Read/Write	DI 5 high order counts - Same as P182
191	Word	Read/Write	DI 6 low order. counts - Same as P181
192	Word	Read/Write	DI 6 high order counts - Same as P182
193	Word	Read Only	AI status as DI: Octal Value / Description 000004 = AI1 Selected 000010 = AI2 Selected
194	Word	Read/Write	AI 1 low order counts - Same as P181
195	Word	Read/Write	AI 1 high order counts - Same as P182
196	Word	Read/Write	AI 2 low order counts - Same as P181
197	Word	Read/Write	AI 2 high order counts - Same as P182
198	Word	Read/Write	AI 3 low order counts - Same as P181
199	Word	Read/Write	AI 3 high order counts - Same as P182
200	Byte	Read/Write	Sensor Failure Action: 0 = Invalid Action 1 = Soft time 2 = Control Transfer 3 = Off/Reset
204	Byte	Read/Write	No. run cycles to average - If zero, value in P206 used
205	Time24	Read Only	Recorded average on time - If no value in P205 or P206, P204 controls transfer.
206	Time24	Read/Write	Manual set timer ON time (hh:mm:ss)
207	Time24	Read Only	Latest average ON time

Parameter	Data Type	Access	Description
208	Word	Read/Write	Low-Low load limit - Pounds
209	Byte	Read/Write	Low-Low load Violation action: 0 = Lamp Only - Fault Lamp Illuminates. 1 = Soft Time - Software Timer Controls Pumping Unit based on P204. 2 = CNTL Xfer - Control is Transferred. 3 = Off/Reset - Turns Controller OFF until Reset by Operator. 4 = Idle Time - Pumping Starts in Idle Time. 5 = Idle + ALM - Pumping Starts in Idle Time and Fault Lamp Illuminates. 6 = Start Pump - Starts Pump if Conditions Allow 7 = No Action - No Action is taken. 8 = Pulse DO1 - Pulses Digital Output 1 (Wired as DI7/DO7) 9 = Pulse DO2 - Pulses Digital Output 2 (Wired as DI8/DO8) 10 = DO1 OFF - Turns DO1 OFF (Wired as DI7/DO7) 11 = DO2 OFF - Turns DO2 OFF (Wired as DI8/DO8) 12 = DO1 ON - Turns DO1 ON (Wired as DI7/DO7) 13 = DO2 ON - Turns DO2 ON (Wired as DI8/DO8) x6 = Pulse DIOx - Pulses DIOx* x7 = Turn DIOx OFF - Turns DIOx OFF* x8 = Turn DIOx ON - Turns DIOx ON* * The small "x" in the last three action codes is user input. For example, to "Pulse" DIO5, input "56" as the Action Code. To turn DIO5 ON, input 58 as the action code.
210	Word	Read/Write	Low load limit - Pounds. Not used if set to zero.
211	Word	Read/Write	High load limit - Pounds. Not used if set to zero.
212	Word	Read/Write	Low average load limit – Pounds. Use only if low load goes below zero load (shallow well) and low load limit cannot be used.
213	Byte	Read/Write	High Load violation strokes - Used for P211, and P214 before action. Load limit has a separate counter.
214	Byte	Read/Write	High Load violation action - For P211 and 213. 0 = Lamp Only 1 = Soft Time 2 = Control Transfer 3 = Off/Reset 4 = Idle Time 5 = Idle + Alarm
215	Byte	Read/Write	Low Load violation strokes – For P210 and 212
216	Byte	Read/Write	Low Load violation action – For P210, 212, and 215: 0 = Lamp Only 1 = Soft Time 2 = Control Transfer

Parameter	Data Type	Access	Description
			3 = Off/Reset 4 = Idle Time 5 = Idle + Alarm
217	Word	Read/Write	Load violation Deadband - pounds
218	Word	Read/Write	High-High Load limit - pounds
219	Byte	Read/Write	High-High Load action
220	Byte	Read/Write	Off time multiplier (0.1 units): [15 = 1.5 multiplier]. Disables low load span and cycle run time for set period. Determined by actual power off interval times.
221	Time24	Read/Write	Limit to multiplied time - hh:mm:ss 72:00:00 = 3 Days
222	Byte	Read/Write	Number of Low Load span strokes required before action – for P223
223	Word	Read/Write	Minimum valid load span - Pounds. Should be set to 50-70% of Normal Operating Load Span (P87).
225	Byte	Read/Write	Low Load span Action of P223: 0 = Lamp Only 1 = Soft Time 2 = Control Transfer 3 = Off/Reset 4 = Idle Time 5 = Idle + Alarm
226	Time24	Read/Write	Load span Well off timer - Time the well has been "off" including power failures. This is multiplied by P220 to get recovery time.
227	Time24	Read/Write	Load span Well on timer - Time left before the recovery time period times out
228	Byte	Read/Write	Pumpoffs to clear P227
230	Byte	Read/Write	Immediate pumpoffs for violation - Not used if zero Pump Off allowed before action
231	Byte	Read/Write	Immediate Pumpoff Action
232	Time24	Read/Write	Minimum run time (hh:mm:ss). Set at zero to disable.
233	Byte	Read/Write	Minimum run times for action - Number of Consecutive Minimum Cycle run Times Violations before Action [2]
234	Byte	Read/Write	Minimum run time action - Fault msg. "MIN CYCLE action": 0 = Lamp Only 1 = Soft Time 2 = Control Transfer 3 = Off/Reset
235	Time24	Read/Write	Maximum cycle run time - hh:mm:ss. Set to zero to disable.
236	Byte	Read/Write	Maximum cycle runtime Action - Fault Message "MAX CYCLE Action ON TIME":

Parameter	Data Type	Access	Description
			0 = Lamp Only 1 = Soft Time 2 = Control Transfer 3 = Off/Reset 4 = Idle Time 5 = Idle + Alarm
237	Time24	Read/Write	Maximum daily run time (hh:mm:ss). Not used if set to 00:00:00.
238	Byte	Read/Write	Maximum daily runtime action: 0 = Lamp Only 1 = Soft Time 2 = Control Transfer 3 = Off/Reset
239	Time24	Read/Write	Off timer for maximum run, unless changed by operator. Time format.
240	Time24	Read/Write	On timer for maximum run, unless changed by operator. Time format.
241	Byte	Read/Write	Pumpoffs to clear P240
242	Time24	Read Only	Qualified cycle ON timer
243	Time24	Read Only	Qualified daily ON timer
245	Byte	Read/Write	Violation entry deglitch time – 2 = 0.1 Seconds
246	Byte	Read/Write	violation exit deglitch time – 3 = 0.15 Seconds
249	Byte	Read/Write	AI 1 low action
250	Byte	Read/Write	AI 1 high action
251	Byte	Read/Write	AI 2 low action
252	Byte	Read/Write	AI 2 high action
253	Byte	Read/Write	AI 3 low action
254	Byte	Read/Write	AI 3 high action
255	Word	Read Only	Current Card Area in Ft-Lb
256	Word	Read/Write	Minimum Card Area in Ft-Lb
257	Byte	Read/Write	Minimum Card Area Action
258	Word	Read/Write	Maximum Card Area in Ft-Lb
259	Byte	Read/Write	Maximum Card Area Action
260	Byte	Read/Write	Control Failure Action: 0 = Lamp Only 1 = Soft Time 2 = Control Transfer 3 = Off/Reset
261	Time24	Read/Write	Required time (hh:mm:ss). Must be set to at least 30 seconds less than P20.

Parameter	Data Type	Access	Description
262	Byte	Read/Write	Pump On settling time - Delay (s) before expected running after start-up
263	Byte	Read/Write	Pump Off settling time - Delay (s) before expected stop after turned off
265	Word	Read Only	Minimum Position Last Cycle
266	Word	Read Only	Maximum position Last Cycle
267	Word	Read Only	Minimum position since power on
268	Word	Read Only	Maximum position since power on
270	Word	Read/Write	Minimum position span - 250 = 0.250 volts. Operator can set to accommodate signal span.
271	Word	Read/Write	Minimum position value - 2125 = 0.125 volts
272	Word	Read/Write	Maximum position value - 6000 = 4.000 volts
273	Byte	Read/Write	Position fault entry time - 5 = 0.250 seconds
280	Word	Read Only	AI-1 raw input and volts - A/D counts / volts
281	Word	Read Only	AI-1 Input value - Offset volts
282	Word	Read Only	AI-1 Scaled EGU value - Scaled EGU Value
283	Byte	Read/Write	AI-1 Input type
284	Byte	Read/Write	AI-1 EGU decimal places
285	Byte	Read/Write	AI-1 EGU label
286	Word	Read/Write	AI-1 Scaling low value
287	Word	Read/Write	AI-1 Scaling high value
288	Word	Read/Write	AI-1 Low alarm limit
289	Byte	Read/Write	AI-1 Low alarm action 1
290	Byte	Read/Write	AI-1 Low alarm action 2
291	Word	Read/Write	AI-1 High alarm limit
292	Byte	Read/Write	AI-1 High alarm action 1
293	Byte	Read/Write	AI-1 High alarm action 2
294	Word	Read/Write	AI-1 Alarms deadband
295	Word	Read Only	AI-1 Minimum recorded value in volts
296	Word	Read Only	AI-1 Maximum recorded value in volts
297	Word	Read Only	AI-1 last stroke average in volts
298	Word	Read Only	AI-1 Minimum stroke average in volts
299	Word	Read Only	AI-1 Maximum stroke average in volts
300	Command	Read/Write	AI-1 Reset minimum/maximum – Resets all for AI-1

Parameters 309-599

Parameter	Data Type	Access	Description
309	Word	Read/Write	AI alarm status bits: Octal Value / Description 000001 = Extra Channel 1 Low Alarm 000002 = Extra Channel 2 Low Alarm 000004 = Extra Channel 1 High Alarm 000010 = Extra Channel 2 High Alarm
310	Word	Read Only	AI-2 raw input and volts - counts / volts
311	Word	Read Only	AI-2 Input value - volts
312	Word	Read Only	AI-2 Scaled EGU value - Scaled EGU Value
313	Byte	Read/Write	AI-2 Input type
314	Byte	Read/Write	AI-2 EGU decimal places
315	Byte	Read/Write	AI-2 EGU label
316	Word	Read/Write	AI-2 Scaling low value
317	Word	Read/Write	AI-2 Scaling high value
318	Word	Read/Write	AI-2 Low alarm limit
319	Byte	Read/Write	AI-2 Low alarm action 1
320	Byte	Read/Write	AI-2 Low alarm action 2
321	Word	Read/Write	AI-2 High alarm limit
322	Byte	Read/Write	AI-2 High alarm action 1
323	Byte	Read/Write	AI-2 High alarm action 2
324	Word	Read/Write	AI-2 Alarms deadband
325	Word	Read Only	AI-2 Minimum recorded value
326	Word	Read Only	AI-2 Maximum recorded value
329	Command	Read/Write	AI-2 Reset minimum/maximum
330	Word	Read Only	AI-3 raw input and volts - count
331	Word	Read Only	AI-3 Input value - milllivolts
332	Word	Read Only	AI-3 Scaled EGU value
333	Byte	Read/Write	AI-3 Input type
334	Byte	Read/Write	AI-3 EGU decimal places
335	Byte	Read/Write	AI-3 EGU label
336	Word	Read/Write	AI-3 Scaling low value
337	Word	Read/Write	AI-3 Scaling high value
338	Word	Read/Write	AI-3 Low alarm limit
339	Byte	Read/Write	AI-3 Low alarm action 1
340	Byte	Read/Write	AI-3 Low alarm action 2
341	Word	Read/Write	AI-3 High alarm limit
342	Byte	Read/Write	AI-3 High alarm action 1

Parameter	Data Type	Access	Description
343	Byte	Read/Write	AI-3 High alarm action 2
344	Word	Read/Write	AI-3 Alarms deadband
345	Word	Read Only	AI-3 Minimum recorded value
346	Word	Read Only	AI-3 Maximum recorded value
349	Command	Read/Write	AI-3 Reset minimum/maximum
350	Command	Read/Write	15 sec fault lamp test
351	Command	Read/Write	Software reset
352	Command	Read/Write	Repeat last roll display
355	Byte	Read/Write	Minimum Fault Events
356	Byte	Read/Write	Minimum Alarm Events
357	Word	Read/Write	Event Card Enable Bits 1 - Hex value 00 – 0F
358	Word	Read/Write	Event Card Enable Bits 2 - Hex value 10 – 1F
359	Word	Read/Write	Event Card Enable Bits 3 - Hex value 20 – 2F
360	Word	Read/Write	Event Card Enable Bits 4 - Hex value 30 – 3F
361	Word	Read/Write	Event Card Enable Bits 5 - Hex value 40 – 4F
362	Word	Read/Write	Event Card Enable Bits 6 - Hex value 50 – 52
363	Word	Read/Write	Event Card Enable Bits 7 - Hex value 60
365	Command	Read/Write	Record Event Buffer
366	Command	Read/Write	Clear Event Buffer
370	Display	Read Only	POC display/position - Percent
371	Display	Read Only	POC display/load - Percent
372	Display	Read Only	POC display/P26 method depends on P26 (POC Method). Value shows when <POC DSPLY> is pressed on RPC
373	Word	Read Only	Surface card pump fill %
374	Word	Read Only	Reason code for load fail alarms: 1 = load fail conversion error: read_a2d() returns 0xffff 2 = load fail raw error: read_a2d() returns load > 0xfff 3 = load fail calculation error: after scaling the input offset mV value is > 22 mV or < -1 mV
375	Word	Read Only	Estimated POC load value - Pounds
376	Word	Read Only	Load at POC position - Pounds
389	Word	Read Only	Last error/status alarm – Shows the last error or status alarm
390	Time24	Read Only	Time at last program stop
391	Date	Read Only	Date at last program stop
392	Time24	Read Only	Time at last (re)start
393	Date	Read Only	Date at last (re)start
394	Time24	Read Only	Last program stop interval
395	Long	Read Only	Last fatal error address - Programmer error information only
396	Time24	Read Only	Last error/status time

Parameter	Data Type	Access	Description
397	Date	Read Only	Last error/status date
398	Word	Read Only	Days counter - Number of days of operation
399	Time24	Read Only	Rollover counter - hh:mm:ss. Current day count ⬤ **Note:** At 24-hours count goes to P398.
400	Time24	Read Only	Present pump run time - Run cycle in progress
401	Time24	Read Only	Previous interval[1]
402	Time24	Read Only	Previous interval[2]
403	Time24	Read Only	Previous interval[3]
404	Time24	Read Only	Previous interval[4]
405	Time24	Read Only	Previous interval[5]
406	Time24	Read Only	Previous interval[6]
407	Time24	Read Only	Previous interval[7]
408	Time24	Read Only	Previous interval[8]
409	Time24	Read Only	Previous interval[9]
410	Time24	Read Only	Previous interval[10]
411	Time24	Read Only	Previous interval[11]
412	Time24	Read Only	Previous interval[10]
413	Time24	Read Only	Previous interval[13]
414	Time24	Read Only	Previous interval[14]
415	Time24	Read Only	Previous interval[15]
416	Time24	Read Only	Previous interval[16]
417	Time24	Read Only	Previous interval[17]
418	Byte	Read Only	Undisturbed pump cycles - Run cycle is from pumping unit startup by the RPC to pumping unit RPC shut down and the start of idle time.
419	Time24	Read Only	Present pump off tim.
420	Time24	Read Only	Todays run time - In V2.00 the RPC holds 29 days of run time history in P670 – P699. P420 – P427 are still functional but not the complete history
421	Time24	Read Only	Yesterdays run time
422	Time24	Read Only	Run time 2 days ago
423	Time24	Read Only	Run time 3 days ago
424	Time24	Read Only	Run time 4 days ago
425	Time24	Read Only	Run time 5 days ago
426	Time24	Read Only	Run time 6 days ago
427	Time24	Read Only	Run time 7 days ago
429	Time24	Read/Write	Gauge period start time - hh:mm:ss
430	Word	Read Only	Today undisturbed cycles
431	Word	Read Only	Yesterday undisturbed cycles

Parameter	Data Type	Access	Description
432	Time24	Read Only	Today undisturbed average run
433	Time24	Read Only	Yesterday undisturbed average run
434	Time24	Read Only	Time to next gauge time
439	Time24	Read Only	Today total undisturbed run
440	N/A	N/A	Legacy unused 8500 parameter
441	Date	Read Only	This period start date
442	Time24	Read Only	Today's run time
443	Time24	Read Only	Yesterdays run time
444	Time24	Read Only	Run time 2 days ago
445	Time24	Read Only	Run time 3 days ago
446	Time24	Read Only	Run time 4 days ago
447	Time24	Read Only	Run time 5 days ago
448	Time24	Read Only	Run time 6 days ago
449	Time24	Read Only	Run time 7 days ago
450	Word	Read Only	ADC Zero reference raw input - counts
451	Word	Read Only	ADC Zero reference filtered - counts
452	Word	Read Only	ADC 5 Volt reference raw input - counts
453	Word	Read Only	ADC 5 Volt reference filtered - counts
454	Word	Read Only	ADC Filtered span - counts
455	Byte	Read Only	ADC Failure channel: Value / Description 1 = Full Scale Calibration 2 = Load Input 3 = Position Input 4 = First Extra
456	Word	Read Only	Lowest allowed value
457	Word	Read Only	Highest allowed value
458	Word	Read Only	ADC Failure actual value
459	Command	Read/Write	Reset Idle task timing. Enter to reset Task Times
460	Display	Read Only	CPU Idle task timing - Interval in Ticks
461	Display	Read Only	CPU usage profile = xx/yy/zz xx = System Overhead Percent yy = Percent Idle zz = Percent Useful Work
462	Byte	Read Only	Maximum Flood Task
463	Word	Read Only	Maximum Flood Time
464	Word	Read Only	Flood counter
471	Byte	RW	Display debug parameters
472	Command	Read/Write	Reset to factory default **Note:** All field set parameters are lost if this action taken. Enter eP Service Password in P473 first.

Parameter	Data Type	Access	Description
473	Word	Read/Write	Maintenance password ⬤ **Note:** User Password (8500) allows edits to Read Only parameters, such as run time data. Service Password = 5500. This parameter should only be used by eP service personnel.
478	Byte	Read Only	Current F/W version
479	Byte	Read Only	Current F/W sub-version
480	Word	Read Only	NVS Initialized value
481	Word	Read Only	NVS chars used
482	Word	Read Only	NVS Unused space (bytes)
483	Word	Read Only	NVS Used space (bytes)
484	Byte	Read Only	NVS F/W version
485	Byte	Read Only	NVS F/W sub-version
486	Word	Read Only	NVS F/W Part Number
489	Byte	Read/Write	Configuration Change - Set to "1" whenever volatile parameter is changed
490	Byte	Read Only	Legacy F/W version
491	Byte	Read Only	Legacy F/W sub-version
492	Word	Read Only	Hardware option bits 1: Octal Value / Description 000004 = Memory 000010 = Memory Expansion 000020 = Indication Bit 000040 = Memory Bank Expansion 000100 = Control PIO 000200 = UART 000400 = Radio ID
493	Word	Read Only	Hardware option bits 2: Octal Value / Description 000001 = Larger EEPROM 000002 = CPI Type LCD Display 000004 = Keypad (Detected when pressed) 000008 = Battery Backup 000010 = Densitron Type LCD Display 000040 = Enhanced Graphics Display
494	Word	Read Only	Hardware option bits 3: Value / Description 0 = No Comm Boards 1 = Unknown or Bad Comm Board 2 = UART Board 3 = UART Board with Expanded Memory 4 = Radio Modem Board 5 = Hardwired Modem Board
496	Word	Read/Write	Analog inputs enable - AI1 & AI2 channel used. Enter value in Octal

Parameter	Data Type	Access	Description
			If AI1, enter "1". If AI2, enter "2". If both AI1 and AI2, enter "3".
497	Word	Read/Write	Digital inputs enable: Octal Value / Description 000001 = DI1 Selected 000002 = DI2 Selected 000004 = DI3 Selected 000010 = DI4 Selected 000020 = DI5 Selected 000040 = DI6 Selected 000100 = DI7 Selected 000200 = DI8 Selected
498	Word	Read Only	N/A
499	Byte	Read/Write	N/A
500	Word	Read/Write	Keypad password
501	Byte	Read/Write	Password timeout - (Minutes) Password at P1 clear if no keypad entry made in time-out interval
507	Byte	Read Only	EGD Contrast
508	Byte	Read/Write	Updates per second - Every 1 to 5 times per second
509	Byte	Read/Write	Rolls per second - From 2 to 15 rolls / second
510	Word	Read Only	N/A
511	Word	Read Only	N/A
512	Word	Read Only	N/A
513	Word	Read Only	N/A
514	Byte	Read/Write	Expand Lb Dyno: 0 = Disable (Sequence from % card to normal card back to % card) 1 = Enable (Sequence from % card to expanded pound card to normal card back to % card)
515	Word	Read Only	Auto setup
516	Word	Read Only	Communication pump on
517	Word	Read Only	Communication present
518	Word	Read Only	Communication pump off
519	Word	Read Only	Communication frozen
520	Word	Read Only	Status bits 1
521	Word	Read Only	Status bits 2
522	Word	Read Only	Status bits 3
523	Command	Read/Write	Clear Errors; Enter to clear
524	Command	Read/Write	Turn Pump On; Enter to activate
525	Command	Read/Write	Idle Pump; Enter to activate
526	Byte	Read Only	POC Control state:

Parameter	Data Type	Access	Description
			Value / Description 0 = Normal or Lamp Only Error 1 = Software Timer 2 = Control Transferred via Watchdog Relay 3 = Off Until Reset by Operator
527	Word	Read Only	Error bits 1: Octal Value / Description 000001 "CONTROL FAILURE" 000002 " LOW LOAD LIMIT" 000004 "HIGH LOAD LIMIT" 000010 "LOW LOAD AVERAGE" 000020 "POS SWITCH FAIL" 000040 "MULTIPLE POS SW" 000100 "CLRD POS SEN PRB" 000200 "CLRD MULP POS SW" 000400 " LOW LOAD SPAN" 001000 "LOAD INPUT FAULT" 002000 "POS SENSOR FAULT" 004000 "CLRD POS SEN PRB" 010000 " NO TIMER VALUE" 020000 " A/D FAILURE" 040000 "MANUAL OFF (31)" 100000 "POC OVERRIDE(27)"
528	Word	Read Only	Error bits 2: Octal Value / Description 000001 IMMED. PUMPOFF 000002 MIN CYCLE ONTIME 000004 MAX CYCLE ONTIME 000010 MAX DAILY ONTIME 000020 PARAMS INIT'ED 000040 PARAMS EXPANDED 000100 PARMS FROM EEPROM 000200 "EEPROM CELL BAD" 000400 EEPROM FAILURE 001000 BAD STATUS VAR 002000 BAD ERROR BIT(S) 004000 ? TIME ? DATE ? 010000 BAD TIME&DATE IC 020000 WRONG LINE FREQ 040000 MANUAL CTRL XFER 100000 MANUAL SOFT TIME
529	Word	Read Only	Error bits 3: Octal Value / Description 000001 CPU FELL BEHIND 000002 CLRD BAD RTC CHP 000004 MTR OFF TOO LONG 000010 DI1 CLOSED ALARM

Parameter	Data Type	Access	Description
			000020 DI1 OPEN ALARM 000040 DI2 CLOSED ALARM 000100 DI2 OPEN ALARM 000200 AI1 DIG 0 ALARM 000400 AI1 DIG 1 ALARM 001000 AI2 DIG 0 ALARM 002000 AI2 DIG 1 ALARM 004000 AI3 DIG 0 ALARM 010000 AI3 DIG 1 ALARM 020000 HI-HI LOAD LIMIT 040000 REVERSE PUMPOFF 100000 AB AMPS TOO LOW
530	Word	Read Only	Error bits 4: Octal Value / Description 000001 DI3 CLOSED ALARM 000002 DI3 OPEN ALARM 000004 DI4 CLOSED ALARM 000010 DI4 OPEN ALARM 000020 DI5 CLOSED ALARM 000040 DI5 OPEN ALARM 000100 DI6 CLOSED ALARM 000200 DI6 OPEN ALARM 000400 AI1 LOW LIMIT 001000 AI1 HIGH LIMIT 002000 AI2 LOW LIMIT 004000 AI2 HIGH LIMIT 010000 AI3 LOW LIMIT 020000 AI3 HIGH LIMIT 040000 AB ADD AIR FORCE 100000 AB REL AIR FORCE
531	Word	Read Only	Error bits 5: Octal Value / Description 000001 DI7 CLOSED ALARM 000002 DI7 OPEN ALARM 000004 DI8 CLOSED ALARM 000010 DI8 OPEN ALARM 000020 PROGRAM ERROR 000040 BAD SHUTDOWN 000100 AI4 LOW LIMIT 000200 AI4 HIGH LIMIT 000400 AI5 LOW LIMIT 001000 AI5 HIGH LIMIT 002000 AI6 LOW LIMIT 004000 AI6 HIGH LIMIT 010000 AI7 LOW LIMIT 020000 AI7 HIGH LIMIT 040000 AI8 LOW LIMIT 100000 AI8 HIGH LIMIT

Parameter	Data Type	Access	Description
532	Word	Read Only	Error bits 6: 000001 RUN UNDER 50% 000002 DIVIDE ERROR 000004 FLUID CALC ERR - x052 000010 LONG LOW LD SPAN - x053 000020 LOW CARD AREA - x054 000040 HIGH CARD AREA - x055 000100 LO-LO LOAD LIMIT - x056 000200 LOAD CONV FAIL - EPIC II - x057 000400 VSD LEARN ERR (P1173) - EPIC II – VSD - x058 001000 HOA Sw = HAND - EPIC II - VSD - x059 002000 VSD Config Error - EPIC II - VSD - x060 004000 HOA Sw = OFF - EPIC II - VSD - x061 010000 PWR-ON STATE OPT - x062 020000 DAC Fail - EPIC II - DAC - x063 040000 VSD OVERTIME - EPIC II - VSD - x064 100000 VSD LO FILLAGE - EPIC II - x065
533	Word	Read Only	Error bits 7 (Host alarms) 000001 GEARBOX TORQUE 000002 MAX LOAD DEVIATION 000004 MIN LOAD DEVIATION 00010 LOAD SPAN DEVIATION 000020 UNIT OUT OF BALANCE 000040 RUN TIME DEVIATION 000100 CARD AREA DEVIATION 000200 LOW PUMPING EFFICIENCY 000400 HIGH ROD STRESS 01000 PRIME MOVER SIZE 002000 HOST ALARM 10 004000 HOST ALARM 11 010000 HOST ALARM 12 020000 HOST ALARM 13 040000 HOST ALARM 14 100000 HOST ALARM 15
535	Word	Read Only	Non-clearable err bits 1: Octal Value Error Display 000001 BAD ROM CRC 000002 BAD COMM BOARD 000004 CONSTANT COM INT 000010 P535-Bit 3 ERR 000020 P535-Bit 4 ERR 000040 P535-Bit 5 ERR 000100 P535-Bit 6 ERR 000200 P535-Bit 7 ERR 000400 BAD POWER STATUS 001000 NO AC POWER 002000 BATTERY LOW

Parameter	Data Type	Access	Description
			004000 P535-Bit 11 ERR 010000 P535-Bit 12 ERR 020000 P535-Bit 13 ERR 040000 P535-Bit 14 ERR 100000 P535-Bit 15 ERR
536	Word	Read Only	Non-clearable err bits 2: Octal Value / Description 000001 NO TOP OF STROKE 000002 P536-Bit 1 ERR 000004 P536-Bit 2 ERR 000010 PARAM 21 MISSING 000020 PARAM 22 INVALID 000040 PARAM 23 MISSING 000100 PARAM 24 MISSING 000200 P536-Bit 7 ERR 000400 P536-Bit 8 ERR 001000 P536-Bit 9 ERR 002000 PARAM 20 MISSING 004000 P536-Bit 11 ERR 010000 P536-Bit 12 ERR 020000 NO POS MEMORY 040000 P536-Bit 14 ERR 100000 P536-Bit 15 ERR
537	Word	Read Only	Non-clearable err bits 3: Octal Value / Description 000001 RESTART NEEDED 000002 BAD EVENT BUFFER 000004 BAD POSITION CAL 000010 P537-Bit 3 ERR 000020 TEMP CONTRL LOSS 000040 P537-Bit 5 ERR 000100 P537-Bit 6 ERR 000200 BAD FLUID PARAM 000400 COMM OUTPUT TEST 001000 I/O ID FAILURE 002000 UNSUPPORTED I/O 004000 NO I/O EXP BOARD 010000 NO EXP COMM BD 020000 P537-Bit 13 ERR 040000 P537-Bit 14 ERR 100000 P537-Bit 15 ERR
540	Byte	Read Only	Worst POC Control state: Value / Description 0 = Normal or Lamp Only if error(s) 1 = Software Timer 2 = Control Transferred by Watchdog Relay 3 = Off Until Reset by Operator

Parameter	Data Type	Access	Description
541	Word	Read Only	Accumulated error bits 1: Octal Value / Description 000001 "CONTROL FAILURE" 000002 " LOW LOAD LIMIT 000004 "HIGH LOAD LIMIT" 000010 "LOW LOAD AVERAGE" 000020 "POS SWITCH FAIL" 000040 "MULTIPLE POS SW" 000100 "CLRD POS SEN PRB" 000200 "CLRD MULP POS SW" 000400 " LOW LOAD SPAN" 001000 "LOAD INPUT FAULT" 002000 "POS SENSOR FAULT" 004000 "CLRD POS SEN PRB" 010000 " NO TIMER VALUE" 020000 " A/D FAILURE" 040000 "MANUAL OFF (31)" 100000 "POC OVERRIDE(27)"
542	Word	Read Only	Accumulated error bits 2: Octal Value / Description 000001 IMMED. PUMPOFF 000002 MIN CYCLE ONTIME 000004 MAX CYCLE ONTIME 000010 MAX DAILY ONTIME 000020 PARAMS INIT'ED 000040 PARAMS EXPANDED 000100 PARMS FROM EEPROM 000200 "EEPROM CELL BAD 000400 EEPROM FAILURE 001000 BAD STATUS VAR 002000 BAD ERROR BIT(S) 004000 ? TIME ? DATE ? 010000 BAD TIME&DATE IC 020000 WRONG LINE FREQ 040000 MANUAL CTRL XFER 100000 MANUAL SOFT TIME
543	Word	Read Only	Accumulated error bits 3: Octal Value / Description 000001 CPU FELL BEHIND 000002 CLRD BAD RTC CHP 000004 MTR OFF TOO LONG 000010 DI1 CLOSED ALARM 000020 DI1 OPEN ALARM 000040 DI2 CLOSED ALARM 000100 DI2 OPEN ALARM 000200 AI1 DIG 0 ALARM 000400 AI1 DIG 1 ALARM

Parameter	Data Type	Access	Description
			001000 AI2 DIG 0 ALARM 002000 AI2 DIG 1 ALARM 004000 AI3 DIG 0 ALARM 010000 AI3 DIG 1 ALARM 020000 HI-HI LOAD LIMIT 040000 REVERSE PUMPOFF 100000 AB AMPS TOO LOW
544	Word	Read Only	Accumulated error bits 4: Octal Value / Description 000001 DI3 CLOSED ALARM 000002 DI3 OPEN ALARM 000004 DI4 CLOSED ALARM 000010 DI4 OPEN ALARM 000020 DI5 CLOSED ALARM 000040 DI5 OPEN ALARM 000100 DI6 CLOSED ALARM 000200 DI6 OPEN ALARM 000400 AI1 LOW LIMIT 001000 AI1 HIGH LIMIT 002000 AI2 LOW LIMIT 004000 AI2 HIGH LIMIT 010000 AI3 LOW LIMIT 020000 AI3 HIGH LIMIT 040000 AB ADD AIR FORCE 100000 AB REL AIR FORCE
545	Word	Read Only	Accumulated error bits 5: Octal Value / Description 000001 DI7 CLOSED ALARM 000002 DI7 OPEN ALARM 000002 DI7 OPEN ALARM 000002 DI7 OPEN ALARM 000004 DI8 CLOSED ALARM 000010 DI8 OPEN ALARM 000020 PROGRAM ERROR 000040 BAD SHUTDOWN 000100 AI4 LOW LIMIT 000200 AI4 HIGH LIMIT 000400 AI5 LOW LIMIT 001000 AI5 HIGH LIMIT 002000 AI6 LOW LIMIT 004000 AI6 HIGH LIMIT 010000 AI7 LOW LIMIT 020000 AI7 HIGH LIMIT 040000 AI8 LOW LIMIT 100000 AI8 HIGH LIMIT
546	Word	Read Only	Accumulated error bits 6:

Parameter	Data Type	Access	Description
			Octal Value / Description
			000001 RUN UNDER 50%
			000002 DIVIDE ERROR
			000004 FLUID CALC ERR
			000010 LONG LOW LD SPAN
			000020 LOW CARD AREA
			000040 HIGH CARD AREA
			000100 LO-LO LOAD LIMIT
			000200 LOAD CONV FAIL - EPIC II
			000400 VSD LEARN ERR (P1173) - EPIC II - VSD
			001000 HOA Sw = HAND - EPIC II - VSD
			002000 VSD Config Error - EPIC II - VSD
			004000 HOA Sw = OFF - EPIC II - VSD
			010000 PWR-ON STATE OPT
			020000 DAC Fail - EPIC II - DAC
			040000 VSD OVERTIME - EPIC II – VSD
			100000 VSD LO FILLAGE - EPIC II
547	Word	Read Only	Accumulated error bits 7 (Host alarms)
			Octal Value / Description
			000001 GEARBOX TORQUE
			000002 MAX LOAD DEVIATION
			000004 MIN LOAD DEVIATION
			000010 LOAD SPAN DEVIATION
			000020 UNIT OUT OF BALANCE
			000040 RUN TIME DEVIATION
			000100 CARD AREA DEVIATION
			000200 LOW PUMPING EFFICIENCY
			000400 HIGH ROD STRESS
			001000 PRIME MOVER SIZE
			002000 HOST ALARM 10
			004000 HOST ALARM 11
			010000 HOST ALARM 12
			020000 HOST ALARM 13
			040000 HOST ALARM 14
			100000 HOST ALARM 15
549	Display	Read Only	Firmware part number
550	Display	Read Only	Firmware source full ID
551	Display	Read Only	Firmware compiled date
552	Display	Read Only	Firmware compiled time
555	Display	Read Only	Controller ID message
556	Command	Read/Write	Rolling unit ID message
557	Word	Read Only	Legacy Unused 8500 Parameter
558	Word	Read Only	Legacy Unused 8500 Parameter
560	Byte	Read/Write	DI 1 closed (ON) action
561	Byte	Read/Write	DI 1 open (OFF) action

Parameter	Data Type	Access	Description
562	Byte	Read/Write	DI 2 closed (ON) action
563	Byte	Read/Write	DI 2 open (OFF) action
564	Byte	Read/Write	DI 3 closed (ON) action
565	Byte	Read/Write	DI 3 open (OFF) action
566	Byte	Read/Write	DI 4 closed (ON) action
567	Byte	Read/Write	DI 4 open (OFF) action
568	Byte	Read/Write	DI 5 closed (ON) action
569	Byte	Read/Write	DI 5 open (OFF) action
570	Byte	Read/Write	DI 6 closed (ON) action
571	Byte	Read/Write	DI 6 open (OFF) action
572	Byte	Read/Write	DI 7 closed (ON) action
573	Byte	Read/Write	DI 7 open (OFF) action
574	Byte	Read/Write	DI 8 closed (ON) action
575	Byte	Read/Write	DI 8 open (OFF) action
578	Word	Read/Write	Non-Functional
579	Word	Read/Write	Non-Functional
580	Word	Read/Write	D/O 1 pulse timer
581	Word	Read/Write	D/O 2 pulse timer
582	Word	Read/Write	D/O 3 pulse timer
583	Word	Read/Write	D/O 4 pulse timer
584	Word	Read/Write	D/O 5 pulse timer
585	Word	Read/Write	D/O 6 pulse timer
586	Word	Read/Write	D/O 7 pulse timer
587	Word	Read/Write	D/O 8 pulse timer
590	Word	Read/Write	D/O 1 pulse ticks (120 ticks = 1 second)
591	Word	Read/Write	D/O 2 pulse ticks (120 ticks = 1 second)
592	Word	Read/Write	D/O 3 pulse ticks (120 ticks = 1 second)
593	Word	Read/Write	D/O 4 pulse ticks (120 ticks = 1 second)
594	Word	Read/Write	D/O 5 pulse ticks (120 ticks = 1 second)
595	Word	Read/Write	D/O 6 pulse ticks (120 ticks = 1 second)
596	Word	Read/Write	D/O 7 pulse ticks (120 ticks = 1 second)
597	Word	Read/Write	D/O 8 pulse ticks (120 ticks = 1 second)
598	Word	Read/Write	D/O ON flag bits: Octal Value / Description 000001 = DIO1 on Flag 000002 = DIO2 on Flag 000004 = DIO3 on Flag 000010 = DIO4 on Flag 000020 = DIO5 on Flag 000040 = DIO6 on Flag

Parameter	Data Type	Access	Description
			000100 = DIO7 on Flag 000200 = DIO8 on Flag
599	Word	Read Only	D/O status bits: Octal Value / Description 000001 = DIO1 Closed 000002 = DIO2 Closed 000004 = DIO3 Closed 000010 = DIO4 Closed 000020 = DIO5 Closed 000040 = DIO6 Closed 000100 = DIO7 Closed 000200 = DIO8 Closed

Parameters 601-900

Parameter	Data Type	Access	Description
601	Byte	Read/Write	Remote data format.
602	Byte	Read/Write	Remote baud rate.
603	Word	Read Only	Communications status bits: Octal Value / Description 000001 = CRC Security 000002 = Large Receive Buffer 000004 = Large Transmit Buffer 000010 = Using Modem 000020 = Communication Out Test
604	Byte	Read/Write	Present MMI data format.
605	Byte	Read/Write	Present MMI baud rate.
606	Byte	Read/Write	Carrier detect ON delay – in ticks.
607	Byte	Read/Write	Carrier detect OFF delay - in ticks.
608	Byte	Read/Write	Carrier detect drop limit - in ticks.
609	Byte	Read/Write	Radio turn ON delay - 30 = 0.25 seconds in ticks.
610	Byte	Read/Write	Radio turn OFF delay - 12 = 0.1 seconds in ticks.
611	Byte	Read/Write	Maximum radio ON time in seconds.
612	Byte	Read/Write	Receive timeout in seconds.
613	Byte	Read/Write	Modem port protocol: Value / Description 0 = 8500 (Remote) 1 = 8550 (Local) 2 = MODBUS ASCII 3 = MODBUS RTU

Parameter	Data Type	Access	Description
614	Byte	Read/Write	Modbus Card Type: Value / Description 0 = Start-up 1 = Live Action 2 = Shutdown 3 = Valve Check
615	Byte	Read/Write	Modbus Card Load option: Value / Description 0 = Pound 1 = Percent
616	Byte	Read/Write	Modbus Card Number: Value / Description 0 = Card 1 1 = Card 2 2 = Card 3 3 = Card 4 4 = Card 5
617	Byte	Read/Write	Modbus Card Position type: Value / Description 0 = Synthesized Fraction 1 = Fractional Actual 2 = Voltage
618	Byte	Read/Write	8500 protocol dyno data format: 0=Original 1=Data Skip
619	Byte	Read/Write	Position data available. The actual position data available from RPC for analysis programs: the operator must enter proper value to provide controller compatibility with host software. Enter value in P619 as follows: 0 = When no continuous position data is available to the controller. 1 = To be used when continuous position input data is available to the controller and 8500 protocol used. 2 = Calibration of the Position Sensor.
620	Word	Read/Write	Communications group address.
621	Word	Read Only	Maximum radio ON time in ticks.
622	Word	Read Only	Maximum transmit message time in ticks.
623	Word	Read Only	Maximum transmit message in bytes.
624	Word	Read Only	transmit buffer size (bytes).

Parameter	Data Type	Access	Description
625	N/A	N/A	Legacy Unused 8500 Parameter.
626	N/A	N/A	Legacy Unused 8500 Parameter.
627	N/A	N/A	Legacy Unused 8500 Parameter.
628	Byte	Read/Write	All address respond time - RPC responds to host inquiries for this time duration. Transmit address is ignored.
629	Command	Read/Write	Clear communications statistics - Clear P630 through P642. Enter to clear.
630	Display	Read Only	Last data received as ASCII.
631	Word	Read/Write	Character errors.
632	Word	Read/Write	Characters received.
633	Word	Read/Write	Header characters received.
634	Word	Read/Write	Trailer characters received.
635	Word	Read/Write	Framed messages received.
636	Word	Read/Write	Good framed messages received.
637	Word	Read/Write	Messages processed.
638	Word	Read/Write	Commands processed.
639	Word	Read/Write	Responses transmitted.
640	Word	Read/Write	Characters transmitted.
641	Word	Read/Write	Maximum Delay time. This is the maximum delay time between receiving a request on the modem port and keying RTS since system reset (maximum value since reset).
642	Word	Read/Write	Last Delay time. This is the time from receiving the last request on the modem port to de-asserting RTS (Last value calculated).
644	Byte	Read/Write	Tx test spacing delay.
645	Byte	Read Only	Last character received.
646	Byte	Read/Write	Tx test data format.
647	Byte	Read/Write	Tx test character.
648	Byte	Read/Write	Tx test time in seconds.
650	Long	Read Only	Current Time of Day – in seconds.
651	Long	Read Only	System Shutdown Time – in seconds.
652	Long	Read Only	System Startup Time – in seconds.
653	Long	Read Only	POC State Change Time – in seconds.
654	Word	Read/Write	Communication parity errors counter.
655	Word	Read/Write	Communication framing errors counter.
656	Word	Read/Write	Communication overrun errors counter.
660	Byte	Read/Write	Cursor location.
661	Byte	Read/Write	LCD Test Timer.
665	N/A	N/A	Legacy Unused 8500 Parameter.
666	N/A	N/A	Legacy Unused 8500 Parameter.

Parameter	Data Type	Access	Description
667	N/A	N/A	Legacy Unused 8500 Parameter.
668	Byte	Read Only	RTC Error code: Value / Description 0 = No Error 1 = Bad Second Interval 2 = Read All 1's 3 = Write Confirm 4 = Cannot Read Same Twice
669	Byte	Read Only	Seconds value from RTC.
670	Time24	Read Only	Today's run time.
671	Time24	Read Only	Yesterday's run time.
672	Time24	Read Only	Run time 2 days ago.
673	Time24	Read Only	Run time 3 days ago.
674	Time24	Read Only	Run time 4 days ago.
675	Time24	Read Only	Run time 5 days ago.
676	Time24	Read Only	Run time 6 days ago.
677	Time24	Read Only	Run time 7 days ago.
678	Time24	Read Only	Run time 8 days ago.
679	Time24	Read Only	Run time 9 days ago.
680	Time24	Read Only	Run time 10 days ago.
681	Time24	Read Only	Run time 11 days ago.
682	Time24	Read Only	Run time 12 days ago.
683	Time24	Read Only	Run time 13 days ago.
684	Time24	Read Only	Run time 14 days ago.
685	Time24	Read Only	Run time 15 days ago.
686	Time24	Read Only	Run time 16 days ago.
687	Time24	Read Only	Run time 17 days ago.
688	Time24	Read Only	Run time 18 days ago.
689	Time24	Read Only	Run time 19 days ago.
690	Time24	Read Only	Run time 20 days ago.
691	Time24	Read Only	Run time 21 days ago.
692	Time24	Read Only	Run time 22 days ago.
693	Time24	Read Only	Run time 23 days ago.
694	Time24	Read Only	Run time 24 days ago.
695	Time24	Read Only	Run time 25 days ago.
696	Time24	Read Only	Run time 26 days ago.
697	Time24	Read Only	Run time 27 days ago.
698	Time24	Read Only	Run time 28 days ago.
699	Time24	Read Only	Run time 29 days ago.

Parameter	Data Type	Access	Description
700	Word	Read Only	AI-4 raw input and volts.
701	Word	Read Only	AI-4 Input value.
702	Word	Read Only	AI-4 Scaled EGU value.
703	Byte	Read/Write	AI-4 Input type.
704	Byte	Read/Write	AI-4 EGU decimal places.
705	Byte	Read/Write	AI-4 EGU label.
706	Word	Read/Write	AI-4 Scaling low value.
707	Word	Read/Write	AI-4 Scaling high value.
708	Word	Read/Write	AI-4 Low alarm limit.
709	Byte	Read/Write	AI-4 Low alarm action 1.
710	Byte	Read/Write	AI-4 Low alarm action 2.
711	Word	Read/Write	AI-4 High alarm limit.
712	Byte	Read/Write	AI-4 High alarm action 1.
713	Byte	Read/Write	AI-4 High alarm action 2.
714	Word	Read/Write	AI-4 Alarms deadband.
715	Word	Read Only	AI-4 Minimum recorded value.
716	Word	Read Only	AI-4 Maximum recorded value.
719	Command	Read/Write	AI-4 Reset minimum/maximum.
720	Word	Read Only	AI-5 raw input and volts.
721	Word	Read Only	AI-5 Input value.
722	Word	Read Only	AI-5 Scaled EGU value.
723	Byte	Read/Write	AI-5 Input type.
724	Byte	Read/Write	AI-5 EGU decimal places.
725	Byte	Read/Write	AI-5 EGU label.
726	Word	Read/Write	AI-5 Scaling low value.
727	Word	Read/Write	AI-5 Scaling high value.
728	Word	Read/Write	AI-5 Low alarm limit.
729	Byte	Read/Write	AI-5 Low alarm action 1.
730	Byte	Read/Write	AI-5 Low alarm action 2.
731	Word	Read/Write	AI-5 High alarm limit.
732	Byte	Read/Write	AI-5 High alarm action 1.
733	Byte	Read/Write	AI-5 High alarm action 2.
734	Word	Read/Write	AI-5 Alarms deadband.
735	Word	Read Only	AI-5 Minimum recorded value.
736	Word	Read Only	AI-5 Maximum recorded value.
739	Command	Read/Write	AI-5 Reset minimum/maximum.
740	Word	Read Only	AI-6 raw input and volts.
741	Word	Read Only	AI-6 Input value.

Parameter	Data Type	Access	Description
742	Word	Read Only	AI-6 Scaled EGU value.
743	Byte	Read/Write	AI-6 Input type.
744	Byte	Read/Write	AI-6 EGU decimal places.
745	Byte	Read/Write	AI-6 EGU label.
746	Word	Read/Write	AI-6 Scaling low value.
747	Word	Read/Write	AI-6 Scaling high value.
748	Word	Read/Write	AI-6 Low alarm limit.
749	Byte	Read/Write	AI-6 Low alarm action 1.
750	Byte	Read/Write	AI-6 Low alarm action 2.
751	Word	Read/Write	AI-6 High alarm limit.
752	Byte	Read/Write	AI-6 High alarm action 1.
753	Byte	Read/Write	AI-6 High alarm action 2.
754	Word	Read/Write	AI-6 Alarms deadband.
755	Word	Read Only	AI-6 Minimum recorded value.
756	Word	Read Only	AI-6 Maximum recorded value.
759	Command	Read/Write	AI-6 Reset minimum/maximum.
760	Word	Read Only	AI-7 raw input and volts.
761	Word	Read Only	AI-7 Input value.
762	Word	Read Only	AI-7 Scaled EGU value.
763	Byte	Read/Write	AI-7 Input type.
764	Byte	Read/Write	AI-7 EGU decimal places.
765	Byte	Read/Write	AI-7 EGU label.
766	Word	Read/Write	AI-7 Scaling low value.
767	Word	Read/Write	AI-7 Scaling high value.
768	Word	Read/Write	AI-7 Low alarm limit.
769	Byte	Read/Write	AI-7 Low alarm action 1.
770	Byte	Read/Write	AI-7 Low alarm action 2.
771	Word	Read/Write	AI-7 High alarm limit.
772	Byte	Read/Write	AI-7 High alarm action 1.
773	Byte	Read/Write	AI-7 High alarm action 2.
774	Word	Read/Write	AI-7 Alarms deadband.
775	Word	Read Only	AI-7 Minimum recorded value.
776	Word	Read Only	AI-7 Maximum recorded value.
779	Command	Read/Write	AI-7 Reset minimum/maximum.
780	Word	Read Only	AI-8 raw input and volts.
781	Word	Read Only	AI-8 Input value.
782	Word	Read Only	AI-8 Scaled EGU value.
783	Byte	Read/Write	AI-8 Input type.

Parameter	Data Type	Access	Description
784	Byte	Read/Write	AI-8 EGU decimal places.
785	Byte	Read/Write	AI-8 EGU label.
786	Word	Read/Write	AI-8 Scaling low value.
787	Word	Read/Write	AI-8 Scaling high value.
788	Word	Read/Write	AI-8 Low alarm limit.
789	Byte	Read/Write	AI-8 Low alarm action 1.
790	Byte	Read/Write	AI-8 Low alarm action 2.
791	Word	Read/Write	AI-8 High alarm limit.
792	Byte	Read/Write	AI-8 High alarm action 1.
793	Byte	Read/Write	AI-8 High alarm action 2.
794	Word	Read/Write	AI-8 Alarms deadband.
795	Word	Read Only	AI-8 Minimum recorded value.
796	Word	Read Only	AI-8 Maximum recorded value.
799	Command	Read/Write	AI-8 Reset minimum/maximum.
800	Byte	Read/Write	Fluid calculation X1 point in %.
801	Byte	Read/Write	Fluid calculation X2 point in %.
802	Byte	Read/Write	Fluid calculation Y1 point in %.
803	Byte	Read/Write	Fluid calculation Y2 point in %.
804	Word	Read Only	Fluid calculated Stroke Length in inches.
805	Byte	Read/Write	Fluid Stroke calculation Method: Value / Description 0 = Disabled 1 = Short Method 2 = Long Method 3 = Full Stroke Short 4 = Full Stroke Long 5 = Preset Stroke
806	Word	Read/Write	Surface stroke(in x 100).
807	Word	Read/Write	Pump bore diameter (in x 100).
808	Word	Read Only	Average surface stroke (in).
809	Word	Read Only	Average fluid stroke (in).
810	Word	Read/Write	Pump efficiency (% * 10).
811	Word	Read Only	Fluid displacement today.
812	Word	Read Only	fluid displacement Yesterday.
813	Word	Read Only	Fluid displacement 2 days ago.
814	Word	Read Only	Fluid displacement 3 days ago.
815	Word	Read Only	Fluid displacement 4 days ago.
816	Word	Read Only	Fluid displacement 5 days ago.
817	Word	Read Only	Fluid displacement 6 days ago.

Parameter	Data Type	Access	Description
818	Word	Read Only	Fluid displacement 7 days ago.
819	Word	Read Only	Fluid displacement 8 days ago.
820	Word	Read Only	Fluid displacement 9 days ago.
821	Word	Read Only	Fluid displacement 10 days ago.
822	Word	Read Only	Fluid displacement 11 days ago.
823	Word	Read Only	Fluid displacement 12 days ago.
824	Word	Read Only	Fluid displacement 13 days ago.
825	Word	Read Only	Fluid displacement 14 days ago.
826	Word	Read Only	Fluid displacement 15 days ago.
827	Word	Read Only	Fluid displacement 16 days ago.
828	Word	Read Only	Fluid displacement 17 days ago.
829	Word	Read Only	Fluid displacement 18 days ago
830	Word	Read Only	Fluid displacement 19 days ago.
831	Word	Read Only	Fluid displacement 20 days ago.
832	Word	Read Only	Fluid displacement 21 days ago.
833	Word	Read Only	Fluid displacement 22 days ago.
834	Word	Read Only	Fluid displacement 23 days ago.
835	Word	Read Only	Fluid displacement 24 days ago.
836	Word	Read Only	Fluid displacement 25 days ago.
837	Word	Read Only	Fluid displacement 26 days ago.
838	Word	Read Only	Fluid displacement 27 days ago.
839	Word	Read Only	Fluid displacement 28 days ago.
840	Word	Read Only	Fluid displacement 29 days ago.
841	Byte	Read/Write	Lower Band Size.
842	Word	Read Only	Fluid calculation error flags.
843	Word	Read/Write	Preset fluid stroke in inches.
844	Byte	Read Only	Current Run Mode.
845	Byte	Read Only	Fluid calculation, Calculated X1.
846	Byte	Read Only	Fluid calculation, Calculated X2.
847	Byte	Read Only	Fluid calculation, Calculated Y1.
848	Byte	Read Only	Fluid calculation, Calculated Y2.
849	Word	Read Only	Fluid Strokes calculated. Timing Control Modes: 0 = Continuous. Unit does not detect pump-off, thereby running all the time. 1 = Pump-Off. Detects Pump-Off condition. 2 = On/Off. Well runs according to programmed run time and turns off. The unit will wait until parameter 20 (Idle Time) expires and then begin a new pumping cycle. 3 = Shutdown. Well is not running.

Parameter	Data Type	Access	Description
850	Time24	Read/Write	Start Time A Weekend (hh:mm:ss).
851	Byte	Read/Write	Run Mode A Weekend (0 – 3).
852	Time24	Read/Write	Run Time A Weekend (hh:mm:ss).
853	Time24	Read/Write	Start Time B Weekend (hh:mm:ss).
854	Byte	Read/Write	Run Mode B Weekend (0 – 3).
855	Time24	Read/Write	Run Time B Weekend (hh:mm:ss).
856	Time24	Read/Write	Start Time A Weekday (hh:mm:ss).
857	Byte	Read/Write	Run Mode A Weekday (0 – 3).
858	Time24	Read/Write	Run Time A Weekday (hh:mm:ss).
859	Time24	Read/Write	Start Time B Weekday (hh:mm:ss).
860	Byte	Read/Write	Run Mode B Weekday (0 – 3).
861	Time24	Read/Write	Run Time B Weekday (hh:mm:ss).
862	Byte	Read/Write	Timer control enable: 0 = Disable 1 = Enable
870	Word	Read/Write	Parameter # for User display 1.
871	Word	Read/Write	Parameter # for User display 2.
872	Word	Read/Write	Parameter # for User display 3.
873	Word	Read/Write	Parameter # for User display 4.
874	Word	Read/Write	Parameter # for User display 5.
875	Word	Read/Write	Parameter # for User display 6.
876	Word	Read/Write	Parameter # for User display 7.
877	Word	Read/Write	Parameter # for User display 8.
878	Word	Read/Write	Parameter # for User display 9.
879	Word	Read/Write	Parameter # for User display 10.
880	Word	Read/Write	Parameter # for User display 11.
881	Word	Read/Write	Parameter # for User display 12
890	Word	Read/Write	Logger channel 1 source.
891	Word	Read/Write	Logger channel 2 source.
892	Word	Read/Write	Logger channel 3 source.
893	Word	Read/Write	Logger channel 4 source.
894	Word	Read/Write	Logger channel 5 source.
895	Word	Read/Write	Logger channel 6 source.
896	Word	Read/Write	Logger channel 7 source.
897	Word	Read/Write	Logger channel 8 source.
898	Byte	Read/Write	Logger freeze channel (Channels 1 – 8).
899	Command	Read/Write	Clear Logger History. Enter to Clear.
900	Word	Read Only	Hour log freeze buffer 00.

Parameters 901-1180

Parameter	Data Type	Access	Description
901	Word	Read Only	Hour log freeze buffer 01.
902	Word	Read Only	Hour log freeze buffer 02.
903	Word	Read Only	Hour log freeze buffer 03.
904	Word	Read Only	Hour log freeze buffer 04.
905	Word	Read Only	Hour log freeze buffer 05.
906	Word	Read Only	Hour log freeze buffer 06.
907	Word	Read Only	Hour log freeze buffer 07.
908	Word	Read Only	Hour log freeze buffer 08.
909	Word	Read Only	Hour log freeze buffer 09.
910	Word	Read Only	Hour log freeze buffer 10.
911	Word	Read Only	Hour log freeze buffer 11.
912	Word	Read Only	Hour log freeze buffer 12.
913	Word	Read Only	Hour log freeze buffer 13.
914	Word	Read Only	Hour log freeze buffer 14.
915	Word	Read Only	Hour log freeze buffer 15.
916	Word	Read Only	Hour log freeze buffer 16.
917	Word	Read Only	Hour log freeze buffer 17.
918	Word	Read Only	Hour log freeze buffer 18.
919	Word	Read Only	Hour log freeze buffer 19.
920	Word	Read Only	Hour log freeze buffer 20.
921	Word	Read Only	Hour log freeze buffer 21.
922	Word	Read Only	Hour log freeze buffer 22.
923	Word	Read Only	Hour log freeze buffer 23.
930	Word	Read Only	Daily log freeze buffer 00.
931	Word	Read Only	Daily log freeze buffer 01.
932	Word	Read Only	Daily log freeze buffer 02.
933	Word	Read Only	Daily log freeze buffer 03.
934	Word	Read Only	Daily log freeze buffer 04.
935	Word	Read Only	Daily log freeze buffer 05.
936	Word	Read Only	Daily log freeze buffer 06.
937	Word	Read Only	Daily log freeze buffer 07.
938	Word	Read Only	Daily log freeze buffer 08.
939	Word	Read Only	Daily log freeze buffer 09.
940	Word	Read Only	Daily log freeze buffer 10.
941	Word	Read Only	Daily log freeze buffer 11.
942	Word	Read Only	Daily log freeze buffer 12.
943	Word	Read Only	Daily log freeze buffer 13.

Parameter	Data Type	Access	Description
944	Word	Read Only	Daily log freeze buffer 14.
945	Word	Read Only	Daily log freeze buffer 15.
946	Word	Read Only	Daily log freeze buffer 16.
947	Word	Read Only	Daily log freeze buffer 17.
948	Word	Read Only	Daily log freeze buffer 18.
949	Word	Read Only	Daily log freeze buffer 19.
950	Word	Read Only	Daily log freeze buffer 20.
951	Word	Read Only	Daily log freeze buffer 21.
952	Word	Read Only	Daily log freeze buffer 22.
953	Word	Read Only	Daily log freeze buffer 23.
954	Word	Read Only	Daily log freeze buffer 24.
955	Word	Read Only	Daily log freeze buffer 25.
956	Word	Read Only	Daily log freeze buffer 26.
957	Word	Read Only	Daily log freeze buffer 27.
958	Word	Read Only	Daily log freeze buffer 28.
959	Word	Read Only	Daily log freeze buffer 29.
968	Byte	Read Only	Current Runtime Segment.
969	Byte	Read/Write	Runtime Freeze Segment: 0 = Current Segment 1 = 00:00 – 04:00 2 = 04:00 – 08:00 3 = 08:00 – 12:00 4 = 12:00 – 16:00 5 = 16:00 – 20:00 6 = 20:00 – 24:00
970	Time24	Read Only	Runtime Freeze Buffer 00.
971	Time24	Read Only	Runtime Freeze Buffer 01.
972	Time24	Read Only	Runtime Freeze Buffer 02.
973	Time24	Read Only	Runtime Freeze Buffer 03.
974	Time24	Read Only	Runtime Freeze Buffer 04.
975	Time24	Read Only	Runtime Freeze Buffer 05.
976	Time24	Read Only	Runtime Freeze Buffer 06.
977	Time24	Read Only	Runtime Freeze Buffer 07.
978	Time24	Read Only	Runtime Freeze Buffer 08.
979	Time24	Read Only	Runtime Freeze Buffer 09.
980	Time24	Read Only	Runtime Freeze Buffer 10.
981	Time24	Read Only	Runtime Freeze Buffer 11.
982	Time24	Read Only	Runtime Freeze Buffer 12.
983	Time24	Read Only	Runtime Freeze Buffer 13.
984	Time24	Read Only	Runtime Freeze Buffer 14.

Parameter	Data Type	Access	Description
985	Time24	Read Only	Runtime Freeze Buffer 15.
986	Time24	Read Only	Runtime Freeze Buffer 16.
987	Time24	Read Only	Runtime Freeze Buffer 17.
988	Time24	Read Only	Runtime Freeze Buffer 18.
989	Time24	Read Only	Runtime Freeze Buffer 19.
990	Time24	Read Only	Runtime Freeze Buffer 20.
991	Time24	Read Only	Runtime Freeze Buffer 21.
992	Time24	Read Only	Runtime Freeze Buffer 22.
993	Time24	Read Only	Runtime Freeze Buffer 23.
994	Time24	Read Only	Runtime Freeze Buffer 24.
995	Time24	Read Only	Runtime Freeze Buffer 25.
996	Time24	Read Only	Runtime Freeze Buffer 26.
997	Time24	Read Only	Runtime Freeze Buffer 27.
998	Time24	Read Only	Runtime Freeze Buffer 28.
999	Time24	Read Only	Runtime Freeze Buffer 29.
1000	Byte	Read/Write	Host alarm 00 action.
1001	Byte	Read/Write	Host alarm 01 action.
1002	Byte	Read/Write	Host alarm 02 action.
1003	Byte	Read/Write	Host alarm 03 action.
1004	Byte	Read/Write	Host alarm 04 action.
1005	Byte	Read/Write	Host alarm 05 action.
1006	Byte	Read/Write	Host alarm 06 action.
1007	Byte	Read/Write	Host alarm 07 action.
1008	Byte	Read/Write	Host alarm 08 action.
1009	Byte	Read/Write	Host alarm 09 action.
1010	Byte	Read/Write	Host alarm 10 action.
1011	Byte	Read/Write	Host alarm 11 action.
1012	Byte	Read/Write	Host alarm 12 action.
1013	Byte	Read/Write	Host alarm 13 action.
1014	Byte	Read/Write	Host alarm 14 action.
1015	Byte	Read/Write	Host alarm 15 action.
1016	Byte	Read/Write	Set Host alarm: "Host Alarm 00" - "Gearbox Torque" "Host Alarm 01" - "Maximum Load Deviation" "Host Alarm 02" - "Maximum Load Deviation" "Host Alarm 03" - "Minimum Load Deviation" "Host Alarm 04" - "Load Span Deviation" "Host Alarm 05" - "Out of Balance" "Host Alarm 06" - "Run Time Deviation" "Host Alarm 07" - "Card Area Deviation"

Parameter	Data Type	Access	Description
			"Host Alarm 08" - "Low Pumping Efficiency" "Host Alarm 09" - "High Rod Stress" "Host Alarm 10" - "Prime Mover Size" "Host Alarm 11-16" - --Undefined Spares--"
1020	Time24	Read Only	Traveling Valve Buffer time.
1021	Date	Read Only	Traveling Valve Buffer date.
1022	Time24	Read Only	Standing Valve Buffer time.
1023	Date	Read Only	Standing Valve Buffer date.
1024	Word	Read Only	Traveling Valve value in pounds.
1025	Time24	Read Only	Traveling Valve value time.
1026	Date	Read Only	Traveling Valve value date.
1027	Word	Read Only	Standing Valve value in pounds.
1028	Time24	Read Only	Standing Valve value time.
1029	Date	Read Only	Standing Valve value date.
1030	Word	Read Only	CBE Value in pounds.
1031	Time24	Read Only	CBE Value time.
1032	Date	Read Only	CBE Value date.
1033	Byte	Read Only	CBE Crank Angle Flag: 0 = Crank at 90 deg. 1 = Crank at 270 deg.
1040-1152	N/A	N/A	Internal Scratch-Pad use. Not an operator parameter.
1153	Word	Read/Write	PS_intr_flag @ BOS.
1154	Word	Read/Write	PS_intr_flag (LIVE).
1155	Word	Read/Write	BOS w/ Psw IntrFlag=0 ctr.
1156	Word	Read/Write	PSW Intr Semafore ctr.
1157	Word	Read/Write	P34 shadow var.
1158	Word	Read/Write	BOS w/ PswIntrFlag=255 ctr.
1159	Word	Read Only	Last stroke data count.
1160	Word	Read Only	SigBottom ctr FindBot.
1161	Word	Read Only	Position in SigBottom.
1162	Word	Read/Write	Minimum Stroke DataCount.
1163	Word	Read Only	BOS ctr f/TMP CTL Loss.
1164	Command	Read/Write	Clear Diags Cmd.
1165	Word	Read/Write	First Strokes Counted.
1166	Word	Read/Write	Stroke Increment.
1167	Long	Read/Write	Daily Total Vol (cu. in* 10).
1168	Long	Read/Write	Last Pump Vol (cu. in* 10).
1169	Long	Read/Write	Daily Stroke Acc (inch* 100).
1170	Long	Read/Write	Surface Stroke Acc (inch* 100).

Parameter	Data Type	Access	Description
1171	Long	Read/Write	Long Dbg Param.
1172	Long	Read/Write	Long Dbg Param.
1173	Word	Read/Write	Stroke Incr >1 Counter.
1174	Word	Read/Write	Maximum Stroke Increment.
1175	Word	Read/Write	Minimum fluid stroke length.
1176	Word	Read/Write	Maximum fluid stroke length.
1177	Word	Read/Write	1st Stroke Conted=0 counter.
1178	Word	Read/Write	Unused fluid calc param.
1179	Word	Read/Write	Unused fluid calc param.
1180	Byte	Read/Write	FP Catch-up Calc.

M2000 Parameter Listings

For information on a specific range of parameters, select a link from the list below.

Parameter Listings 1-300
Parameter Listings 309-600
Parameter Listings 601-862

🔵 *For additional parameter details, refer to the device's User Manual.*

Parameters 1-300

Parameter	Data Type	Access	Description
1	Word	Read/Write	Password - Operator Entry
2	Word	Read/Write	Device Address [4094]
3	Time	Read/Write	Time of Day: hh:mm:ss [am/pm]
4	Date	Read/Write	Current Date: mm/dd/yy mmm dd, yyyy
5	Byte	Read/Write	Current Day of Week
6	Command	Read/Write	Manually Mark TOS
7	Command	Read/Write	Mark Top of Stroke (TOS)
8	Display	Read Only	TOS to PSW fract of str
14	Byte	Read/Write	Load Engineering Units: Value / Description 0 = Pounds 1 = Kg. Metric
15	Byte	Read/Write	Month Format: Value / Description 0 = Numeric 1 = Alphabetic
16	Byte	Read/Write	Time Format: Value / Description 0 = Military 1 = AM/PM
17	Byte	Read/Write	Run Time Format: Value / Description 0 = Hours only 1 = Days / Hours
18	Byte	Read/Write	Clock Source AC Power [1].
19	Byte	Read/Write	Clock Source on Battery Backup [1]: Value/Description 1 = Real-time Clock

Parameter	Data Type	Access	Description
20	Time	Read/Write	Idle Time [00:05:00]
21	Byte	Read/Write	POC Position Limit Line Percent
23	Byte	Read/Write	POC Load Limit Line Percentage
24	Byte	Read/Write	Pump-off strokes for idle time
25	Time	Read/Write	Pump-up Delay Time
26	Byte	Read/Write	POC Method: Value / Description 0 = Quadrant Method - Lower RH 1 = Point Method - Along Base Line 2 = Reverse POC using Method 0 3 = Reverse POC using Method 1 4 = ESP Only (Disables POC for RPC use) 8 = Quadrant Method - Upper LH 9 = Point Method - Upper (100%) Line 10 = Reverse POC using Method 8 11 = Reverse POC using Method 9
27	Time	Read/Write	POC Override Timer
28	Byte	Read/Write	Override Timer Power-up Clear Flag [1]: Value / Description 0 = No 1 = Yes
29	Byte	Read/Write	Timer Status: Value / Description 0 = No 1 = Yes
30	Byte	Read/Write	Command ACF Status: Value / Description 0 = Not On 1 = On
31	Command	Read/Write	Force Off Until Reset
32	Command	Read/Write	Force Control Transfer
33	Command	Read/Write	Force Software Timer
34	Byte	Read/Write	POC Position Sensor Type: 0 = Position Switch 1 = Continuous Position
35	Byte	Read/Write	Load Sensor Type: 0 = Load Cell 1 = Strain Gauge
36	Time	Read/Write	Target Cycle Time
37	Byte	Read/Write	Cycle Time Adjust [2]: Value / Description 0 = Disable with No Fault Lamp 1 = Disable with Fault Lamp 2 = Enable with No Fault Lamp

Parameter	Data Type	Access	Description
			3 = Enable with Fault Lamp
38	Time	Read/Write	Motor Off Time Limit.
39	Byte	Read/Write	Enable/Disable Restart Protection: Value / Description 0 = Disable 1 = Enable - Off Until Reset is action when enabled
40	Byte	Read/Write	Air Balance Control Goal %
41	Byte	Read/Write	ABC Deadband Percentage
42	Word	Read Only	Upstroke Peak Value
43	Word	Read Only	Downstroke Peak Value
44	Word	Read Only	Air Balance Peak Difference
45	Word	Read Only	Air Balance Peak Difference
46	Word	Read/Write	ABC Purge Enable Time
50	Byte	Read/Write	Peak Energy Control Enable Flag: Value / Description 0 = Disabled 1 = Enabled
51	Time	Read/Write	Begin Run Inhibit Time
52	Time	Read/Write	End Run Inhibit Time
53	Time	Read/Write	AC Power Fail Restart
63	Byte	Read/Write	Dynamometer Reference Point (Target Type): Value / Description 0 = Cycle minimum 1 = Cycle average 2 = Cycle maximum
64	Byte	Read/Write	Conditions Required for Auto-Self: Value / Description 0 = If running tracking with valid load span 1 = If unit running 2 = At all times
65	Word	Read/Write	Cycle Minimum Load "Target"
66	Word	Read/Write	Cycle Average Load "Target"
67	Word	Read/Write	Cycle Maximum Load "Target"
68	Word	Read/Write	Reference Adjust Limit
69	Word	Read Only	Tracking Step Limit
70	Command	Read/Write	Load Sensor "Zero Set" Command
71	Word	Read/Write	Load Sensor Offset
72	Display	Read Only	Load Sensor Offset
73	Word	Read/Write	Dead Weight Load Value
74	Word	Read/Write	Load Sensor Gain [1500]
75	Display	Read Only	Display of Load Cell Gain

Parameter	Data Type	Access	Description
76	Word	Read Only	Current Load Sensor Input
77	Word	Read Only	Current Load Sensor Input
78	Word	Read Only	Current Load Sensor Input
79	Word	Read Only	Load Min. Over Last Cycle
80	Word	Read Only	Load Max. Over Last Cycle
83	Word	Read Only	Load Minimum Since Last Pump Start
84	Word	Read Only	Load Maximum Since Last Pump Start
85	Word	Read Only	Load Minimum Since Power Up
86	Word	Read Only	Load Maximum Since Power Up
87	Word	Read Only	Load Span Over Last Cycle
88	Word	Read Only	Lowest Since Power Up
89	Word	Read Only	Load Average Over Last Cycle
90	Word	Read Only	Lowest Load Average Since Power Up
91	Word	Read Only	Highest Load Average Since Power Up
92	Word	Read Only	Load Minimum Since Power Up
93	Word	Read Only	Load Maximum Since Power Up
94	Command	Read/Write	Reset Minimum / Maximum Loads
95	Word	Read Only	Failure A/D Channel
96	Word	Read Only	Failure Value
97	Word	Read Only	Lower Limit to Scaled Values
98	Word	Read Only	Lower Limit to Scaled Values
102	Word	Read Only	Position Sensor Input
103	Word	Read Only	Current Position Sensor Input
104	Word	Read Only	Position Sensor Minimum Input over Cycle
105	Word	Read Only	Position Sensor Maximum Input over Cycle
106	Word	Read Only	Input Signal Span over Cycle
107	Word	Read Only	Filtered Input Cycle Span
108	Word	Read/Write	Debounce Time in Ticks
109	Byte	Read Only	Bottoms with No Continuous Position Faults
110	Word	Read/Write	Time (Ticks / Seconds) from BOS to Well Bottom Call
111	Word	Read/Write	Minimum Time (Ticks / Sec.) to Well Bottom Call
112	Word	Read/Write	Maximum Time (Ticks / Sec.) to Well Bottom Call
113	Byte	Read/Write	MK-II Compensate Pos
114	Byte	Read/Write	Load Signal Delay (For use when using DPS with MarkII units): 0 = 0 ms 1 = 50 ms 2 = 100 ms 3 = 150 ms 4 = 200 ms 5 = 250 ms

Parameter	Data Type	Access	Description
			6 = 300 ms
			7 = 350 ms
115	Byte	Read/Write	Number of cycles if P225 = "Go to idle" for stage 1 [0]
116	Byte	Read/Write	Low load span counter
117	Byte	Read/Write	Number of cycles allowed before "Off before reset"
120	Word	Read/Write	Scratch Pad Word 1
121	Word	Read/Write	Scratch Pad Word 2
122	Word	Read/Write	Scratch Pad Word 3
123	Word	Read/Write	Scratch Pad Word 4
124	Word	Read/Write	Scratch Pad Word 5
125	Byte	Read/Write	Good Cycle Intervals Required [10]
128	Byte	Read/Write	No. of Good Input Cycles to Recover after Fault [5]
129	Byte	Read/Write	Display Fault Message if a position switch is cleared
130	Word	Read/Write	Fraction of Stroke from Top Of Stroke
131	Command	Read/Write	Reset RPC for Reverse Rotation
132	Word	Read Only	Last Position Switch Filtered Interval
134	Byte	Read/Write	Position Switch Opening Debounce Interval [120]
135	Byte	Read/Write	Use Position Switch Closing
136	Byte	Read/Write	Minimum Allowable Percent Cycle Time Deviation [80]
137	Byte	Read/Write	Maximum Allowable Percent Cycle Time Deviation [125]
138	Byte	Read Only	Good Intervals Cycle Counter
139	Word	Read Only	Time Interval for Last Stroke
140	Word	Read Only	Filtered Time Interval for Last Stroke
141	Word	Read Only	Last Position Switch Interval SPM
142	Word	Read Only	Last Filtered Stroke Interval SPM
143	Byte	Read Only	Bottom of Stroke (BOS) Counter
144	Byte	Read Only	Current Position Switch
145	Word	Read Only	Last Debounce Closed Interval
146	Word	Read Only	Position Switch Closing Counter (Ticks / Seconds)
147	Word	Read Only	Debounced Switches Since Last Turn Off/On
148	Byte	Read Only	BOS with No Position Switch Faults
149	Command	Read/Write	Reset all Well Cycle (SPM) Info
150	Byte	Read/Write	AC Power Frequency [60]
151	Byte	Read Only	Power-Up Frequency
152	Long	Read Only	Present Frequency
153	Long	Read Only	Lowest Frequency
154	Long	Read Only	Highest Frequency
155	Long	Read Only	Average Frequency
156	Long	Read Only	Lowest Averaged Frequency

Parameter	Data Type	Access	Description
157	Long	Read Only	Highest Averaged Frequency
158	Command	Read/Write	Reset Frequency Displays
159	Byte	Read/Write	Frequency Averaging Period
160	Word	Read Only	AI1 Raw A/D Channel Value
161	Word	Read Only	AI1 Current Input Value
162	Word	Read Only	AI1 Lowest Recorded Input Value
163	Word	Read Only	AI1 Highest Recorded Input Value
164	Word	Read Only	AI1 Input Value Averaged over Cycle
165	Word	Read Only	AI1 Lowest Averaged Input Value
166	Word	Read Only	AI1 Highest Averaged input Value
167	Command	Read/Write	Reset AI1 Highs and Lows
168	Word	Read/Write	Latching AI Alarms: Analog Latch [0] bit corresponding to analog number can be set to latch on alarm
170	Word	Read/Write	DO 1 on Timer
171	Word	Read/Write	DO 2 on Timer or P178 & P179 (Both DO 1 & 2)
172	Byte	Read/Write	DO 1 on Flag
173	Byte	Read/Write	DO 2 on Flag Command (Both DO 1 & 2)
178	Word	Read/Write	DO 1 Pulsed No. of Ticks Number of ticks equal to pulse duration required (Tick = 1/120)
179	Word	Read/Write	DO 2 Pulsed No. of Ticks
180	Word	Read Only	DI Octal Value Summation: Octal Value / Description 000001 = DI1 Selected 000002 = DI2 Selected 000004 = DI3 Selected 000010 = DI4 Selected 000020 = DI5 Selected 000040 = DI6 Selected 000100 = DI7 Selected 000200 = DI8 Selected
181	Word	Read/Write	DI 1 Low Accumulator
182	Word	Read/Write	DI 1 High Accumulator
183	Word	Read/Write	DI 2 Low Accumulator
184	Word	Read/Write	DI 2 High Accumulator
185	Word	Read/Write	DI 3 Low Accumulator
186	Word	Read/Write	DI 3 High Accumulator
187	Word	Read/Write	DI 4 Low Accumulator
188	Word	Read/Write	DI 4 High Accumulator
189	Word	Read/Write	DI 5 Low Accumulator
190	Word	Read/Write	DI 5 High Accumulator

Parameter	Data Type	Access	Description
191	Word	Read/Write	DI 6 Low Accumulator
192	Word	Read/Write	DI 6 High Accumulator
193	Word	Read Only	AI as DI Octal Value Summation: Octal Value / Description 000004 = AI1 Selected 000010 = AI2 Selected
194	Word	Read/Write	AI 1 Low Accumulator
195	Word	Read/Write	AI 1 High Accumulator
196	Word	Read/Write	AI 2 Low Accumulator
197	Word	Read/Write	AI 2 High Accumulator
198	Word	Read/Write	AI 3 Low Accumulator
199	Word	Read/Write	AI 3 High Accumulator
200	Byte	Read/Write	Sensor Failure Action [1]
204	Byte	Read/Write	Number of cycles used to set run time average [6]
205	Time	Read Only	"Run Time" Determined from Number of Cycles
206	Time	Read/Write	Manual Software Run Time (hh:mm:ss)
207	Time	Read Only	Latest Averaged Run Time since Power Up
210	Word	Read/Write	Lower Load Limit
211	Word	Read/Write	Upper Load Limit
212	Word	Read/Write	Lowest Allowed Average Load
213	Byte	Read/Write	Required Consecutive Load Violations
214	Byte	Read/Write	Load Violation Action [3]
215	Byte	Read/Write	Entry Deglitch Time in Readings [2]
216	Byte	Read/Write	Exit Deglitch Time in Readings [3]
217	Word	Read/Write	Deadband [1000]
218	Word	Read/Write	Immediate Upper Load Limit
219	Byte	Read/Write	Action for P218 Limit Violation
220	Byte	Read/Write	Power Fail "Off Time Multiplier" (0.1 units). This disables low load span and cycle run time for a set period, and is determined by actual power off interval times.
221	Time	Read/Write	Multiplied Power Fail Maximum Time Limit [72:00:00]: hh:mm:ss - 72:00:00 = 3 Days
222	Byte	Read/Write	Number of Low Load Span Violations before Action [10]
223	Word	Read/Write	Valid Minimum Load Span
225	Byte	Read/Write	Low Load Span Action [3]
226	Time	Read/Write	Well Off Timer
227	Time	Read/Write	Well On Timer
228	Byte	Read/Write	# of pump offs required before P227 will be cleared
230	Byte	Read/Write	Number of Consecutive "Immediate" [3]

Parameter	Data Type	Access	Description
231	Byte	Read/Write	Immediate Pump-Off Action Run Times
232	Time	Read/Write	Minimum Cycle Run Time Allowable [00:00:00] hh:mm:ss - Set to zero to disable
233	Byte	Read/Write	Number of Consecutive Minimum run Times Violations before Action [2]
234	Byte	Read/Write	Minimum Cycle Run Time Violation
235	Time	Read/Write	Maximum Cycle Run Time Allowable hh:mm:ss - Set to zero to disable
236	Byte	Read/Write	Maximum Cycle Run Time Violation hh:mm:ss - Fault Message "MAX CYCLE Action ON TIME"
237	Time	Read/Write	Maximum Daily Run Time hh:mm:ss - Not used if set to 00:00:00
238	Byte	Read/Write	Maximum Daily Run Time Action.
239	Time	Read/Write	Well Off Timer
240	Time	Read/Write	Well On Time
241	Byte	Read/Write	Pump-off(s) to clear P240
242	Time	Read Only	Qualified Cycle On Timer
243	Time	Read Only	Qualified Daily On Timer
245	Byte	Read/Write	Dummy Parameter
246	Byte	Read/Write	Dummy Parameter
247	Byte	Read/Write	Dummy Parameter
248	Byte	Read/Write	Dummy Parameter
249	Byte	Read/Write	AI1 Low Action [7]
250	Byte	Read/Write	AI1 High Action [7]
251	Byte	Read/Write	AI2 Low Action [7]
252	Byte	Read/Write	AI2 High Action [7]
253	Byte	Read/Write	AI3 Low Action [7]
254	Byte	Read/Write	AI3 High Action [7]
260	Byte	Read/Write	Control Failure Action [2]
261	Time	Read/Write	Control Failure Timeout [00:04:00] Must be set to at least 30 seconds less than P20. Delay (Sec) before expected.
262	Byte	Read/Write	Pump-On Sensing Delay Delay (Sec) before expected running after start-up. Delay (Sec) before expected stop.
263	Byte	Read/Write	Pump-Turn Off Sensing Delay [30] Delay (Sec) before expected stop after turned off.
270	Word	Read/Write	Minimum Allowable Span
271	Word	Read/Write	Minimum Allowable Input Signal
272	Word	Read/Write	Maximum Allowable Input Signal

Parameter	Data Type	Access	Description
273	Byte	Read/Write	Position Signal Fault Period
280	Word	Read Only	Raw A/D Channel Value
281	Word	Read Only	Input Value - Offset volts
282	Word	Read Only	Input Value - EGU
283	Byte	Read/Write	AI1 Type
284	Byte	Read/Write	AI1 Decimal Places [3]
285	Byte	Read/Write	AI1 EGU Label [9]
286	Word	Read/Write	Low Value Scaling
287	Word	Read/Write	High Value Scaling
288	Word	Read/Write	Lower Alarm Limit
289	Byte	Read/Write	Lower Alarm Action 1
290	Byte	Read/Write	Lower Alarm Action 2
291	Word	Read/Write	Upper Alarm Limit
292	Byte	Read/Write	Upper Alarm Action 1
293	Byte	Read/Write	Upper Alarm Action 2
294	Word	Read/Write	Upper Alarm Limit
295	Word	Read Only	Lowest Recorded Input Value
296	Word	Read Only	Highest Recorded Input Value
297	Word	Read Only	Input Value Averaged Over Cycle
298	Word	Read Only	Lowest Averaged Input Value
299	Word	Read Only	Highest Averaged Input Value
300	Command	Read/Write	Reset AI1 Highs and Lows

Parameters 309-600

Parameter	Data Type	Access	Description
309	Word	Read Write	Extra Analogs - Status Bits: Octal Value / Description 000001 = Extra Channel 1 Low Alarm 000002 = Extra Channel 2 Low Alarm 000004 = Extra Channel 1 High Alarm 000010 = Extra Channel 2 High Alarm
310	Word	Read Only	Raw A/D Channel Value
311	Word	Read Only	Input Value
312	Word	Read Only	Input Value - EGU
313	Byte	Read	AI2 Analog Input Type

Parameter	Data Type	Access	Description
		Write	
314	Byte	Read Write	AI2 Decimal Places [3]
315	Byte	Read Write	AI2 EGU Label [9]
316	Word	Read Write	Low Value Scaling
317	Word	Read Write	High Value Scaling
318	Word	Read Write	Lower Alarm Limit
319	Byte	Read Write	Lower Alarm Action 1
320	Byte	Read Write	Lower Alarm Action 2
321	Word	Read Write	Upper Alarm Limit
322	Byte	Read Write	Upper Alarm Action 1
323	Byte	Read Write	Upper Alarm Action 2
324	Word	Read Write	Upper Alarm Limit
325	Word	Read Only	Lowest Recorded Input Value
326	Word	Read Only	Highest Recorded Input Value
329	Command	Read Write	Reset AI2 Highs and Lows
330	Word	Read Only	Raw A/D Channel Value
331	Word	Read Only	Input Value
332	Word	Read Only	Scaled EGU Input Value
333	Byte	Read Write	AI3 Analog Input Type
334	Byte	Read Write	AI3 Decimal Places [3]
335	Byte	Read Write	AI3 EGU Label [9]
336	Word	Read Write	Scaling Low Value

Parameter	Data Type	Access	Description
337	Word	Read Write	Scaling High Value
338	Word	Read Write	Lower Alarm Limit
339	Byte	Read Write	Lower Alarm Action 1
340	Byte	Read Write	Lower Alarm Action 2
341	Word	Read Write	Upper Alarm Limit
342	Byte	Read Write	Upper Alarm Action 1
343	Byte	Read Write	Upper Alarm Action 2
344	Word	Read Write	Alarms Deadband
345	Word	Read Only	Lowest Recorded Input Value
346	Word	Read Only	Highest Recorded Input Value
349	Command	Read Write	Reset AI3 Highs and Lows
350	Command	Read Write	Turn Fault Lamp on for 15 Second Test
351	Command	Read Write	Force Controller Software Reset
352	Command	Read Write	Output Last Rolling Display
355	Byte	Read Write	Minimum Number to Reserve for Faults [2]
356	Byte	Read Write	Minimum Number to Reserve for Alarms [2]
357	Word	Read Write	Alarm Enable Bits 0 - 15
358	Word	Read Write	Alarm Enable Bits 16 - 31
359	Word	Read Write	Alarm Enable Bits 32 - 47
360	Word	Read Write	Alarm Enable Bits 48 - 63
361	Word	Read Write	Alarm Enable Bits 64 - 79
362	Word	Read	Alarm Enable Bits 80 - 82

Parameter	Data Type	Access	Description
		Write	
365	Command	Read Write	Create Event Command
366	Command	Read Write	Clear Event Buffer
370	Display	Read Only	Pump-Off Position referenced to Setpoint Load
371	Display	Read Only	Pump-Off Load referenced to Setpoint Position
372	Display	Read Only	Display of P370 or P371
373	Word	Read Only	Estimated Position Value for Pump-Off
375	Word	Read Only	Estimated Load Value for Pump-Off
376	Word	Read Only	Load Value at Pump-Off Point/Area
390	Time	Read Only	Time of Last Fatal Error or AC Power Fail
391	Date	Read Only	Date of Last Fatal Error or AC Power Fail
392	Time	Read Only	Time of Last Complete Initialization
393	Date	Read Only	Date of Last Complete Initialization
394	Time	Read Only	Interval of Last Fatal Error or Power Fail
395	Long	Read Only	Last fatal error address
396	Time	Read Only	Time of Last Control State Change
397	Date	Read Only	Date of Last Control State Change
398	Word	Read Only	Days Counter
399	Time	Read Only	Rollover Counter
400	Time	Read Only	Current Run Time Interval Counter
401	Time	Read Only	Last Run Time Interval
402	Time	Read Only	Run Time Interval two Cycles back

Parameter	Data Type	Access	Description
403	Time	Read Only	Run Time Interval three Cycles back
404	Time	Read Only	Run Time Interval four Cycles back
405	Time	Read Only	Run Time Interval five Cycles back
406	Time	Read Only	Run Time Interval six Cycles back
407	Time	Read Only	Run Time Interval seven Cycles back
408	Time	Read Only	Run Time Interval eight Cycles back
409	Time	Read Only	Run Time Interval nine Cycles back
410	Time	Read Only	Run Time Interval ten Cycles back
411	Time	Read Only	Run Time Interval eleven Cycles back
412	Time	Read Only	Run Time Interval twelve Cycles back
413	Time	Read Only	Run Time Interval thirteen Cycles back
414	Time	Read Only	Run Time Interval fourteen Cycles back
415	Time	Read Only	Run Time Interval fifteen Cycles back
416	Time	Read Only	Run Time Interval sixteen Cycles back
417	Time	Read Only	Run Time Interval seventeen Cycles back
418	Byte	Read Only	Number of Previous Normal Pump-Off Cycles
419	Time	Read Only	Latest Pump-Off Time Interval Counter
420	Time	Read Only	Today's Accumulated Run Time
421	Time	Read Only	Yesterdays Total Accumulated Run Time
422	Time	Read Only	Run Time Two Days Ago
423	Time	Read Only	Run Time Three Days Ago
424	Time	Read	Run Time Four Days Ago

Parameter	Data Type	Access	Description
		Only	
425	Time	Read Only	Run Time Five Days Ago
426	Time	Read Only	Run Time Six Days Ago
427	Time	Read Only	Run Time Seven Days Ago Gauge Times
429	Time	Read Write	Gauge Period, Daily Start Time
430	Word	Read Only	Present Undisturbed Pump-Off(s) in Gauge Time
431	Word	Read Only	Previous Gauge Time Undisturbed Pump-Off(s)
432	Time	Read Only	Present Undisturbed On-Time (Average)
433	Time	Read Only	Previous Gauge Time Undisturbed On-Time
434	Time	Read Only	Time Remaining Until Next Gauge Time
439	Time	Read Only	Present Undisturbed On-Time
440	Byte	Read Only	Run Times Circular Buffer Pointer
441	Date	Read Only	Present Gauge Period Starting Date
442	Time	Read Only	Run Times Circular Buffer
443	Time	Read Only	Run Times Circular Buffer
444	Time	Read Only	Run Times Circular Buffer
445	Time	Read Only	Run Times Circular Buffer
446	Time	Read Only	Run Times Circular Buffer
447	Time	Read Only	Run Times Circular Buffer
448	Time	Read Only	Run Times Circular Buffer
449	Time	Read Only	Run Times Circular Buffer
450	Word	Read Only	Zero Channel Raw Input

Parameter	Data Type	Access	Description
451	Word	Read Only	Zero Channel Filtered Input
452	Word	Read Only	5 Volts Channel Raw Input
453	Word	Read Only	5 Volts Channel Filtered Input
454	Word	Read Only	Filtered Span
455	Byte	Read Only	Channel: Value / Description 0 = Zero Volts Calibration 1 = Full Scale Calibration 2 = Load Input 3 = Position Input 4 = First Extra
456	Word	Read Only	Lowest Allowed Value
457	Word	Read Only	Highest Allowed Value
458	Word	Read Only	Actual Value
459	Command	Read Write	Clear Maximums of Parameters 460 - 461
460	Display	Read Only	Background Timing: Maximum BACKGR Calls
461	Display	Read Only	Processor Profiling with Format = xx/yy/zz; xx = System Overhead Percent yy = Percent Idle zz = Percent Useful Work
471	Byte	Read Only	Software Debug Display Attributes (Reserved)
472	Command	Read Write	Initialize EEPROM to CAC Factory Setting
473	Word	Read Write	Service Password
478	Byte	Read Only	Major Version Number
479	Byte	Read Only	Minor Version Number
480	Word	Read Only	EEPROM Initialized Value
481	Word	Read Only	EEPROM Used [Bytes]
482	Word	Read Only	Shadow RAM Remain [Bytes]

Parameter	Data Type	Access	Description
483	Word	Read Only	EEPROM Size [Bytes]
484	Byte	Read Only	Firmware Version when EEPROM Initialized
485	Byte	Read Only	Firmware Sub-version when EEPROM
486	Word	Read Only	Bad Parameter Information
489	Byte	Read Only	Configuration Change
490	Byte	Read Only	SCADA Firmware Compatibility Main Version
491	Byte	Read Only	SCADA Firmware Compatibility Sub-Version
492	Word	Read Only	Hardware Option Bits 1: Octal Value / Description 000004 = Memory 000010 = Memory Expansion 000020 = Indication Bit 000040 = Memory Bank Expansion 000100 = Control PIO 000200 = UART 000400 = Radio ID
493	Word	Read Only	Hardware Option Bits 2 Display: Octal Value / Description 000001 = Larger EEPROM 000002 = CPI Type LCD Display 000004 = Keypad (Detected when pressed) 000008 = Battery Backup 000010 = Densitron Type LCD Display 000040 = Enhanced Graphics Display
495	Byte	Read Only	Communication Board(s): Value / Description 0 = No Comm Boards 1 = Unknown or Bad Comm Board 2 = UART Board 3 = UART Board with Expanded Memory 4 = Radio Modem Board 5 = Hardwired Modem Board
496	Word	Read Write	Analog Input Usage Configuration
497	Word	Read Write	Digital Input Usage Configuration: Octal Value / Description 000001 = DI1 Selected 000002 = DI2 Selected

Parameter	Data Type	Access	Description
			000004 = DI3 Selected 000010 = DI4 Selected 000020 = DI5 Selected 000040 = DI6 Selected 000100 = DI7 Selected 000200 = DI8 Selected
498	Word	Read Only	Highest Parameter Number Available
499	Byte	Read Write	Not functional in Version 2.00 or higher
500	Word	Read Write	Service Password entered here
501	Byte	Read Write	Password Timeout Interval
506	Byte	Read Write	Not functional in Version 2.00 or higher
507	Byte	Read Only	Not functional in Version 2.00 or higher
508	Byte	Read Write	Display Update Rate [1]
509	Byte	Read Write	Message Rolls per Second
510	Word	Read Only	Not functional in Version 2.00 or higher
511	Word	Read Only	Not functional in Version 2.00 or higher
512	Word	Read Only	Not functional in Version 2.00 or higher
513	Word	Read Only	Not functional in Version 2.00 or higher
514	Byte	Read Write	Enable/Disable Expanded Pound Card: 0 = Disable (Sequence from % card to normal card back to % card) 1 = Enable (Sequence from % card to expanded pound card to normal card back to % card)
515	Word	Read Only	Automatic Set-up
516	Word	Read Only	Communication Pump On
517	Word	Read Only	Communication Present
518	Word	Read Only	Communication Pump Off
519	Word	Read Only	Communication Frozen

Parameter	Data Type	Access	Description
520	Word	Read Only	Internal Status Variables: Octal Value / Description 000001 = Well Officially "on" 000002 = Sensors Report Well "on" 000004 = Pending Position Problem 000010 = Power up Low Load Span 000020 = Full Card Marked 000040 = EPROM Initialized 000100 = EPROM Expanded 000200 = Last Load Span Good 000400 = Peak Hours / Pump forced "off" 001000 = Peak Hours Delay Start Timer is Active
521	Word	Read Only	Octal and Hex Status Bits 2: Octal Value / Description 000002 = Unofficial Version
522	Word	Read Only	Status Bits 3
523	Command	Read Write	Clear Errors
524	Command	Read Write	Pump On
525	Command	Read Write	Idle Time
526	Byte	Read Only	Controller Error Status: Value/Description 0 = Normal or Lamp Only Error 1 = Software Timer 2 = Control Transferred via Watchdog Relay 3 = Off Until Reset by Operator
527	Word	Read Only	Accumulated Error Code Bits - Word 1: Octal Value / Description 000001 = Control Failure 000002 = Low Load Violation 000004 = High Load Violation 000010 = Low Average Load 000020 = Position Switch Failure 000040 = Multiple Position Switch 000100 = Cleared Position Switch Error 000200 = Cleared Multiple Position Switch Errors 000400 = Low Load Span 001000 = Load Sensor Failure 002000 = Continuous Position Fault 004000 = Cleared Continuous Position Fault 010000 = Bad Software Timer Value 020000 = A/D Failure 040000 = Manual Off Command

Parameter	Data Type	Access	Description
			100000 = Pump-Off Override Timer Active
528	Word	Read Only	Accumulated Error Code Bits - Word 2: Octal Value / Description 000001 = Immediate Pump Off(s) 000002 = Minimum Cycle Run Time(s) 000004 = Maximum Cycle Run Time(s) 000010 = Maximum Daily Run Time 000020 = EEPROM Initialized 000040 = EEPROM Expanded 000100 = Parameters Restored from EEPROM 000200 = EEPROM Going Bad (1/3) 000400 = EEPROM Going Bad (2/3 or 3/3) 001000 = Bad Error Status at Power Up 002000 = Bad Error Code Bits at Power Up 004000 = Questionable Time and Date 010000 = Bad Real Time Clock Chip 020000 = Wrong Startup Line Frequency 040000 = Manual Control Transfer 100000 = Manual Software Timer
529	Word	Read Only	Accumulated Error Code Bits - Word 3: Octal Value / Description 000001 = CPU Fell Behind 000002 = Cleared RTC Error 000004 = Motor Off Too Long 000010 = Digital Input 1 Low Alarm 000020 = Digital Input 1 High Alarm 000040 = Digital Input 2 Low Alarm 000100 = Digital Input 2 High Alarm 000200 = Analog Input 1 as DI Low Alarm 000400 = Analog Input 1 as DI High Alarm 001000 = Analog Input 2 as DI Low Alarm 002000 = Analog Input 2 as DI High Alarm 004000 = Analog Input 3 as DI Low Alarm 010000 = Analog Input 3 as DI High Alarm 020000 = Immediate Upper Load Violation 040000 = Reverse Pump Off 100000 = Air Balance Amps Too Large
530	Word	Read Only	Accumulated Error Code Bits - Word 4: Octal Value / Description 000001 = Digital Input 3 Low Alarm 000002 = Digital Input 3 High Alarm 000004 = Digital Input 4 Low Alarm 000010 = Digital Input 4 High Alarm 000020 = Digital Input 5 Low Alarm 000040 = Digital Input 5 High Alarm 000100 = Digital Input 6 Low Alarm 000200 = Digital Input 6 High Alarm

Parameter	Data Type	Access	Description
			000400 = Analog Input 1 Below Low Limit 001000 = Analog Input 1 Above Upper Limit 002000 = Analog Input 2 Below Low Limit 004000 = Analog Input 2 Above Upper Limit 010000 = Analog Input 3 Below Low Limit 020000 = Analog Input 3 Above Upper Limit 040000 = Air Balance Add Air Forced Open 100000 = Air Balance Release Air Forced Open
531	Word	Read Only	Accumulated Error Code Bits - Word 5: Octal Value / Description 000001 = Digital Input 7 Low Alarm 000002 = Digital Input 7 High Alarm 000004 = Digital Input 8 Low Alarm 000010 = Digital Input 8 High Alarm 000020 = Program Error 000040 = Bad Shutdown 000100 = Analog Input 4 Low Alarm 000200 = Analog Input 4 High Alarm 000400 = Analog Input 5 Low Alarm 001000 = Analog Input 5 High Alarm 002000 = Analog Input 6 Low Alarm 004000 = Analog Input 6 High Alarm 010000 = Analog Input 7 Low Alarm 020000 = Analog Input 7 High Alarm 040000 = Analog Input 8 Low Alarm 100000 = Analog Input 8 High Alarm
532	Word	Read Only	Running Performance Status: Octal Value / Description 000001 = Run Under 50% 000002 = Divide by zero 000004 = Fluid calculation alarm 000010 = Alarm low load cell
535	Word	Read Only	Non-Clearable Hardware Error Code Bits: Octal Value / Description 000001 = Bad Communications Card 000002 = Constant UART Interrupt 000004 = Bad Power Supply Card 000010 = AC Failure 000020 = Battery Low
536	Word	Read Only	Non-Clearable Pump-Off Setup Error Bits 2: Octal Value / Description 000001 = Missing Parameter 130 000010 = Missing Parameter 21 000020 = Reserved for Missing Parameter 22 000040 = Missing Parameter 23 000100 = Missing Parameter 24 000200 = Missing Parameter 20

Parameter	Data Type	Access	Description
			002000 = Missing Position Memory
537	Word	Read Only	Non-Clearable Miscellaneous Error Bits 3: Octal Value / Description 000002 = Event Buffer 000020 = Temporary control failure 000200 = Bad fluid parameter 000400 = Communications Test 001000 = I/O ID Fail 002000 = Unsupported I/O 004000 = Missing I/O
540	Byte	Read Only	Worst Case Controller Error Status Since Power Up: Value / Description 0 = Normal or Lamp Only if error(s) 1 = Software Timer 2 = Control Transferred by Watchdog Relay 3 = Off Until Reset by Operator
541	Word	Read Only	Accumulated Error Code Since Power up - Word 1: Octal Value / Description 000001 = Control Failure 000002 = Low Load Violation 000004 = High Load Violation 000010 = Low Average Load 000020 = Position Switch Failure 000040 = Multiple Position Switch 000100 = Cleared Position Switch Error 000200 = Cleared Multiple Position Switch Errors 000400 = Low Load Span 001000 = Load Sensor Failure 002000 = Continuous Position Fault 004000 = Cleared Continuous Position Fault 010000 = Bad Software Timer Value 020000 = A/D Failure 040000 = Manual Off Command 100000 = Pump-Off Override Timer Active
542	Word	Read Only	Accumulated Error Code Since Power up - Word 2: Octal Value / Description 000001 = Immediate Pump Off(s) 000002 = Minimum Cycle Run Time(s) 000004 = Maximum Cycle Run Time(s) 000010 = Maximum Daily Run Time 000020 = EEPROM Initialized 000040 = EEPROM Expanded 000100 = Parameters Restored from EEPROM 000200 = EEPROM Going Bad (1/3) 000400 = EEPROM Going Bad (2/3 or 3/3) 001000 = Bad Error Status at Power Up) 002000 = Bad Error Code Bits at Power Up

Parameter	Data Type	Access	Description
			004000 = Questionable Time and Date 010000 = Bad Real Time Clock Chip 020000 = Wrong Startup Line Frequency 040000 = Manual Control Transfer 100000 = Manual Software Timer
543	Word	Read Only	Accumulated Error Code Since Power up - Word 3: Octal Value / Description 000001 = CPU Fell Behind 000002 = Cleared RTC Error 000004 = Motor Off Too Long 000010 = Digital Input 1 Low Alarm 000020 = Digital Input 1 High Alarm 000040 = Digital Input 2 Low Alarm 000100 = Digital Input 2 High Alarm 000200 = Analog Input 1 as DI Low Alarm 000400 = Analog Input 1 as DI High Alarm 001000 = Analog Input 2 as DI Low Alarm 002000 = Analog Input 2 as DI High Alarm 004000 = Analog Input 3 as DI Low Alarm 010000 = Analog Input 3 as DI High Alarm 020000 = Immediate Upper Load Violation 040000 = Reverse Pump Off 100000 = Air Balance Amps Too Low
544	Word	Read Only	Accumulated Error Code Since Power up - Word 4: Octal Value / Description 000001 = Digital Input 3 Low Alarm 000002 = Digital Input 3 High Alarm 000004 = Digital Input 4 Low Alarm 000010 = Digital Input 4 High Alarm 000020 = Digital Input 5 Low Alarm 000040 = Digital Input 5 High Alarm 000100 = Digital Input 6 Low Alarm 000200 = Digital Input 6 High Alarm 000400 = Analog Input 1 Below Low Limit 001000 = Analog Input 1 Above Upper Limit 002000 = Analog Input 2 Below Low Limit 004000 = Analog Input 2 Above Upper Limit 010000 = Analog Input 3 Below Low Limit 020000 = Analog Input 3 Above Upper Limit 040000 = Air Balance Add Air Forced Open 100000 = Air Balance Release Air Forced Open
545	Word	Read Only	Accumulated Error Code Since Power up - Word 5: Octal Value / Description 000001 = Digital Input 7 Low Alarm 000002 = Digital Input 7 High Alarm 000004 = Digital Input 8 Low Alarm 000010 = Digital Input 8 High Alarm

Parameter	Data Type	Access	Description
			000020 = Program Error 000040 = Bad Shutdown
549	Display	Read Only	Firmware Part Number
550	Display	Read Only	Firmware Complete ID
551	Display	Read Only	Date of Firmware Compile
552	Display	Read Only	Time of Firmware Compile
555	Display	Read Only	Controller ID Message
556	Command	Read Write	Output Rolling Unit
557	Word	Read Only	Number of Characters Used in EEPROM
558	Word	Read Only	Number of Characters Left in EEPROM
560	Byte	Read Write	DI 1 Closed Action [7]
561	Byte	Read Write	DI 1 Open Action [7]
562	Byte	Read Write	DI 2 Closed Action [7]
563	Byte	Read Write	DI 2 Open Action [7]
564	Byte	Read Write	DI 3 Closed Action [7]
565	Byte	Read Write	DI 3 Open Action [7]
566	Byte	Read Write	DI 4 Closed Action [7]
567	Byte	Read Write	DI 4 Open Action [7]
568	Byte	Read Write	DI 5 Closed Action [7]
569	Byte	Read Write	DI 5 Open Action [7]
570	Byte	Read Write	DI 6 Closed Action [7]
571	Byte	Read Write	DI 6 Open Action [7]
572	Byte	Read	DI 7 Closed Action [7]

Parameter	Data Type	Access	Description
		Write	
573	Byte	Read Write	DI 7 Open Action [7]
574	Byte	Read Write	DI 8 Closed Action [7]
575	Byte	Read Write	DI 8 Open Action [7]
578	Word	Read Write	Low Order Accumulator
579	Word	Read Write	High Order Accumulator
580	Word	Read Write	DO 1 on Timer
581	Word	Read Write	DO 2 on Timer
582	Word	Read Write	DO 3 on Timer
583	Word	Read Write	DO 4 on Timer
584	Word	Read Write	DO 5 on Timer
585	Word	Read Write	DO 6 on Timer
586	Word	Read Write	DO 7 on Timer
587	Word	Read Write	DO 8 on Timer
590	Word	Read Write	DIO 1 as an Output Action
591	Word	Read Write	DIO 2 as an Output Action
592	Word	Read Write	DIO 3 as an Output Action
593	Word	Read Write	DIO 4 as an Output Action
594	Word	Read Write	DIO 5 as an Output Action
595	Word	Read Write	DIO 6 as an Output Action
596	Word	Read Write	DIO 7 as an Output Action
597	Word	Read Write	DIO 8 as an Output Action

Parameter	Data Type	Access	Description
598	Word	Read Write	Digital Outputs on Flags: Octal Value / Description 000001 = DIO1 on Flag 000002 = DIO2 on Flag 000004 = DIO3 on Flag 000010 = DIO4 on Flag 000020 = DIO5 on Flag 000040 = DIO6 on Flag 000100 = DIO7 on Flag 000200 = DIO8 on Flag
599	Word	Read Only	Digital Output Status: Octal Value / Description 000001 = DIO1 Closed 000002 = DIO2 Closed 000004 = DIO3 Closed 000010 = DIO4 Closed 000020 = DIO5 Closed 000040 = DIO6 Closed 000100 = DIO7 Closed 000200 = DIO8 Closed
600	Time	Read Write	Remote Mode on Local Port

Parameters 601-862

Parameter	Data Type	Access	Description
601	Byte	Read/Write	Remote Data and Stop Bits.
602	Byte	Read/Write	Remote Baud Rate [7].
603	Word	Read Only	Communication Status Bits: Octal Value / Description 000001 = CRC Security 000002 = Large Receive Buffer 000004 = Large Transmit Buffer 000010 = Using Modem 000020 = Communication Out Test
604	Byte	Read/Write	Analyzer Port Data / Stop Bits.
605	Byte	Read/Write	Analyzer Port Baud Rate.
606	Byte	Read/Write	Carrier Detect On Delay [6].
607	Byte	Read/Write	Carrier Detect Off Delay [1].
608	Byte	Read/Write	Message End Until Carrier Lost Limit [60].
609	Byte	Read/Write	Radio Pre-Key [30].

Parameter	Data Type	Access	Description
610	Byte	Read/Write	Radio Post-Key [12].
611	Byte	Read/Write	Maximum Radio Key [30].
612	Byte	Read/Write	Receive Timeout [120].
613	Byte	Read/Write	SCADA Port Protocol Type: Value / Description 0 = 8500 (Remote) 1 = 8550 (Local) 2 = MODBUS ASCII 3 = MODBUS RTU
614	Byte	Read/Write	Dynamometer Card Type: Value / Description 0 = Start-up 1 = Live Action 2 = Shutdown
615	Byte	Read/Write	Dynamometer Card Options: Value / Description 0 = Pound 1 = Percent
616	Byte	Read/Write	Dynamometer Card Number: Value / Description 0 = Card 1 1 = Card 2 2 = Card 3 3 = Card 4 4 = Card 5
617	Byte	Read/Write	Position Type: Value / Description 0 = Synthesized Fraction 1 = Fractional Actual 2 = Voltage
619	Byte	Read/Write	Actual position data available from RPC for analysis programs: 0 = POS Switch 1 = Continuous Position
620	Word	Read/Write	Communication Group Address [4093].
621	Word	Read Only	Maximum Radio "On Time".
622	Word	Read Only	Maximum Transmit Message Time.
623	Word	Read Only	Maximum Transmit Message in Characters.
624	Word	Read Only	Actual Transmit Buffer Size in Characters.

Parameter	Data Type	Access	Description
625	Display	Read Only	Maximum Transmit Buffer Size in Characters.
626	Word	Read Only	Maximum Transmit Message Time.
627	Word	Read Only	Maximum Radio On Time.
628	Byte	Read/Write	All Address Response Test Override Timer.
629	Command	Read/Write	Clear P630 through P642.
630	Display	Read Only	Last Characters Received as ASCII.
631	Word	Read/Write	Character Errors (Framing, Parity, Overrun Errors).
632	Word	Read/Write	Characters Received.
633	Word	Read/Write	Header Characters Received.
634	Word	Read/Write	Trailer Characters Received.
635	Word	Read/Write	Framed Messages Received.
636	Word	Read/Write	Framed Messages Received with Correct CRC / Checksum.
637	Word	Read/Write	Messages Processed.
638	Word	Read/Write	Commands Processed.
639	Word	Read/Write	Responses Transmitted.
640	Word	Read/Write	Characters Transmitted.
641	Word	Read/Write	Maximum Time Messages Received to Response Started.
642	Word	Read/Write	Max. Time Messages Received to Response Sent.
644	Byte	Read/Write	Output Test Spacing Delay.
645	Byte	Read Only	Last Character Received.
646	Byte	Read/Write	Output Test Data / Stop Bits.
647	Byte	Read/Write	Output Test Character [U].
648	Byte	Read/Write	Output Test Time.
649	Word	Read Only	Internal Status Bits.
660	Byte	Read/Write	Cursor Location.
661	Byte	Read/Write	Timer.
662	Long	Read Only	Not functional in Version 2.00 and higher.
663	Word	Read/Write	Not functional in Version 2.00 and higher.
664	Word	Read/Write	Not functional in Version 2.00 and higher.
665	Byte	Read Only	Good Operation Timer.
666	Byte	Read/Write	Required Good Operation Time [15].
667	Byte	Read/Write	Log Clear Errors Flag.
668	Byte	Read Only	Error Code: Value / Description 0 = No Error 1 = Bad Second Interval 2 = Read All 1's 3 = Write Confirm 4 = Cannot Read Same Twice

Parameter	Data Type	Access	Description
669	Time	Read Only	Seconds Value for RTC Chip (0 to 9).
670	Time	Read Only	Today's Accumulated Run Time.
671	Time	Read Only	Yesterday's Total Accumulated Run Time.
672	Time	Read Only	Run Time Two Days Ago.
673	Time	Read Only	Run Time Three Days Ago.
674	Time	Read Only	Run Time Four Days Ago.
675	Time	Read Only	Run Time Five Days Ago.
676	Time	Read Only	Run Time Six Days Ago.
677	Time	Read Only	Run Time Seven Days Ago.
678	Time	Read Only	Run Time Eight Days Ago.
679	Time	Read Only	Run Time Nine Days Ago.
680	Time	Read Only	Run Time Ten Days Ago.
681	Time	Read Only	Run Time Eleven Days Ago.
682	Time	Read Only	Run Time Twelve Days Ago.
683	Time	Read Only	Run Time Thirteen Days Ago.
684	Time	Read Only	Run Time Fourteen Days Ago.
685	Time	Read Only	Run Time Fifteen Days Ago.
686	Time	Read Only	Run Time Sixteen Days Ago.
687	Time	Read Only	Run Time Seventeen Days Ago.
688	Time	Read Only	Run Time Eighteen Days Ago.
689	Time	Read Only	Run Time Nineteen Days Ago.
690	Time	Read Only	Run Time Twenty Days Ago.
691	Time	Read Only	Run Time Twenty-one Days Ago.
692	Time	Read Only	Run Time Twenty-two Days Ago.
693	Time	Read Only	Run Time Twenty-three Days Ago.
694	Time	Read Only	Run Time Twenty-four Days Ago.
695	Time	Read Only	Run Time Twenty-five Days Ago.
696	Time	Read Only	Run Time Twenty-six Days Ago.
697	Time	Read Only	Run Time Twenty-seven Days Ago.
698	Time	Read Only	Run Time Twenty-eight Days Ago.
699	Time	Read Only	Run Time Twenty-nine Days Ago.
700	Word	Read Only	Raw A/D Channel Value.
701	Word	Read Only	Current Input Value.
702	Word	Read Only	Input Value - EGU.
703	Byte	Read/Write	AI4 Type.
704	Byte	Read/Write	AI4 Decimal Places [3].
705	Byte	Read/Write	AI4 EGU Label [9].
706	Word	Read/Write	Low Value Scaling.

Parameter	Data Type	Access	Description
707	Word	Read/Write	High Value Scaling.
708	Word	Read/Write	Lower Alarm Limit.
709	Byte	Read/Write	Lower Alarm Action 1.
710	Byte	Read/Write	Lower Alarm Action 2.
711	Word	Read/Write	Upper Alarm Limit.
712	Byte	Read/Write	Upper Alarm Action 1.
713	Byte	Read/Write	Upper Alarm Action 2.
714	Word	Read/Write	Alarm Deadband.
715	Word	Read Only	Lowest Recorded Input Value.
716	Word	Read Only	Highest Recorded Input Value.
719	Command	Read/Write	Reset AI4 Highs and Lows.
720	Word	Read Only	Raw A/D Channel Value.
721	Word	Read Only	Current Input Value.
722	Word	Read Only	Input Value - EGU.
723	Byte	Read/Write	AI5 Type.
724	Byte	Read/Write	AI5 Decimal Places [3].
725	Byte	Read/Write	AI5 EGU Label [9].
726	Word	Read/Write	Low Value Scaling.
727	Word	Read/Write	High Value Scaling.
728	Word	Read/Write	Lower Alarm Limit.
729	Byte	Read/Write	Lower Alarm Action 1.
730	Byte	Read/Write	Lower Alarm Action 2.
731	Word	Read/Write	Upper Alarm Limit.
732	Byte	Read/Write	Upper Alarm Action 1.
733	Byte	Read/Write	Upper Alarm Action 2.
734	Word	Read/Write	Alarms Deadband.
735	Word	Read Only	Lowest Recorded Input Value.
736	Word	Read Only	Highest Recorded Input Value.
739	Command	Read/Write	Reset AI5 Highs and Lows.
740	Word	Read Only	Raw A/D Channel Value.
741	Word	Read Only	Current Input Value.
742	Word	Read Only	Input Value - EGU.
743	Byte	Read/Write	AI6 Type.
744	Byte	Read/Write	AI6 Decimal Places [3].
745	Byte	Read/Write	AI6 EGU Label [9].
746	Word	Read/Write	Low Value Scaling.
747	Word	Read/Write	High Value Scaling.
748	Word	Read/Write	Lower Alarm Limit.

Parameter	Data Type	Access	Description
749	Byte	Read/Write	Lower Alarm Action 1.
750	Byte	Read/Write	Lower Alarm Action 2.
751	Word	Read/Write	Upper Alarm Limit.
752	Byte	Read/Write	Upper Alarm Action 1.
753	Byte	Read/Write	Upper Alarm Action 2.
754	Word	Read/Write	Alarms Deadband.
755	Word	Read Only	Lowest Averaged Input Value.
756	Word	Read Only	Highest Averaged Input Value.
759	Command	Read/Write	Reset AI6 Highs and Lows.
760	Word	Read Only	Raw A/D Channel Value.
761	Word	Read Only	Current Input Value.
762	Word	Read Only	Input Value - EGU.
763	Byte	Read/Write	AI7 Type.
764	Byte	Read/Write	AI7 Decimal Places [3].
765	Byte	Read/Write	AI7 EGU Label [9].
766	Word	Read/Write	Low Value Scaling.
767	Word	Read/Write	High Value Scaling.
768	Word	Read/Write	Lower Alarm Limit.
769	Byte	Read/Write	Lower Alarm Action 1.
770	Byte	Read/Write	Lower Alarm Action 2.
771	Word	Read/Write	Upper Alarm Limit.
772	Byte	Read/Write	Upper Alarm Action 1.
773	Byte	Read/Write	Upper Alarm Action 2.
774	Word	Read/Write	Alarms Deadband.
775	Word	Read Only	Lowest Recorded Input Value.
776	Word	Read Only	Highest Recorded Input Value.
779	Command	Read/Write	Reset AI7 Highs and Lows.
780	Word	Read Only	Raw A/D Channel Value.
781	Word	Read Only	Current Input Value.
782	Word	Read Only	Input Value - EGU.
783	Byte	Read/Write	AI8 Type.
784	Byte	Read/Write	AI8 Decimal Places [3].
785	Byte	Read/Write	AI8 EGU Label [9].
786	Word	Read/Write	Low Value Scaling.
787	Word	Read/Write	High Value Scaling.
788	Word	Read/Write	Lower Alarm Limit.
789	Byte	Read/Write	Lower Alarm Action 1.
790	Byte	Read/Write	Lower Alarm Action 2.

Parameter	Data Type	Access	Description
791	Word	Read/Write	Upper Alarm Limit.
792	Byte	Read/Write	Upper Alarm Action 1.
793	Byte	Read/Write	Upper Alarm Action 2.
794	Word	Read/Write	Alarms Deadband.
795	Word	Read Only	Lowest Recorded Input Value.
796	Word	Read Only	Highest Recorded Input Value.
799	Command	Read/Write	Reset AI8 Highs and Lows.
800	Byte	Read/Write	X1 Point from Host.
801	Byte	Read/Write	X2 Point from Host.
802	Byte	Read/Write	Y1 Point from Host.
803	Byte	Read/Write	Y2 Point from Host.
804	Word	Read Only	Calculated Fluid Stroke Length.
805	Byte	Read/Write	Enable Fluid Stroke Calculation [0]: Value / Description 0 = Off 1 = On
806	Word	Read/Write	Surface Stroke Length.
807	Word	Read/Write	Pump Bore Diameter.
808	Word	Read Only	Average Surface Stroke Length.
809	Word	Read Only	Average Daily Fluid Stroke Length.
810	Word	Read Only	Average Pump Rate SPM.
811	Word	Read Only	Today's Fluid Production.
812	Word	Read Only	Yesterday's Fluid Production.
813	Word	Read Only	Fluid Production - 2 Days ago.
814	Word	Read Only	Fluid Production - 3 Days ago.
815	Word	Read Only	Fluid Production - 4 Days ago.
816	Word	Read Only	Fluid Production - 5 Days ago.
817	Word	Read Only	Fluid Production - 6 Days ago.
818	Word	Read Only	Fluid Production - 7 Days ago.
819	Word	Read Only	Fluid Production - 8 Days ago.
820	Word	Read Only	Fluid Production - 9 Days ago.
821	Word	Read Only	Fluid Production - 10 Days ago.
822	Word	Read Only	Fluid Production - 11 Days ago.
823	Word	Read Only	Fluid Production - 12 Days ago.
824	Word	Read Only	Fluid Production - 13 Days ago.
825	Word	Read Only	Fluid Production - 14 Days ago.
826	Word	Read Only	Fluid Production - 15 Days ago.
827	Word	Read Only	Fluid Production - 16 Days ago.

Parameter	Data Type	Access	Description
828	Word	Read Only	Fluid Production - 17 Days ago.
829	Word	Read Only	Fluid Production - 18 Days ago.
830	Word	Read Only	Fluid Production - 19 Days ago.
831	Word	Read Only	Fluid Production - 20 Days ago.
832	Word	Read Only	Fluid Production - 21 Days ago.
833	Word	Read Only	Fluid Production - 22 Days ago.
834	Word	Read Only	Fluid Production - 23 Days ago.
835	Word	Read Only	Fluid Production - 24 Days ago.
836	Word	Read Only	Fluid Production - 25 Days ago.
837	Word	Read Only	Fluid Production - 26 Days ago.
838	Word	Read Only	Fluid Production - 27 Days ago.
839	Word	Read Only	Fluid Production - 28 Days ago.
840	Word	Read Only	Fluid Production - 29 Days ago.
841	Byte	Read/Write	Lower Band Size.
842	Word	Read Only	Error flags for programmer debugging.
843	Word	Read Only	Amount of time required for the fluid calculation.
844	Byte	Read Only	Current Run Mode.
845	Byte	Read Only	Calculated Value X1.
846	Byte	Read Only	Calculated Value X2.
847	Byte	Read Only	Calculated Value Y1.
848	Byte	Read Only	Calculated Value Y2.
849	Word	Read Only	Number of strokes calculated: Modes 0 = Continuous. Unit does not detect pump-off, thereby running all the time. 1 = Pump-Off. Detects Pump-Off condition. 2 = On/Off. Well runs according to programmed run time and turns off. The unit will wait until parameter 20 (Idle Time) expires and then begin a new pumping cycle. 3 = Shutdown. Well is not running
850	Time	Read/Write	Time to start in mode specified in P851.
851	Byte	Read/Write	Mode to run in at time specified in P850.
852	Time	Read/Write	Run Time for run started at time specified in P850. This is only required in On/Off mode.
853	Time	Read/Write	Time to start in mode specified in P854.
854	Byte	Read/Write	Mode to run in at time specified in P853.
855	Time	Read/Write	Run Time for run started at time specified in P853. This is only required in On/Off mode.
856	Time	Read/Write	Time to start in mode specified in P857.

Parameter	Data Type	Access	Description
857	Byte	Read/Write	Mode to run in at time specified in P856.
858	Time	Read/Write	Run Time for run started at time specified in P856. This is only required in On/Off mode.
859	Time	Read/Write	Time to start in mode specified in P860.
860	Byte	Read/Write	Mode to run in at time specified in P859.
861	Time	Read/Write	Run Time for run started at time specified in P859. This is only required in On/Off mode.
862	Byte	Read/Write	Enable/Disable Timing Control [0]: 0 = Disable 1 = Enable

8800 Parameter Listings

For information on a specific range of parameters, select a link from the list below.

Parameter Listings 1-300
Parameter Listings 301-600
Parameter Listings 601-862

🔷 *For additional parameter details, refer to the device's User Manual.*

Parameters 1-300

Parameter	Data Type	Access	Description
1	Word	Read/Write	Password - Operator Entry
2	Word	Read/Write	Device Address [4094]
3	Time	Read/Write	Time of Day
4	Date	Read/Write	Current Date
5	Byte	Read/Write	Current Day of Week
6	Command	Read/Write	Mark Top Of Stroke Manually Locates position switch in reference to TOS
7	Command	Read/Write	Mark Top of Stroke (TOS) Automatic using continuous position signal input (Position Pot Sensor)
8	Display	Read Only	Position switch location after TOS fraction in counts where position switch closes after TOS
14	Byte	Read/Write	Load Engineering Units: Value / Description 0 = Pounds 1 = Kg. Metric
15	Byte	Read/Write	Month Format: Value / Description 0 = Numeric 1 = Alphabetic
16	Byte	Read/Write	Time Format: Value / Description 0 = Military 1 = AM/PM
17	Byte	Read/Write	Run Time Format: Value / Description 0 = Hours only 1 = Days / Hours
18	Byte	Read/Write	Clock Source AC Power [1].
19	Byte	Read/Write	Clock Source on Battery Backup [1]: Value / Description 1 = Real-time Clock

Parameter	Data Type	Access	Description
20	Time	Read/Write	Idle Time [00:05:00] hh:mm:ss Set by operator based on well conditions.
21	Byte	Read/Write	POC Position Limit Line Percent: Value / Description 0 = Bottom of Stroke 100 = Top of Stroke
23	Byte	Read/Write	POC Load Limit Line Percentage: Value / Description 0 = Minimum Load during stroke 100 = Maximum Load during stroke
24	Byte	Read/Write	Maximum consecutive pump-off strokes allowed before going to idle time [2]
25	Time	Read/Write	Pump Up Delay Time [00:00:30]
26	Byte	Read/Write	POC Method: Value / Description 0 = Quadrant Method – Lower RH 1 = Point Method – Along Base Line 2 = Reverse POC using Method 0 3 = Reverse POC using Method 1 4 = ESP Only (Disables POC for RPC use) 8 = Quadrant Method – Upper LH 9 = Point Method – Upper (100%) Line 10 = Reverse POC using Method 8 11 = Reverse POC using Method 9
27	Time	Read/Write	POC Override Timer: hh:mm:ss Operator set no POC until timer decrements to zero
28	Byte	Read/Write	Override Timer Power-up Clear Flag [1]: Value / Description 0 = No 1 = Yes
29	Byte	Read/Write	Timer Status: Value / Description 0 = No 1 = Yes
30	Byte	Read/Write	Command ACF Status: Value / Description 0 = Not on 1 = Yes it is on
31	Command	Read/Write	Force Off Until Reset
32	Command	Read/Write	Force Control Transfer
33	Command	Read/Write	Force Software Timer
34	Byte	Read/Write	POC Position Sensor Type: 0 = Position Switch

Parameter	Data Type	Access	Description
			1 = Continuous Position
35	Byte	Read/Write	Load Sensor Type: 0 = Load Cell 1 = Strain Gauge
36	Time	Read/Write	Target Cycle Time: hh:mm:ss 00 -- 99:59:59. Set to 00:00:00 to disable automatic idle time
37	Byte	Read/Write	Cycle Time Adjust [2]: Value / Description 0 = Disable with No Fault Lamp 1 = Disable with Fault Lamp 2 = Enable with No Fault Lamp 3 = Enable with Fault Lamp
38	Time	Read/Write	Motor Off Time Limit: hh:mm:ss Max. allowed off time and restart automatically
39	Byte	Read/Write	Enable/Disable Restart Protection: Value / Description 0 = Disable 1 = Enable Off Until Reset is action when enabled
40	Byte	Read/Write	Air Balance Control Goal Percentage Value
41	Byte	Read/Write	ABC Deadband Percentage Value
42	Word	Read Only	Upstroke Peak Value
43	Word	Read Only	Downstroke Peak Value
44	Word	Read Only	Air Balance Peak Difference Positive value means upstroke peak value was higher than down-stroke peak value.
45	Word	Read Only	Air Balance Peak Difference Same as Parameter 44 except in %. This is not used in control and will show a slightly lower value than the selected % control values. This is actually the more accurate.
46	Word	Read/Write	ABC Purge Enable Time Time auto purge opens valve to purge air cylinder. Range is 0 – 65535 (546.1 Seconds in a 60 Hz system).
50	Byte	Read/Write	Peak Energy Control Enable Flag: Value / Description 0 = Disabled 1 = Enabled
51	Time	Read/Write	Begin Run Inhibit Time
52	Time	Read/Write	End Run Inhibit Time
53	Time	Read/Write	AC Power Fail Restart
63	Byte	Read/Write	Dynamometer Reference Point (Target Type): Value / Description

Parameter	Data Type	Access	Description
			0 = Cycle minimum 1 = Cycle average 2 = Cycle maximum
64	Byte	Read/Write	Conditions Required for Auto-Self: Value / Description 0 = If running tracking with valid load span (P223) 1 = If unit running 2 = At all times
65	Word	Read/Write	Cycle Minimum Load "Target"
66	Word	Read/Write	Cycle Average Load "Target"
67	Word	Read/Write	Cycle Maximum Load "Target"
68	Word	Read/Write	Reference Adjust Limit
69	Word	Read Only	Tracking Step Limit
70	Command	Read/Write	Load Sensor "Zero Set" Command Note: Only do this with no load on the load cell.
71	Word	Read/Write	Load Sensor Offset
72	Display	Read Only	Load Sensor Offset
73	Word	Read/Write	Dead Weight Load Value
74	Word	Read/Write	Load Sensor Gain [1500]
75	Display	Read Only	Display of Load Cell Gain
76	Word	Read Only	Current Load Sensor Input
77	Word	Read Only	Current Load Sensor Input
78	Word	Read Only	Current Load Sensor Input
79	Word	Read Only	Load Min. Over Last Cycle
80	Word	Read Only	Load Max. Over Last Cycle
83	Word	Read Only	Load Minimum Since Last Pump Start
84	Word	Read Only	Load Maximum Since Last Pump Start
85	Word	Read Only	Load Minimum Since Power Up
86	Word	Read Only	Load Maximum Since Power Up
87	Word	Read Only	Load Span Over Last Cycle
88	Word	Read Only	Lowest Since Power Up
89	Word	Read Only	Load Average Over Last Cycle
90	Word	Read Only	Lowest Load Average Since Power Up
91	Word	Read Only	Highest Load Average Since Power Up
92	Word	Read Only	Load Min. Since Power Up
93	Word	Read Only	Load Max. Since Power Up
94	Command	Read/Write	Reset Minimum / Maximum Load Values
95	Word	Read Only	Failure A/D Channel
96	Word	Read Only	Failure Value
97	Word	Read Only	Lower Limit to Scaled Values

Parameter	Data Type	Access	Description
98	Word	Read Only	Lower Limit to Scaled Values
102	Word	Read Only	Position Sensor Input
103	Word	Read Only	Current Position Sensor Input
104	Word	Read Only	Position Sensor Minimum Input over Cycle
105	Word	Read Only	Position Sensor Maximum Input over Cycle
106	Word	Read Only	Input Signal Span over Cycle
107	Word	Read Only	Filtered Input Cycle Span
108	Word	Read/Write	Debounce Time in Ticks
109	Byte	Read Only	Bottoms with No Continuous Position Faults
110	Word	Read/Write	Time (Ticks / Seconds) from BOS to Well Bottom Call
111	Word	Read/Write	Minimum Time (Ticks / Sec.) to Well Bottom Call
112	Word	Read/Write	Maximum Time (Ticks / Sec.) to Well Bottom Call
113	Word	Read/Write	This parameter defines the percentage of the amplitude of the cosine of the second harmonic of the stroke frequency to subtract from the synthesized position which effectively speeds up the down stroke. The range of acceptable values is from 0 to 24%. The value should be 0% for a conventional unit. A value of 20% is recommended for a large MarkII unit.
114	Word	Read/Write	Load Signal Delay (For use when using DPS with MarkII units): 0 = 0 ms 1 = 50 ms 2 = 100 ms 3 = 150 ms 4 = 200 ms 5 = 250 ms 6 = 300 ms 7 = 350 ms
115	Byte	Read/Write	Number of cycles if P225 = "Go to idle" for stage 1 [0]
116	Byte	Read/Write	Low load span counter
117	Byte	Read/Write	Number of cycles allowed before "Off before reset" for stage 2 [0]
120	Word	Read/Write	Scratch Pad Word 1
121	Word	Read/Write	Scratch Pad Word 2
122	Word	Read/Write	Scratch Pad Word 3
123	Word	Read/Write	Scratch Pad Word 4
124	Word	Read/Write	Scratch Pad Word 5
125	Byte	Read/Write	Good Cycle Intervals Required [10]
128	Byte	Read/Write	No. of Good Input Cycles to Recover after Fault [5]
129	Byte	Read/Write	Display Fault Message if a position switch is cleared
130	Word	Read/Write	Fraction of Stroke from Top Of Stroke
131	Command	Read/Write	Reset RPC for Reverse Rotation

Parameter	Data Type	Access	Description
132	Word	Read Only	Last Position Switch Filtered Interval
134	Byte	Read/Write	Position Switch Opening Debounce Interval [120]
135	Byte	Read/Write	Use Position Switch Opening or Closing
136	Byte	Read/Write	Minimum Allowable Percent Cycle Time Deviation [80]
137	Byte	Read/Write	Maximum Allowable Percent Cycle Time Deviation [125]
138	Byte	Read Only	Good Intervals Cycle Counter
139	Word	Read Only	Time Interval for Last Stroke
140	Word	Read Only	Filtered Time Interval for Last Stroke
141	Word	Read Only	Last Position Switch Interval SPM
142	Word	Read Only	Last Filtered Stroke Interval SPM
143	Byte	Read Only	Bottom of Stroke (BOS) Counter
144	Byte	Read Only	Current Position Switch
145	Word	Read Only	Last Debounce Closed Interval
146	Word	Read Only	Position Switch Closing Counter (Ticks / Seconds)
147	Word	Read Only	Debounced Switches Since Last Turn Off/On
148	Byte	Read Only	BOS with No Position Switch Faults
149	Command	Read/Write	Clear and Reset all Well Cycle (SPM) Information
150	Byte	Read/Write	AC Power Frequency [60]
151	Byte	Read Only	Power-Up Frequency
152	Long	Read Only	Present Frequency
153	Long	Read Only	Lowest Frequency
154	Long	Read Only	Highest Frequency
155	Long	Read Only	Average Frequency
156	Long	Read Only	Lowest Averaged Frequency
157	Long	Read Only	Highest Averaged Frequency
158	Command	Read/Write	Reset Frequency Displays
159	Byte	Read/Write	Frequency Averaging Period
160	Word	Read Only	AI1 Raw A/D Channel Value
161	Word	Read Only	AI1 Current Input Value
162	Word	Read Only	AI1 Lowest Recorded Input Value
163	Word	Read Only	AI1 Highest Recorded Input Value
164	Word	Read Only	AI1 Input Value Averaged over Cycle
165	Word	Read Only	AI1 Lowest Averaged Input Value
166	Word	Read Only	AI1 Highest Averaged input Value
167	Command	Read/Write	Reset AI1 Highs and Lows
168	Word	Read/Write	Analog Latch [0] bit corresponding to analog number can be set to latch on alarm
170	Word	Read/Write	DO 1 on Timer
171	Word	Read/Write	DO 2 on Timer or P178 & P179 (Both DO 1 & 2)

Parameter	Data Type	Access	Description
172	Byte	Read/Write	DO 1 on Flag
173	Byte	Read/Write	DO 2 on Flag Command (Both DO 1 & 2)
178	Word	Read/Write	DO 1 Pulsed No. of Ticks
179	Word	Read/Write	DO 2 Pulsed No. of Ticks
180	Word	Read Only	DI Octal Value Summation: Octal Value / Description 000001 = DI1 Selected 000002 = DI2 Selected 000004 = DI3 Selected 000010 = DI4 Selected 000020 = DI5 Selected 000040 = DI6 Selected 000100 = DI7 Selected 000200 = DI8 Selected
181	Word	Read/Write	DI 1 Low Accumulator
182	Word	Read/Write	DI 1 High Accumulator
183	Word	Read/Write	DI 2 Low Accumulator
184	Word	Read/Write	DI 2 High Accumulator
185	Word	Read/Write	DI 3 Low Accumulator
186	Word	Read/Write	DI 3 High Accumulator
187	Word	Read/Write	DI 4 Low Accumulator
188	Word	Read/Write	DI 4 High Accumulator
189	Word	Read/Write	DI 5 Low Accumulator
190	Word	Read/Write	DI 5 High Accumulator
191	Word	Read/Write	DI 6 Low Accumulator
192	Word	Read/Write	DI 6 High Accumulator
193	Word	Read Only	AI as DI Octal Value Summation: Octal Value / Description 000004 = AI1 Selected 000010 = AI2 Selected
194	Word	Read/Write	AI 1 Low Accumulator
195	Word	Read/Write	AI 1 High Accumulator
196	Word	Read/Write	AI 2 Low Accumulator
197	Word	Read/Write	AI 2 High Accumulator
198	Word	Read/Write	AI 3 Low Accumulator
199	Word	Read/Write	AI 3 High Accumulator
200	Byte	Read/Write	Sensor Failure Action [1]
204	Byte	Read/Write	Number of cycles used to set run time average [6]
205	Time	Read Only	"Run Time" Determined from Number of Cycles
206	Time	Read/Write	Manual Software Run Time
207	Time	Read Only	Latest Averaged Run Time since Power Up

Parameter	Data Type	Access	Description
210	Word	Read/Write	Lower Load Limit (Pounds). Not used if set to zero
211	Word	Read/Write	Upper Load Limit (Pounds). Not used if set to zero
212	Word	Read/Write	Lowest Allowed Average Load (Pounds). Use only if low load goes below zero load (shallow well) and low load limit cannot be used.
213	Byte	Read/Write	Required Consecutive Load Violation Cycles
214	Byte	Read/Write	Load Violation Action [3]
215	Byte	Read/Write	Entry Deglitch Time in Readings [2]
216	Byte	Read/Write	Exit Deglitch Time in Readings [3]
217	Word	Read/Write	Deadband [1000]
218	Word	Read/Write	Immediate Upper Load Limit
219	Byte	Read/Write	Action for P218 Limit Violation
220	Byte	Read/Write	Power Fail "Off Time Multiplier" (0.1 units). It disables low load span and cycle run time for set period, and is determined by actual power off interval times.
221	Time	Read/Write	Multiplied Power Fail Maxi-mum Time Limit [72:00:00]: hh:mm:ss 72:00:00 = 3 Days
222	Byte	Read/Write	Number of Low Load Span Violations before Action [10]
223	Word	Read/Write	Valid Minimum Load Span [1000]
225	Byte	Read/Write	Low Load Span Action [3]
226	Time	Read/Write	Well Off Timer
227	Time	Read/Write	Well On Timer
228	Byte	Read/Write	# of pump offs required before P227 will be cleared
230	Byte	Read/Write	Number of Consecutive "Immediate" [3]
231	Byte	Read/Write	Immediate Pump-Off Action
232	Time	Read/Write	Minimum Cycle Run Time Allowable. [00:00:00]
233	Byte	Read/Write	Number of Consecutive Minimum Cycle run Times Violations before Action [2]
234	Byte	Read/Write	Minimum Cycle Run Time Violation
235	Time	Read/Write	Maximum Cycle Run Time Allowable. [00:00:00]
236	Byte	Read/Write	Maximum Cycle Run Time Violation
237	Time	Read/Write	Maximum Daily Run Time [00:00:00]
238	Byte	Read/Write	Maximum Daily Run Time Action
239	Time	Read/Write	Well Off Timer
240	Time	Read/Write	Well On Time
241	Byte	Read/Write	Pump-off(s) to clear P240
242	Time	Read Only	Qualified Cycle On Timer
243	Time	Read Only	Qualified Daily On Timer
245	Byte	Read/Write	Dummy Parameter
246	Byte	Read/Write	Dummy Parameter

Parameter	Data Type	Access	Description
247	Byte	Read/Write	Dummy Parameter
248	Byte	Read/Write	Dummy Parameter
249	Byte	Read/Write	AI1 Low Action [7]
250	Byte	Read/Write	AI1 High Action [7]
251	Byte	Read/Write	AI2 Low Action [7]
252	Byte	Read/Write	AI2 High Action [7]
253	Byte	Read/Write	AI3 Low Action [7]
254	Byte	Read/Write	AI3 High Action [7]
260	Byte	Read/Write	Action after Control Failure Timeout: [2]
261	Time	Read/Write	Control Failure Timeout Before Action [00:04:00]
262	Byte	Read/Write	Pump-On Sensing Delay [15]
263	Byte	Read/Write	Pump-Turn Off Sensing Delay [30]
270	Word	Read/Write	Minimum Allowable Span [250]
271	Word	Read/Write	Minimum Allowable Input Signal [2125]
272	Word	Read/Write	Maximum Allowable Input Signal [6000]
273	Byte	Read/Write	Position Signal Fault Period [5]
280	Word	Read Only	Raw A/D Channel Value
281	Word	Read Only	Input Value
282	Word	Read Only	Input Value - EGU
283	Byte	Read/Write	AI1 Type
284	Byte	Read/Write	AI1 Decimal Places [3]
285	Byte	Read/Write	AI1 EGU Label [9]
286	Word	Read/Write	Low Value Scaling
287	Word	Read/Write	High Value Scaling
288	Word	Read/Write	Lower Alarm Limit
289	Byte	Read/Write	Lower Alarm Action 1
290	Byte	Read/Write	Lower Alarm Action 2
291	Word	Read/Write	Upper Alarm Limit
292	Byte	Read/Write	Upper Alarm Action 1
293	Byte	Read/Write	Upper Alarm Action 2
294	Word	Read/Write	Upper Alarm Limit
295	Word	Read Only	Lowest Recorded Input Value
296	Word	Read Only	Highest Recorded Input Value
297	Word	Read Only	Input Value Averaged Over Cycle
298	Word	Read Only	Lowest Averaged Input Value
299	Word	Read Only	Highest Averaged Input Value
300	Command	Read/Write	Reset AI1 Highs and Lows

Parameters 301-600

Parameter	Data Type	Access	Description
309	Word	Read/Write	Extra Analogs - Status Bits: Octal Value / Description 000001 = Extra Channel 1 Low Alarm 000002 = Extra Channel 2 Low Alarm 000004 = Extra Channel 1 High Alarm 000010 = Extra Channel 2 High Alarm
310	Word	Read Only	Raw A/D Channel Value
311	Word	Read Only	Input Value
312	Word	Read Only	Input Value - EGU
313	Byte	Read/Write	AI2 Analog Input Type
314	Byte	Read/Write	AI2 Decimal Places [3]
315	Byte	Read/Write	AI2 EGU Label [9]
316	Word	Read/Write	Low Value Scaling
317	Word	Read/Write	High Value Scaling
318	Word	Read/Write	Lower Alarm Limit
319	Byte	Read/Write	Lower Alarm Action 1
320	Byte	Read/Write	Lower Alarm Action 2
321	Word	Read/Write	Upper Alarm Limit
322	Byte	Read/Write	Upper Alarm Action 1
323	Byte	Read/Write	Upper Alarm Action 2
324	Word	Read/Write	Upper Alarm Limit
325	Word	Read Only	Lowest Recorded Input Value
326	Word	Read Only	Highest Recorded Input Value
329	Command	Read/Write	Reset AI2 Highs and Lows
330	Word	Read Only	Raw A/D Channel Value
331	Word	Read Only	Input Value
332	Word	Read Only	Scaled EGU Input Value
333	Byte	Read/Write	AI3 Analog Input Type
334	Byte	Read/Write	AI3 Decimal Places [3]
335	Byte	Read/Write	AI3 EGU Label [9]
336	Word	Read/Write	Scaling Low Value
337	Word	Read/Write	Scaling High Value
338	Word	Read/Write	Lower Alarm Limit
339	Byte	Read/Write	Lower Alarm Action 1
340	Byte	Read/Write	Lower Alarm Action 2
341	Word	Read/Write	Upper Alarm Limit

Parameter	Data Type	Access	Description
342	Byte	Read/Write	Upper Alarm Action 1
343	Byte	Read/Write	Upper Alarm Action 2
344	Word	Read/Write	Alarms Deadband
345	Word	Read Only	Lowest Recorded Input Value
346	Word	Read Only	Highest Recorded Input Value
349	Command	Read/Write	Reset AI3 Highs and Lows
350	Command	Read/Write	Turn Fault Lamp on for 15 Second Test
351	Command	Read/Write	Force Controller Software Reset
352	Command	Read/Write	Output Last Rolling Display
355	Byte	Read/Write	Minimum Number to Reserve for Faults [2]
356	Byte	Read/Write	Minimum Number to Reserve for Alarms [2]
357	Word	Read/Write	Alarm Enable Bits 0 – 15
358	Word	Read/Write	Alarm Enable Bits 16 – 31
359	Word	Read/Write	Alarm Enable Bits 32 – 47
360	Word	Read/Write	Alarm Enable Bits 48 – 63
361	Word	Read/Write	Alarm Enable Bits 64 – 79
362	Word	Read/Write	Alarm Enable Bits 80 – 82
365	Command	Read/Write	Create Event Command
366	Command	Read/Write	Clear Event Buffer
370	Display	Read Only	Pump-Off Position referenced to Setpoint Load
371	Display	Read Only	Pump-Off Load referenced to Setpoint Position
372	Display	Read Only	Display of P370 or P371
373	Word	Read Only	Estimated Position Value for Pump-Off
375	Word	Read Only	Estimated Load Value for Pump-Off
376	Word	Read Only	Load Value at Pump-Off Point/Area
390	Time	Read Only	Time of Last Fatal Error or AC Power Fail
391	Date	Read Only	Date of Last Fatal Error or AC Power Fail
392	Time	Read Only	Time of Last Complete Initialization
393	Date	Read Only	Date of Last Complete Initialization
394	Time	Read Only	Interval of Last Fatal Error or Power Fail
395	Long	Read Only	Last fatal error address
396	Time	Read Only	Time of Last Control State Change
397	Date	Read Only	Date of Last Control State Change
398	Word	Read Only	Days Counter
399	Time	Read Only	Rollover Counter
400	Time	Read Only	Current Run Time Interval Counter
401	Time	Read Only	Last Run Time Interval
402	Time	Read Only	Run Time Interval two Cycles back

Parameter	Data Type	Access	Description
403	Time	Read Only	Run Time Interval three Cycles back
404	Time	Read Only	Run Time Interval four Cycles back
405	Time	Read Only	Run Time Interval five Cycles back
406	Time	Read Only	Run Time Interval six Cycles back
407	Time	Read Only	Run Time Interval seven Cycles back
408	Time	Read Only	Run Time Interval eight Cycles back
409	Time	Read Only	Run Time Interval nine Cycles back
410	Time	Read Only	Run Time Interval ten Cycles back
411	Time	Read Only	Run Time Interval eleven Cycles back
412	Time	Read Only	Run Time Interval twelve Cycles back
413	Time	Read Only	Run Time Interval thirteen Cycles back
414	Time	Read Only	Run Time Interval fourteen Cycles back
415	Time	Read Only	Run Time Interval fifteen Cycles back
416	Time	Read Only	Run Time Interval sixteen Cycles back
417	Time	Read Only	Run Time Interval seventeen Cycles back
418	Byte	Read Only	Number of Previous Normal Pump-Off Cycles
419	Time	Read Only	Latest Pump-Off Time Interval Counter
420	Time	Read Only	Today's Accumulated Run Time
421	Time	Read Only	Yesterdays Total Accumulated Run Time
422	Time	Read Only	Run Time Two Days Ago
423	Time	Read Only	Run Time Three Days Ago
424	Time	Read Only	Run Time Four Days Ago
425	Time	Read Only	Run Time Five Days Ago
426	Time	Read Only	Run Time Six Days Ago
427	Time	Read Only	Run Time Seven Days Ago
429	Time	Read/Write	Gauge Period, Daily Start Time
430	Word	Read Only	Present Undisturbed Pump-Off(s) in Gauge Time
431	Word	Read Only	Previous Gauge Time Undisturbed Pump-Off(s)
432	Time	Read Only	Present Undisturbed On-Time (Average)
433	Time	Read Only	Previous Gauge Time Undisturbed On-Time
434	Time	Read Only	Time Remaining Until Next Gauge Time
439	Time	Read Only	Present Undisturbed On-Time
440	Byte	Read Only	Run Times Circular Buffer Pointer
441	Date	Read Only	Present Gauge Period Starting Date
442	Time	Read Only	Run Times Circular Buffer
443	Time	Read Only	Run Times Circular Buffer
444	Time	Read Only	Run Times Circular Buffer
445	Time	Read Only	Run Times Circular Buffer

Parameter	Data Type	Access	Description
446	Time	Read Only	Run Times Circular Buffer
447	Time	Read Only	Run Times Circular Buffer
448	Time	Read Only	Run Times Circular Buffer
449	Time	Read Only	Run Times Circular Buffer
450	Word	Read Only	Zero Channel Raw Input
451	Word	Read Only	Zero Channel Filtered Input
452	Word	Read Only	5 Volts Channel Raw Input
453	Word	Read Only	5 Volts Channel Filtered Input
454	Word	Read Only	Filtered Span
455	Byte	Read Only	Channel: Value / Description 0 = Zero Volts Calibration 1 = Full Scale Calibration 2 = Load Input 3 = Position Input 4 = First Extra
456	Word	Read Only	Lowest Allowed Value
457	Word	Read Only	Highest Allowed Value
458	Word	Read Only	Actual Value
459	Command	Read/Write	Clear Maximums of Parameters 460 – 461
460	Display	Read Only	Background Timing: Max. BACKGR Calls
461	Display	Read Only	Processor Profiling with Format = xx/yy/zz: xx = System Overhead Percent yy = Percent Idle zz = Percent Useful Work
471	Byte	Read Only	Software Debug Display Attributes (Reserved)
472	Command	Read/Write	Initialize EEPROM to CAC Factory Setting **Note:** All field set parameters are lost if this action taken. Enter CAC Service Password in P473 first.
473	Word	Read/Write	Service Password **Note:** User Password (8500) allows edits to RO parameters such as run time data. Service Password = 5500. This parameter should only be used by CAC service personnel.
478	Byte	Read Only	Major Version Number
479	Byte	Read Only	Minor Version Number
480	Word	Read Only	EEPROM Initialized Value
481	Word	Read Only	EEPROM Used [Bytes]
482	Word	Read Only	Shadow RAM Remain [Bytes]
483	Word	Read Only	EEPROM Size [Bytes]
484	Byte	Read Only	Firmware Version when EEPROM Initialized
485	Byte	Read Only	Firmware Sub-version when EEPROM

Parameter	Data Type	Access	Description
486	Long	Read Only	Bad Parameter Information
487	Long	Read Only	Bad Parameter Information
488	Long	Read Only	Bad Parameter Information
489	Byte	Read Only	Set to "1" whenever a volatile parameter is changed
490	Byte	Read Only	SCADA Firmware Compatibility Main Version
491	Byte	Read Only	SCADA Firmware Compatibility Sub-Version
492	Word	Read Only	Hardware Option Bits 1: Octal Value / Description 000004 = Memory 000010 = Memory Expansion 000020 = Indication Bit 000040 = Memory Bank Expansion 000100 = Control PIO 000200 = UART 000400 = Radio ID
493	Word	Read Only	Hardware Option Bits 2 Display: Octal Value / Description 000001 = Larger EEPROM 000002 = CPI Type LCD Display 000004 = Keypad (Detected when pressed) 000008 = Battery Backup 000010 = Densitron Type LCD Display 000040 = Enhanced Graphics Display
495	Byte	Read Only	Communication Board(s): Value / Description 0 = No Comm Boards 1 = Unknown or Bad Comm Board 2 = UART Board 3 = UART Board with Expanded Memory 4 = Radio Modem Board 5 = Hardwired Modem Board
496	Word	Read/Write	Analog Input Usage Configuration.
497	Word	Read/Write	Digital Input Usage Configuration: Octal Value / Description 000001 = DI1 Selected 000002 = DI2 Selected 000004 = DI3 Selected 000010 = DI4 Selected 000020 = DI5 Selected 000040 = DI6 Selected 000100 = DI7 Selected 000200 = DI8 Selected
498	Word	Read Only	Highest Parameter Number Available
499	Byte	Read/Write	Not functional in Version 2.00 or higher

Parameter	Data Type	Access	Description
500	Word	Read/Write	Service Password entered here
501	Byte	Read/Write	Password Timeout Interval [5]
506	Byte	Read/Write	Not functional in Version 2.00 or higher
507	Byte	Read Only	Not functional in Version 2.00 or higher
508	Byte	Read/Write	Display Update Rate [1]
509	Byte	Read/Write	Message Rolls per Second [4]
510	Word	Read Only	Not functional in Version 2.00 or higher
511	Word	Read Only	Not functional in Version 2.00 or higher
512	Word	Read Only	Not functional in Version 2.00 or higher
513	Word	Read Only	Not functional in Version 2.00 or higher
514	Byte	Read/Write	Enable/Disable Expanded Pound Card: 0 = Disable (Sequence from % card to normal card back to % card) 1 = Enable (Sequence from % card to expanded pound card to normal card back to % card)
515	Word	Read Only	Automatic Set-up
516	Word	Read Only	Communication Pump On
517	Word	Read Only	Communication Present
518	Word	Read Only	Communication Pump Off
519	Word	Read Only	Communication Frozen
520	Word	Read Only	Internal Status Variables: Octal Value / Description 000001 = Well Officially "on" 000002 = Sensors Report Well "on" 000004 = Pending Position Problem 000010 = Power up Low Load Span 000020 = Full Card Marked 000040 = EPROM Initialized 000100 = EPROM Expanded 000200 = Last Load Span Good 000400 = Peak Hours / Pump forced "off" 001000 = Peak Hours Delay Start Timer is Active
521	Word	Read Only	Octal and Hex Status Bits 2: Octal Value / Description 000002 = Unofficial Version
522	Word	Read Only	Status Bits 3
523	Command	Read/Write	Clear Errors
524	Command	Read/Write	Pump On
525	Command	Read/Write	Idle Time
526	Byte	Read Only	Controller Error Status: Value / Description 0 = Normal or Lamp Only Error 1 = Software Timer

Parameter	Data Type	Access	Description
			2 = Control Transferred via Watchdog Relay 3 = Off Until Reset by Operator
527	Word	Read Only	Accumulated Error Code Bits - Word 1: Octal Value / Description 000001 = Control Failure 000002 = Low Load Violation 000004 = High Load Violation 000010 = Low Average Load 000020 = Position Switch Failure 000040 = Multiple Position Switch 000100 = Cleared Position Switch Error 000200 = Cleared Multiple Position Switch Errors 000400 = Low Load Span 001000 = Load Sensor Failure 002000 = Continuous Position Fault 004000 = Cleared Continuous Position Fault 010000 = Bad Software Timer Value 020000 = A/D Failure 040000 = Manual Off Command 100000 = Pump-Off Override Timer Active
528	Word	Read Only	Accumulated Error Code Bits - Word 2: Octal Value / Description 000001 = Immediate Pump Off(s) 000002 = Minimum Cycle Run Time(s) 000004 = Maximum Cycle Run Time(s) 000010 = Maximum Daily Run Time 000020 = EEPROM Initialized 000040 = EEPROM Expanded 000100 = Parameters Restored from EEPROM 000200 = EEPROM Going Bad (1/3) 000400 = EEPROM Going Bad (2/3 or 3/3) 001000 = Bad Error Status at Power Up 002000 = Bad Error Code Bits at Power Up 004000 = Questionable Time and Date 010000 = Bad Real Time Clock Chip 020000 = Wrong Startup Line Frequency 040000 = Manual Control Transfer 100000 = Manual Software Timer
529	Word	Read Only	Accumulated Error Code Bits - Word 3: Octal Value / Description 000001 = CPU Fell Behind 000002 = Cleared RTC Error 000004 = Motor Off Too Long 000010 = Digital Input 1 Low Alarm 000020 = Digital Input 1 High Alarm 000040 = Digital Input 2 Low Alarm 000100 = Digital Input 2 High Alarm

Parameter	Data Type	Access	Description
			000200 = Analog Input 1 as DI Low Alarm
			000400 = Analog Input 1 as DI High Alarm
			001000 = Analog Input 2 as DI Low Alarm
			002000 = Analog Input 2 as DI High Alarm
			004000 = Analog Input 3 as DI Low Alarm
			010000 = Analog Input 3 as DI High Alarm
			020000 = Immediate Upper Load Violation
			040000 = Reverse Pump Off
			100000 = Air Balance Amps Too Large
530	Word	Read Only	Accumulated Error Code Bits - Word 4:
			Octal Value / Description
			000001 = Digital Input 3 Low Alarm
			000002 = Digital Input 3 High Alarm
			000004 = Digital Input 4 Low Alarm
			000010 = Digital Input 4 High Alarm
			000020 = Digital Input 5 Low Alarm
			000040 = Digital Input 5 High Alarm
			000100 = Digital Input 6 Low Alarm
			000200 = Digital Input 6 High Alarm
			000400 = Analog Input 1 Below Low Limit
			001000 = Analog Input 1 Above Upper Limit
			002000 = Analog Input 2 Below Low Limit
			004000 = Analog Input 2 Above Upper Limit
			010000 = Analog Input 3 Below Low Limit
			020000 = Analog Input 3 Above Upper Limit
			040000 = Air Balance Add Air Forced Open
			100000 = Air Balance Release Air Forced Open
531	Word	Read Only	Accumulated Error Code Bits - Word 5:
			Octal Value / Description
			000001 = Digital Input 7 Low Alarm
			000002 = Digital Input 7 High Alarm
			000004 = Digital Input 8 Low Alarm
			000010 = Digital Input 8 High Alarm
			000020 = Program Error
			000040 = Bad Shutdown
			000100 = Analog Input 4 Low Alarm
			000200 = Analog Input 4 High Alarm
			000400 = Analog Input 5 Low Alarm
			001000 = Analog Input 5 High Alarm
			002000 = Analog Input 6 Low Alarm
			004000 = Analog Input 6 High Alarm
			010000 = Analog Input 7 Low Alarm
			020000 = Analog Input 7 High Alarm
			040000 = Analog Input 8 Low Alarm
			100000 = Analog Input 8 High Alarm
532	Word	Read Only	Running Performance Status:
			Octal Value / Description

Parameter	Data Type	Access	Description
			000001 = Run Under 50% 000002 = Divide by zero 000004 = Fluid calculation alarm 000010 = Alarm low load cell
535	Word	Read Only	Non-Clearable Hardware Error Code Bits: Octal Value / Description 000001 = Bad Communications Card 000002 = Constant UART Interrupt 000004 = Bad Power Supply Card 000010 = AC Failure 000020 = Battery Low
536	Word	Read Only	Non-Clearable Pump-Off Setup Error Bits 2: Octal Value / Description 000001 = Missing Parameter 130 000010 = Missing Parameter 21 000020 = Reserved for Missing P22 000040 = Missing Parameter 23 000100 = Missing Parameter 24 000200 = Missing Parameter 20 002000 = Missing Position Memory
537	Word	Read Only	Non-Clearable Miscellaneous Error Bits 3: Octal Value / Description 000002 = Event Buffer 000020 = Temporary control failure 000200 = Bad fluid parameter 000400 = Communications Test 001000 = I/O ID Fail 002000 = Unsupported I/O 004000 = Missing I/O
540	Byte	Read Only	Worst Case Controller Error Status Since Power Up: Value / Description 0 = Normal or Lamp Only if error(s) 1 = Software Timer 2 = Control Transferred by Watchdog Relay 3 = Off Until Reset by Operator
541	Word	Read Only	Accumulated Error Code Since Power up - Word 1: Octal Value / Description 000001 = Control Failure 000002 = Low Load Violation 000004 = High Load Violation 000010 = Low Average Load 000020 = Position Switch Failure 000040 = Multiple Position Switch 000100 = Cleared Position Switch Error 000200 = Cleared Multiple Position Switch Errors 000400 = Low Load Span

Parameter	Data Type	Access	Description
			001000 = Load Sensor Failure
			002000 = Continuous Position Fault
			004000 = Cleared Continuous Position Fault
			010000 = Bad Software Timer Value
			020000 = A/D Failure
			040000 = Manual Off Command
			100000 = Pump-Off Override Timer Active
542	Word	Read Only	Accumulated Error Code Since Power up - Word 2: Octal Value / Description 000001 = Immediate Pump Off(s) 000002 = Minimum Cycle Run Time(s) 000004 = Maximum Cycle Run Time(s) 000010 = Maximum Daily Run Time 000020 = EEPROM Initialized 000040 = EEPROM Expanded 000100 = Parameters Restored from EEPROM 000200 = EEPROM Going Bad (1/3) 000400 = EEPROM Going Bad (2/3 or 3/3) 001000 = Bad Error Status at Power Up 002000 = Bad Error Code Bits at Power Up 004000 = Questionable Time and Date 010000 = Bad Real Time Clock Chip 020000 = Wrong Startup Line Frequency 040000 = Manual Control Transfer 100000 = Manual Software Timer
543	Word	Read Only	Accumulated Error Code Since Power up - Word 3: Octal Value / Description 000001 = CPU Fell Behind 000002 = Cleared RTC Error 000004 = Motor Off Too Long 000010 = Digital Input 1 Low Alarm 000020 = Digital Input 1 High Alarm 000040 = Digital Input 2 Low Alarm 000100 = Digital Input 2 High Alarm 000200 = Analog Input 1 as DI Low Alarm 000400 = Analog Input 1 as DI High Alarm 001000 = Analog Input 2 as DI Low Alarm 002000 = Analog Input 2 as DI High Alarm 004000 = Analog Input 3 as DI Low Alarm 010000 = Analog Input 3 as DI High Alarm 020000 = Immediate Upper Load Violation 040000 = Reverse Pump Off 100000 = Air Balance Amps Too Low
544	Word	Read Only	Accumulated Error Code Since Power up - Word 4: Octal Value / Description 000001 = Digital Input 3 Low Alarm

Parameter	Data Type	Access	Description
			000002 = Digital Input 3 High Alarm 000004 = Digital Input 4 Low Alarm 000010 = Digital Input 4 High Alarm 000020 = Digital Input 5 Low Alarm 000040 = Digital Input 5 High Alarm 000100 = Digital Input 6 Low Alarm 000200 = Digital Input 6 High Alarm 000400 = Analog Input 1 Below Low Limit 001000 = Analog Input 1 Above Upper Limit 002000 = Analog Input 2 Below Low Limit 004000 = Analog Input 2 Above Upper Limit 010000 = Analog Input 3 Below Low Limit 020000 = Analog Input 3 Above Upper Limit 040000 = Air Balance Add Air Forced Open 100000 = Air Balance Release Air Forced Open
545	Word	Read Only	Accumulated Error Code Since Power up - Word 5: Octal Value / Description 000001 = Digital Input 7 Low Alarm 000002 = Digital Input 7 High Alarm 000004 = Digital Input 8 Low Alarm 000010 = Digital Input 8 High Alarm 000020 = Program Error 000040 = Bad Shutdown
549	Display	Read Only	Firmware Part Number
550	Display	Read Only	Firmware Complete ID
551	Display	Read Only	Date of Firmware Compile
552	Display	Read Only	Time of Firmware Compile
555	Display	Read Only	Controller ID Message
556	Command	Read/Write	Output Rolling Unit Identification Message
557	Word	Read Only	Number of Characters Used in EEPROM
558	Word	Read Only	Number of Characters Left in EEPROM
560	Byte	Read/Write	DI 1 Closed Action [7]
561	Byte	Read/Write	DI 1 Open Action [7]
562	Byte	Read/Write	DI 2 Closed Action [7]
563	Byte	Read/Write	DI 2 Open Action [7]
564	Byte	Read/Write	DI 3 Closed Action [7]
565	Byte	Read/Write	DI 3 Open Action [7]
566	Byte	Read/Write	DI 4 Closed Action [7]
567	Byte	Read/Write	DI 4 Open Action [7]
568	Byte	Read/Write	DI 5 Closed Action [7]
569	Byte	Read/Write	DI 5 Open Action [7]
570	Byte	Read/Write	DI 6 Closed Action [7]

Parameter	Data Type	Access	Description
571	Byte	Read/Write	DI 6 Open Action [7]
572	Byte	Read/Write	DI 7 Closed Action [7]
573	Byte	Read/Write	DI 7 Open Action [7]
574	Byte	Read/Write	DI 8 Closed Action [7]
575	Byte	Read/Write	DI 8 Open Action [7]
578	Word	Read/Write	Low Order Accumulator
579	Word	Read/Write	High Order Accumulator
580	Word	Read/Write	DO 1 on Timer
581	Word	Read/Write	DO 2 on Timer
582	Word	Read/Write	DO 3 on Timer
583	Word	Read/Write	DO 4 on Timer
584	Word	Read/Write	DO 5 on Timer
585	Word	Read/Write	DO 6 on Timer
586	Word	Read/Write	DO 7 on Timer
587	Word	Read/Write	DO 8 on Timer
590	Word	Read/Write	DIO 1 as an Output Action
591	Word	Read/Write	DIO 2 as an Output Action
592	Word	Read/Write	DIO 3 as an Output Action
593	Word	Read/Write	DIO 4 as an Output Action
594	Word	Read/Write	DIO 5 as an Output Action
595	Word	Read/Write	DIO 6 as an Output Action
596	Word	Read/Write	DIO 7 as an Output Action
597	Word	Read/Write	DIO 8 as an Output Action
598	Word	Read/Write	Digital Outputs on Flags: Octal Value / Description 000001 = DIO1 on Flag 000002 = DIO2 on Flag 000004 = DIO3 on Flag 000010 = DIO4 on Flag 000020 = DIO5 on Flag 000040 = DIO6 on Flag 000100 = DIO7 on Flag 000200 = DIO8 on Flag
599	Word	Read Only	Digital Output Status. Flag or pulse: Octal Value / Description 000001 = DIO1 Closed 000002 = DIO2 Closed 000004 = DIO3 Closed 000010 = DIO4 Closed 000020 = DIO5 Closed 000040 = DIO6 Closed 000100 = DIO7 Closed

Parameter	Data Type	Access	Description
			000200 = DIO8 Closed
600	Time	Read/Write	Serial Port with CRC, Enable Timer

Parameters 601-862

Parameter	Data Type	Access	Description
601	Byte	Read/Write	Remote Data and Stop Bits.
602	Byte	Read/Write	Remote Baud Rate [7].
603	Word	Read Only	Communication Status Bits: Octal Value / Description 000001 = CRC Security 000002 = Large Receive Buffer 000004 = Large Transmit Buffer 000010 = Using Modem 000020 = Communication Out Test
604	Byte	Read/Write	Analyzer Port Data / Stop Bits.
605	Byte	Read/Write	Analyzer Port Baud Rate.
606	Byte	Read/Write	Carrier Detect On Delay [6].
607	Byte	Read/Write	Carrier Detect Off Delay [1].
608	Byte	Read/Write	Message End Until Carrier Lost Limit [60].
609	Byte	Read/Write	Radio Pre-Key [30]: 30 = 0.25 seconds in ticks
610	Byte	Read/Write	Radio Post-Key [12] 12 = 0.1 seconds in ticks
611	Byte	Read/Write	Maximum Radio Key [30].
612	Byte	Read/Write	Receive Timeout [120].
613	Byte	Read/Write	SCADA Port Protocol Type: Value / Description 0 = 8500 (Remote) 1 = 8550 (Local) 2 = MODBUS ASCII 3 = MODBUS RTU
614	Byte	Read/Write	Dynamometer Card Type: Value / Description 0 = Start-up 1 = Live Action 2 = Shutdown

Parameter	Data Type	Access	Description
615	Byte	Read/Write	Dynamometer Card Options: Value / Description 0 = Pound 1 = Percent
616	Byte	Read/Write	Dynamometer Card Number: Value / Description 0 = Card 1 1 = Card 2 2 = Card 3 3 = Card 4 4 = Card 5
617	Byte	Read/Write	Position Type: Value / Description 0 = Synthesized Fraction 1 = Fractional Actual 2 = Voltage
619	Byte	Read/Write	Actual position data available from RPC for analysis programs Operator must enter proper value to provide controller compatibility with host software. Enter value in P619 as follows: 0 - When no continuous position data is available to the controller. Note: To be used when continuous position input data is available to the controller and 8500 protocol used.
620	Word	Read/Write	Communication Group Address [4093].
621	Word	Read Only	Maximum Radio "On Time".
622	Word	Read Only	Maximum Transmit Message Time.
623	Word	Read Only	Maximum Transmit Message in Characters.
624	Word	Read Only	Actual Transmit Buffer Size in Characters.
625	Long	Read Only	Maximum Transmit Buffer Size in Characters.
626	Word	Read Only	Maximum Transmit Message Time using value in P625.
627	Word	Read Only	Maximum Radio On Time using value in P625.
628	Byte	Read/Write	All Address Response Test Override Timer (Seconds).
629	Command	Read/Write	Clear P630 through P642.
630	Display	Read Only	Last Characters Received as ASCII.
631	Word	Read/Write	Character Errors (Framing, Parity, Overrun Errors).
632	Word	Read/Write	Characters Received.
633	Word	Read/Write	Header Characters Received.
634	Word	Read/Write	Trailer Characters Received.

Parameter	Data Type	Access	Description
635	Word	Read/Write	Framed Messages Received.
636	Word	Read/Write	Framed Messages Received with Correct CRC / Checksum.
637	Word	Read/Write	Messages Processed.
638	Word	Read/Write	Commands Processed.
639	Word	Read/Write	Responses Transmitted.
640	Word	Read/Write	Characters Transmitted.
641	Word	Read/Write	Maximum Time Messages Received to Response Started.
642	Word	Read/Write	Max. Time Messages Received to Response Sent.
644	Byte	Read/Write	Output Test Spacing Delay.
645	Byte	Read Only	Last Character Received.
646	Byte	Read/Write	Output Test Data / Stop Bits [2].
647	Byte	Read/Write	Output Test Character [U].
648	Byte	Read/Write	Output Test Time.
649	Word	Read Only	Internal Status Bits.
660	Byte	Read/Write	Cursor Location.
661	Byte	Read/Write	Timer.
662	Long	Read Only	Not functional in Version 2.00 and higher.
663	Word	Read/Write	Not functional in Version 2.00 and higher.
664	Word	Read/Write	Not functional in Version 2.00 and higher.
665	Byte	Read Only	Good Operation Timer.
666	Byte	Read/Write	Required Good Operation Time [15].
667	Byte	Read/Write	Log Clear Errors Flag.
668	Byte	Read Only	Error Code: Value / Description 0 = No Error 1 = Bad Second Interval 2 = Read All 1's 3 = Write Confirm 4 = Cannot Read Same Twice
669	Time	Read Only	Seconds Value for RTC Chip (0 to 9).
670	Time	Read Only	Today's Accumulated Run Time.
671	Time	Read Only	Yesterday's Total Accumulated Run Time.
672	Time	Read Only	Run Time Two Days Ago.
673	Time	Read Only	Run Time Three Days Ago.
674	Time	Read Only	Run Time Four Days Ago.
675	Time	Read Only	Run Time Five Days Ago.
676	Time	Read Only	Run Time Six Days Ago.
677	Time	Read Only	Run Time Seven Days Ago.
678	Time	Read Only	Run Time Eight Days Ago.

Parameter	Data Type	Access	Description
679	Time	Read Only	Run Time Nine Days Ago.
680	Time	Read Only	Run Time Ten Days Ago.
681	Time	Read Only	Run Time Eleven Days Ago.
682	Time	Read Only	Run Time Twelve Days Ago.
683	Time	Read Only	Run Time Thirteen Days Ago.
684	Time	Read Only	Run Time Fourteen Days Ago.
685	Time	Read Only	Run Time Fifteen Days Ago.
686	Time	Read Only	Run Time Sixteen Days Ago.
687	Time	Read Only	Run Time Seventeen Days Ago.
688	Time	Read Only	Run Time Eighteen Days Ago.
689	Time	Read Only	Run Time Nineteen Days Ago.
690	Time	Read Only	Run Time Twenty Days Ago.
691	Time	Read Only	Run Time Twenty-one Days Ago.
692	Time	Read Only	Run Time Twenty-two Days Ago.
693	Time	Read Only	Run Time Twenty-three Days Ago.
694	Time	Read Only	Run Time Twenty-four Days Ago.
695	Time	Read Only	Run Time Twenty-five Days Ago.
696	Time	Read Only	Run Time Twenty-six Days Ago.
697	Time	Read Only	Run Time Twenty-seven Days Ago.
698	Time	Read Only	Run Time Twenty-eight Days Ago.
699	Time	Read Only	Run Time Twenty-nine Days Ago.
700	Word	Read Only	Raw A/D Channel Value.
701	Word	Read Only	Current Input Value.
702	Word	Read Only	Input Value - EGU.
703	Byte	Read/Write	AI4 Type.
704	Byte	Read/Write	AI4 Decimal Places [3].
705	Byte	Read/Write	AI4 EGU Label [9].
706	Word	Read/Write	Low Value Scaling.
707	Word	Read/Write	High Value Scaling.
708	Word	Read/Write	Lower Alarm Limit.
709	Byte	Read/Write	Lower Alarm Action 1.
710	Byte	Read/Write	Lower Alarm Action 2.
711	Word	Read/Write	Upper Alarm Limit.
712	Byte	Read/Write	Upper Alarm Action 1.
713	Byte	Read/Write	Upper Alarm Action 2.
714	Word	Read/Write	Alarm Deadband.
715	Word	Read Only	Lowest Recorded Input Value.
716	Word	Read Only	Highest Recorded Input Value.

Parameter	Data Type	Access	Description
719	Command	Read/Write	Reset AI4 Highs and Lows.
720	Word	Read Only	Raw A/D Channel Value.
721	Word	Read Only	Current Input Value.
722	Word	Read Only	Input Value - EGU.
723	Byte	Read/Write	AI5 Type.
724	Byte	Read/Write	AI5 Decimal Places [3].
725	Byte	Read/Write	AI5 EGU Label [9].
726	Word	Read/Write	Low Value Scaling.
727	Word	Read/Write	High Value Scaling.
728	Word	Read/Write	Lower Alarm Limit.
729	Byte	Read/Write	Lower Alarm Action 1.
730	Byte	Read/Write	Lower Alarm Action 2.
731	Word	Read/Write	Upper Alarm Limit.
732	Byte	Read/Write	Upper Alarm Action 1.
733	Byte	Read/Write	Upper Alarm Action 2.
734	Word	Read/Write	Alarms Deadband.
735	Word	Read Only	Lowest Recorded Input Value.
736	Word	Read Only	Highest Recorded Input Value.
739	Command	Read/Write	Reset AI5 Highs and Lows.
740	Word	Read Only	Raw A/D Channel Value.
741	Word	Read Only	Current Input Value.
742	Word	Read Only	Input Value - EGU.
743	Byte	Read/Write	AI6 Type.
744	Byte	Read/Write	AI6 Decimal Places [3].
745	Byte	Read/Write	AI6 EGU Label [9].
746	Word	Read/Write	Low Value Scaling.
747	Word	Read/Write	High Value Scaling.
748	Word	Read/Write	Lower Alarm Limit.
749	Byte	Read/Write	Lower Alarm Action 1.
750	Byte	Read/Write	Lower Alarm Action 2.
751	Word	Read/Write	Upper Alarm Limit.
752	Byte	Read/Write	Upper Alarm Action 1.
753	Byte	Read/Write	Upper Alarm Action 2.
754	Word	Read/Write	Alarms Deadband.
755	Word	Read Only	Lowest Averaged Input Value.
756	Word	Read Only	Highest Averaged Input Value.
759	Command	Read/Write	Reset AI6 Highs and Lows.
760	Word	Read Only	Raw A/D Channel Value.

Parameter	Data Type	Access	Description
761	Word	Read Only	Current Input Value.
762	Word	Read Only	Input Value - EGU.
763	Byte	Read/Write	AI7 Type.
764	Byte	Read/Write	AI7 Decimal Places [3].
765	Byte	Read/Write	AI7 EGU Label [9].
766	Word	Read/Write	Low Value Scaling.
767	Word	Read/Write	High Value Scaling.
768	Word	Read/Write	Lower Alarm Limit.
769	Byte	Read/Write	Lower Alarm Action 1.
770	Byte	Read/Write	Lower Alarm Action 2.
771	Word	Read/Write	Upper Alarm Limit.
772	Byte	Read/Write	Upper Alarm Action 1.
773	Byte	Read/Write	Upper Alarm Action 2.
774	Word	Read/Write	Alarms Deadband.
775	Word	Read Only	Lowest Recorded Input Value.
776	Word	Read Only	Highest Recorded Input Value.
779	Command	Read/Write	Reset AI7 Highs and Lows.
780	Word	Read Only	Raw A/D Channel Value.
781	Word	Read Only	Current Input Value.
782	Word	Read Only	Input Value - EGU.
783	Byte	Read/Write	AI8 Type.
784	Byte	Read/Write	AI8 Decimal Places [3].
785	Byte	Read/Write	AI8 EGU Label [9].
786	Word	Read/Write	Low Value Scaling.
787	Word	Read/Write	High Value Scaling.
788	Word	Read/Write	Lower Alarm Limit.
789	Byte	Read/Write	Lower Alarm Action 1.
790	Byte	Read/Write	Lower Alarm Action 2.
791	Word	Read/Write	Upper Alarm Limit.
792	Byte	Read/Write	Upper Alarm Action 1.
793	Byte	Read/Write	Upper Alarm Action 2.
794	Word	Read/Write	Alarms Deadband.
795	Word	Read Only	Lowest Recorded Input Value.
796	Word	Read Only	Highest Recorded Input Value.
799	Command	Read/Write	Reset AI8 Highs and Lows.
800	Byte	Read/Write	X1 Point from Host.
801	Byte	Read/Write	X2 Point from Host.
802	Byte	Read/Write	Y1 Point from Host.

Parameter	Data Type	Access	Description
803	Byte	Read/Write	Y2 Point from Host.
804	Word	Read Only	Calculated Fluid Stroke Length.
805	Byte	Read/Write	Enable Fluid Stroke Calculation [0]: Value / Description 0 = Off 1 = On
806	Word	Read/Write	Surface Stroke Length.
807	Word	Read/Write	Pump Bore Diameter.
808	Word	Read Only	Average Surface Stroke Length.
809	Word	Read Only	Average Daily Fluid Stroke Length.
810	Word	Read Only	Average Pump Rate SPM.
811	Word	Read Only	Today's Fluid Production.
812	Word	Read Only	Yesterday's Fluid Production.
813	Word	Read Only	Fluid Production - 2 Days ago.
814	Word	Read Only	Fluid Production - 3 Days ago.
815	Word	Read Only	Fluid Production - 4 Days ago.
816	Word	Read Only	Fluid Production - 5 Days ago.
817	Word	Read Only	Fluid Production - 6 Days ago.
818	Word	Read Only	Fluid Production - 7 Days ago.
819	Word	Read Only	Fluid Production - 8 Days ago.
820	Word	Read Only	Fluid Production - 9 Days ago.
821	Word	Read Only	Fluid Production - 10 Days ago.
822	Word	Read Only	Fluid Production - 11 Days ago.
823	Word	Read Only	Fluid Production - 12 Days ago.
824	Word	Read Only	Fluid Production - 13 Days ago.
825	Word	Read Only	Fluid Production - 14 Days ago.
826	Word	Read Only	Fluid Production - 15 Days ago.
827	Word	Read Only	Fluid Production - 16 Days ago.
828	Word	Read Only	Fluid Production - 17 Days ago.
829	Word	Read Only	Fluid Production - 18 Days ago.
830	Word	Read Only	Fluid Production - 19 Days ago.
831	Word	Read Only	Fluid Production - 20 Days ago.
832	Word	Read Only	Fluid Production - 21 Days ago.
833	Word	Read Only	Fluid Production - 22 Days ago.
834	Word	Read Only	Fluid Production - 23 Days ago.
835	Word	Read Only	Fluid Production - 24 Days ago.
836	Word	Read Only	Fluid Production - 25 Days ago.
837	Word	Read Only	Fluid Production - 26 Days ago.

Parameter	Data Type	Access	Description
838	Word	Read Only	Fluid Production - 27 Days ago.
839	Word	Read Only	Fluid Production - 28 Days ago.
840	Word	Read Only	Fluid Production - 29 Days ago.
841	Byte	Read/Write	Lower Band Size.
842	Word	Read Only	Error flags for programmer debugging.
843	Word	Read Only	Amount of time required for the fluid calculation.
844	Byte	Read Only	Current Run Mode.
845	Byte	Read Only	Calculated Value X1.
846	Byte	Read Only	Calculated Value X2.
847	Byte	Read Only	Calculated Value Y1.
848	Byte	Read Only	Calculated Value Y2.
849	Word	Read Only	Number of strokes calculated: Modes 0 = Continuous: Unit does not detect pump-off, thereby running all the time. 1 = Pump-Off: Detects Pump-Off condition. 2 = On/Off: Well runs according to programmed run time and turns off. The unit will wait until parameter 20 (Idle Time) expires and then begin a new pumping cycle. 3 = Shutdown: Well is not running
850	Time	Read/Write	Time to start in mode specified in P851.
851	Byte	Read/Write	Mode to run in at time specified in P850.
852	Time	Read/Write	Run Time for run started at time specified in P850. This is only required in On/Off mode.
853	Time	Read/Write	Time to start in mode specified in P854.
854	Byte	Read/Write	Mode to run in at time specified in P853.
855	Time	Read/Write	Run Time for run started at time specified in P853. This is only required in On/Off mode.
856	Time	Read/Write	Time to start in mode specified in P857.
857	Byte	Read/Write	Mode to run in at time specified in P856.
858	Time	Read/Write	Run Time for run started at time specified in P856. This is only required in On/Off mode.
859	Time	Read/Write	Time to start in mode specified in P860.
860	Byte	Read/Write	Mode to run in at time specified in P859.
861	Time	Read/Write	Run Time for run started at time specified in P859. This is only required in On/Off mode.
862	Byte	Read/Write	Enable/Disable Timing Control [0]: 0 = Disable 1 = Enable

8750 and 8500/8650 Parameter Listings

For information on a specific range of parameters, select a link from the list below.

Parameter Listings 1-300
Parameter Listings 309-600
Parameter Listings 601- 669

🔹 *For additional parameter details, refer to the device's User Manual.*

Parameters 1-300

Parameter	Data Type	Access	Description
1	Word	Read/Write	Operator Password Entry.
2	Word	Read/Write	Communication Address [4094]. Controller I.D. Address (1 to 4092).
3	Time	Read/Write	Time of Day.
4	Date	Read/Write	Current Date.
5	Byte	Read/Write	Current Day of Week: 0 = Sun 1 = Mon ... 6 = Sat
6	Command	Read/Write	Manual Top Of Stroke (TOS).
7	Command	Read/Write	Automatically Set TOS.
8	Display	Read Only	Position Switch location after TOS.
15	Byte	Read/Write	Month Format [0]: 0 = Numeric 1 = Alphabetic
16	Byte	Read/Write	Time Format [0]: 0 = Military 1 = AM/PM
17	Byte	Read/Write	Run Time Format [0]: 0= Hours Only 1= Hours/Days
18	Byte	Read/Write	Clock Source with AC Power [0]: 0 = AC 1 = Clock Xtal. Use "1" when connected to a generator or unstable power.

Parameter	Data Type	Access	Description
19	Byte	Read/Write	Clock Source on Battery Backup [1]: 0 = CPU Xtal 1 = Clock Xtal
20	Time	Read/Write	Idle Time [00:05:00].
21	Byte	Read/Write	POC Position %.
23	Byte	Read/Write	POC Load %.
24	Byte	Read/Write	Consecutive Pump Off Strokes.
25	Time	Read/Write	Pump Up Delay Time [00:00:30].
26	Byte	Read/Write	Pump Off Control (POC) Method [0]: 0 = Quadrant Method - Lower RH 1 = Point Method - Along Base Line 2 = Reverse POC using Method 0 3 = Reverse POC using Method 1 4 = ESP Control Only (For RTU Use). 8 = Quadrant Method - Upper LH 9 = Point Method - Upper (100%) Line 10 = Reverse POC using Method 8 11 = Reverse POC using Method 9
27	Time	Read/Write	POC "Override" Timer (HH:MM:SS). Operator Set. POC ignores pump off processing until Timer goes to zero.
28	Byte	Read/Write	Override Timer Power-Up Clear Flag [1]: 0 = No 1 = Yes
29	Byte	Read/Write	AC Fail - Pump On after Idle Time [0]: 0 = No 1 = Yes
30	Byte	Read/Write	AC Fail - Pump On when Commanded [1]: 0 = No 1 = Yes
31	Command	Read/Write	Force "Off Until Reset".
32	Command	Read/Write	Force "Control Transfer".
33	Command	Read/Write	Force "Software Timer".
34	Byte	Read/Write	Position Sensor Type for POC [0].
35	Byte	Read/Write	Load Sensor Type [0]: 0 = Polish Rod Load Cell 1 = Strain Gauge Auto Self Tracking
38	Time	Read/Write	Motor"Off Time Limit".
39	Byte	Read/Write	"Off Until Reset" Enable [0]:

Parameter	Data Type	Access	Description
			0 = Disabled 1 = Enabled
40	Byte	Read/Write	Air Balance Control Goal %.
41	Byte	Read/Write	Dead Band Value %.
42	Word	Read Only	Peak Measured Value on the Upstroke.
43	Word	Read Only	Peak Measured Value on the Downstroke.
44	Word	Read Only	Air Balance Peak Differences.
45	Word	Read Only	Air Balance Peak Differences.
46	Word	Read/Write	Purge Enable Time. This is the "Tick Count" of how long the Automatic Purge is to open the Valve when it is time to purge the Air Cylinder. Valid values are 0 through 65535 (0 to 546.1 Seconds in a 60 Hz Powered System).
50	Byte	Read/Write	Control Enable Flag [0]: 0 = Disabled 1 = Enabled
51	Time	Read/Write	Begin "Run Inhibit Time".
52	Time	Read/Write	End "Run Inhibit Time".
63	Byte	Read/Write	Dynamometer Reference Point (Target Type) [0]: 0 = Cycle Minimum 1 = Cycle Average 2 = Cycle Maximum
64	Byte	Read/Write	Conditions Required for Auto-Self Tracking [0]: 0 = Only if Pumping Unit Running with Valid Load Span (P223) 1 = Only if Pumping Unit Running 2 = At All Times
65	Word	Read/Write	Cycle Minimum Load "Target".
66	Word	Read/Write	Cycle Average Load "Target".
67	Word	Read/Write	Cycle Maximum Load "Target".
68	Word	Read/Write	Reference Adjust Limit in Micro-volts.
69	Word	Read Only	Tracking Step Limit in Micro-volts.
70	Command	Read/Write	Load Sensor "Zero Set" Command. Note: This should only be done with No Load on the Load Cell.
71	Word	Read/Write	Load Sensor Offset.
72	Word	D I	Display of Load Sensor Offset
73	Word	Read/Write	Dead Weight Load Value.

Parameter	Data Type	Access	Description
74	Word	Read/Write	Load Sensor Gain [1500].
75	Display	Read Only	Display of Load Cell Gain.
76	Word	Read Only	Current Load Sensor Input.
77	Word	Read Only	Current Load Sensor Input.
78	Word	Read Only	Current Load Sensor Input.
79	Word	Read Only	Minimum Load Last Stroke.
80	Word	Read Only	Maximum Load Last Stroke.
83	Word	Read Only	Minimum Load Last Since Pump Start.
84	Word	Read Only	Maximum Load Last Since Pump Start.
85	Word	Read Only	Minimum Load Since Power Up.
86	Word	Read Only	Maximum Load Since Power Up.
87	Word	Read Only	Load Span Last Cycle.
88	Word	Read Only	Lowest Load Span Since Power Up.
89	Word	Read Only	Load Average Last Stroke.
90	Word	Read Only	Lowest Load Since Power Up.
91	Word	Read Only	Highest Load Since Power Up.
92	Word	Read Only	Minimum Load Since Power Up.
93	Word	Read Only	Maximum Load Since Power Up.
94	Command	Read/Write	RESET Minimum/Maximum Load Values.
95	Word	Read Only	Load Fail Input in Counts and V.
96	Word	Read Only	Load Fail Input in mV.
97	Word	Read Only	Lowest Load Reading Possible.
98	Word	Read Only	Highest Load Reading Possible.
102	Word	Read Only	Position Sensor Input.
103	Word	Read Only	Current Position Sensor Input.
104	Word	Read Only	Position Sensor Minimum Last Stroke.
105	Word	Read Only	Position Sensor Maximum Last Stroke.
106	Word	Read Only	Position Span Last Stroke.
107	Word	Read Only	Filtered Position Span.
108	Word	Read/Write	Direction Debounce.
109	Byte	Read Only	Bottom of Stroke(BOS) Counter.
110	Word	Read/Write	Time from Bottom to Welbot Call.
111	Word	Read/Write	Minimum Time from Bottom to Wellbot Call.
112	Word	Read/Write	Maximum Time from Bottom to Wellbot Call.
120	Word	Read/Write	Scratch Pad Word 1.
121	Word	Read/Write	Scratch Pad Word 2.
122	Word	Read/Write	Scratch Pad Word 3.
123	Word	Read/Write	Scratch Pad Word 4.

Parameter	Data Type	Access	Description
124	Word	Read/Write	Scratch Pad Word 5.
125	Byte	Read/Write	Good Cycle Intervals Required.
128	Byte	Read/Write	Good Input Cycles to Recover after Fault.
129	Byte	Read/Write	Log cleared PSW error.
130	Word	Read/Write	TOS to PSW stroke fract.
131	Command	Read/Write	Reverse PSW Setting.
132	Word	Read Only	Last Position Switch Filtered Interval.
133	Byte	Read/Write	Position Switch Closing Debounce interval.
134	Byte	Read/Write	Pos. Switch Opening Debounce interval.
135	Byte	Read/Write	Use Position Switch Opening or Closing.
136	Byte	Read/Write	Minimum Allowable % Cycle Time Deviation.
137	Byte	Read/Write	Maximum Allowable % Cycle Time Deviation.
138	Byte	Read Only	Good Intervals Cycle Counter.
139	Word	Read Only	Time Interval for Last Stroke.
140	Word	Read Only	Filtered Time Interval for Last Stroke.
141	Word	Read Only	Last Position Switch Interval.
142	Word	Read Only	Last Filtered Stroke Interval.
143	Byte	Read Only	Bottom of Stroke (BOS) Counter.
144	Byte	Read Only	Current Position Switch Status.
145	Word	Read Only	Last Debounced Closed Interval.
146	Word	Read Only	Position Switch Closing Counter.
147	Byte	Read Only	Debounced Switches Since Last Turn Off/On.
148	Byte	Read Only	BOS Counter.
149	Command	Read/Write	Clear All Cycle Interval Info.
150	Byte	Read/Write	AC Power, 50 or 60 Hz Selection [60].
151	Byte	Read Only	Line Frequency at Power Up.
152	Display	Read Only	Current Line Frequency.
153	Display	Read Only	Lowest Line Frequency Recorded.
154	Display	Read Only	Highest Line Frequency Recorded.
155	Display	Read Only	Averaged Line Frequency.
156	Display	Read Only	Lowest Averaged Line Frequency.
157	Display	Read Only	Highest Averaged Line Frequency.
158	Command	Read/Write	Reset Frequency Displays.
159	Byte	Read/Write	Period for Line Frequency Averaging in Seconds.
160	N/A	Read Only	AI1 Current Value.
161	N/A	Read Only	Current Input Value.
162	N/A	Read Only	Lowest Recorded Input Value.
163	N/A	Read Only	Highest Recorded Input Value.

Parameter	Data Type	Access	Description
164	N/A	Read Only	Input Value Averaged over Cycle.
165	N/A	Read Only	Lowest Averaged Input Value.
166	N/A	Read Only	Highest Averaged input Value.
167	N/A	Read Only	Reset AI 1 Highs and Lows.
170	Word	Read/Write	DO 1 on Timer.
171	Word	Read/Write	DO 2 on Timer.
172	Byte	Read/Write	DO 1 on Flag. This remains in the "Set Condition" until Reset Manually or by Action Code.
173	Byte	Read/Write	DO 2 on Flag.
178	Word	Read/Write	DO 1 Pulsed No. of Ticks. Input No. of Ticks Equal to Pulse Duration Required - Tick = 1/120.
179	Word	Read/Write	DO 2 Pulsed No. of Ticks.
180	Byte	Read Only	DI Octal Value Summation.
181	Word	Read/Write	DI1 Low Accumulator. 0 to 65,536 counts & then automatically resets to zero (0).
182	Word	Read/Write	DI 1 High Accumulator.
183	Word	Read/Write	DI 2 Low Accumulator.
184	Word	Read/Write	DI 2 High Accumulator.
185	Word	Read/Write	DI 3 Low Accumulator.
186	Word	Read/Write	DI 3 High Accumulator.
187	Word	Read/Write	DI 4 Low Accumulator.
188	Word	Read/Write	DI4 High Accumulator.
189	Word	Read/Write	DI 5 Low Accumulator.
190	Word	Read/Write	DI 5 High Accumulator.
191	Word	Read/Write	DI 6 Low Accumulator.
192	Word	Read/Write	DI 6 High Accumulator.
193	Word	Read Only	AI as DI Octal Value Summation.
194	Word	Read/Write	AI 1 Low Accumulator.
195	Word	Read/Write	AI 1 High Accumulator.
196	Word	Read/Write	AI 2 Low Accumulator.
197	Word	Read/Write	AI 2 High Accumulator.
198	Word	Read/Write	AI 3 Low Accumulator.
199	Word	Read/Write	AI 3 High Accumulator.
200	Byte	Read/Write	Sensor Failure Action.
204	Byte	Read/Write	On Times Averaged for STAT.
205	Time	Read Only	Controller Averaged Software On Time.
206	Time	Read/Write	Manually Set "Software Run Time".

Parameter	Data Type	Access	Description
207	Time	Read Only	Latest Averaged Run Time since Power Up.
210	Word	Read/Write	Lower Load Limit.
211	Word	Read/Write	Upper Load Limit.
212	Word	Read/Write	Lowest Allowed Average Load.
213	Byte	Read/Write	Req'd Consecutive Load Violations.
214	Byte	Read/Write	Load Violation Action.
215	Byte	Read/Write	Entry Deglitch Time.
216	Byte	Read/Write	Exit Deglitch Time.
217	Word	Read/Write	Deadband in Pounds.
218	Word	Read/Write	Immediate Upper Load Limit.
219	Byte	Read/Write	Action for P218 Limit Violation.
220	Byte	Read/Write	Power Fail "Off Time Multiplier" (in .1 units). [15 = 1.5 Multiplier] Disables Low Load Span and Cycle Run Time for the Time Period determined by the actual Power Off Interval times this Parameter.
221	Time	Read/Write	Multiplied Power Fail Maximum Time Limit.
222	Byte	Read/Write	Number of Low Load Span Violations before Action.
223	Word	Read/Write	Valid Min. Load Span.
225	Byte	Read/Write	Low Load Span Action.
226	Time	Read/Write	Low Ld Span Well Off Timer. This is the amount of time that the well was off (including power failures). This time is multiplied by Parameter 220 to get the multiplied time for recovery period.
227	Time	Read/Write	Low Ld Span Well On Timer. This is the amount of time left before the multiplied power fail recovery time period is timed out.
230	Byte	Read/Write	Number of Consecutive "Immediate" Pump Offs Allowed.
231	Byte	Read/Write	Immediate Pump-Off Action [0].
232	Time	Read/Write	Minimum Cycle Run Time Allowable [00:00:00].
233	Byte	Read/Write	Number of Consecutive Minimum Cycle Run Times Violations before Action [2].
234	Byte	Read/Write	Minimum Cycle Run Time Violation Action [0].
235	Time	Read/Write	Maximum Cycle Run Time Allowable [00:00:00].
236	Byte	Read/Write	Maximum Cycle Run Time Violation Action [0].
237	Time	Read/Write	Maximum Daily Run Time [00:00:00].
238	Byte	Read/Write	Maximum Daily Run Time Action [0].
239	Time	Read/Write	MRTN Well Off Timer. This is the amount of time that the well was without power multiplied by Parameter 220 to get the calculated "Recovery Period".
240	Time	Read/Write	MRTN Well On Timer. This is the amount of time left before the Power Fail Recovery Period is timed out.

Parameter	Data Type	Access	Description
241	Byte	Read/Write	Pump-Offs Required to Clear Maximum Run Time On Timer [2].
242	Time	Read/Write	Qualified Cycle on Timer.
243	Time	Read/Write	Qualified Daily on Timer.
249	Byte	Read/Write	AI 1 Low Action.
250	Byte	Read/Write	AI 1 High Action.
251	Byte	Read/Write	AI 2 Low Action.
252	Byte	Read/Write	AI 2 High Action.
253	Byte	Read/Write	AI 3 Low Action.
254	Byte	Read/Write	AI 3 High Action.
260	Byte	Read/Write	Control Failure Action.
261	Time	Read/Write	Control Failure Timeout Before Action.
262	Byte	Read/Write	Pump-On Sensing Delay [6].
263	Byte	Read/Write	Pump-Turn Off Sensing Delay [30].
270	Word	Read/Write	Minimum Allowable Span [500].
271	Word	Read/Write	Minimum Allowable Input Signal [2250].
272	Word	Read/Write	Maximum Allowable Input Signal [9000].
273	Byte	Read/Write	Position Signal Fault Period [5].
280	Word	Read Only	Input Value - Counts.
281	Word	Read Only	Input Value - mV.
282	Word	Read Only	Input Value - EGU.
283	Byte	Read/Write	AI Type [0]: 0 = 0 - 5V 1 = 1- 5V 2 = 4- 20mA
284	Byte	Read/Write	Scaled EGU Decimal Places.
285	Byte	Read/Write	EGU Label.
286	Word	Read/Write	Low Value Scaling.
287	Word	Read/Write	High Value Scaling.
288	Word	Read/Write	Lower Alarm Limit.
289	Byte	Read/Write	Lower Alarm Action 1.
290	Byte	Read/Write	Lower Alarm Action 2.
291	Word	Read/Write	Upper Alarm Limit.
292	Byte	Read/Write	Upper Alarm Action 1.
293	Byte	Read/Write	Upper Alarm Action 2.
295	Word	Read Only	Lowest Recorded Input Value.
296	Word	Read Only	Highest Recorded Input Value.
297	Word	Read Only	Input Value Averaged Over a Cycle.
298	Word	Read Only	Lowest Averaged Input Value.

Parameter	Data Type	Access	Description
299	Word	Read Only	Highest Averaged Input Value.
300	Command	Read/Write	Reset Lows and Highs.

Parameters 309-600

Parameter	Data Type	Access	Description
309	Word	Read/Write	Extra Analog Status Bits: 000001 - Extra channel 1 low alarm 000002 - Extra channel 1 high alarm 000004 - Extra channel 2 low alarm 000010 - Extra channel 2 high alarm 000020 - Extra channel 3 low alarm 000040 - Extra channel 3 high alarm
310	Word	Read Only	AI 2 Value.
311	Word	Read Only	Input Value - volts.
312	Word	Read Only	Input Value - EGU.
313	Byte	Read/Write	Analog Input Type.
314	Byte	Read/Write	Scaled EGU Decimal Places.
315	Byte	Read/Write	EGU Label [9].
316	Word	Read/Write	Low Value Scaling.
317	Word	Read/Write	High Value Scaling.
318	Word	Read/Write	Lower Alarm Limit.
319	v	Read/Write	Lower Alarm Action 1.
320	v	Read/Write	Lower Alarm Action 2.
321	Word	Read/Write	Upper Alarm Limit.
322	Byte	Read/Write	Upper Alarm Action 1.
323	Byte	Read/Write	Upper Alarm Action 2.
325	Word	Read Only	Lowest Recorded Input Value.
326	Word	Read Only	Highest Recorded Input Value.
329	Command	Read/Write	Rest Highs and Lows.
330	Word	Read Only	Input Value.
331	Word	Read Only	Input Value - volts.
332	Word	Read Only	Input Value - EGU.
333	Byte	Read/Write	Analog Input Type: 0 = 0 - 5V 1 = 1-5V 2 = 4-20mA

Parameter	Data Type	Access	Description
334	Byte	Read/Write	Scaled EGU Decimal Places.
335	Byte	Read/Write	EGU Label [9].
336	Word	Read/Write	Low Value Scaling.
337	Word	Read/Write	High Value Scaling.
338	Word	Read/Write	Lower Alarm Limit.
339	Byte	Read/Write	Lower Alarm Action 1.
340	Byte	Read/Write	Lower Alarm Action 2.
341	Word	Read/Write	Upper Alarm Limit.
342	Byte	Read/Write	Upper Alarm Action 1.
343	Byte	Read/Write	Upper Alarm Action 2.
345	Word	Read Only	Lowest Recorded Input Value.
346	Word	Read Only	Highest Recorded Input Value.
349	Command	Read/Write	Reset Lows and Highs.
350	Command	Read/Write	Command turns Fault Lamp on for 15 Second Test.
351	Command	Read/Write	Force a Controller Software Reset.
352	Command	Read/Write	Output Last Rolling Display.
370	Display	Read Only	Pump-Off Position referenced to Setpoint Load.
371	Display	Read Only	Pump-Off Load referenced to Setpoint Position.
372	Display	Read Only	Display of Parameter 370 or 371. This depends on Parameter 26 (POC Method) and is displayed when the "POC DSPLY" Key is pressed on the controller.
373	Word	Read Only	Estimated Position Value for Pump-Off.
375	Word	Read Only	Estimated Load Value for Pump-Off.
376	Word	Read Only	Load Value at Pump-Off Point/Area.
390	Time	Read Only	Time of Last Fatal Error or AC Power Fail.
391	Date	Read Only	Date of Last Fatal Error or AC Power Fail.
392	Time	Read Only	Time of Last Complete Initialization.
393	Date	Read Only	Date of Last Complete Initialization.
394	Time	Read Only	Interval of Last Fatal Error or Power Fail.
395	Word	Read Only	Last Fatal Error Address.
396	Time	Read Only	Time of Last Control State Change.
397	Date	Read Only	Date of Last Control State Change.
398	Word	Read Only	Days Counter.
399	Time	Read Only	Rollover Counter.
400	Time	Read Only	Current Run Time.
401	Time	Read Only	Previous Interval (1).
402	Time	Read Only	Previous Interval (2).
403	Time	Read Only	Previous Interval (3).
404	Time	Read Only	Previous Interval (4).

Parameter	Data Type	Access	Description
405	Time	Read Only	Previous Interval (5).
406	Time	Read Only	Previous Interval (6).
407	Time	Read Only	Previous Interval (7).
408	Time	Read Only	Previous Interval (8).
409	Time	Read Only	Previous Interval (9).
410	Time	Read Only	Previous Interval (10).
411	Time	Read Only	Previous Interval (11).
412	Time	Read Only	Previous Interval (12).
413	Time	Read Only	Previous Interval (13).
414	Time	Read Only	Previous Interval (14).
415	Time	Read Only	Previous Interval (15).
416	Time	Read Only	Previous Interval (16).
417	Time	Read Only	Previous Interval (17).
418	Byte	Read Only	Undisturbed Pump Cycles.
419	Time	Read Only	Present Pump-Off Time.
420	Time	Read Only	Run Time Accumulation Today.
421	Time	Read Only	Yesterdays Run Time.
422	Time	Read Only	Run Time Two Days Ago.
423	Time	Read Only	Run Time Three Days Ago.
424	Time	Read Only	Run Time Four Days Ago.
425	Time	Read Only	Run Time Five Days Ago.
426	Time	Read Only	Run Time Six Days Ago.
427	Time	Read Only	Run Time Seven Days Ago.
429	Time	Read/Write	Gauge Period, Daily Start Time.
430	Word	Read Only	Present Undisturbed Pump-Offs in GaugeTime.
431	Word	Read Only	Previous Gauge Time Undisturbed Pump-Offs.
432	Time	Read Only	Present Undisturbed On-Time Average.
433	Time	Read Only	Previous Gauge Time Undisturbed On-Time Average.
439	Time	Read Only	Present Undisturbed On-Time Total.
441	Date	Read Only	Present gauge period starting date.
442-449	Time	Read Only	run time circular buffer.
450	Word	Read Only	Zero channel raw input in counts.
451	Word	Read Only	Zero channel filtered input in counts.
452	Word	Read Only	5 volt channel raw input.
453	Word	Read Only	5 volt channel filtered input.
454	Word	Read Only	Filtered span in counts.
455	Byte	Read Only	Channel: 0 = Zero Volts Calibration

Parameter	Data Type	Access	Description
			1 = Full Scale Calibration 2 = Load Input 3 = Position Input 4 = First Extra
456	Word	Read Only	Lowest Allowed Value.
457	Word	Read Only	Highest Allowed Value.
458	Word	Read Only	Actual Value.
459	Command	Read/Write	Clear P460-461.
460	Display	Read Only	Background timing.
461	Display	Read Only	Process queue.
472	Command	Read/Write	Initialize EEPROM to Factory Setting. ● **Note:** All Field Set Parameters are lost when EEPROM is initialized. Users must enter the BAKER Service Password in Parameter 473 first.
473	Word	Read/Write	SERVICE PASSWORD. User Password =8500 and allows changing. Service Password= 5500. This should only be used by Service Personnel and allows RPC to be initialized using Parameter 472g of RO Parameters such as Run Time Data.
480	Word	Read Only	EEPROM initial variable.
481	Word	Read Only	EEPROM bytes used.
482	Word	Read Only	Shadow RAM left in bytes.
483	Word	Read Only	EEPROM size in bytes.
484	Byte	Read Only	Software version.
485	Byte	Read Only	Software sub-version.
486-488	Display	Read Only	Bad parameters info.
490	Byte	Read Only	Present Software Main Version.
491	Byte	Read Only	Present Software Sub-Version.
495	Byte	Read Only	Communication Board(s): 0 - No Comm Boards 1 - Unknown or Bad Comm Board 2 - UART Board 3 - UART Board with Expanded Memory 4 - Radio Modem Board 5 - Hardwired Modem Board
496	Word	Read/Write	Analog Input Usage Configuration.
497	Word	Read/Write	Digital Input Usage Configuration: Octal Hex - Description Source

Parameter	Data Type	Access	Description
			000001 0001 - DI 1 Selected 325-6(1), 350(1**J**
			000002 0002 - DI 2 Selected 325-6(2), 350(2**J**
			000004 0004 - DI 3 Selected 350(1)
			000010 0008 - DI 4 Selected 350(2)
			000020 0010 - DI 5 Selected 350(3)
			000040 0020 - DI 6 Selected 350(4)
500	Word	Read/Write	Keypad Password.
501	Byte	Read/Write	Password Timeout Interval [5]: (Minutes) Password at Parameter Every 1 to 5 seconds
508	Byte	Read/Write	Display Update Rate [1].
509	Byte	Read/Write	Message Rolls per Second [4]. This is from 2 to 15 Rolls / Second.
515	Word	Read Only	Auto Setup.
516	Word	Read Only	Communication pumpon.
517	Word	Read Only	Communication present.
518	Word	Read Only	Communication pumpoff/error.
519	Word	Read Only	Communication frozen (function 16).
520	Word	Read Only	Internal Status Variables: Octal Hex Status 000001 0001 - Well Officially On 000002 0002 - Sensors say " Well On" 000004 0004 - Pending Position Problem 000010 0008 - Power up Low Load Span 000020 0010 - Full Card Marked 000040 0020 - EPROM Initiated 000100 0040 - EPROM Expanded 000200 0080 - Last Load Span Good 000400 0100 - Peak Hours - Pump Forced Off 001000 0200 - Peak Hours Delayed Start Timer Active - Pump Forced Off
521	Word	Read Only	Status Bits 2.
522	Word	Read Only	Status Bits 3.
526	Byte	Read Only	Controller Error Status: 0 = Normal or Lamp Only Error 1 = Software Timer 2 = Control Transferred via Watchdog Relay 3 = Off Until Reset by Operator
527	Word	Read Only	Accumulated Error Code Bits - Word 1: Octal Hex - Description 000001 0001 - Control Failure

Parameter	Data Type	Access	Description
			000002 0002 - Low Load Violation
			000004 0004 - High Load Violation
			000010 0008 - Low Average Load
			000020 0010 - Position Switch Failure
			000040 0020 - Multiple Position Switch
			000100 0040 - Cleared Position Sw Error
			000200 0080 - Cleared Multiple Pos. Sw.
			000400 0100 - Low Load Span
			001000 0200 - Load Sensor Failure
			002000 0400 - Continuous Position Fault
			004000 0800 - Cleared Cont. Pos. Fault
			010000 1000 - Bad Software Timer Value
			020000 2000 - A/D Failure
			040000 4000 - Manual Off Command
			100000 8000 - Pump-Off Override Timer Active
528	Word	Read Only	Accumulated Error Code Bits - Word 2: Octal Hex - Description 000001 0001 - Immediate Pump-Off(s) 000002 0002 - Min. Cycle Run Time(s) 000004 0004 - Max. Cycle Run Time(s) 000010 0008 - Max. Daily nRun Time 000020 0010 - EEPROM Initialized 000040 0020 - EEPROM Expanded 000100 0040 - Bad EEPROM Param. Data 000200 0080 - EEPROM Going Bad (1/3) 000400 0100 - EEPROM Bad (2 or 3/3) 001000 0200 - Bad Error Status @ power up 002000 0400 - Bad Error Code Bits " " " 004000 0800 - Questionable Time & Date 010000 1000 - Bad Real Time Clock Chip 020000 2000 - Wrong Startup Line Freq. 040000 4000 - Manual Control Transfer 100000 8000 - Manual Software Timer
529	Word	Read Only	Accumulated Error Code Bits - Word3: Octal Hex - Description 000001 0001 - CPU Fell Behind 000002 0002 - Cleared RTC Error 000004 0004 - Motor Off Too Long 000010 0008 - DI 1 Low Alarm 000020 0010 - DI 1 High Alarm 000040 0020 - DI 2 Low Alarm 000100 0040 - DI 2 High Alarm 000200 0080 - AI 1 as DI Low Alarm 000400 0100 - AI 1 as DI High Alarm 001000 0200 - AI 2 as DI Low Alarm

Parameter	Data Type	Access	Description
			002000 0400 - AI 2 as DI High Alarm
			004000 0800 - AI 3 as DI Low Alarm
			010000 1000 - AI 3 as DI High Alarm
			020000 2000 - Immediate Upper Load Violation.
			040000 4000 - Reverse Pump Off
			100000 8000 - Air Balance Amps Too Low
530	Word	Read Only	Accumulated Error Code Bits - Word 4: Octal Hex - Description 000001 0001 - DI 3 Low Alarm 000002 0002 - DI 3 High Alarm 000004 0004 - DI 4 Low Alarm 000010 0008 - DI 4 High Alarm 000020 0010 - DI 5 Low Alarm 000040 0020 - DI 5 High Alarm 000100 0040 - DI 6 Low Alarm 000200 0080 - DI 6 High Alarm
535	Word	Read Only	Non-Clearable Hardware Error Code Bits: Octal Hex - Description 000002 0002 - Bad Commun. Board 000004 0004 - Constant UART Interrupt 000400 0100 - Bad Power Supply Board 001000 0200 - AC Failure 002000 0400 - Battery Low
536	Word	Read Only	Non-Clearable Pump-Off Setup Error Bits: Octal Hex - Description 000001 0001 - Missing Parameter 130 000010 0008 - Missing Parameter 21 000020 0010 - Reserved for Missing Parameter 22 000040 0020 - Missing Parameter 23 000100 0040 - Missing Parameter 24 002000 0400 - Missing Parameter 20 020000 2000 - Missing Position Memory
537	Word	Read Only	Non-Clearable Miscellaneous Error Bits: Octal Hex - Description 000020 0010 - Temporary Control Failure 000400 0100 - Communication Output Test
540	Byte	Read Only	Worst Case Controller Error Status Since power up: 0 = Normal or Lamp Only if Error(s) 1 = Software Timer 2 = Control Transferred by the Watchdog Relay 3 = Off Until Reset by Operator

Parameter	Data Type	Access	Description
541	Word	Read Only	Accumulated Error Code Bits Since power up - Word 1: Octal Hex - Description 000001 0001 - Control Failure 000002 0002 - Low Load Violation 000004 0004 - High Load Violation 000010 0008 - Low Average Load 000020 0010 - Position Switch Failure 000040 0020 - Multiple Position Switch 000100 0040 - Cleared Pos. Switch Failure 000200 0080 - Cleared Multiple Pos. Sw. 000400 0100 - Low Load Span 001000 0200 - Load Sensor Failure 002000 0400 - Continuous Position Fault 004000 0800 - Cleared Cont. Pos. Fault 010000 1000 - Bad Software Timer Value 020000 2000 - A/D Failure 040000 4000 - Manual Off Command 100000 8000 - Pump-Off Override Timer Active
542	Word	Read Only	Accumulated Error Code Bits Since power up - Word 2: Octal Hex - Description 000001 0001 - Immediate Pump-Off 000002 0002 - Min. Cycle Run Time 000004 0004 - Max. Cycle Run Time 000010 0008 - Max. Daily Run Time 000020 0010 - EEPROM Initialized 000040 0020 - EEPROM Expanded 000100 0040 - Bad EEPROM Param. Data 000200 0080 - EEPROM Going Bad (1/3) 000400 0100 - EEPROM Bad (2 or 3/3) 001000 0200 - Bad Error Status @ power up 002000 0400 - Bad Error Code Bits " " " 004000 0800 - Questionable Time & Date 010000 1000 - Bad Real Time Clock Chip 020000 2000 - Wrong Startup Line Freq. 040000 4000 - Manual Control Transfer 100000 8000 - Manual Software Timer
543	Word	Read Only	Accumulated Error Code Bits Since power up - Word3: Octal Hex - Description 000001 0001 - CPU Fell Behind 000002 0002 - Cleared RTC Error 000004 0004 - Motor Off Too Long 000010 0008 - DI 1 Low Alarm 000020 0010 - DI 1 High Alarm 000040 0020 - DI 2 Low Alarm

Parameter	Data Type	Access	Description
			000100 0040 - DI 2 High Alarm 000200 0080 - AI 1 as DI Low Alarm 000400 0100 - AI 1 as DI High Alarm 001000 0200 - AI 2 as DI Low Alarm 002000 0400- AI 2 as DI High Alarm 004000 0800 - AI 3 as DI Low Alarm 010000 1000 - AI 3 as DI High Alarm 020000 2000 - Immediate Upper Load Violation 040000 4000 - Reverse Pump Off 100000 8000 - Air Balance Amps Too Low
544	Word	Read Only	Accumulated Error Bits 4: Octal Hex - Description 000001 0001 - DI 3 Low Alarm 000002 0002 - DI 3 High Alarm 000004 0004 - DI 4 Low Alarm 000010 0008 - DI 4 High Alarm 000020 0010 - DI 5 Low Alarm 000040 0020 - DI 5 High Alarm 000080 0040 - DI 6 Low Alarm 000100 0080 - DI 6 High Alarm
550	Display	Read Only	Firmware Identification - Complete I.D.
555	Display	Read Only	Controller Identification Message.
556	Command	Read/Write	Output Rolling Unit Identification Message.
557	Word	Read Only	Num bytes used in EPROMs.
558	Word	Read Only	Num bytes left in EPROMs.
560	Byte	Read/Write	DI 1 Closed Action [7].
561	Byte	Read/Write	DI 1 Open Action [7]
562	Byte	Read/Write	DI 2 Closed Action [7]
563	Byte	Read/Write	DI 2 Open Action [7]
564	Byte	Read/Write	DI 3 Closed Action [7]
565	Byte	Read/Write	DI 3 Open Action [7]
566	Byte	Read/Write	DI 4 Closed Action [7]
567	Byte	Read/Write	DI 4 Open Action [7]
568	Byte	Read/Write	DI 5 Closed Action [7]
569	Byte	Read/Write	DI 5 Open Action [7]
570	Byte	Read/Write	DI 6 Closed Action [7]
571	Byte	Read/Write	DI 6 Open Action [7].
600	Time	Read/Write	Serial Port with CRC, Enable Timer.

Parameters 601-669

Parameter	Data Type	Access	Description
601	Byte	Read/Write	Remote Data and Stop Bits[0]
602	Byte	Read/Write	Remote Baud Rate [7]
603	Word	Read Only	Communication Status Bits: Octal Hex - Description 000001 0001 - CRC Security 000002 0002 - Using Large Rec Buffer 000004 0004 - Using Large Xmit Buffer 000010 0008 - Using Modem 000020 0010 - Comm Output Test
604	Byte	Read Only	Present Data and Stop Bits used
605	Byte	Read Only	Present Baud Rate
606	Byte	Read/Write	Carrier Detect On Delay [6]
607	Byte	Read/Write	Carrier Detect Off Delay [1]
608	Byte	Read/Write	Msg End Until Carrier Loss Limit [60]
609	Byte	Read/Write	Radio Pre-Key [30]
610	Byte	Read/Write	Radio Post-Key [12]
611	Byte	Read/Write	Maximum Radio Key [30]
612	Byte	Read/Write	Receive Timeout [120]
619	Byte	Read/Write	Actual Position Data Available From Controller for Analysis Programs. The operator must enter the proper value to provide Controller compatibility with the CMCS Software being used. Enter the value as follows: 0 - When no Continuous Position Input is available to Controller. 1 - To be used when Continuous Position Input Data is available to the Controller AND New CMCS Software is Installed at Central that is compatible with Version 5.00/5.01 Controller Firmware. 2 - When Continuous Position Input is available to the Controller (Position Potentiometer Installed), and older CMCS Software Installed at Central.
620	Word	Read/Write	Communication Group Address [4093]
621	Word	Read Only	Maximum Radio "On Time"
622	Word	Read Only	Maximum Transmit Message Time
623	Word	Read Only	Maximum Transmit Message in Characters
624	Word	Read Only	Actual Transmit Buffer Size in Characters
625	Word	Read Only	Maximum Transmit Buffer Size in Characters
626	Word	Read Only	Maximum Transmit Message Time
627	Word	Read Only	Maximum Radio On Time
628	Byte	Read/Write	All Address Response Test Timer (Seconds). This allows the controller to respond to all CMCS Inquiries regardless of Transmit Address.

Parameter	Data Type	Access	Description
629	Command	Read/Write	Clear Parameters 630 through 642
630	Display	Read Only	Last Characters Received as ASCII
631	Word	Read/Write	Character Errors (Framing, Parity, or Overrun Errors)
632	Word	Read/Write	Characters Received
633	Word	Read/Write	Header Characters Received
634	Word	Read/Write	Trailer Characters Received
635	Word	Read/Write	Framed Messages Received
636	Word	Read/Write	Framed Messages with Correct CRC / Checksum Received
637	Word	Read/Write	Messages Processed
638	Word	Read/Write	Commands Processed
639	Word	Read/Write	Responses Transmitted
640	Word	Read/Write	Characters Transmitted
641	Word	Read/Write	Maximum Messages Rec'd to Start Response Time
642	Word	Read/Write	Maximum Messages Rec'd to Response Sent Time
644	Byte	Read/Write	Output Test Spacing Delay
645	Byte	Read Only	Last Character Received
646	Byte	Read/Write	Output Test Data and Stop Bits [2]: 2 = 8 Data, 1 Stop
647	Byte	Read/Write	Output Test Character [U]
648	Byte	Read/Write	Output Test Time in Seconds
649	Word	Read Only	Internal Status Bits: Octal Hex - Description 000001 0001 - Raw Carrier, Detect 000002 0002 - Debounced Carrier Detect 000004 0004 - Fork Processing 000010 0008 - Fork Done
660	Byte	Read/Write	Cursor Location
661	Byte	Read/Write	Timer
665	Byte	Read Only	Good Operation Timer
666	Byte	Read/Write	Required "Good Operation Time" [15]
667	Byte	Read/Write	Log Clear Errors Flag [0]: 0 = Don't Flag 1 = Log
668	Byte	Read Only	Error Code: 0 = No Error 1 = Bad Second Interval 2 = Read All 1's 3 = Write Confirm 4 = Can't Read Same Twice
669	Byte	Read Only	Seconds Value for RTC Chip

Recommended Function, Buffer, and Command Items Usage

Function, Buffer, and Command Items operate using a three step process that consists of writing input items, executing a function item, and then reading output items. For more information, refer to the topics below.

Function Items

1. To start, perform a write to the Function.Parameters item to configure an input.

2. Next, perform a write to the Function.Code item to execute the desired function. An asynchronous write is recommended, because some function codes can take a considerable amount of time to execute.

3. Perform a read of the output items Function.Result and Function.ResultData to obtain results of the previous executing function.

Buffer Items

1. To start, perform a write to the desired buffer input items to configure an input. The buffer input items are as follows:

   - Identifier
   - LoadType
   - FormattedLoadPrecision
   - PositionInclusionAndType
   - FormattedPositionPrecision
   - NumberOfCycles
   - CycleMarkingCharacter
   - OverlapFlag
   - MaxMsgDatapoints

2. Next, perform a write to the Buffer.Trigger item to execute a Dynagraph function. An asynchronous write is recommended, because Dynagraph acquisitions can take a considerable amount of time to execute.

3. Perform a read of the output items Buffer.Load, Buffer.Position, and Buffer.Result to obtain results of the previous executing Dynagraph function.

Command Items

Command Items do not have input items.

1. To start, perform a write to the Command.Value item to execute the desired command parameter.

2. Next, perform a read of the output items Command.Result and Command.ResultData to obtain results of the previous executing command parameter.

Error Descriptions

The following messages may be generated. Click on the link for a description of the message.

Address in block [Parameters: <parameter numbers list>] on device <device name> responded with exception code <code>.
Address <address> is out of range for the specified device or register.
Array size is out of range for address <address>.
Block address [<start address> to <end address>] on device <device name> responded with exception code <code>.
Data type <type> is not valid for device address <address>.
Device Address <address> contains a syntax error.
Device <device name> is not responding.
Query of parameter 619 setting on device <address> returned unexpected value <value>. Using actual position values.
Unable to generate a tag database for device <device name>. Reason: Memory allocation error.
Unable to load <dll>.
Unable to read from address <address> on device <device name>: Device responded with exception code <code>.
Unable to write to address <address> on device <device name>: Device responded with exception code <code>.

See Also: Error Codes

Address <address> is out of range for the specified device or register.

Error Type:
Warning

Possible Cause:
A tag address that has been specified dynamically references a location that is beyond the range of supported locations for this device.

Solution:
Verify that the address is correct; if it is not, re-enter it in the client application.

Address in block on device responded with exception code.

Error Type:
Warning

Possible Cause:
1. The address does not exist in the device.
2. The device could not perform the read operation.

Solution:
For more information, refer to **Exception Codes**.

Array size is out of range for address <address>.

Error Type:
Warning

Possible Cause:
A tag address that has been specified statically is requesting an array size that is too large.

Solution:
Re-enter the address in the client application to specify a smaller value for the array or a different starting point.

Block address [<start address> to <end address>] on device <device name> responded with exception code <code>.

Error Type:
Warning

Possible Cause:

1. The address does not exist in the device.

2. The device could not perform the read operation.

Solution:
Set the Contiguous Number of Parameters Per Command property to 1, and then re-attempt communications.

See Also:
Communications
Exception Codes

Data type <type> is not valid for device address <address>.

Error Type:
Warning

Possible Cause:
A tag address that has been specified statically has been assigned an invalid data type.

Solution:
Modify the requested data type in the client application.

Device address <address> contains a syntax error.

Error Type:
Warning

Possible Cause:
A tag address that has been specified statically contains one or more of the following errors:

1. The address doesn't conform to the tag address naming conventions.

2. The address is invalid according to the address format and underlying Controller Tag data type.

3. A Program Tag was specified incorrectly.

4. The address used an invalid format.

Solution:

Re-enter the address in the client application.

Device <device name> is not responding.

Error Type:

Warning

Result:

1. If the tag was being read, then the read operation will not be performed and the tag will be invalidated.

2. If the tag was being written, then the write operation for the given tag will not occur.

Possible Cause:

1. The connection between the device and the Host PC is broken.

2. Device CPU work load is too high.

3. The response from the device took longer to receive than the amount of time specified in the "Request Timeout" device property value.

Solution:

1. Verify the cabling between the PC and the PLC device.

2. If this error occurs frequently, decrease the tag group scan rate to reduce the work load on the PLC CPU.

3. Increase the Request Timeout property value so that the entire response can be handled.

Query of parameter 619 setting on device <address> returned unexpected value <value>. Using actual position values.

Error Type:

Warning

Possible Cause:

1. The PLC returned an invalid value.

2. There is noise on the communication line.

Solution:

1. Check or correct the parameter table in the PLC.

2.   Verify the cabling between the PC and the PLC device.

Unable to generate a tag database for device <device name>. Reason: Memory allocation error.

Error Type:
Warning

Possible Cause:
The memory required for database generation could not be allocated. The process was cancelled.

Solution:
Close any unused applications and/or increase the amount of virtual memory. Then, try again.

Unable to load <dll>.

Error Type:
Serious

Possible Cause:
A software component necessary for communications cannot be loaded from <dll>.

Solution:
Re-install the server and then try again.

Unable to read from address <address> on device <device name>: Device responded with exception code <code>.

Error Type:
Warning

Possible Cause:

1.   The address does not exist in the device.

2.   The device could not perform the read operation.

Solution:
For more information, refer to **Exception Codes**.

Unable to write to address <address> on device <device name>: Device responded with exception code <code>.

Error Type:
Warning

Possible Cause:

1.   The address does not exist in the device.

2.   The device could not perform the write operation.

3. The location is Read Only in the device.

Solution:

For more information, refer to **Exception Codes**.

Error Codes

For more information, select a link from the list below.

Exception Codes
Frame Process Error Codes

Exception Codes

Exception Codes are the success/error indication from the device. Taken as a two's complement 8-bit number, positive values mean success, 0 means pending or indeterminate, and negative values mean errors.

Decimal	Hex	Description
0	0	Pending or indeterminate
1	01	Success
2	02	Function already done
-1	FF	Invalid function code
-2	FE	Improper data alignment
-3	FD	Improper data format
-4	FC	No data when data is required
-6	FA	Improper data values
-7	F9	Well data buffer index not initialized
-8	F8	Result is too long for remainder of response buffer
-9	F7	Internal device software error
-11	F5	Non-clearable errors present
-12	F4	RPC in shut-down mode
-13	F3	RPC in control transfer mode
-14	F2	Expanded UART board memory not present
-15	F1	Expanded bank type UART board memory not present
-16	F0	Bad Parameter ID
-17	EF	Parameter is not a data type parameter
-18	EE	Parameter is a Read Only parameter
-19	ED	Parameter is not a command type parameter
-20	EC	Well problem prevents function execution2
-21	EB	Well state prevents function execution2
-22	EA	Unknown problem
-23	E9	Privilege violation
-24	E8	No copied well data
-25	E7	Not allowed in AC failure mode

Frame Process Error Codes

Errors can result when processing a frame whose checksum was valid but whose contents were not. All error codes will result in the data quality being set to "bad" or a failure of the write. They will be displayed in the Event Log when they occur. For more information, refer to the table below.

Error Code	Description
-114	1. Function Code 5, 6, or 7 response did not contain an Index. 2. The data length is incorrect.
-115	The block request done using Function Code 8 or 9 did not return the quantity of parameters that were requested.
-116	The length of data received in the Command Tag response exceeds the limit of 16 characters.
-117	The card header data count value exceeds the limit of 200.
-118	1. The number of points in the frame exceeds the number that was requested to be returned with each frame. 2. The number of Surface or Downhole points received exceeds the number of points indicated in the initial response.
-119	1. The event or card header is not the length that is required. 2. The number of card headers found are not equal to the card count in the event header.
-120	1. The event is not the length that is required. 2. The number of events in the frame exceeds the number that was requested to be returned within each frame. 3. The end of the event's response contains data (but it should not).
-121	The XDynagraph10 extended record is not the length that is required.
-123	1. The number of points in the frame exceeds the number that was requested to be returned with each frame. 2. The number of Dynagraph points received exceeds the number of points indicated in the initial response.
-124	The length of data received in a Function Tag response was excessive.
-126	1. The successful parameter write includes data (but it should not). 2. The length of data received for the parameter write error response exceeds the limit of 3 characters.
-127	1. The length of data received for the array parameter exceeds the length of the parameter's data type multiplied by the array size. For example, this error will be generated if the request is for an array of 3 bytes and more than six characters are received. 2. The Parameter Array request did not return the quantity of parameters requested.
-128	1. The length of data received for the parameter exceeds 16 characters. When the display parameters that exceed 16 characters are found, they will be truncated. 2. The length of data received for the parameter exceeds the length allowed for its data type. For example, if the parameter's data type is Byte, then data length should be 2 Hex ASCII characters. This error will be generated if more than two are received.

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