

EZ-ZONE™ PM



Controller Communications Manual



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**TOTAL
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ISO 9001

Registered Company
Winona, Minnesota USA


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We use note, caution and warning symbols throughout this book to draw your attention to important operational and safety information.

A “NOTE” marks a short message to alert you to an important detail.

A “CAUTION” safety alert appears with information that is important for protecting your equipment and performance. Be especially careful to read and follow all cautions that apply to your application.

A “WARNING” safety alert appears with information that is important for protecting you, others and equipment from damage. Pay very close attention to all warnings that apply to your application.

The safety alert symbol,  (an exclamation point in a triangle) precedes a general CAUTION or WARNING statement.

The electrical hazard symbol,  (a lightning bolt in a triangle) precedes an electric shock hazard CAUTION or WARNING safety statement.



CAUTION or WARNING



**Electrical Shock Hazard
CAUTION or WARNING**

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The EZ-ZONE™ PM is manufactured by ISO 9001-registered processes and is backed by a three-year warranty to the first purchaser for use, providing that the units have not been misapplied. Since Watlow has no control over their use, and sometimes misuse, we cannot guarantee against failure. Watlow’s obligations hereunder, at Watlow’s option, are limited to replacement, repair or refund of purchase price, and parts which upon examination prove to be defective within the warranty period specified. This warranty does not apply to damage resulting from transportation, alteration, misuse or abuse. The purchaser must use Watlow parts to maintain all listed ratings.

Technical Assistance

If you encounter a problem with your Watlow controller, review your configuration information to verify that your selections are consistent with your application: inputs, outputs, alarms, limits, etc. If the problem persists, you can get technical assistance from your local Watlow representative (see back cover), by e-mailing your questions to wintechsupport@watlow.com or by dialing +1 (507) 494-5656 between 7 a.m. and 5 p.m., Central Standard Time (CST). Ask for an Applications Engineer. Please have the following information available when calling:

- Complete model number
- All configuration information
- User’s Manual
- Factory Page

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1. Call Watlow Customer Service, (507) 454-5300, for a Return Material Authorization (RMA) number before returning any item for repair. If you do not know why the product failed, contact an Application Engineer or Product Manager. All RMA’s require:
 - Ship-to address
 - Bill-to address
 - Contact name
 - Phone number
 - Method of return shipment
 - Your P.O. number
 - Detailed description of the problem
 - Any special instructions
 - Name and phone number of person returning the product.
2. Prior approval and an RMA number from the Customer Service Department is required when returning any product for credit, repair or evaluation. Make sure the RMA number is on the outside of the carton and on all paperwork returned. Ship on a Freight Prepaid basis.
3. After we receive your return, we will examine it and try to verify the reason for returning it.
4. In cases of manufacturing defect, we will enter a repair order, replacement order or issue credit for material returned. In cases of customer mis-use, we will provide repair costs and request a purchase order to proceed with the repair work.
5. To return products that are not defective, goods must be in new condition, in the original boxes and they must be returned within 120 days of receipt. A 20 percent restocking charge is applied for all returned stock controls and accessories.
6. If the unit is unrepairable, you will receive a letter of explanation. and be given the option to have the unit returned to you at your expense or to have us scrap the unit.
7. Watlow reserves the right to charge for no trouble found (NTF) returns.

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EZ-ZONE™ PM is covered by U.S. Patent No. 6,005,577 and Patents Pending

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Chapter 1 PM Communications

EZ-ZONE™ PM & Communications

With the introduction of the first Programmable Logic Controllers (PLCs) in the early to mid 1970s it quickly became apparent that there was a need to communicate between one PLC and another, and then on a wider scale, between PLCs and other computers within the company infrastructure. Some of those needs involved applications with interlinking processes, such as batch processes or assembly lines utilizing multiple controls that required better synchronization and control.

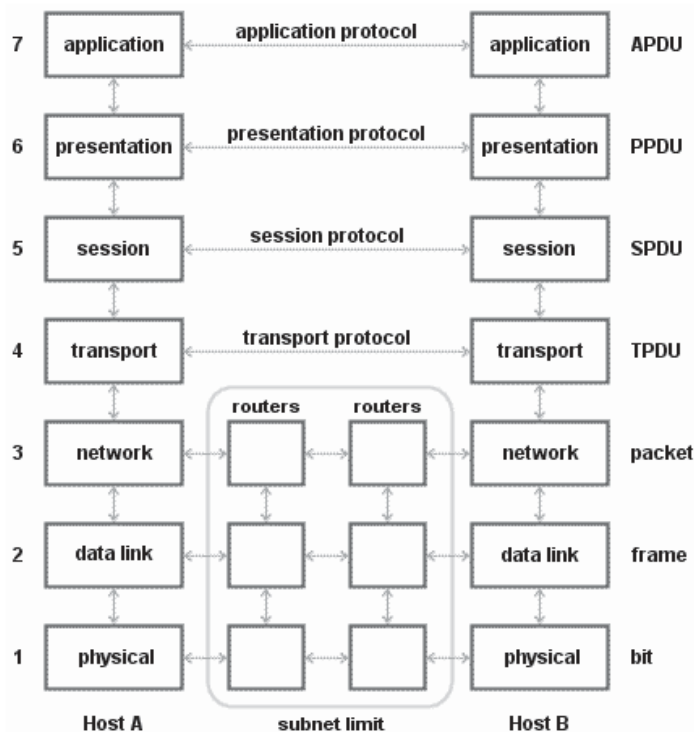
Over time the scope of the requirements for industrial communications broadened and became better defined, with specific needs being addressed. Those requirements and specifications centered on collecting data, configuring controls, and controlling a process.

Protocols

Protocol describes how to exchange data. It also prevents two machines from attempting to send data at the same time. There are a number of different data communications protocols in use today. The protocol part of Watlow communications is very important, because it gives us a quality of communication that others often don't have. The EZ-ZONE™ PM family of controls provides several different protocols (Modbus RTU & TCP, EtherNet/IP, and DeviceNet) meeting today's communication needs across many industrial applications.

In information technology, a protocol is the special set of rules that end points in a telecommunication connection use when they communicate. Protocols exist at several levels in a telecommunication connection. For example, there are protocols for the data interchange at the hardware device level and protocols for data interchange at the application program level. In the standard model known as Open Systems Interconnection (OSI), there are one or more protocols at each layer in the telecommunication exchange that both ends of the exchange must recognize and observe. Virtually all networks in use today are based in some fashion on the OSI standard. OSI was developed in 1984 by the International Organization for Standardization (ISO), a global federation of national standards organizations representing approximately 130 countries. As can be seen below the OSI model is a set of seven layers that define the different stages that data must go through to travel from one device to another over a network.

Figure 1.1



2

Chapter 2 Modbus RTU & TCP

Modbus Remote Terminal Unit (RTU) and Modbus TCP

Gould Modicon, now called AEG Schneider, created the protocol referred to as "Modbus" used in process control systems. Modbus provides the advantage of being extremely reliable in exchanging information, a highly desirable feature for industrial data communications. This protocol works on the principle of packet exchanges. The packet contains the address of the controller to receive the information, a command field that says what is to be done with the information, and several fields of data. Reading from these registers retrieves all information in the controller. Each of these registers are listed in this user's manual (Operations, Setup, Profiling, & Factory Pages). You will need this list to determine where the data is located. The last item sent in the packet is a field to ensure the data is received intact. This is called a cyclical redundancy check-sum (CRC). All information exchanged is in hexadecimal numbers.

Many parameter values within the PM controller are four bytes in length and require two Modbus registers. By default, the low register number contains the two lower bytes and the high register number contains the two higher bytes. If it makes your programming easier you may reverse this Modbus default where the low register number contains the two higher bytes and the high register number contains the two lower bytes. This setting can be modified in the PM controller Setup pages under the "Com" menu.

Modbus RTU is typically deployed over serial connections where Modbus TCP is deployed over the Ethernet physical layer. If it is desired to acquire more information on Modbus RTU or Modbus TCP direct your browser to: <http://www.modbus.org>.

When purchasing a third-party software package, be sure to look for a package that is Modbus RTU/TCP compatible or has Modbus drivers included. Most third-party packages require you to specify the Modbus registers of the controller to setup and use the package. Again, all Modbus addresses can be found in this manual.

Note: Excessive writes to the PM may cause premature EEPROM failure. For more detail see the section entitled "Saving Settings to Nonvolatile Memory".

Default PM Communication Parameters (Modbus RTU)

If your model number has a one in the identified placeholder (PM_ _ _ _ - [1] _ _ _ _) then these defaults apply.





Protocol (P~~C~~oL) = Modbus

Address (A~~d~~r~~7~~) = 1

Baud Rate (b~~R~~Ud) = 9600

Parity (P~~R~~r) = none

To change or view the PM communication defaults follow the steps below:

1. Push and hold the up and down arrow keys on the front panel for six seconds to go to the Setup Menu.
2. Push the up or down arrow key until [C~~o~~m] (Communications Menu) appears in upper display and [S~~E~~E] in the lower display.
3. Push the green Advance Key  to enter the Communications Menu. The upper display shows [M~~o~~d], and the lower display shows [P~~C~~oL].
4. Push the green Advance Key  to change the Modbus address. The upper display shows [1], and the lower display shows [A~~d~~r~~7~~]. Use the up arrow key to change the Modbus address.
5. Push the green Advance Key  to change the baud rate. The upper display shows [9600], and the lower display shows [b~~R~~Ud]. Use the up and or down arrow key to change the baud rate. Push the Advance Key  to change parity. The upper display shows [nonE] and lower display shows [P~~R~~r]. Use the up and or down arrow key to change the parity.

If your model number has a two in the identified placeholder (PM_ _ _ _ - [2] _ _ _ _ _) then these defaults apply.

Port 1 = Standard Bus

Address (**AdS**) = 1

Port 2

Protocol (**PCoL**) = Modbus


Address (**AdP7**) = 1

Baud Rate (**bAUd**) = 9600

Parity (**PAR**) = none

When two ports are available as the above part number indicates, port one will always be Standard bus with no option to change. Standard bus is used to interface with Watlow's EZ-ZONE™ configuration software and is also used when a controllers firmware is flashed to a new revision. The key strokes to view and change these parameters differs slightly from the above example due to the additional port. See below:

To change or view the PM communication defaults follow the steps below:

1. Push and hold the up and down arrow keys on the front panel for six seconds to go the the Setup Menu.
2. Push the up or down arrow key until **CoP7** (Communications Menu) appears in upper display and **SEt** in the lower display.
3. Push the green Advance Key  to select port one or two. The upper display shows **1**, and the lower display shows **CoP7**. Use the up arrow key to change the port number and then push the green advance button to proceed.
4. If you pushed one above (for port 1) the top display will indicate the Standard bus address **1**, and the lower display will show **AdS**. Use the up arrow key to change the Standard bus address.

If you pushed two above (for port 2) in step three the keystrokes defined above for option 1 beginning at step four would then apply.

User Programmable Memory Blocks

EZ-ZONE™ PM models equipped with the Modbus protocol (PM_ _ _ _ - [1, 2, or 3] _ _ _ _ _) features a block of addresses that can be configured by the user to provide direct access to a list of 40 user configured parameters. This allows the user easy access to this customized list by reading from or writing to a contiguous block of registers.

In an attempt to make this concept easier to understand it would be best to define the column headers below before we go further.

Assembly Definition Addresses - Fixed addresses used to define the parameter that will be stored in the "Working Addresses". May also be referred to as a pointer. The value stored in these addresses will reflect (point to) the Modbus address of a parameter within the PM control.

Assembly Working Addresses - Fixed addresses directly related to their associated "Assembly Definition Addresses" (i.e., working addresses 200 & 201 will assume the parameter pointed to by definition addresses 40 & 41) used in the main body of your user program to read from or write to a factory default parameter or a user configured parameter.

So, when the Modbus address of a target parameter is stored in an "Assembly Definition Address" its corresponding working address will return that parameter's actual value. If it's a writable parameter, writing to its working register will change the parameter's actual value. The list below reflects the Assembly Definition Addresses as well as their associated Assembly Working Addresses.

Table 2.0: Assembly Definition Addresses and Assembly Working Addresses

Assembly Definition Addresses	Assembly Working Addresses	Assembly Definition Addresses	Assembly Working Addresses
40 & 41	200 & 201	80 & 81	240 & 241
42 & 43	202 & 203	82 & 83	242 & 243
44 & 45	204 & 205	84 & 85	244 & 245
46 & 47	206 & 207	86 & 87	246 & 247
48 & 49	208 & 209	88 & 89	248 & 249
50 & 51	210 & 211	90 & 91	250 & 251
52 & 53	212 & 213	92 & 93	252 & 253
54 & 55	214 & 215	94 & 95	254 & 255
56 & 57	216 & 217	96 & 97	256 & 257
58 & 59	218 & 219	98 & 99	256 & 259
60 & 61	220 & 221	100 & 101	260 & 261
62 & 63	222 & 223	102 & 103	262 & 263
64 & 65	224 & 225	104 & 105	264 & 265
66 & 67	226 & 227	106 & 107	266 & 267
68 & 69	228 & 229	108 & 109	268 & 269
70 & 71	230 & 231	110 & 111	270 & 271
72 & 73	232 & 233	112 & 113	272 & 273
74 & 75	234 & 235	114 & 115	274 & 275
76 & 77	236 & 237	116 & 117	276 & 277
78 & 79	238 & 239	118 & 119	278 & 279

As an example, Modbus register 360 contains the Analog Input 1 Process Value (See Operations Page, Analog Input Menu). If the value 360 is loaded into Assembly Definition Address 91, then the process value sensed by input 1 will also be stored in Modbus registers 250 and 251.

In figure 2.0 & 2.1 below we can see a different view of the Assembly Definition and Working Addresses along with the factory defaults for the assembly.

Figure 2.0 & 2.1 Default Assembly Structure

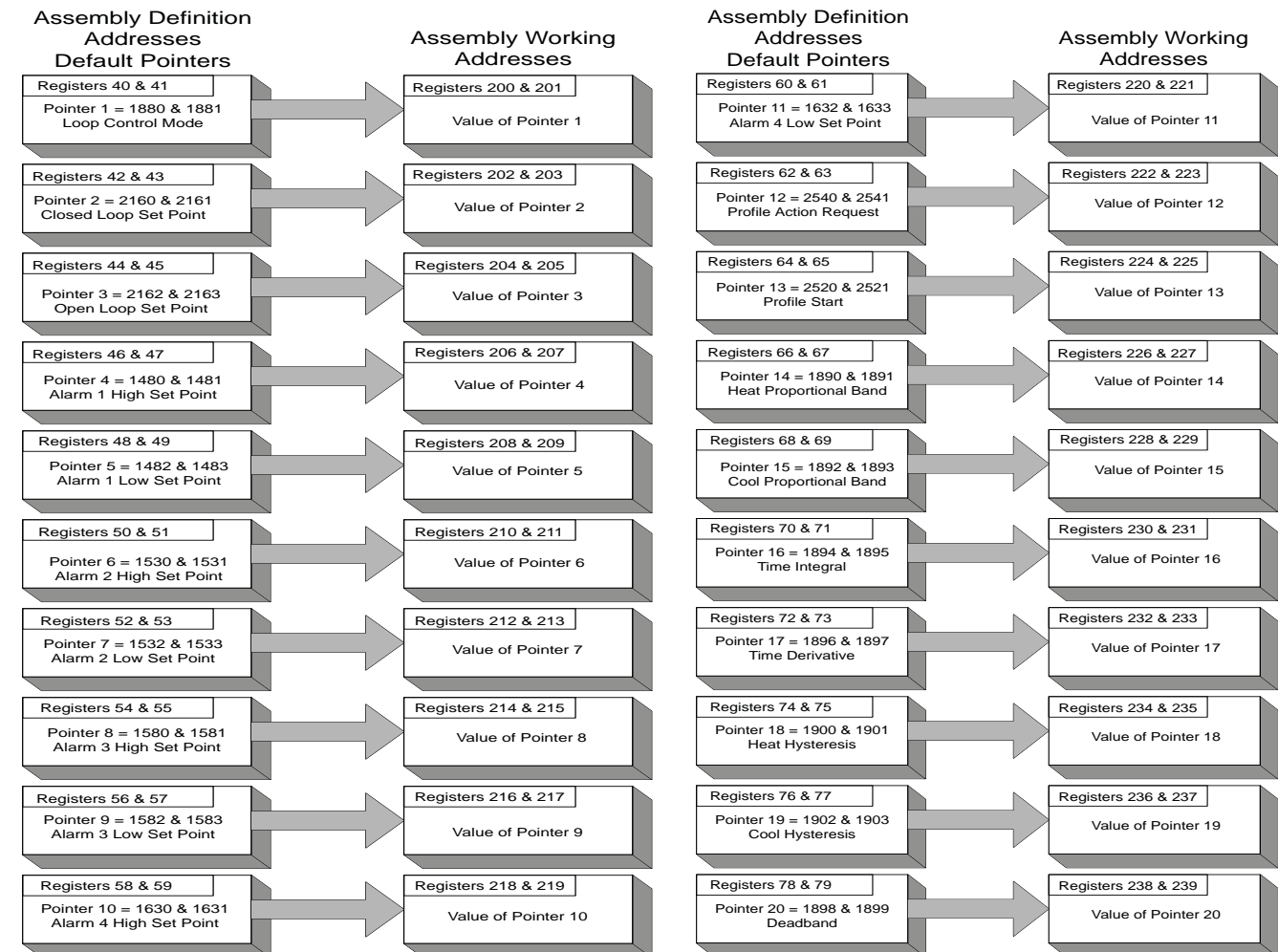
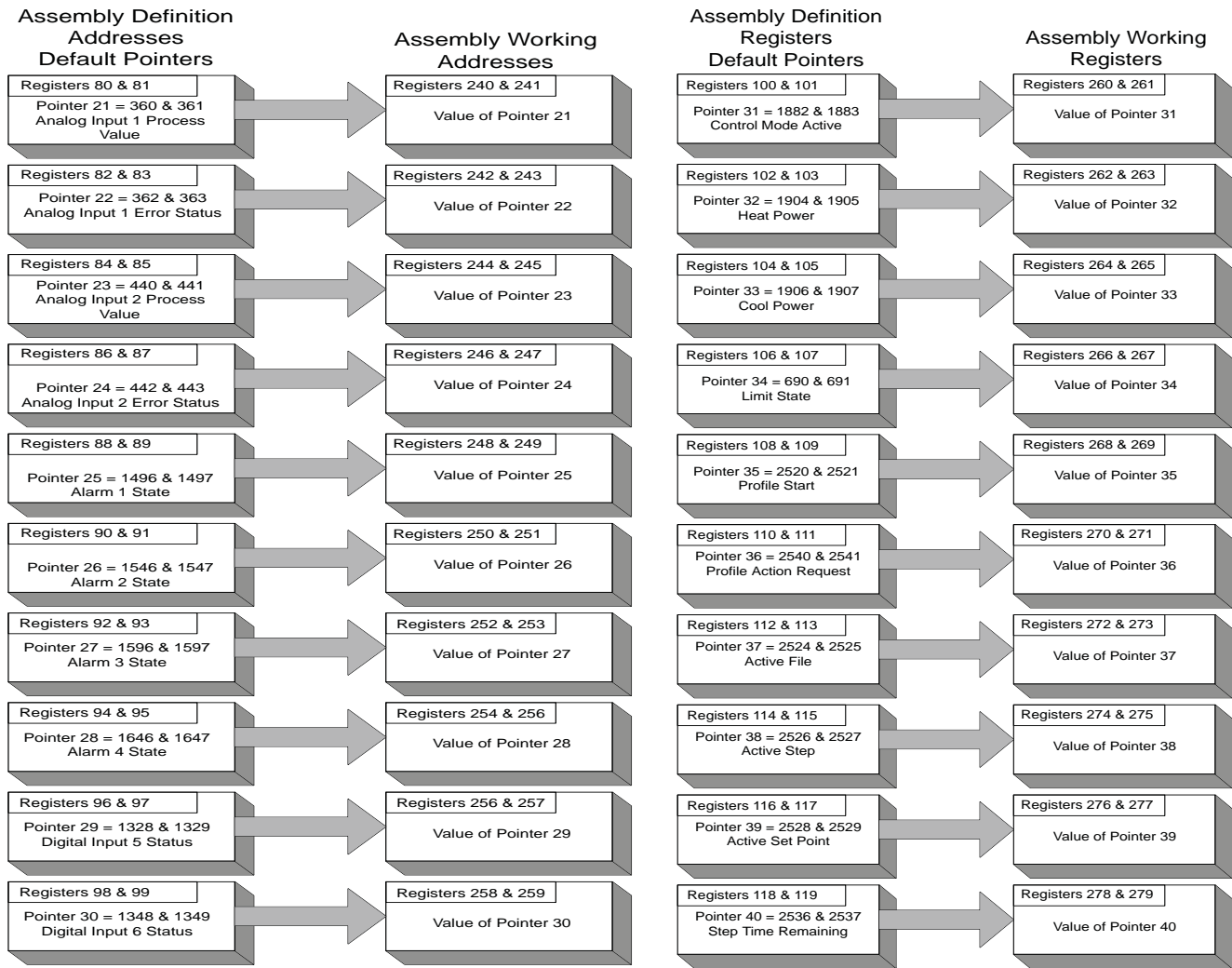


Figure 2.2 & 2.3 Default Assembly Structure



Using a MicroLogix 1200 PLC as the Master - Configuration

Prior to taking a look at some ladder logic examples provided below let's take a look at the hardware configuration first. This particular control can be purchased with the Modbus RTU protocol and as can be seen in the screen shots that follow, channel 0 is configured as such. Please note that the hardware configuration will be different from one control to another. The following screen shots apply to the MicroLogix 1200 control only. Using the Allen-Bradley 1761-CBL-PM02 cable connecting it to channel 0 of the PLC it is required that a null modem adapter along with an EIA-232 to EIA-485 converter be used. The output of the EIA-485 converter connects to the EZ-ZONE™ PM slot C (A to CA, B to CB, GND to CC).

In order to establish valid communications between the PLC and the EZ-ZONE™ PM the serial communications parameters need to match on both ends, PLC and PM. The PM can communicate at 9.6Kb (factory default), 19.2Kb, or 38.4 Kb with even, odd, or no parity (factory default). To change the PM communication defaults follow the steps below:

1. Push and hold the up and down arrow keys on the front panel for six seconds to go to the Setup Menu.
2. Push the up or down arrow key until **CoM** (Communications Menu) appears in upper display and **SEt** in the lower display.
3. Push the green Advance Key **Ⓢ** to enter the Communications Menu. The upper display shows **Mod**, and the lower display shows **CoM**.
4. Push the green Advance Key **Ⓢ** to change the Modbus address. The upper display shows **!**, and the lower display shows **AdM**. Use the up arrow key to change the Modbus address.



5. Push the green Advance Key  to change the baud rate. The upper display shows **9600**, and the lower display shows **BAUD**. Use the up and or down arrow key to change the baud rate.
6. Push the Advance Key  to change parity. The upper display shows **none** and lower display shows **PAR**. Use the up and or down arrow key to change the parity.

Figure 2.4 and 2.5 below capture the settings for channel 0 from the PLC used for this example.

Figure 2.4

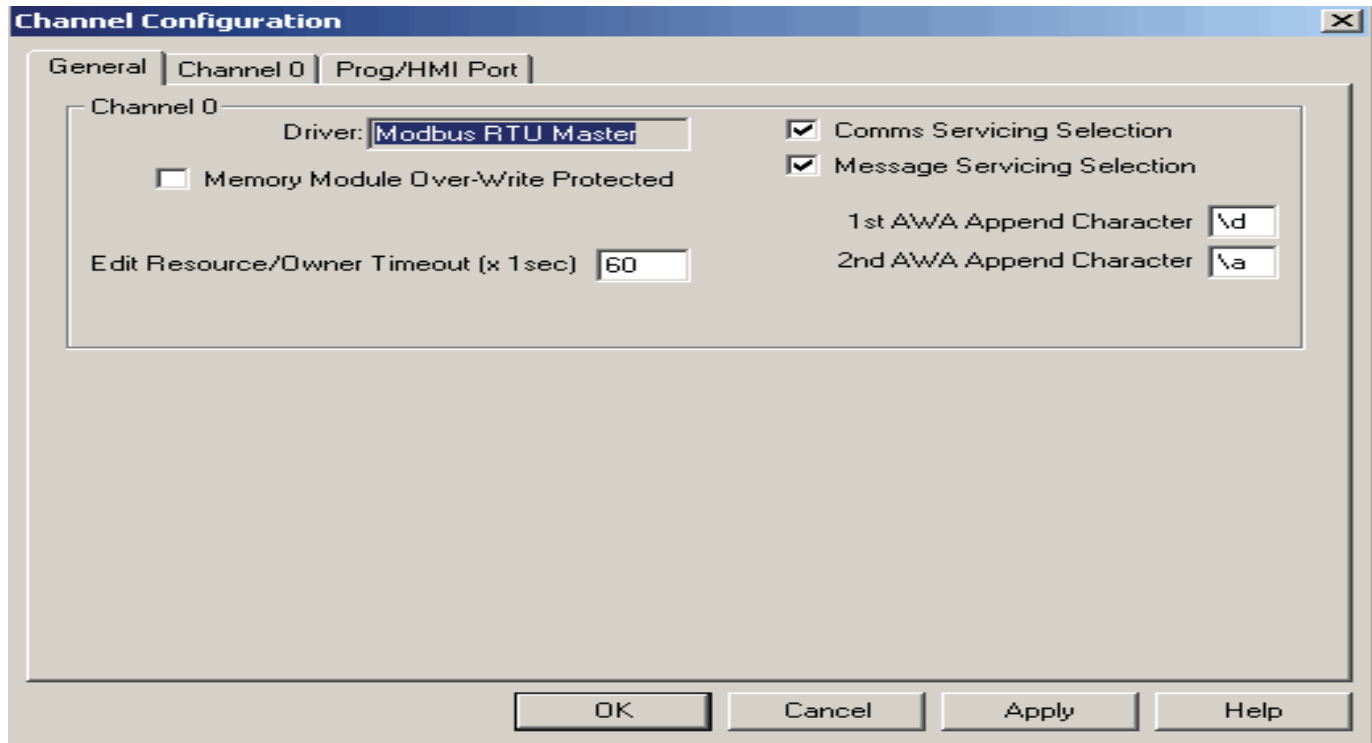
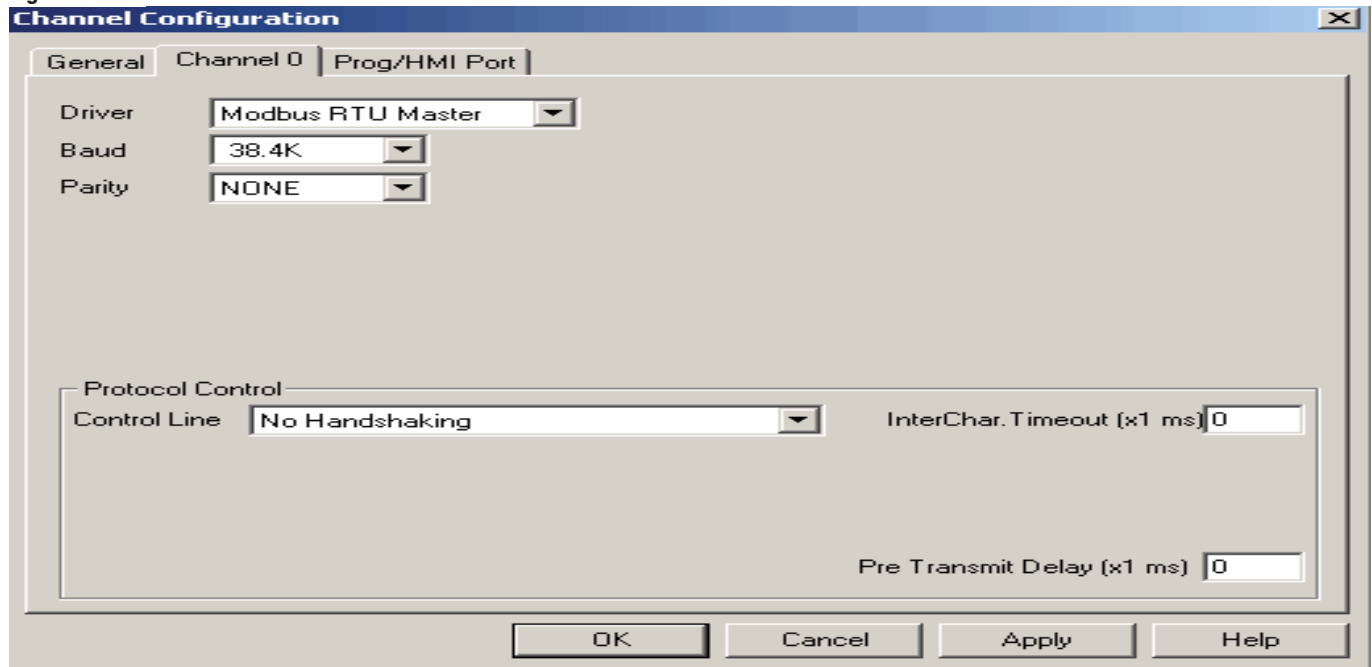


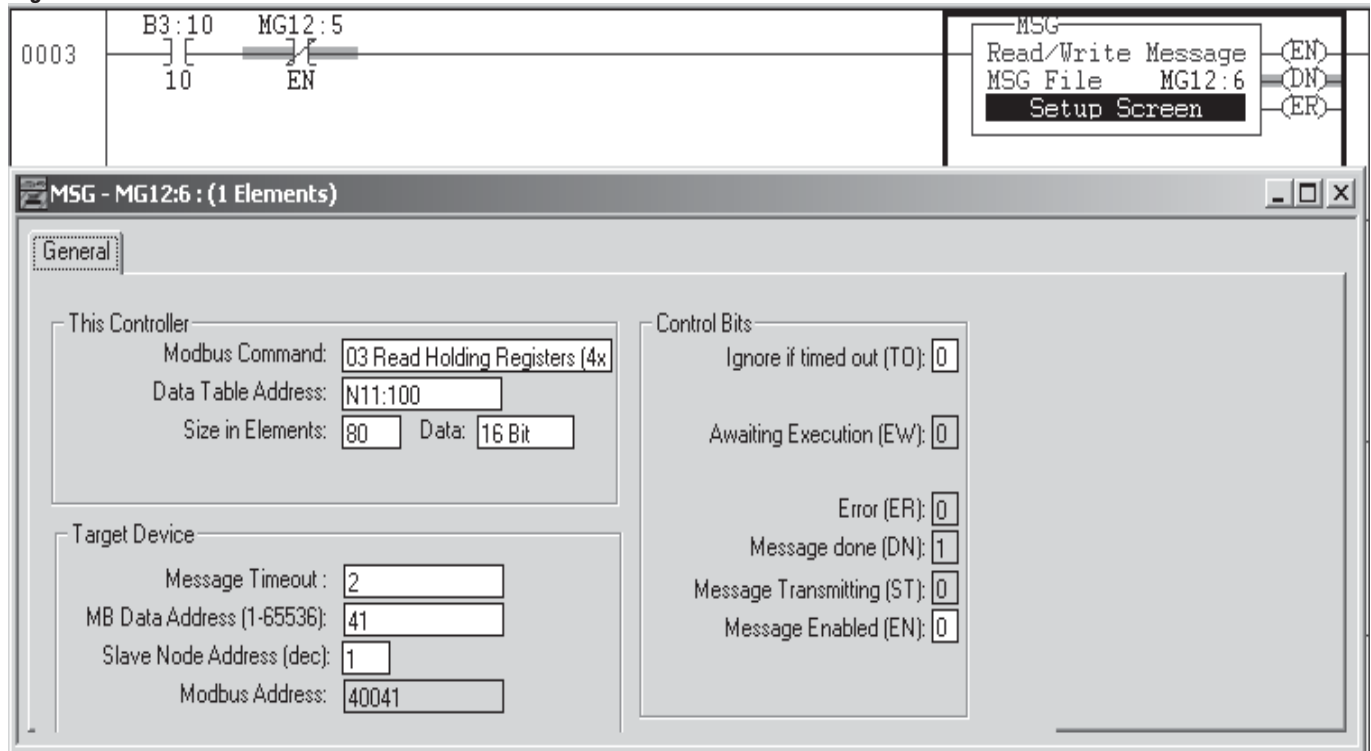
Figure 2.5



MicroLogix 1200 PLC Programming Examples

Now that we've addressed the hardware side of the configuration let's take a closer look at the programming in the PLC. In the first example below, the message instruction is simply reading back the Assembly Definition Addresses (factory defaults) from the PM and placing them in a table beginning at N11:100 in the PLC.

Figure 2.6



As stated previously, the assembly structure is a group of 40 pairs of addresses. The value in each of these addresses serves as a pointer to a parameter within the PM. Each of the 40 pairs of assembly definition addresses are displayed in figures 2.0 - 2.3. In figure 2.7 below, N11:100 through N11:179 shows the factory default values after the MSG instruction is enabled and executed without error. Notice this is a read message reading the assembly structure from the PM and then depositing it into PLC registers N11:100 - N11:179.

Figure 2.7

Offset	0	1	2	3	4	5	6	7	8	9
N11:100	1880	1881	2160	2161	2162	2163	1480	1481	1482	1483
N11:110	1530	1531	1532	1533	1580	1581	1582	1583	1630	1631
N11:120	1632	1633	2540	2541	2520	2521	1890	1891	1892	1893
N11:130	1894	1895	1896	1897	1900	1901	1902	1903	1898	1899
N11:140	360	361	362	363	440	441	442	443	1496	1497
N11:150	1546	1547	1596	1597	1646	1647	1328	1329	1348	1349
N11:160	1882	1883	1904	1905	1906	1907	690	691	2520	2521
N11:170	2540	2541	2524	2525	2526	2527	2528	2529	2536	2537

Searching this manual for “Operations Page” and then looking for the “Analog Input 1 Process Value” you will see that the Modbus address is defined as 360. Looking at figure 2.2 you will see that the 21st pointer points to the “Analog Input 1 Process Value” and this can be seen as well in the above graphic (N11:140 & N11:141) which represents the assembly read-back from the PM control in the default state.

In the example logic below a message instruction is configured to write a new parameter to the first member of the Assembly Definition Addresses.

Figure 2.8

The logic diagram shows a green vertical bar with the value 0000. Two B3:10 inputs are connected to an ON (Normally Open) contact. The output of this contact is connected to the EN (Message Enabled) input of a MSG instruction block. The MSG block is labeled 'MSG Read/Write Message' and 'MSG File MG12:5'. It has a 'Setup Screen' button and three outputs: EN, DN, and ER.

The MSG configuration window is titled 'MSG - MG12:5 : (1 Elements)'. It has a 'General' tab. The 'This Controller' section shows:

- Modbus Command: 16 Write Multiple Registers (4x)
- Data Table Address: N11:12
- Size in Elements: 2
- Data: 16 Bit

 The 'Target Device' section shows:

- Message Timeout: 2
- MB Data Address (1-65536): 77
- Slave Node Address (dec): 1
- Modbus Address: 40077

 The 'Control Bits' section shows:

- Ignore if timed out (TO): 0
- Awaiting Execution (EW): 0
- Error (ER): 0
- Message done (DN): 1
- Message Transmitting (ST): 0
- Message Enabled (EN): 0

 An inset table shows the data table configuration:

Offset	0	1	2	3
N11:10	0	0	1328	0

 A red circle highlights the value 1328 in the table, and a red arrow points from it to the 'Data Table Address' field in the configuration window.

Because each of the assembly definition addresses and working registers are 32-bits it is necessary to set this instruction to write to multiple registers, in this case 2. Within figure 2.8 we see an inset image that reflects what is being written to the PM (N11:12 = 1328 and N11:13 = 0). When the MSG instruction is executed it will redefine the nineteenth assembly parameter of the PM as Digital Input 5 State . The logic shown above can be used to change any of the assembly member definitions simply by changing the value of N11:12 to the desired parameter and then the MB Assembly Definition Address (pointer) to the desired member.

Figure 2.9

The logic diagram shows a yellow vertical bar with the value 0010. Two B3:11 inputs are connected to an ON (Normally Open) contact. The output of this contact is connected to the EN (Message Enabled) input of a MSG instruction block. The MSG block is labeled 'MSG Read/Write Message' and 'MSG File MG12:3'. It has a 'Setup Screen' button and three outputs: EN, DN, and ER.

The MSG configuration window is titled 'MSG - MG12:3 : (1 Elements)'. It has a 'General' tab. The 'This Controller' section shows:

- Modbus Command: 03 Read Holding Registers (4x)
- Data Table Address: N11:70
- Size in Elements: 1
- Data: 16 Bit

 The 'Target Device' section shows:

- Message Timeout: 2
- MB Data Address (1-65536): 237
- Slave Node Address (dec): 1
- Modbus Address: 40237

 The 'Control Bits' section shows:

- Ignore if timed out (TO): 0
- Awaiting Execution (EW): 0
- Error (ER): 0
- Message done (DN): 1
- Message Transmitting (ST): 0
- Message Enabled (EN): 0

 An inset table shows the data table configuration:

Offset	0
N11:70	5

 A red circle highlights the value 5 in the table, and a red arrow points from it to the 'Data Table Address' field in the configuration window.

So, looking at figure 2.9 we can see that if a MSG instruction is configured to read register 40237 that it will now contain the current state of digital input 5 (DI5). After the MSG instruction is executed we see that DI5 is currently in the Active state (5). As was the case in the previous example, the logic shown above can be easily changed to read or write any of the configured parameters simply by changing the data table address and the MB data address to the desired values.

Lastly, the logic example below will read the process value (40361 and 40360) in from the PM and place it in N11:0 and N11:1. The copy word instruction that follows will then simply deposit what's in N11:0 and N11:1 into floating point address F8:0 (inset graphic in figure 2.11) where we see the current temperature is ~275°

Figure 2.10

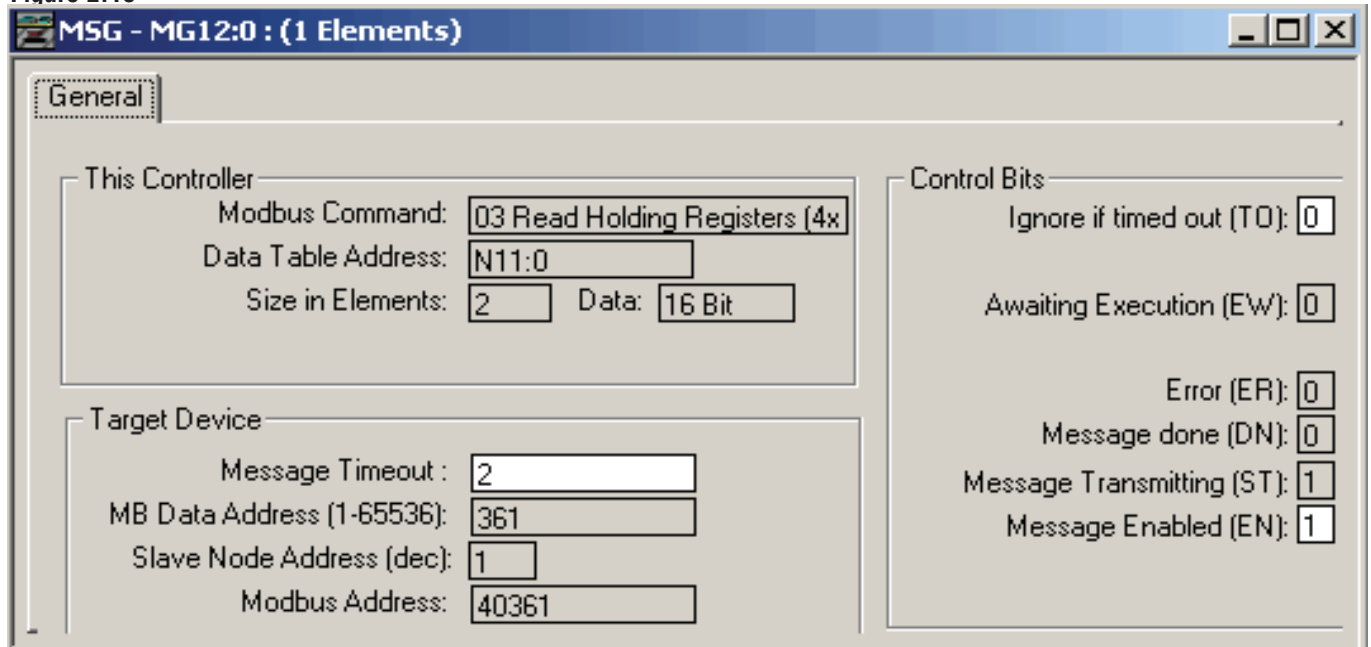
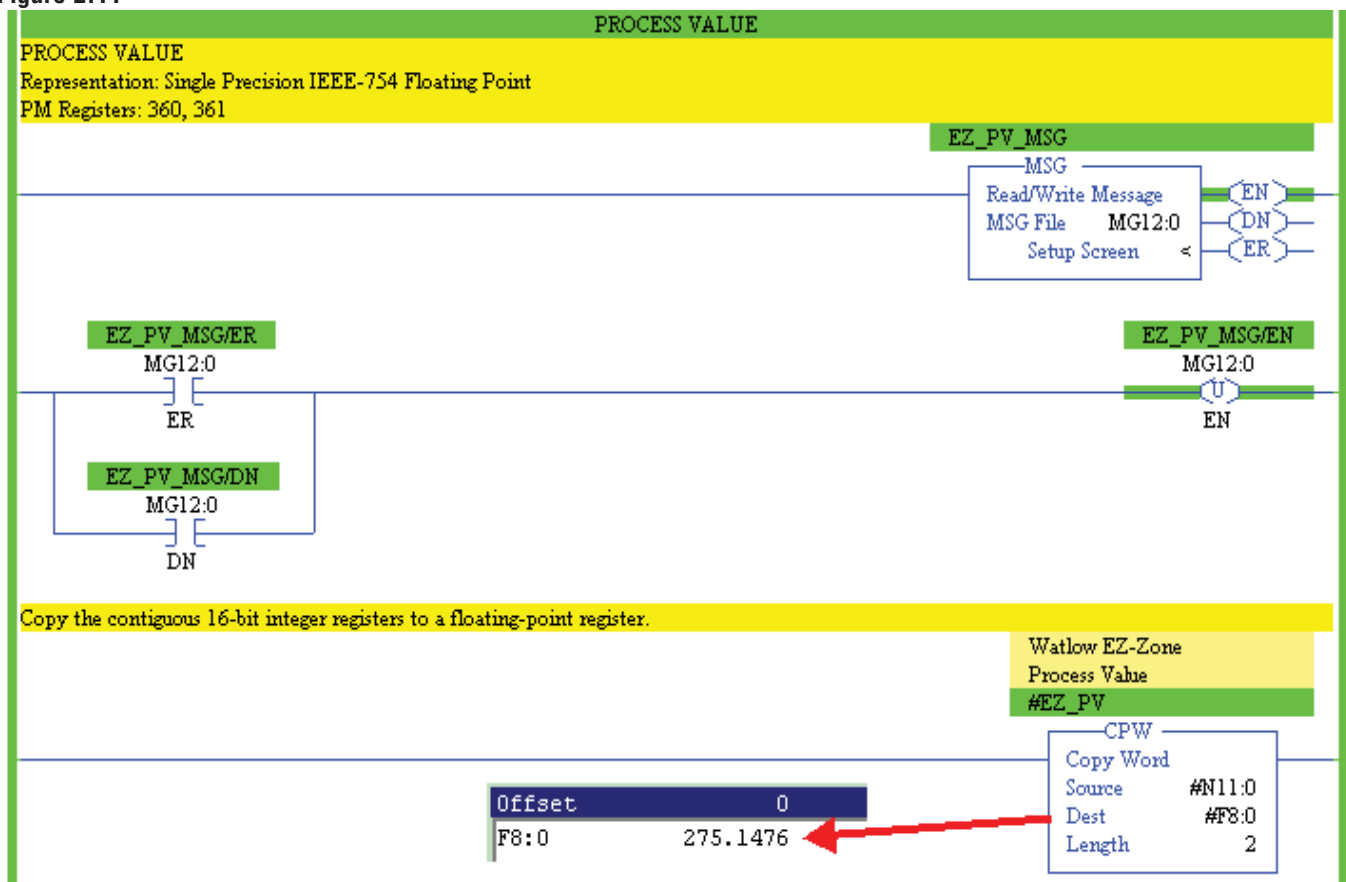


Figure 2.11



Reading & Writing 32-Bit PM Parameters

The process value of the EZ-ZONE™ PM is contained in two 16-bit registers. Register 360 contains the two lower bytes (least significant word, LSW) while register 361 contains the two higher bytes (most significant word, MSW). The 32-bit answer is an IEEE 754, 32-bit float data type.

As an example:

977D 429C is in Low Word – High Word Order. Changing to High Word – Low Word, the value is 429C 977D. 429C977D = 78.20407867 degrees when read as a 32-bit float

To read a 32-bit value, perform the following:

Assemble a packet (examples follow below) to send the controller based on these steps:

1. Determine controller address to read. Example: Address 1
2. Determine function code for read. Example: Function Code 3 hexadecimal for read holding register
3. Determine relative Modbus registers to read (360 & 361 decimal for Analog Input 1)
4. Convert register numbers to Hexadecimal. Example: 360 decimal = 168 hexadecimal
5. Enter 0 for number of registers to read high byte
6. Determine number of registers to read. Example: 2 registers to retrieve a 32-bit value
7. Enter number of registers to read low byte from previous step into packet.
8. Calculate the CRC on the packet.
9. Enter the Low Byte of CRC calculation into packet
10. Enter the High Byte of CRC calculation into packet
11. Send packet as one continuous stream
12. Wait for response from controller

Process the packet received based on these steps:

1. Process packet for accuracy by comparing CRC to calculated value
2. Parse answer from packet based on number of bytes returned
3. Convert answers to appropriate data type

To acquire more information on the Modbus packet layout direct your browser to: <http://www.modbus.org>.

Table 2.1

Binary	Hex	Decimal	Purpose
00000001	01	1	Controller Address
00000011	03	3	Function Read
00000001	01	1	Read Starting at Register High Byte (AIN 1 Process is Register 360 & 361)
01101000	68	104	Read Starting at Register Low Byte (AIN 1 Process is Register 360 & 361)
00000000	00	0	Read number of consecutive registers - High Byte (Always 0)
00000010	02	2	Read number of consecutive registers - Low Byte
10000100	44	68	Low byte of CRC
00101011	2B	43	High byte of CRC

The CRC (also a 16-bit wide value) is sent in reverse order, low byte then high byte.

Received from the Read Analog Input 1 Process Value 78.204 °F (32-bit)

Table 2.2

Binary	Hex	Decimal	Purpose
00000001	01	1	Controller Address
00000011	03	3	Function Read
00000100	04	4	Number of data bytes returned
10010111	97	151	Data High Byte of 1 st register Read - MSB of LSW consecutive registers
01111101	7D	125	Data Low Byte of 1 st register Read - LSB of LSW consecutive registers
01000010	42	66	Data High Byte of 2 nd register Read - MSB of LSW consecutive registers
10011100	9C	156	Data Low Byte of 2 nd register Read - LSB of MSW consecutive registers
01110110	76	118	Low byte of CRC
10010110	96	150	High byte of CRC

Some process values may be rounded off to fit into the four-character display of the EZ-ZONE™ PM, depending on the Decimal setting in the Global, Setup menu.

To change the Decimal setting via communications, write a 105 for whole units (0) display, 94 for tenths (0.0) display, 40 for hundredths (0.00) display or 96 for thousands (0.000) display to unsigned integer 16-bit register 398 for analog input 1 or register 478 for analog input 2. This setting has no impact on the values read via communications. Full process values are readable via Modbus. The displayed units of measurement are independent of the units of measurement sent via communications. As an example:

The controller may be set to display in °C on the LED but utilize °F in communication sent values.

- All temperature parameters are in °F through Modbus by default.

To change communications temperature units via Modbus, write a 30 for °F or 15 for °C to unsigned integer 16-bit register 2490 for analog input 1 and register 2510 for analog input 2. (Requires firmware version 2.0 or newer).

Example: To write a 32-bit value in decimal format.

Note: The closed loop set point of the EZ-ZONE™ PM is contained in two 16-bit registers. Register 2160 contains the two lower bytes (least significant word, LSW) while register 2161 contains the two higher bytes (most significant word, MSW). The 32-bit answer is an IEEE 754, 32-bit float data type.

42960000 = 75.0 degrees when read as a 32-bit float

0000 4296 is in Low Word, High Word Order.

Register 2160 is written with LSW of 0000 hexadecimal

Register 2161 is written with MSW of 4296 hexadecimal

Table 2.3

Sent to Write (32-bit) Closed Loop Set Point of 75.0 °F

Binary	Hex	Decimal	Purpose
00000001	01	1	Controller Address
00010000	10	16	Function Multiple Write
00001000	08	8	Write Starting at Register High Byte (CLSP is Register 2160 & 2161)
01110000	70	112	Write Starting at Register Low Byte (CLSP is Register 2160 & 2161)
00000000	00	0	Write number of consecutive registers - High Byte (Always 0)
00000010	02	2	Write number of consecutive registers - Low Byte
00000100	04	4	Number of Bytes to Write
00000000	00	00	Data High Byte of 1 st register Write - MSB of LSW (consecutive registers)
00000000	00	0	Data Low Byte of 1 st register Write - LSB of LSW (consecutive registers)
01000010	42	66	Data High Byte of 2 nd register Write - MSB of MSW (consecutive registers)
10010110	96	150	Data Low Byte of 2 nd register Write - LSB of MSW (consecutive registers)
00100011	23	35	Low byte of CRC
10000101	85	133	High byte of CRC

The CRC (also a 16-bit wide value) is sent in reverse order, low byte then high byte.

Received from Writing Closed Loop Set Point of 75.0 °F

Table 2.4

Binary	Hex	Decimal	Purpose
00000001	01	1	Controller Address
00010000	10	16	Function Multiple Write
00000000	08	8	High Byte of Register 2160 decimal – Start writing at register
01110000	70	112	Low Byte of Register 2160 decimal – Start writing at register
00000000	00	0	High Byte – number of registers written
00000010	02	2	Low Byte – number of registers written
01000010	42	66	Low byte of CRC
01110011	73	115	High byte of CRC

Communications Using Modbus TCP Over Ethernet

Ethernet Indicator Lights

The PM has four indicator lights on the top of the controller, two of which are not used for Modbus TCP. The Module Status and Network Status LED's apply only when EtherNet/IP is enabled. The characteristics of the Activity and Link indicator lights are defined in the Ethernet specification.

Link Status Indicator

Table 2.5

Steady Off	Not powered, unknown link speed	If the device cannot determine link speed or power is off, the network status indicator shall be steady off.
Red	Link speed = 10 Mbit	If the device is communicating at 10 Mbit, the link LED will be red..
Green	Link speed = 100 Mbit	If the device is communicating at 100 Mbit, the link LED will be green.

Activity Status Indicator

Table 2.6

Flashing Green	Detects activity	If the MAC detects activity, the LED will be flashing green.
Red	Link speed = 10Mbit	If the MAC detects a collision, the LED will be red.

Configuring the PM for Modbus TCP Communications

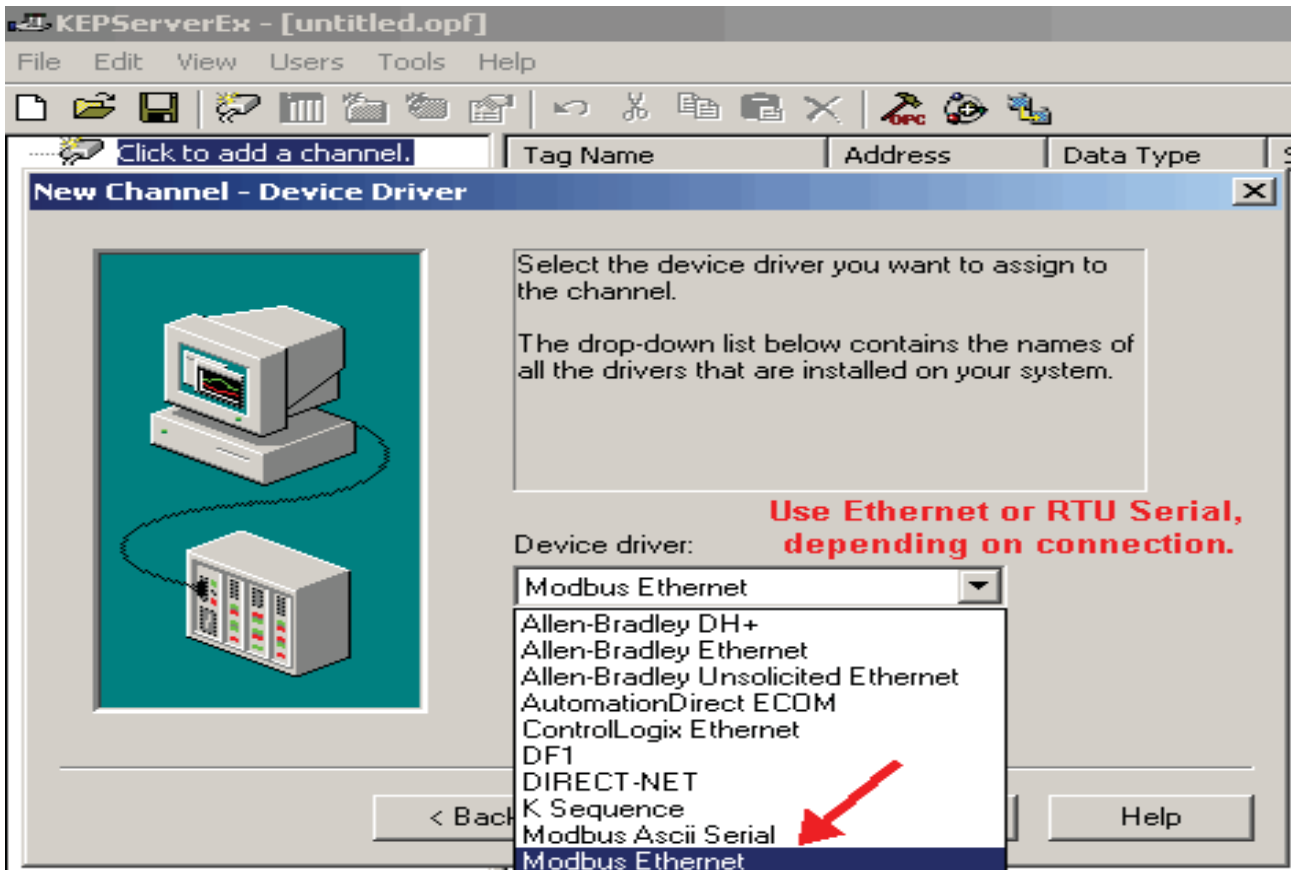
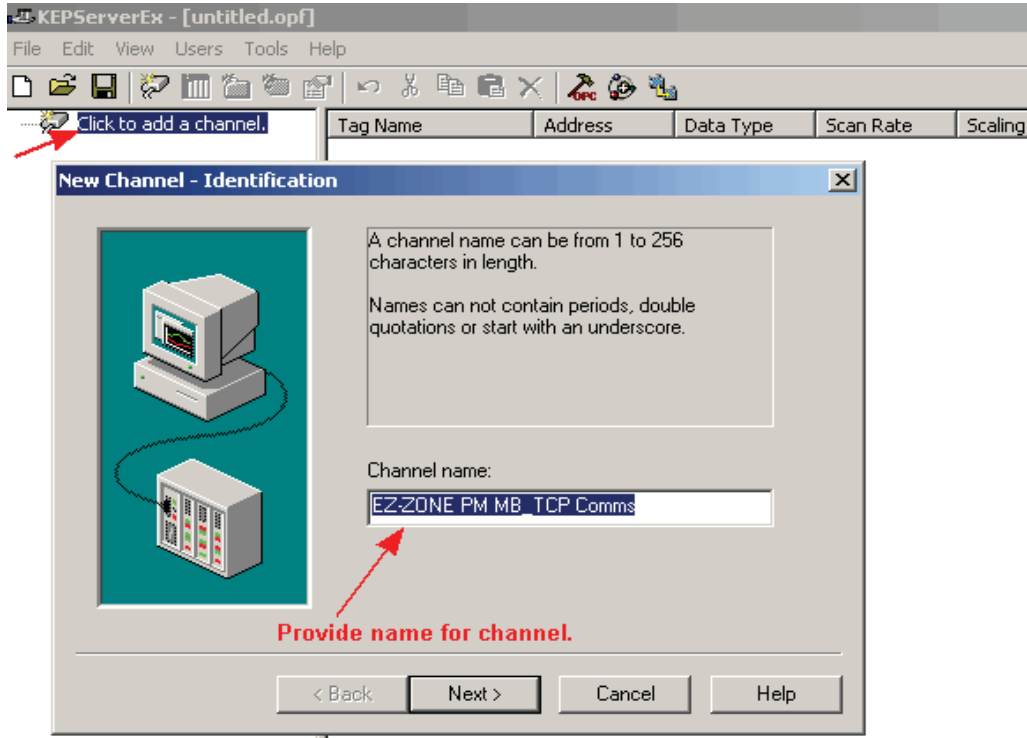
Prior to establishing communications on the network a valid IP address must be established. There are two ways in which an IP address can be established: Dynamic Host Configuration Protocol (DHCP, where a DHCP server on the network provides an IP address); or a fixed IP address (manually entered). The PM controller's default is set to DHCP. If the PM is brought up on the Ethernet network and there is no DHCP server present the PM will assume address 169.254.1.1 as the factory default fixed IP address. To change the fixed IP address or the IP selection method (DHCP or fixed) follow the steps below:

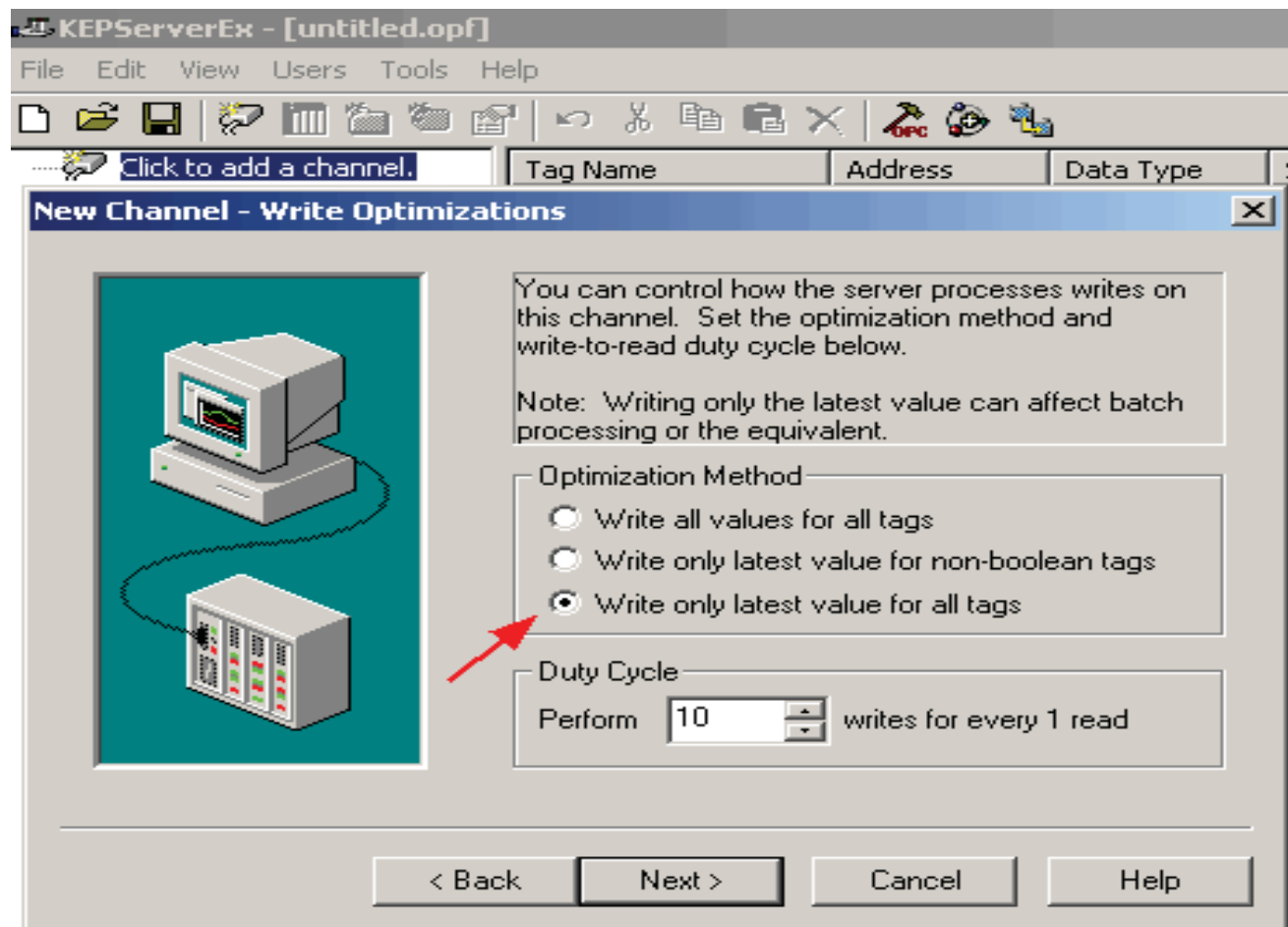
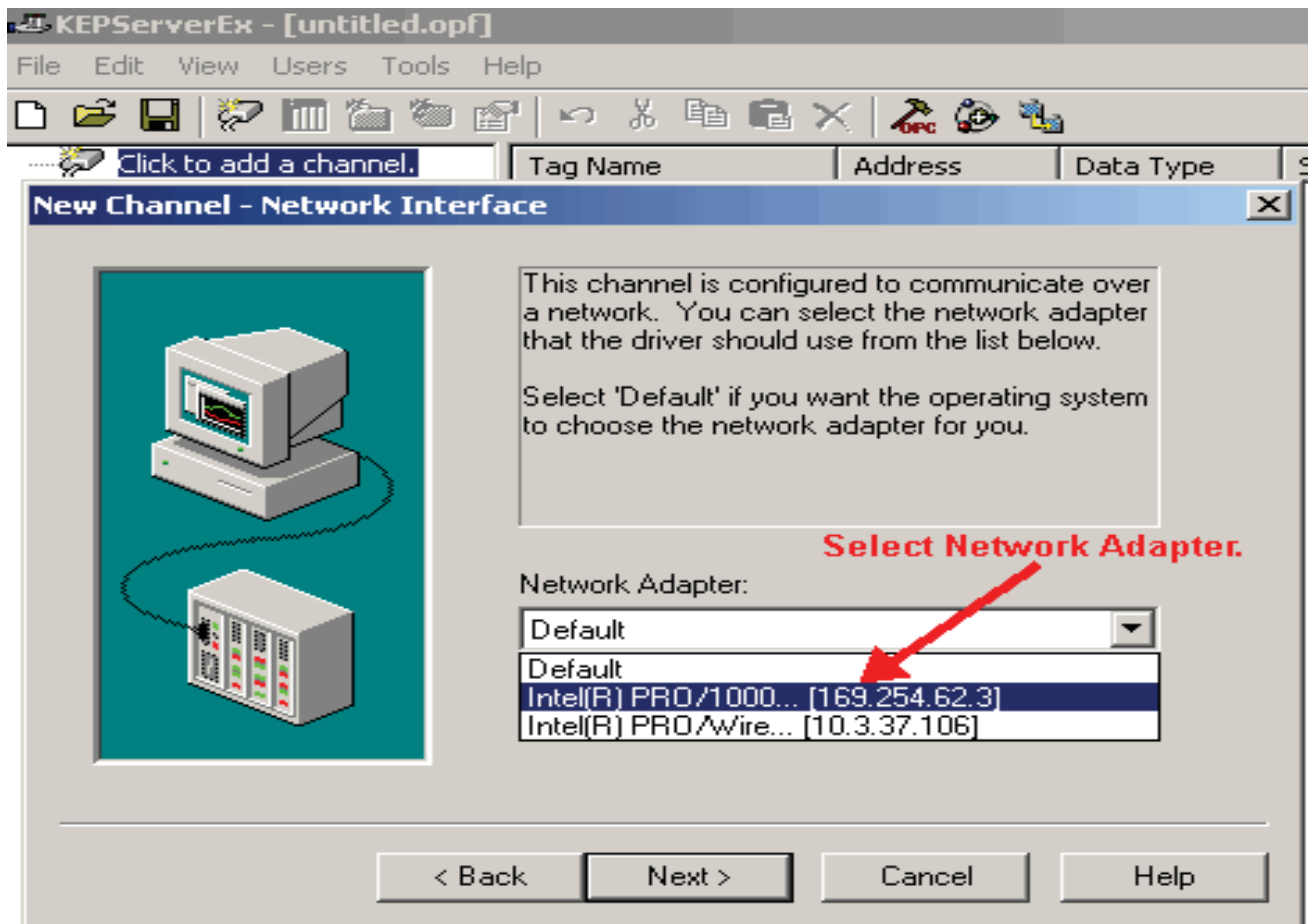
1. Push and hold the up and down arrow keys on the front panel for six seconds to go the the Setup Menu.
2. Push the up or down arrow key until **[CoM]** (Communications Menu) appears in upper display and **[SEE]** in the lower display.
3. Push the green Advance Key **[⊕]** to enter the Communications Menu **[CoM]**.
4. Push up arrow key to go to the Communications 2 Submenu. The upper display shows **[2]**, and the lower display shows **[CoM]**.
5. Push the Advance Key **[⊕]** until the upper display shows **[dHCP]** and lower display shows **[.P.P.]**. Use the up and or down arrow keys to change the addressing method.
6. If **[FAdd]** is selected above push the Advance Key **[⊕]** and then the up arrow to change the first of four parts of the IP address. Each part represents a byte which makes up the 32-bit IP address. Follow the same steps to change each of the other three bytes to complete the IP address.

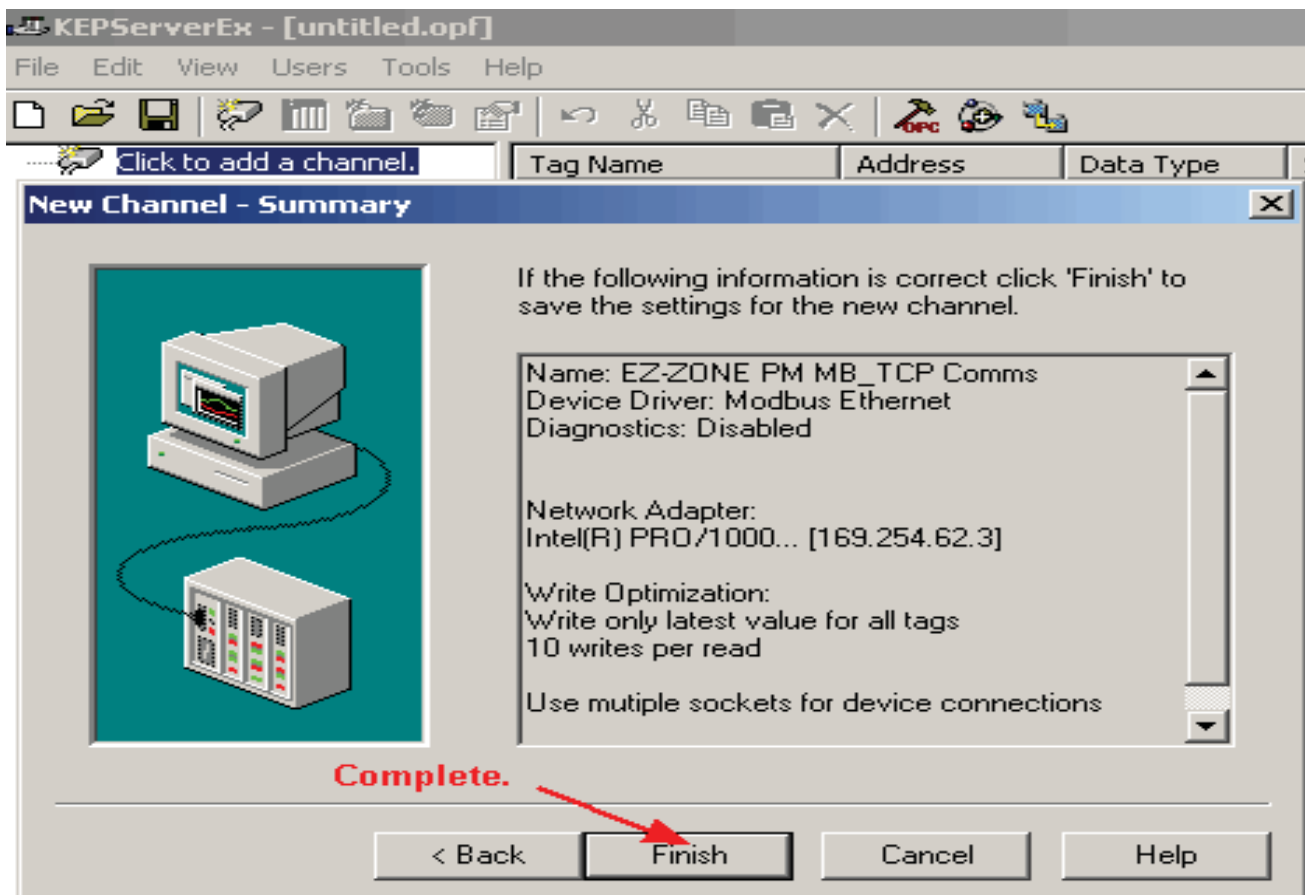
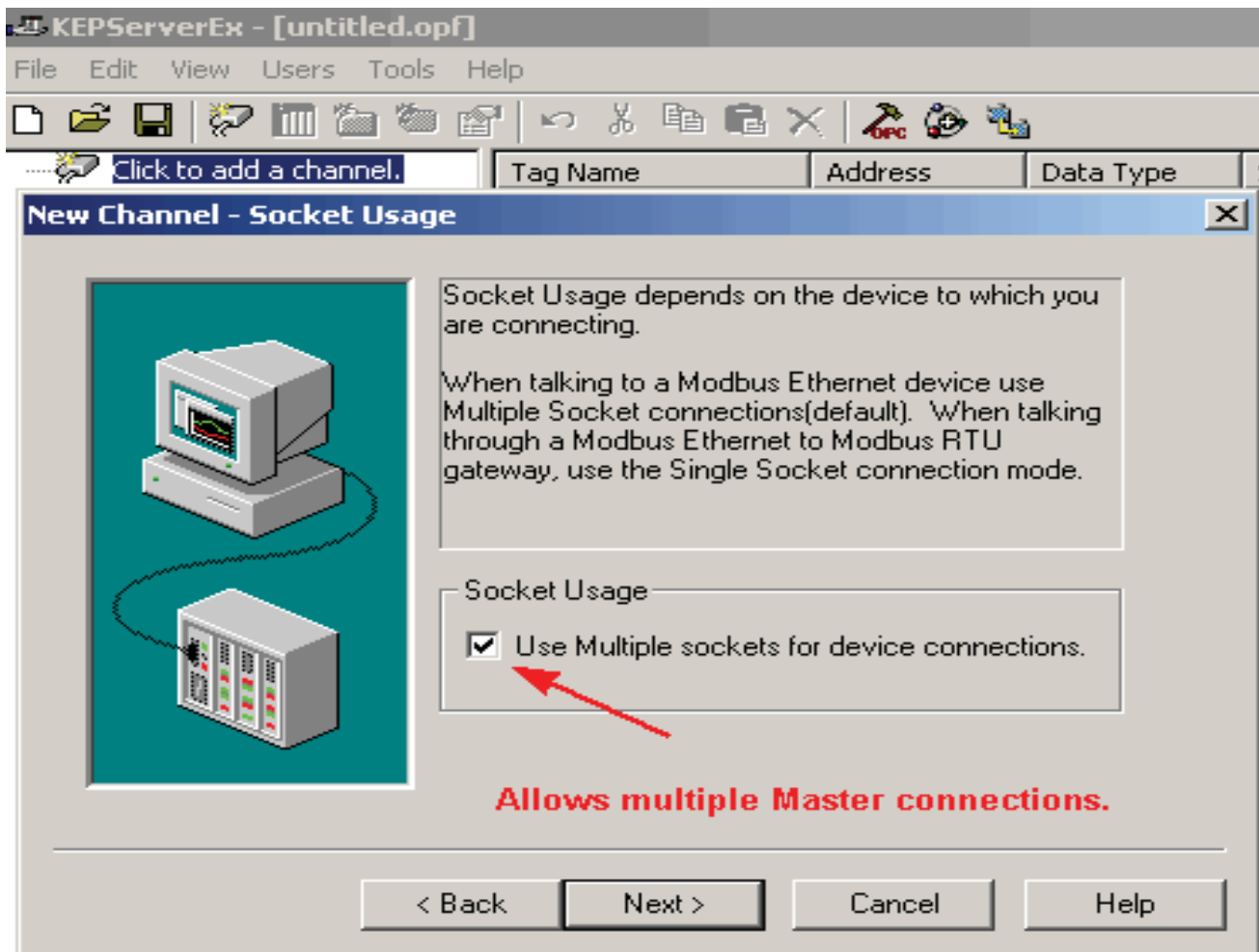
Note: Excessive writes to the PM may cause premature EEPROM failure. For more detail see the section entitled "Saving Settings to Nonvolatile Memory".

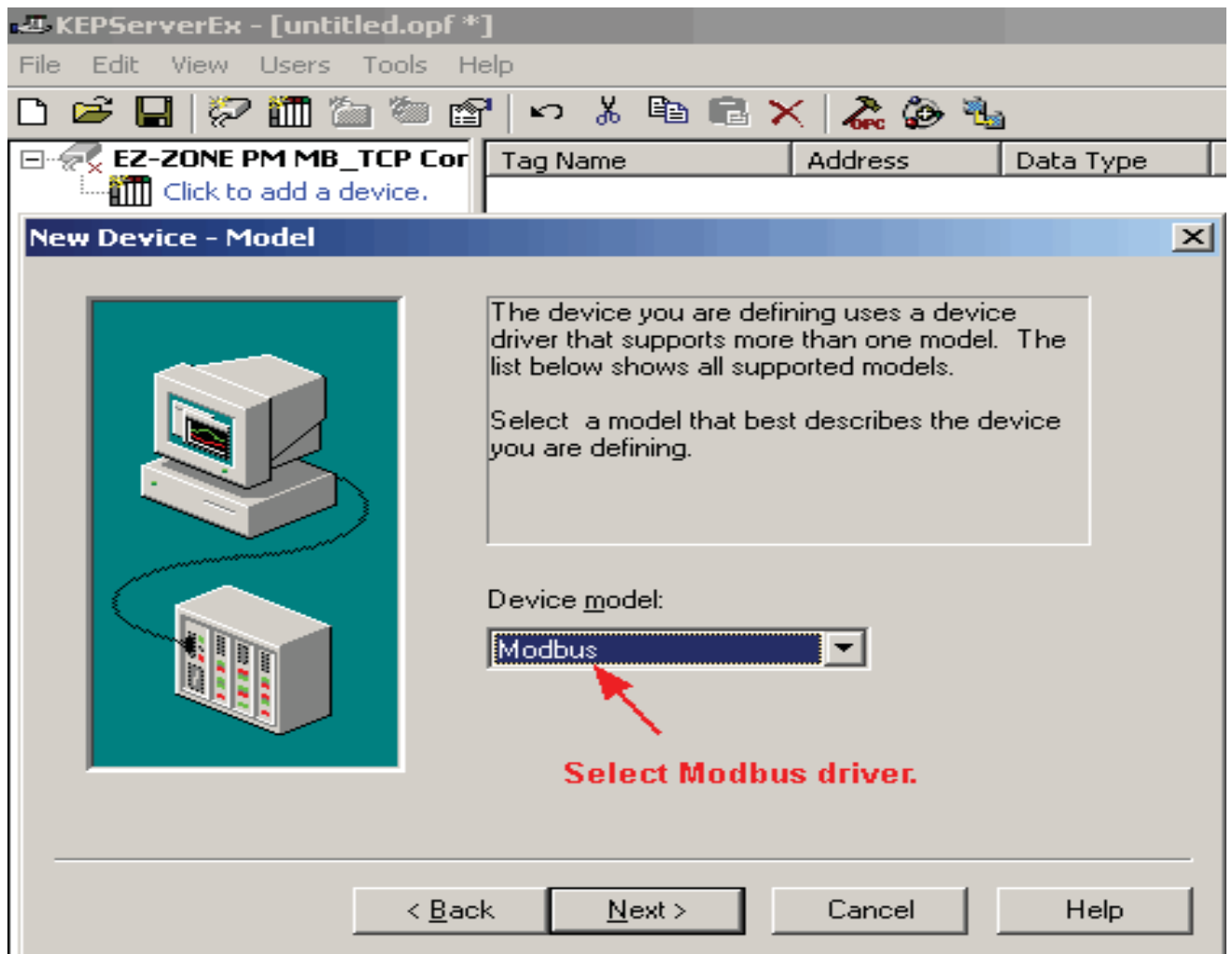
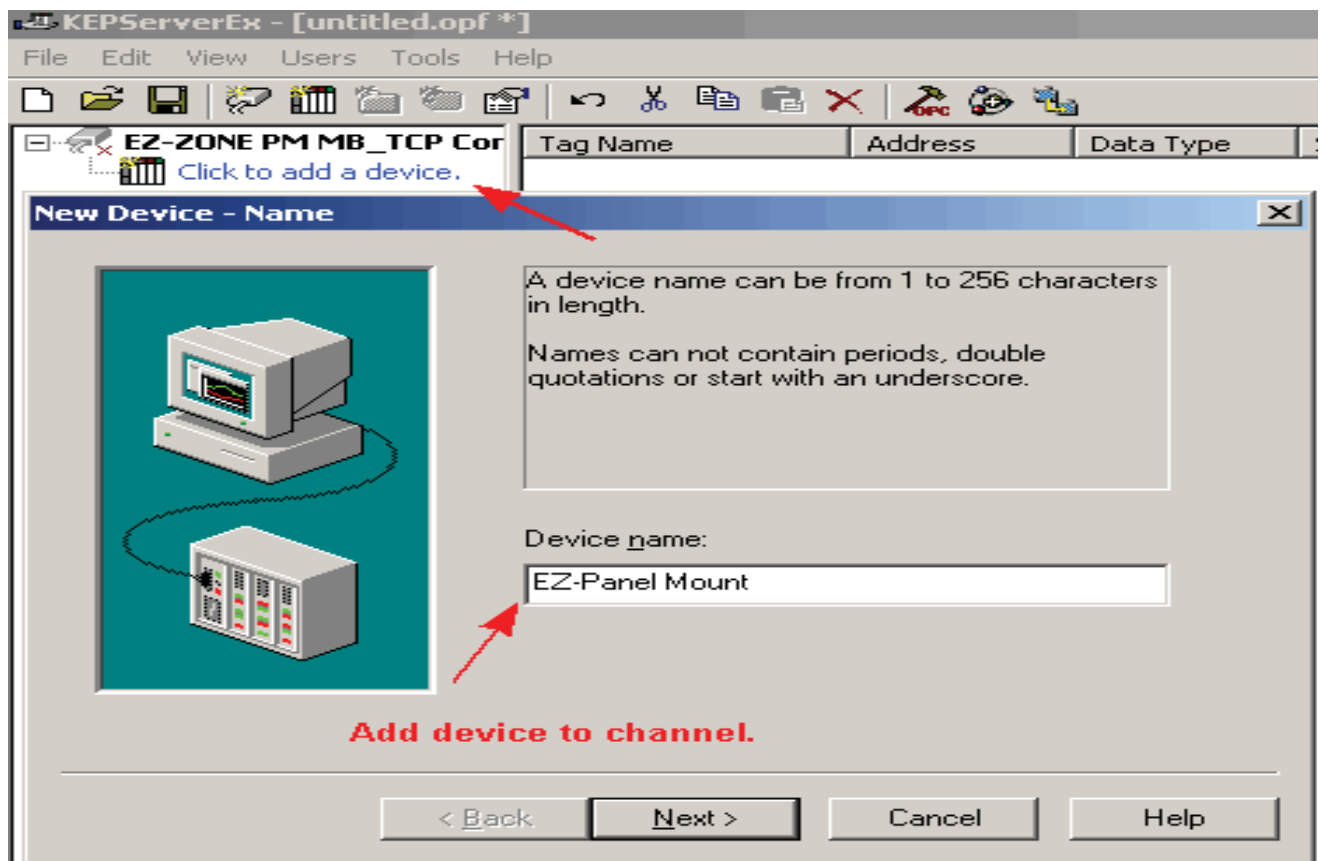
Configuring Modbus TCP Communications with KepserverEX

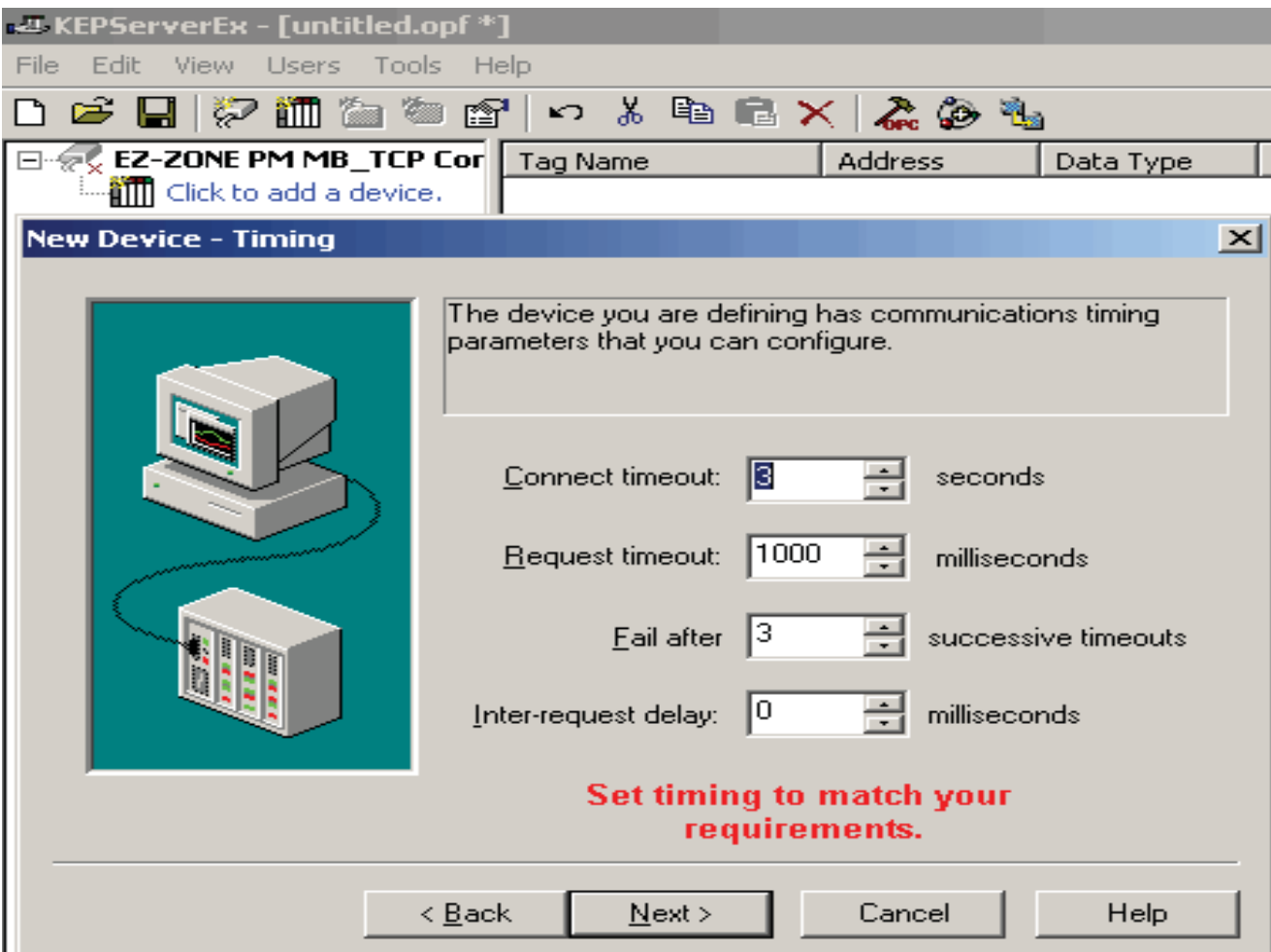
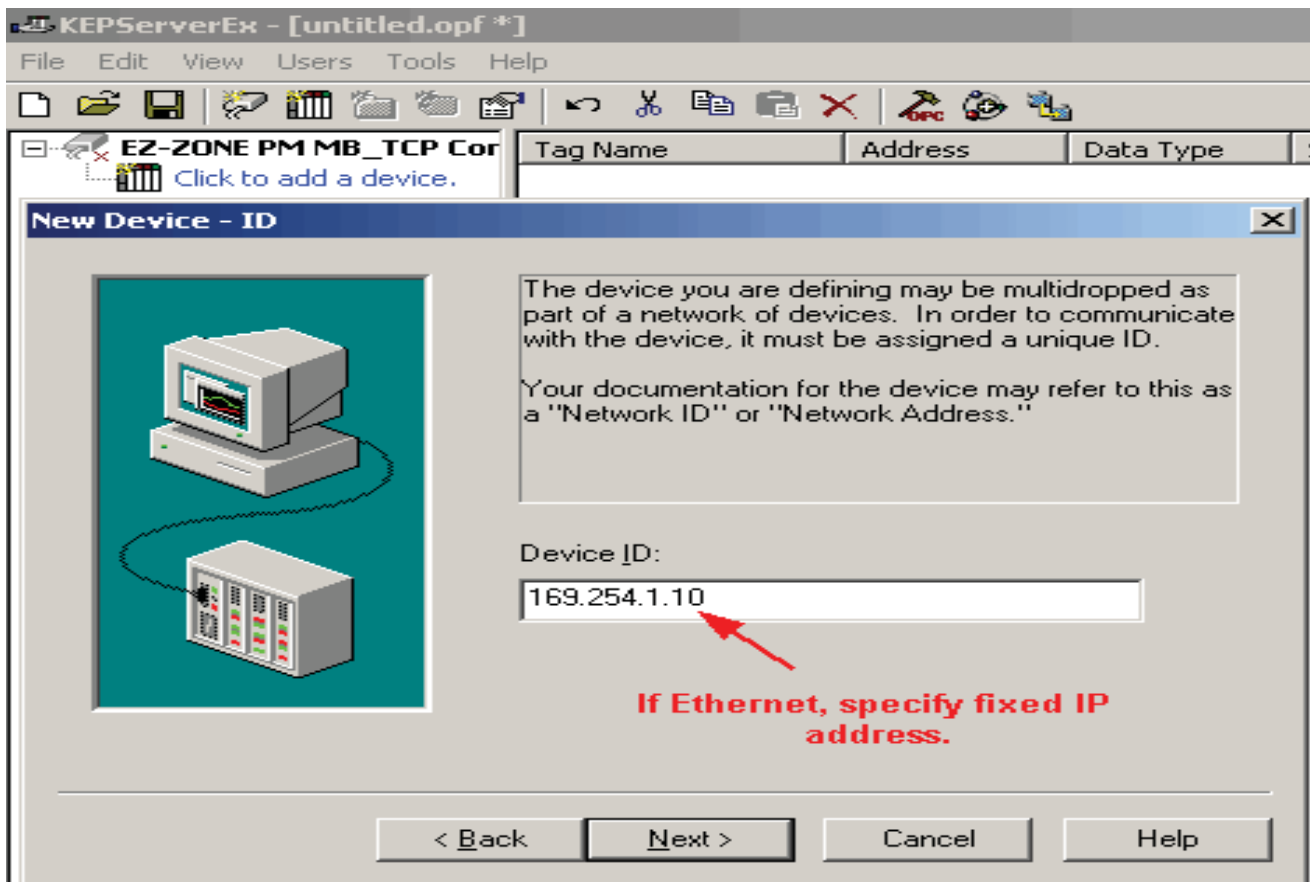
The following screenshots show a sequential step-by-step process to successfully establish communications from the PM controller equipped with Modbus TCP and KepserverEX.

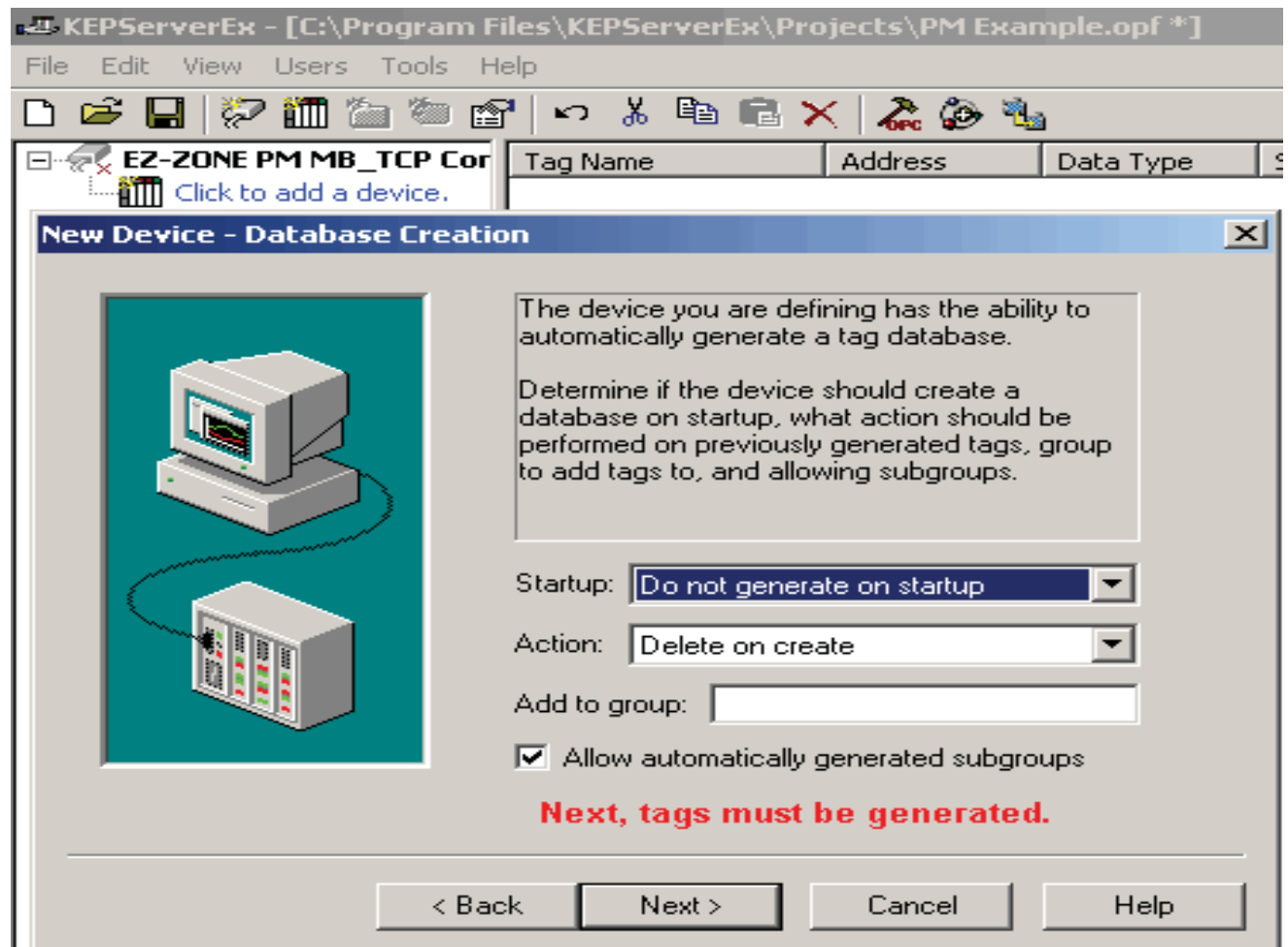
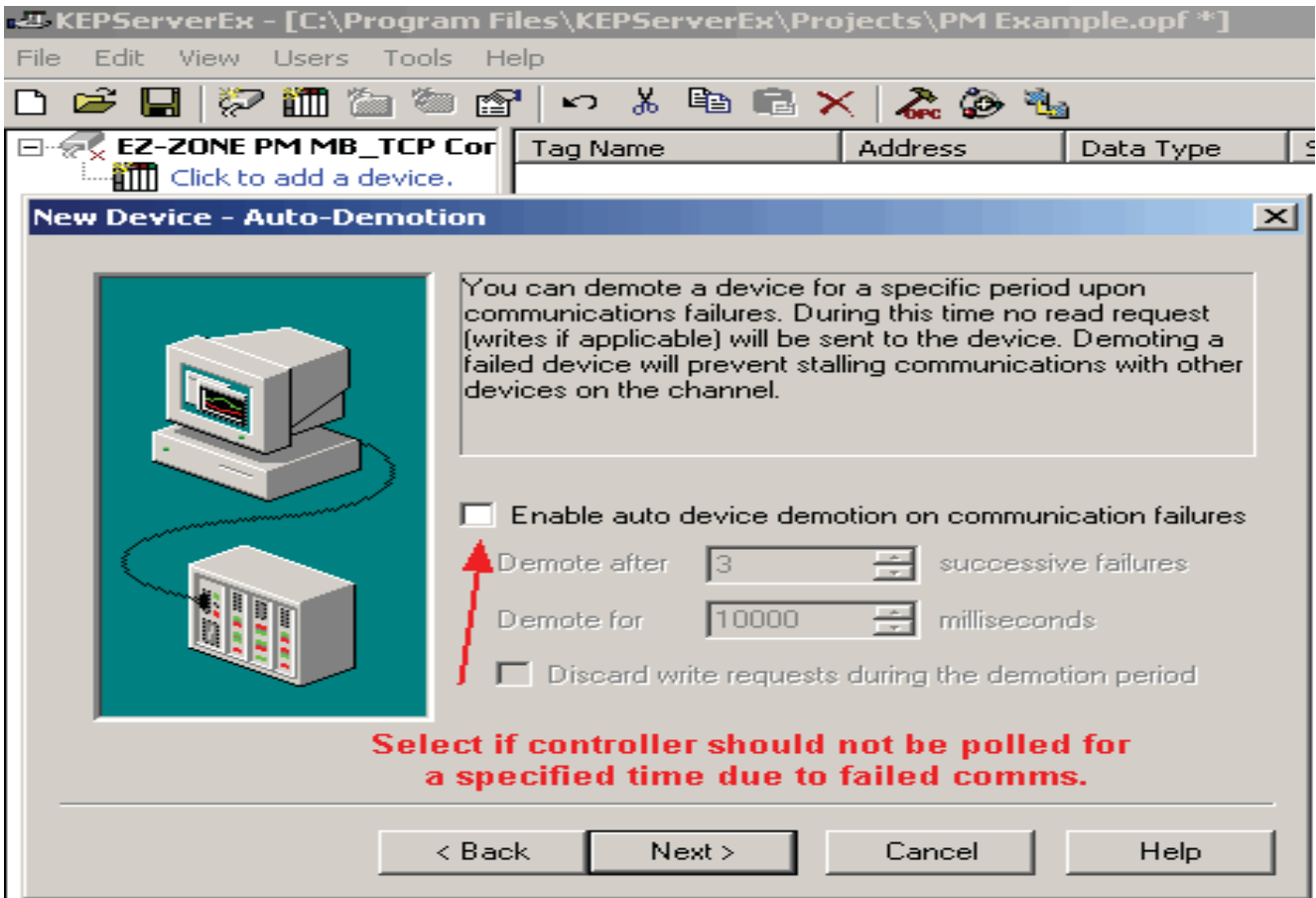


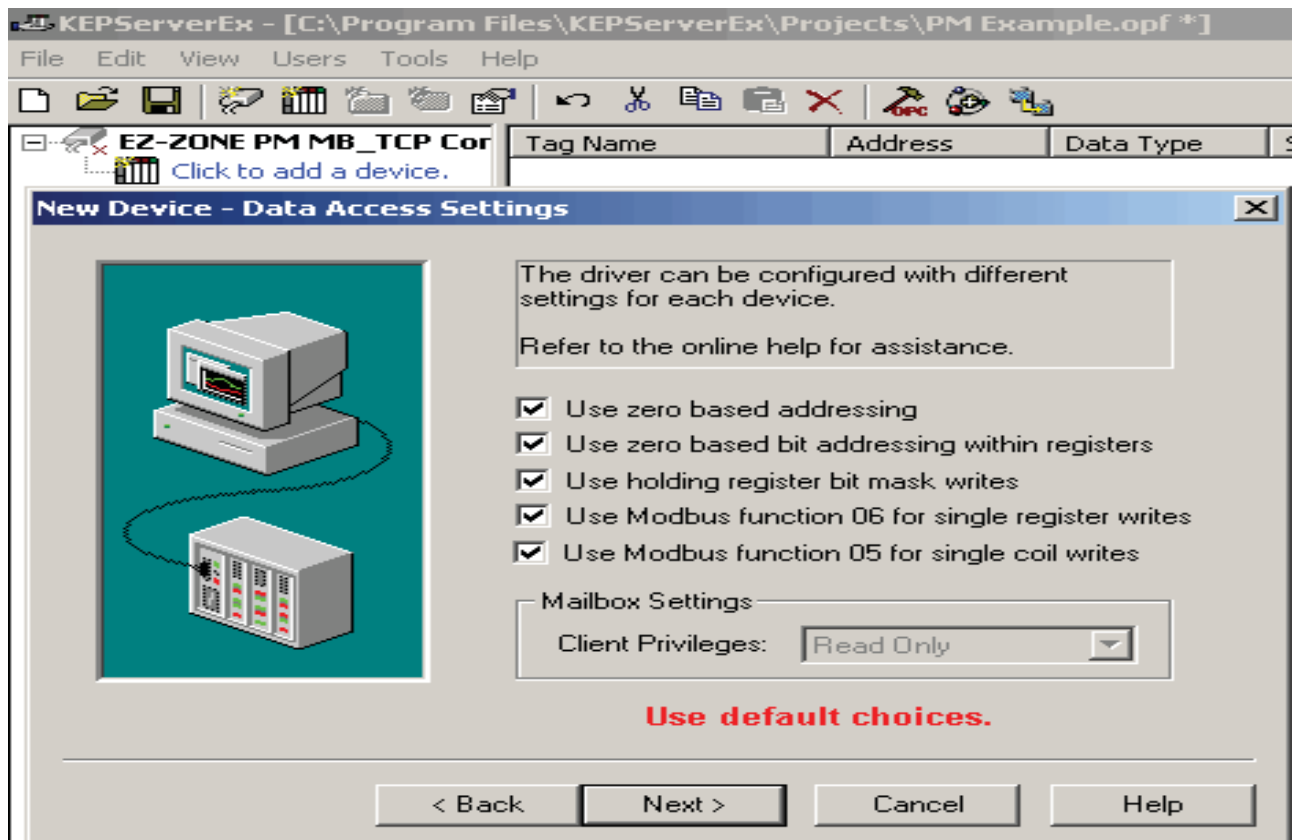
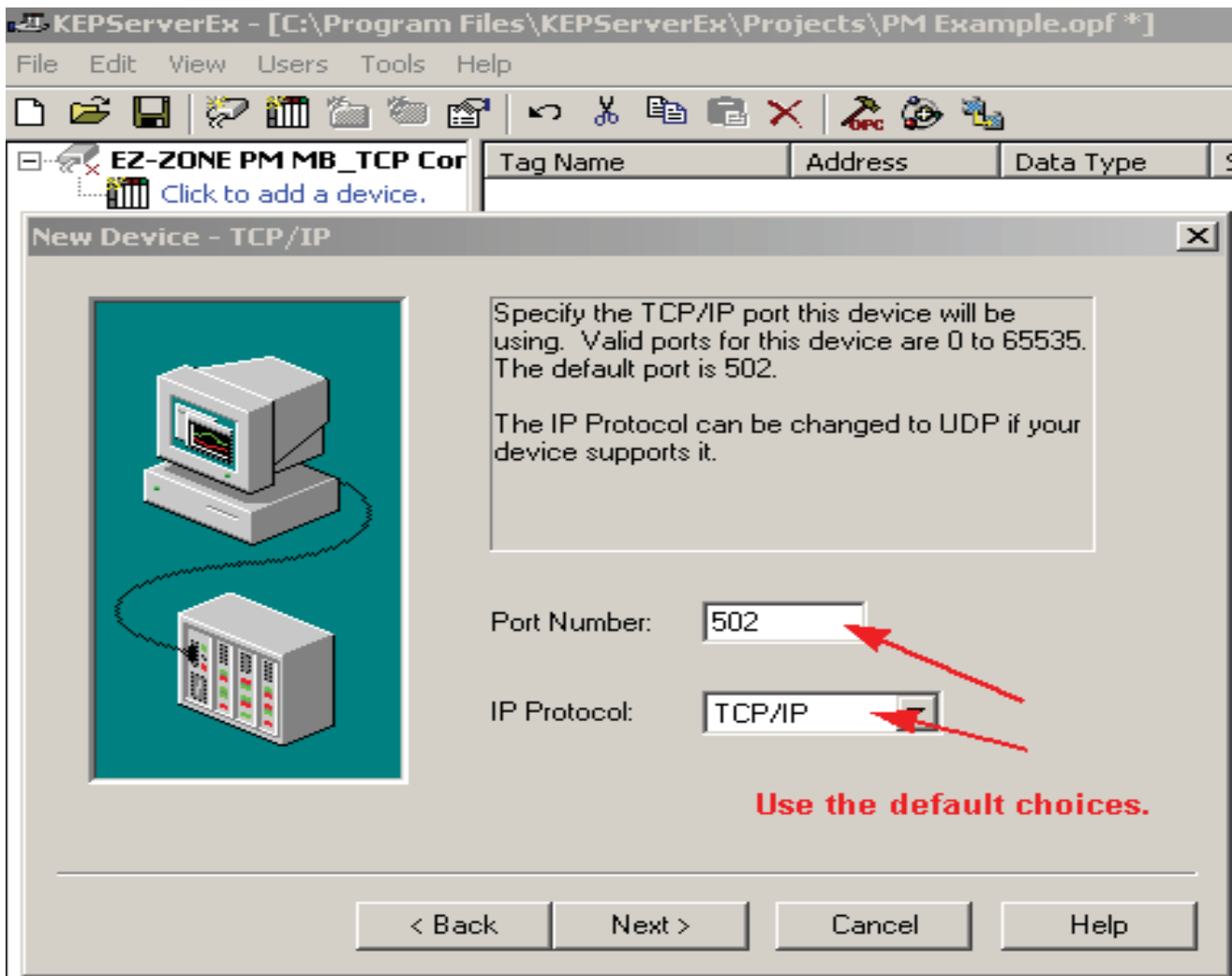


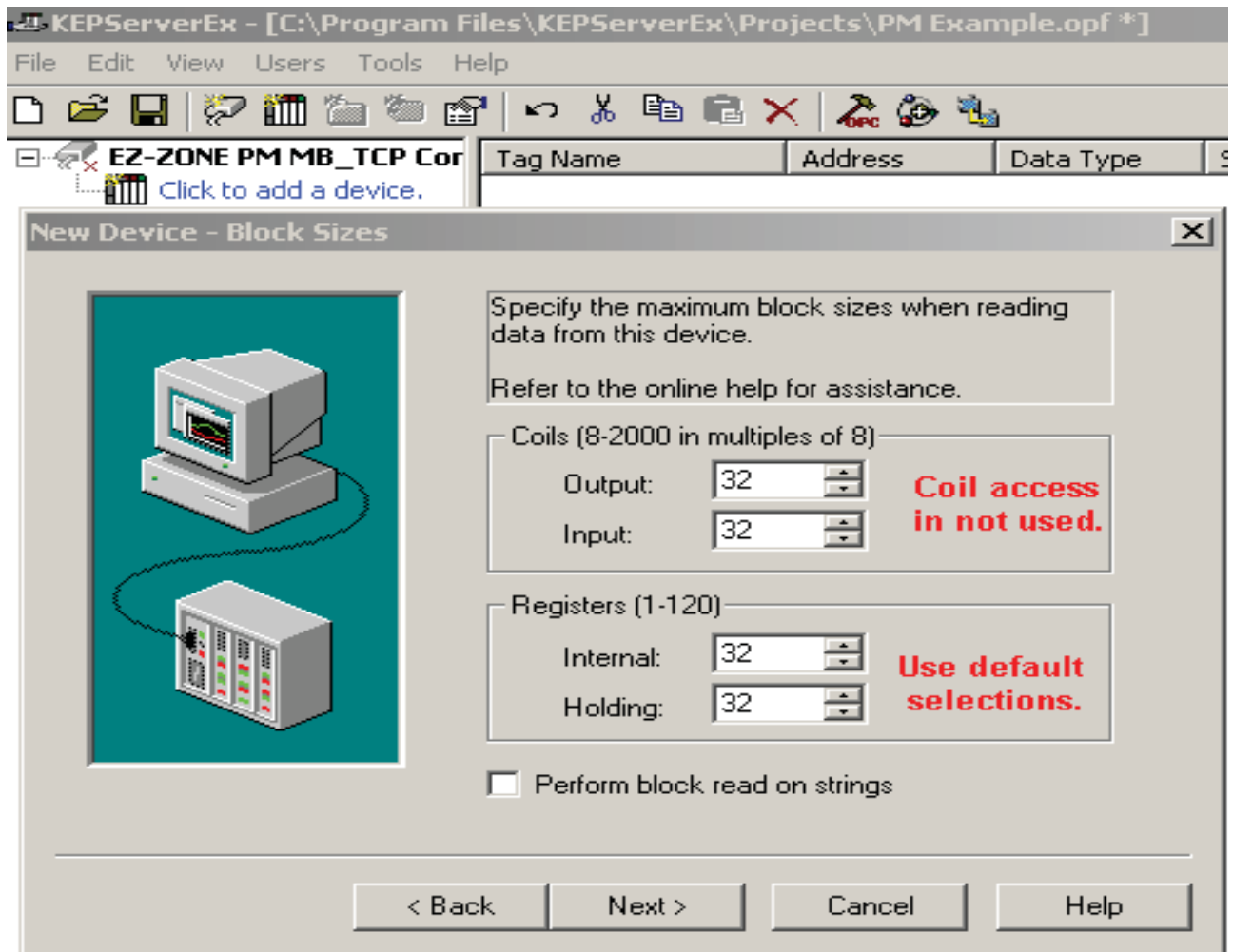
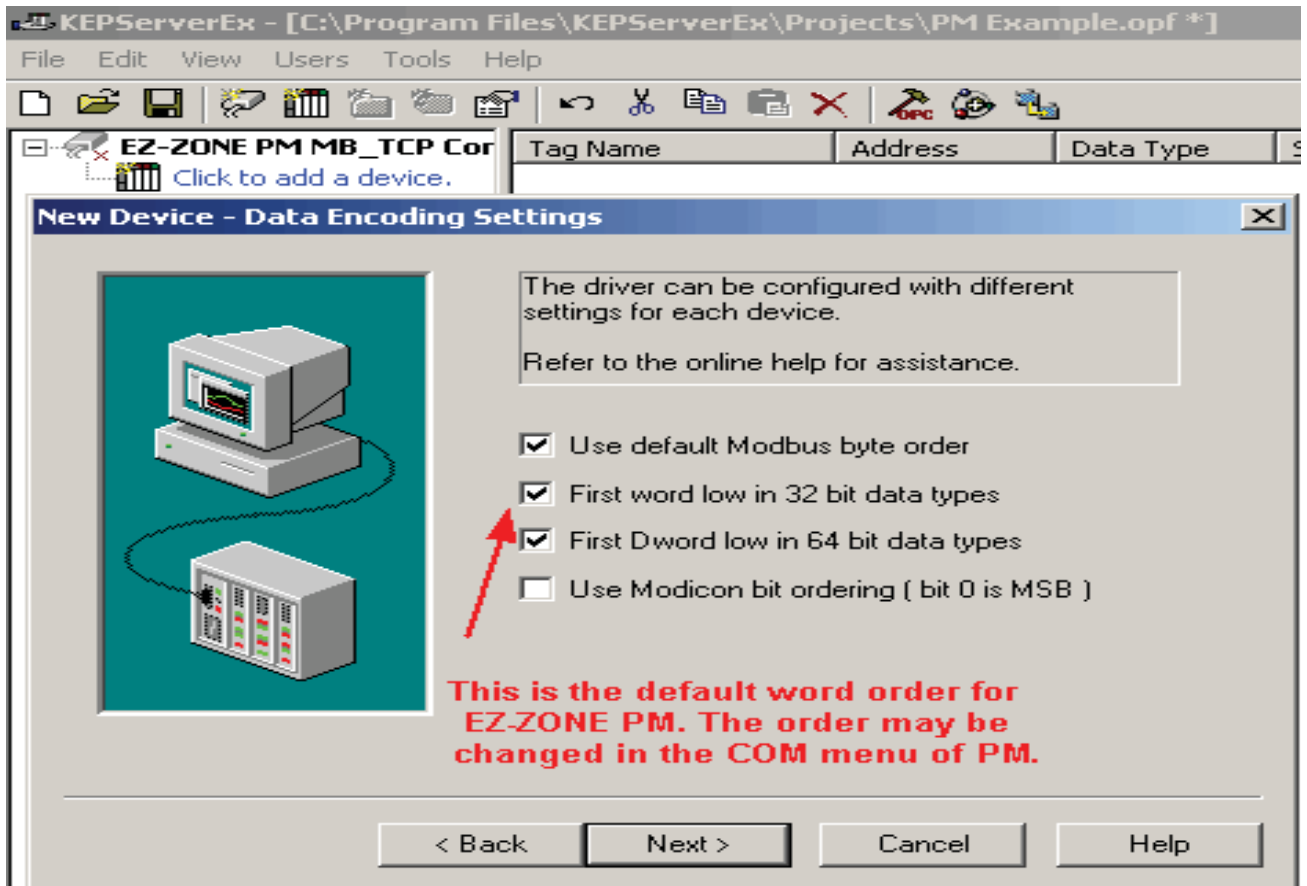


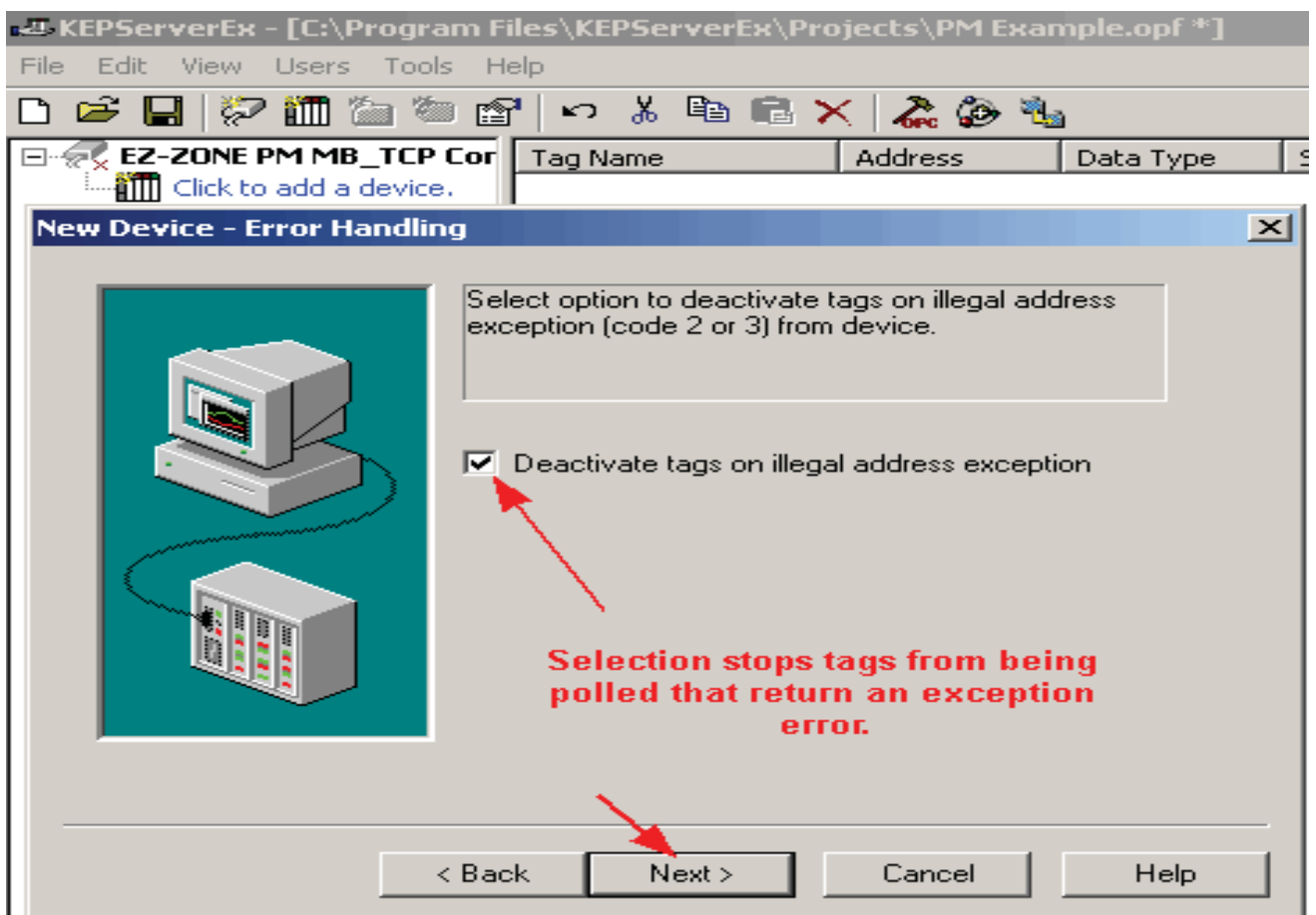
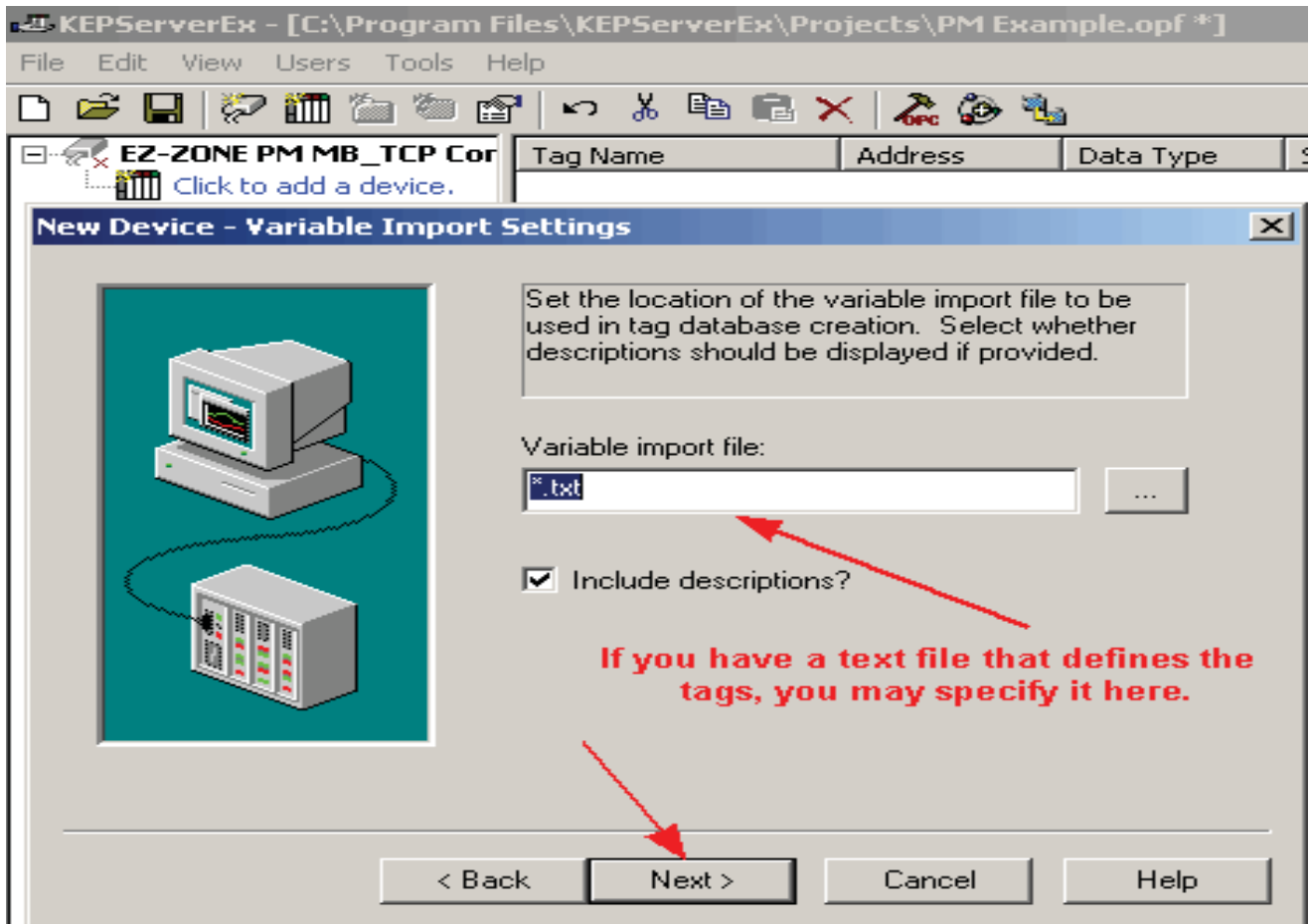


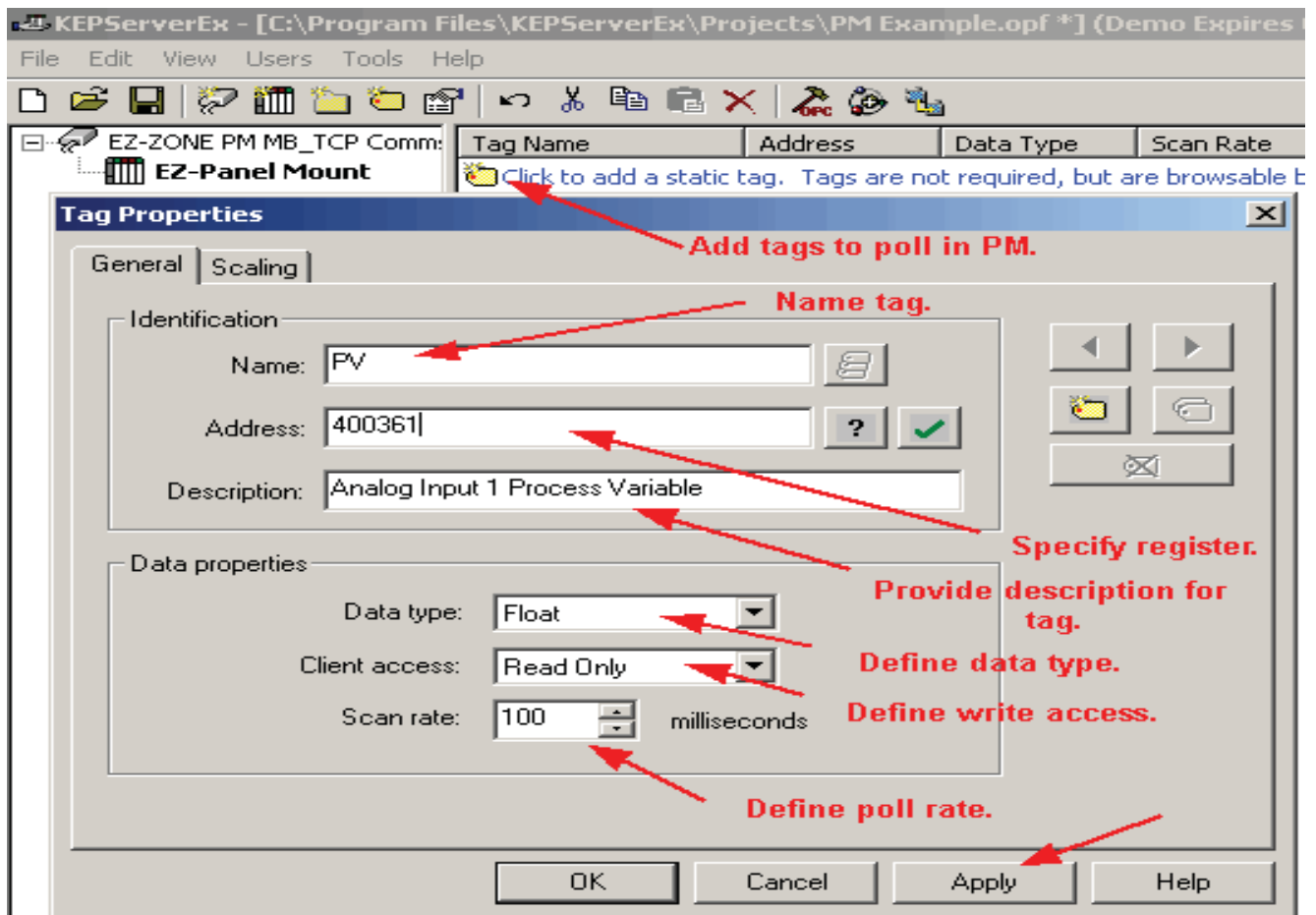
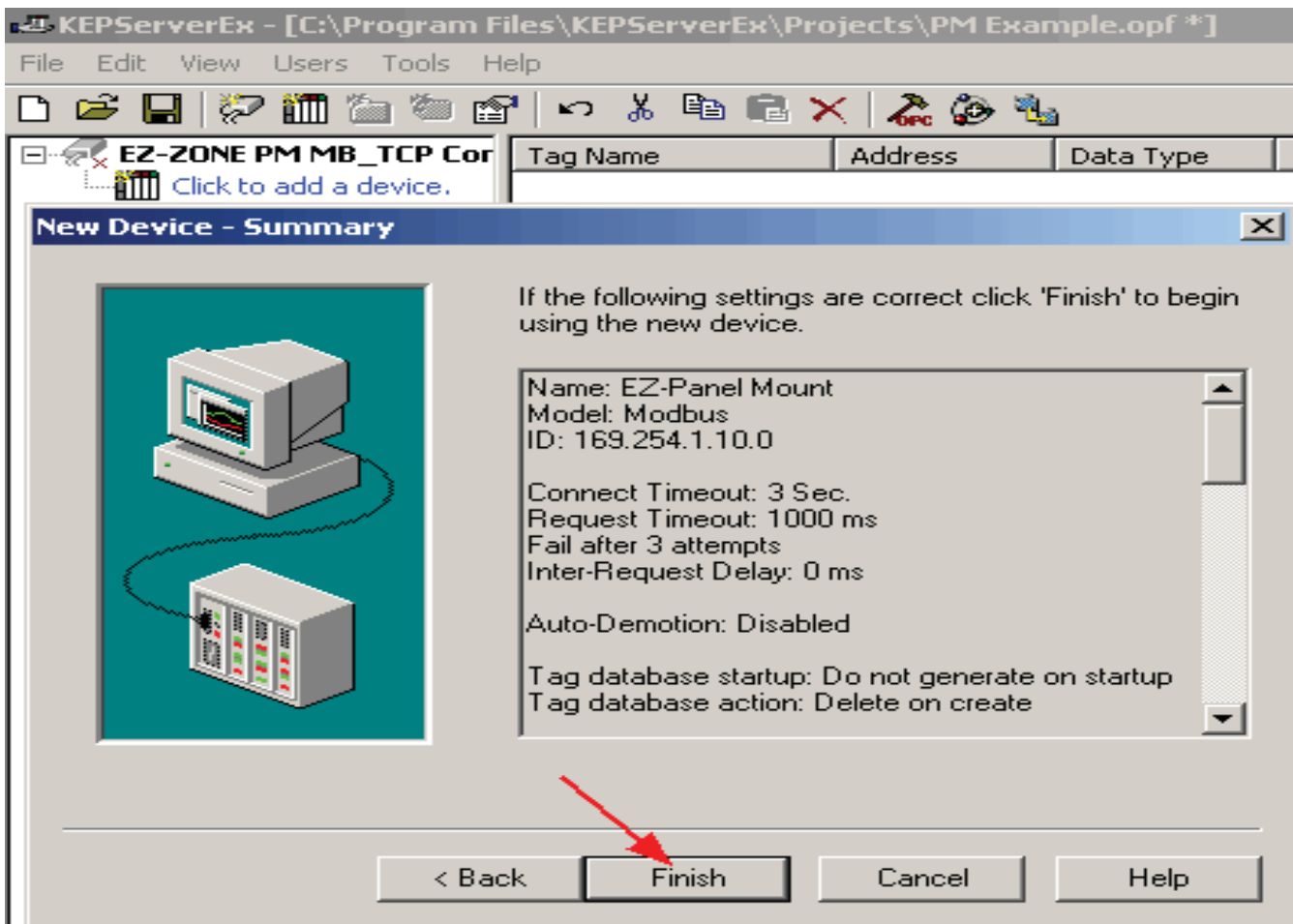












KEPServerEx - [C:\Program Files\KEPServerEx\Projects\PM Example.opf] (Demo Expires 01:41:39)

File Edit View Users Tools Help

EZ-ZONE PM MB_TCP Comm: EZ-Panel Mount

Tag Name	Address	Data Type	Scan Rate	Scaling	Description
PV	400361	Float	100	None	Analog Input 1 Process Variable

Tag Properties

General | Scaling

Identification

Name: DO 5 State

Address: 401013

Description: Digital Output 5 State

Data properties

Data type: Word

Client access: Read Only

Scan rate: 100 milliseconds

Repeat previous steps for all tags that you want to access.

OK Cancel Apply Help

KEPServerEx - [C:\Program Files\KEPServerEx\Projects\PM Example.opf *] (Demo Expires 01:38:50)

File Edit View Users Tools Help

EZ-ZONE PM MB_TCP Comm: EZ-Panel Mount

Tag Name	Address	Data Type	Scan Rate	Scaling	Description
DO 5 State	401013	Word	100	None	Digital Output 5 State
PV	400361	Float	100	None	Analog Input 1 Process Variable

Tag Properties

General | Scaling

Identification

Name: SP

Address: 402161

Description: Closed Loop Set Point

Data properties

Data type: Float

Client access: Read/Write

Scan rate: 100 milliseconds

Repeat previous steps for all tags you want to access.

OK Cancel Apply Help

OPC Quick Client - Untitled *

File Edit View Tools Help

Item ID	Value
EZ-ZONE PM MB_TCP Comms.EZ-Panel Mount.DO 5 State	62
EZ-ZONE PM MB_TCP Comms.EZ-Panel Mount.SP	70
EZ-ZONE PM MB_TCP Comms.EZ-Panel Mount.PV	82.1542

Ready Item Count: 40

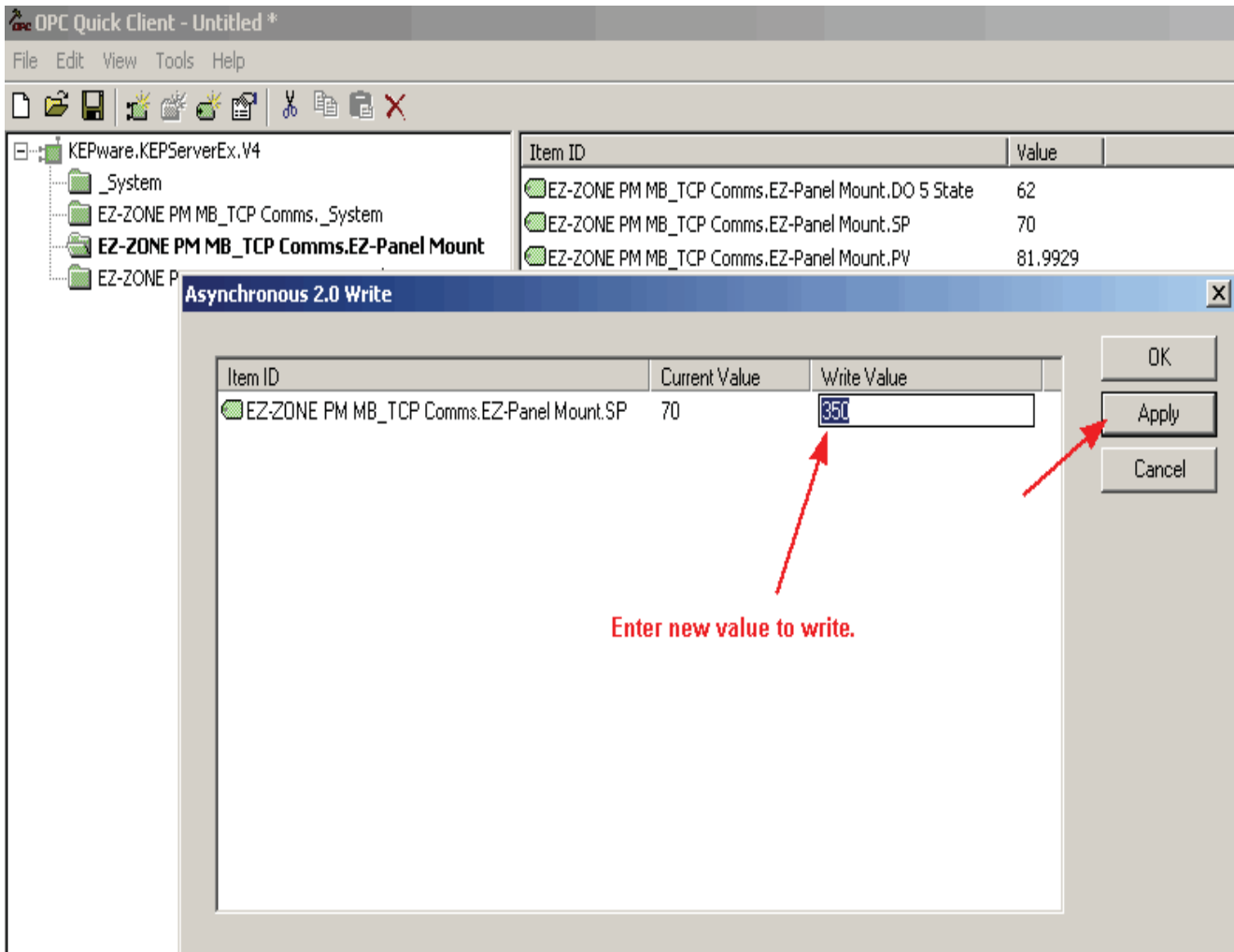
OPC Quick Client - Untitled *

File Edit View Tools Help

Item ID	Value
EZ-ZONE PM MB_TCP Comms.EZ-Panel Mount.DO 5 State	62
EZ-ZONE PM MB_TCP Comms.EZ-Panel Mount.SP	70
EZ-ZONE PM MB_TCP Comms.EZ-Panel Mount.PV	82.049

Use to create an immediate write to a tag in the PM.

Right click to access menu on left.



3

Chapter 3 EtherNet/IP

Introduction to EtherNet/IP

Today, with the introduction of EtherNet/IP (Industrial Protocol), a user can collect, configure, and control using one protocol. EtherNet/IP is a network communication standard capable of handling large amounts of data at speeds of 10 Mbps or 100 Mbps, and at up to 1,500 bytes per packet. The specification uses an open protocol at the application layer.

EtherNet/IP makes use of the standard off-the-shelf Ethernet chip sets and the currently installed physical media (hardware connections) and incorporates what is known today as the Common Industrial Protocol (CIP); an open protocol at the application layer fully managed by the Open DeviceNet Vendors Association (ODVA, <http://www.odva.org>). CIP is the critical component providing the ability to collect, configure, and control utilizing both implicit messaging (real-time I/O messaging), and explicit messaging (information/configuration messaging), with full support for peer-to-peer and multi-master configurations.

PM Connectivity over EtherNet/IP

To establish communications with the PLC the EZ-ZONE™ PM controller must be connected to the network, where it will either assume or be given an IP address. There are two ways in which an IP address can be established: Dynamic Host Configuration Protocol (DHCP, where a DHCP server on the network provides an IP address); or a fixed IP address (manually entered). The PM controller's default is set to DHCP. To change the IP addressing method to fixed IP follow the steps below:

1. Push and hold the up and down arrow keys on the front panel for six seconds to go to the Setup Menu.
2. Push the up or down arrow key until **[CIP?]** (Communications Menu) appears in upper display and **[SEE]** in the lower display.
3. Push the green Advance Key **[⊕]** to enter the Communications Menu **[CIP?]**.
4. Push up arrow key to go to the Communications 2 Submenu. The upper display shows **[2]**, and the lower display shows **[CIP?]**.
5. Push the Advance Key **[⊕]** until the upper display shows **[dHCP]** and lower display shows **[,P??]**.
6. Push the up arrow to change to Fixed Address

Note: Excessive writes to the PM may cause premature EEPROM failure. For more detail see the section entitled "Saving Settings to Nonvolatile Memory".

EtherNet/IP Indicator Lights

The PM has four indicator lights on the top of the controller, all of which are used with EtherNet/IP. The characteristics of the Module Status and Network Status LED's are defined by Open DeviceNet Vendors Association (ODVA), while the Active and Link indicator lights are defined in the Ethernet specification.

Module Status Indicator

Table 3.1

Indicator State	Summary	Requirement
Steady Off	No power	If no power is supplied to the device, the module status indicator shall be steady off.
Steady Green	Device operational	If the device is operating correctly, the module status indicator shall be steady green.
Flashing Green	Standby	If the device has not been configured, the module status indicator shall be flashing green.
Flashing Red	Minor fault	If the device has detected a recoverable minor fault, the module status indicator shall be flashing red. NOTE: An incorrect or inconsistent configuration would be considered a minor fault.
Steady Red	Major fault	If the device has detected a non-recoverable major fault, the module status indicator shall be steady red.
Flashing Green / Red	Self-test	While the device is performing its power up testing, the module status indicator shall be flashing green / red.

Network Status Indicator

Table 3.2

Steady Off	Not powered, no IP address	If the device does not have an IP address (or is powered off), the network status indicator shall be steady off.
Flashing Green	No connections	If the device has no established connections, but has obtained an IP address, the network status indicator shall be flashing green.
Steady Green	Connected	If the device has at least one established connection (even to the Message Router), the network status indicator shall be steady green.
Flashing Red	Connection timeout	If one or more of the connections in which this device is the target has timed out, the network status indicator shall be flashing red. This shall be left only if all timed out connections are reestablished or if the device is reset.
Steady Red	Duplicate IP	If the device has detected that its IP address is already in use, the network status indicator shall be steady red.
Flashing Green /Red	Self-test	While the device is performing its power up testing, the network status indicator shall be flashing green / red.

Link Status Indicator

Table 3.3

Steady Off	Not powered, unknown link speed	If the device cannot determine link speed or power is off, the network status indicator shall be steady off.
Red	Link speed = 10 Mbit	If the device is communicating at 10 Mbit, the link LED will be red..
Green	Link speed = 100 Mbit	If the device is communicating at 100 Mbit, the link LED will be green.

Activity Status Indicator

Table 3.4

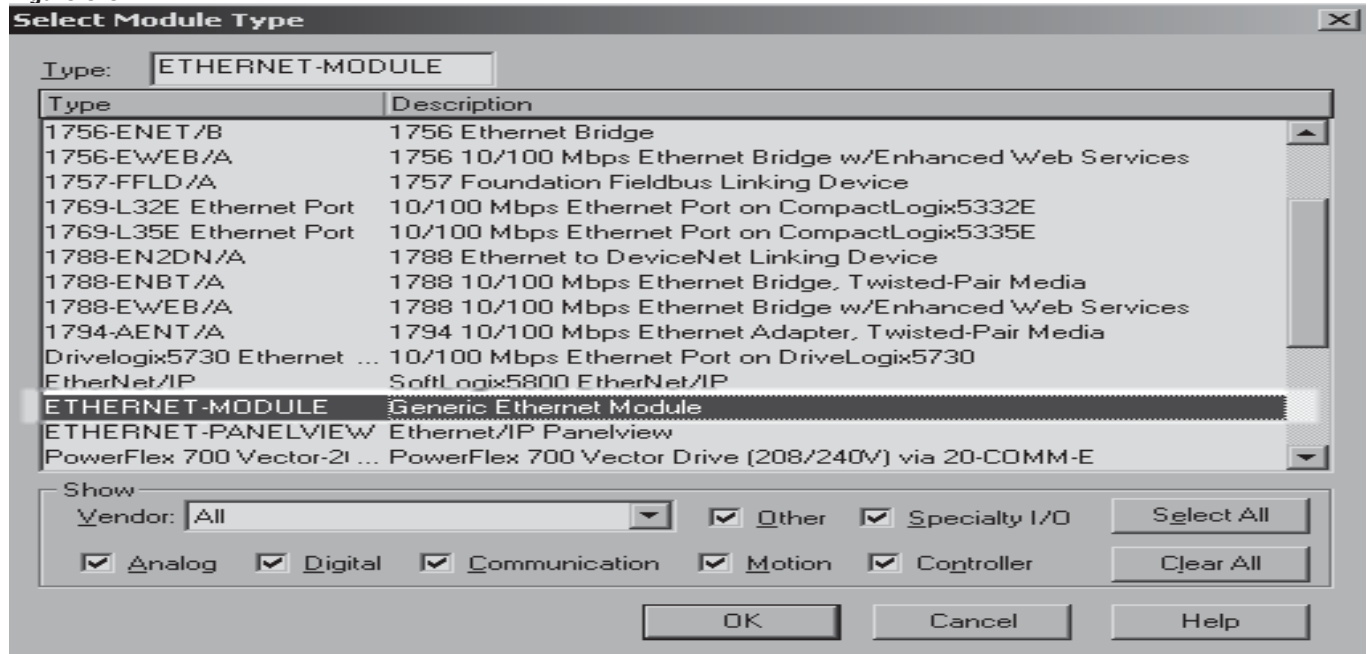
Flashing Green	Detects activity	If the MAC detects activity, the LED will be flashing green.
Red	Link speed = 10Mbit	If the MAC detects a collision, the LED will be red.

I/O Configuration using an Allen-Bradley Logix Family Processor

The setup steps may vary depending on the controller. The specific control used in the examples is a CompactLogix 1769-L32E. Follow the steps below to add and configure the PM as a generic Ethernet module.

1. In the I/O configuration, right click on the Ethernet Port, (in this case: 1769-L32E Ethernet Port LocalENB) and add a new module.

Figure 3.0

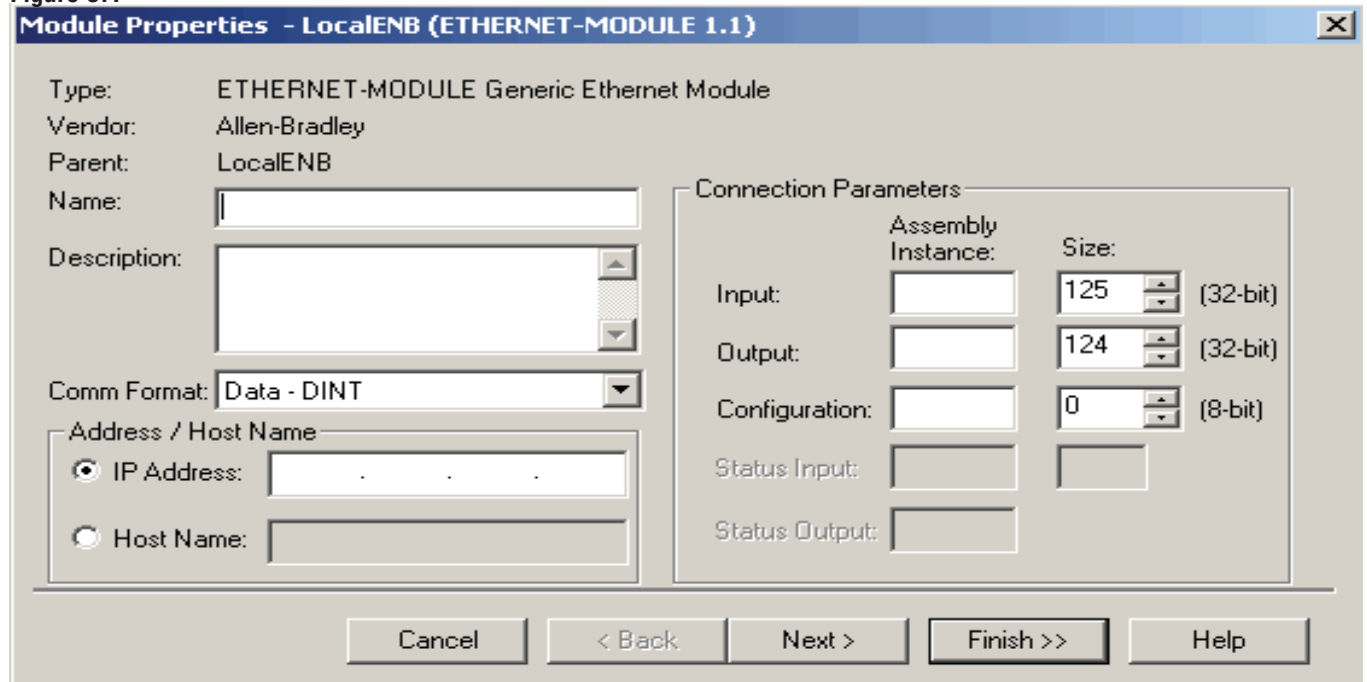


2. Select “Generic Ethernet Module” and click OK.

Configuring PM Properties using the RSLogix 5000

After clicking OK, the following screen will appear. You must complete all the fields in this screen except the description field.

Figure 3.1



Name

This field, will automatically be used as the controller name and will be used in the program when referencing PM inputs or outputs.

Description

No entry required.

Comm Format

As can be seen in the PM I/O assemblies below, the PM data formats depend on the tag name being written to or read from.

As can be seen in the chart below, the data types used by the PM vary. Although multiple “Comm Formats” can be configured, for ease in configuration and programming it is suggested that it be configured as INT. Configuration examples will follow.

IP Address

Enter here, the DHCP or fixed IP address previously acquired.

Assembly Instance**Input, PM to CompactLogix**

This field identifies the Target to Originator (T → O) input assembly 0x65 (101 decimal).

Output, CompactLogix to PM

This field identifies Originator to Target (O → T) output assembly 0x64 (100 decimal).

Configuration

The PM does not use the configuration instance 0x80 (128 decimal), however it still needs to be entered here.

Assembly Size

The assembly size is dependent upon the “Comm Format.”

T → O INT: 42 or DINT: 21

O → T INT: 40 or DINT: 20

The size for the configuration instance, although not used, will always be set to 0.

Table 3.5

Supported Attribute Data Types			
CIP	PM	Access	Size (Bytes)
USINT	UByte	RW	1
SINT	Byte	RW	1
UINT	UWord	RW	2
INT	Word	RW	2
UDINT	ULong	RW	4
DINT	Long	RW	4
REAL	Float	RW	4

Target to Originator (T to O) - Default Assembly**Table 3.6**

Attribute Name	EIP Class ID	EIP Instance ID	EIP Attribute ID	Data Type
Analog Input 1 Process Value	104	1	1	REAL
Analog Input 1 Error Status	104	1	2	DINT
Analog Input 2 Process Value	104	2	1	REAL
Analog Input 2 Error Status	104	2	2	DINT
Alarm 1 State	109	1	9	DINT
Alarm 2 State	109	2	9	DINT
Alarm 3 State	109	3	9	DINT
Alarm 4 State	109	4	9	DINT
Digital Input 5 Status	110	1	5	DINT
Digital Input 6 Status	110	2	5	DINT
Control Mode Active	151	1	2	DINT
Heat Power	151	1	13	REAL
Cool Power	151	1	14	REAL
Limit State	112	1	6	DINT
Profile Start	122	1	1	DINT
Profile Action Request	122	1	11	DINT
Active File	122	1	3	DINT
Active Step	122	1	4	DINT
Active Set Point	122	1	5	REAL
Step Time Remaining	122	1	9	REAL

In using the input assembly define the following sizes based on the configured “Comm Format” in RSLogix5000.

DINT: 21

INT: 42

Originator to Target (O to T) - Default Assembly

Table 3.7

Attribute Name	EIP Class ID	EIP Instance ID	EIP Attribute ID	Data Type
Loop Control Mode	151	1	1	DINT
Closed Loop Set Point	107	1	1	REAL
Open Loop Set Point	107	1	2	REAL
Alarm 1 High Set Point	109	1	1	REAL
Alarm 1 Low Set Point	109	1	2	REAL
Alarm 2 High Set Point	109	2	1	REAL
Alarm 2 Low Set Point	109	2	2	REAL
Alarm 3 High Set Point	109	3	1	REAL
Alarm 3 Low Set Point	109	3	2	REAL
Alarm 4 High Set Point	109	4	1	REAL
Alarm 4 Low Set Point	109	4	2	REAL
Profile Action Request	122	1	11	DINT
Profile Start	122	1	1	DINT
Heat Proportional Band	151	1	6	REAL
Cool Proportional Band	151	1	7	REAL
Time Integral	151	1	8	REAL
Time Derivative	151	1	9	REAL
Heat Hysteresis	151	1	11	REAL
Cool Hysteresis	151	1	12	REAL
Deadband	151	1	10	REAL

In using the output assembly define the following sizes based on the configured “Comm Format” in RSLogix5000.

DINT: 20

INT: 40

Note: Excessive writes to the PM may cause premature EEPROM failure. If using the O to T assembly it is recommended that EEPROM writes be disabled (factory default). For more detail see the section entitled "Saving Settings to Nonvolatile Memory".

Communications between ControlLogix & the EZ-ZONE™ PM

Configuring the PM enables both real-time I/O connections (implicit messaging) and non-time critical (explicit messaging) communications. Information will be transferred between the control and the PM using either implicit and or explicit connections. All implicit messages are sent and received cyclically at the rate of the Requested Packet Interval (RPI), where explicit messages are typically initiated via a message instruction in the control program. It is recommended that the RPI be set above 100ms. Generally, explicit messages are used as a tool for configuration. For example, to change the default T-to-O or O-to-T assembly structure in the PM from the factory defaults as defined above, the user would use an explicit message instruction.

Ladder Logic Examples

In the ladder logic examples that follow, please note how the PM and its associated tags were configured.

First, let's take a look at the "Comm Format" briefly discussed earlier with a recommendation to configure it as INT. In this section we will see why.

One of the advantages of using the Logix family of controls is that users can define their own data types. Creating two unique, user-defined data types (T to O and O to T) makes programming the PLC to communicate with the Watlow PM controller very easy. The name given for these data types is up to the user. In this example, the user-defined data types and styles were created to match the default PM O-to-T and T-to-O assemblies.

Notice in Figure 3.4 (PM T to O) that the first location is identified as "Device Status." This does not represent one of the 20 members, and it is required. Currently, if bit 16 is set to 1, as shown in figure 3.2 below (PM to PLC), it indicates valid communications between the Ethernet card and the PM. If set to 0, communications have failed.

Figure 3.2

+PM_TtoO.Device_Stat	2#0000_0000_0000_0001_0000_0000_0000_0000	Binary	DINT
----------------------	---	--------	------

Figure 3.3 & 3.4

Name: PM_O_to_T
Description: PLC to Watlow PM

Members: Data Type Size: 80 byte(s)

Name	Data Type	Style	Description
Ctrl_Mode	DINT	Decimal	PM Control Mode
CLSP	REAL	Float	CLSP
OLSP	REAL	Float	OLSP
ALm1H_SP	REAL	Float	Alm SP1 High
ALm1L_SP	REAL	Float	Alm SP1 Low
ALm2H_SP	REAL	Float	Alm SP2 High
ALm2L_SP	REAL	Float	Alm SP2 Low
ALm3H_SP	REAL	Float	Alm SP3 High
ALm3L_SP	REAL	Float	Alm SP3 Low
ALm4H_SP	REAL	Float	Alm SP4 High
ALm4L_SP	REAL	Float	Alm SP4 Low
Pro_Act_Req	DINT	Decimal	Profile_Action_Request
Pro_Strt	DINT	Decimal	Profile Start
H_PB	REAL	Float	Heat Proportional Band
C_PB	REAL	Float	Cool Proportional Band
Integral	REAL	Float	Integral
Derivative	REAL	Float	Derivative
On_Off_HHys	REAL	Float	Heat On-Off Hysteresis
On_Off_CHys	REAL	Float	Cool On-Off Hysteresis
DB	REAL	Float	PID DeadBand

Name: PM_T_to_O
Description: Watlow PM - Input to PLC

Members: Data Type Size: 84 byte(s)

Name	Data Type	Style	Description
Device_Stat	DINT	Binary	PM Device Status
PV1	REAL	Float	AI 1 Process Variable
In_Err_Stat1	DINT	Decimal	AI 1 Input Error Status
PV2	REAL	Float	AI 2 Process Variable
In_Err_Stat2	DINT	Decimal	AI 2 Input Error Status
Alm_Stat1	DINT	Decimal	Alarm1 Status
Alm_Stat2	DINT	Decimal	Alarm2 Status
Alm_Stat3	DINT	Decimal	Alarm3 Status
Alm_Stat4	DINT	Decimal	Alarm4 Status
Event1_State	DINT	Decimal	Event 1 Status
Event2_State	DINT	Decimal	Event 2 Status
PM_Ctrl_Mode	DINT	Decimal	PM_Control_Mode
H_Pwr	REAL	Float	Heat Output Power
C_Pwr	REAL	Float	Cool Output Power
Lim_State	DINT	Decimal	Limit State
RB_Strt_Pro	DINT	Decimal	Profile Start Readback
RB_Pro_Act_Req	DINT	Decimal	Profile Action Request Readback
Pro_Cur_File	DINT	Decimal	Profile - Current File
Pro_Cur_Slp	DINT	Decimal	Profile - Current Step
Pro_Prod_SP	REAL	Float	Profile - Produced Set Point
Pro_Rem_ST	REAL	Float	Profile - Remaining Step Time

Now, to use the new data types defined above. Two controller tags were created (see figure 3.5 & 3.6) and when prompted for the data type, the user-defined data types defined above were selected.

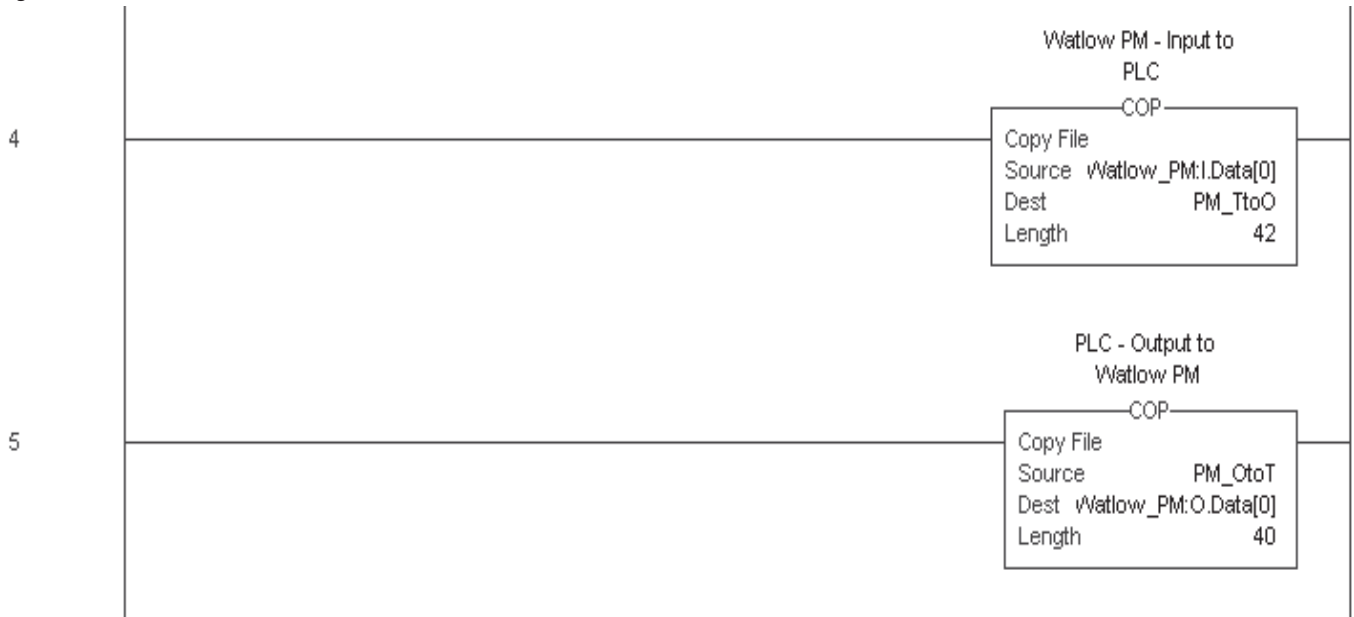
Figure 3.5 & 3.6

PM_TtoO				PM_OtoT			
PM_TtoO.Device_Stat	Binary	DINT	Watlow PM - Input to PLC PM Device Status	PM_OtoT.Ctrl_Mode	Decimal	DINT	PLC to Watlow PM PM Control Mode
PM_TtoO.PV1	Float	REAL	Watlow PM - Input to PLC AI 1 Process Variable	PM_OtoT.CLSP	Float	REAL	PLC to Watlow PM CLSP
PM_TtoO.In_Err_Stat1	Decimal	DINT	Watlow PM - Input to PLC AI 1 Input Error Status	PM_OtoT.OLSP	Float	REAL	PLC to Watlow PM OLSP
PM_TtoO.PV2	Float	REAL	Watlow PM - Input to PLC AI 2 Process Variable	PM_OtoT.ALm1H_SP	Float	REAL	PLC to Watlow PM Alm SP1 High
PM_TtoO.In_Err_Stat2	Decimal	DINT	Watlow PM - Input to PLC AI 2 Input Error Status	PM_OtoT.ALm1L_SP	Float	REAL	PLC to Watlow PM Alm SP1 Low
PM_TtoO.Alm_Stat1	Decimal	DINT	Watlow PM - Input to PLC Alarm1 Status	PM_OtoT.ALm2H_SP	Float	REAL	PLC to Watlow PM Alm SP2 High
PM_TtoO.Alm_Stat2	Decimal	DINT	Watlow PM - Input to PLC Alarm2 Status	PM_OtoT.ALm2L_SP	Float	REAL	PLC to Watlow PM Alm SP2 Low
PM_TtoO.Alm_Stat3	Decimal	DINT	Watlow PM - Input to PLC Alarm3 Status	PM_OtoT.ALm3H_SP	Float	REAL	PLC to Watlow PM Alm SP3 High
PM_TtoO.Alm_Stat4	Decimal	DINT	Watlow PM - Input to PLC Alarm4 Status	PM_OtoT.ALm3L_SP	Float	REAL	PLC to Watlow PM Alm SP3 Low
PM_TtoO.Event1_State	Decimal	DINT	Watlow PM - Input to PLC Event 1 Status	PM_OtoT.ALm4H_SP	Float	REAL	PLC to Watlow PM Alm SP4 High
PM_TtoO.Event2_State	Decimal	DINT	Watlow PM - Input to PLC Event 2 Status	PM_OtoT.ALm4L_SP	Float	REAL	PLC to Watlow PM Alm SP4 Low
PM_TtoO.PM_Ctrl_Mode	Decimal	DINT	Watlow PM - Input to PLC PM_Control_Mode	PM_OtoT.Pro_Act_Req	Decimal	DINT	PLC to Watlow PM Profile_Action_Request
PM_TtoO.H_Pwr	Float	REAL	Watlow PM - Input to PLC Heat Output Power	PM_OtoT.Pro_Strt	Decimal	DINT	PLC to Watlow PM Profile Start
PM_TtoO.C_Pwr	Float	REAL	Watlow PM - Input to PLC Cool Output Power	PM_OtoT.H_PB	Float	REAL	PLC to Watlow PM Heat Proportional Band
PM_TtoO.Lim_State	Decimal	DINT	Watlow PM - Input to PLC Limit State	PM_OtoT.C_PB	Float	REAL	PLC to Watlow PM Cool Proportional Band
PM_TtoO.RB_Stt_Pro	Decimal	DINT	Watlow PM - Input to PLC Profile Start Readback	PM_OtoT.Integral	Float	REAL	PLC to Watlow PM Integral
PM_TtoO.RB_Pro_Act_Req	Decimal	DINT	Watlow PM - Input to PLC Profile Action Request Readback	PM_OtoT.Derivative	Float	REAL	PLC to Watlow PM Derivative
PM_TtoO.Pro_Curr_File	Decimal	DINT	Watlow PM - Input to PLC Profile - Current File	PM_OtoT.On_Off_HHys	Float	REAL	PLC to Watlow PM Heat On-Off Hysteresis
PM_TtoO.Pro_Curr_Stp	Decimal	DINT	Watlow PM - Input to PLC Profile - Current Step	PM_OtoT.On_Off_CHys	Float	REAL	PLC to Watlow PM Cool On-Off Hysteresis
PM_TtoO.Pro_Prod_SP	Float	REAL	Watlow PM - Input to PLC Profile - Produced Set Point	PM_OtoT.DB	Float	REAL	PLC to Watlow PM PID DeadBand
PM_TtoO.Pro_Rem_ST	Float	REAL	Watlow PM - Input to PLC Profile - Remaining Step Time				

You can now use simple logic to create instructions to move implicitly the default assembly structures to and from the PM. Recall that the name given to the I/O module is also used as the I/O tags. Note in the first copy instruction (input from PM to PLC) that the name given to the module appears as the source (Watlow_PM). Likewise, in the second copy instruction

(output from PLC to PM) the destination tag reflects the module name. The two copy instructions below represent all that's needed to send and receive data from the PM. The copy instructions will copy source tags to destination tags byte for byte, so no further data conversion is needed.

Figure 3.7



Ladder Logic Example

In the likely event that the user wants to change the default assembly structures, this can be done using an explicit message. First, it is necessary to define the assembly setup. Note in Tables 3.8 and 3.9 that both assemblies (O to T and T to O) are accessed via class 119, where the instance identifies input and output with the attribute identifying the member within the instance.

Originator to Target (PLC to PM)

Table 3.8

Attribute Name	CIP Class ID	EIP Instance ID	EIP Attribute ID	Data Type
OtoT Assembly Setup Instance 1	119	1	1	SINT
OtoT Assembly Setup Instance 2	119	1	2	SINT
OtoT Assembly Setup Instance 3	119	1	3	SINT
OtoT Assembly Setup Instance 4	119	1	4	SINT
OtoT Assembly Setup Instance 5	119	1	5	SINT
OtoT Assembly Setup Instance 6	119	1	6	SINT
OtoT Assembly Setup Instance 7	119	1	7	SINT
OtoT Assembly Setup Instance 8	119	1	8	SINT
OtoT Assembly Setup Instance 9	119	1	9	SINT
OtoT Assembly Setup Instance 10	119	1	10	SINT
OtoT Assembly Setup Instance 11	119	1	11	SINT
OtoT Assembly Setup Instance 12	119	1	12	SINT
OtoT Assembly Setup Instance 13	119	1	13	SINT
OtoT Assembly Setup Instance 14	119	1	14	SINT
OtoT Assembly Setup Instance 15	119	1	15	SINT
OtoT Assembly Setup Instance 16	119	1	16	SINT
OtoT Assembly Setup Instance 17	119	1	17	SINT
OtoT Assembly Setup Instance 18	119	1	18	SINT
OtoT Assembly Setup Instance 19	119	1	19	SINT
OtoT Assembly Setup Instance 20	119	1	20	SINT

Structure of 8-bit Data Type:

{0xCC, 0xII, 0xAA}

Target to Originator (PM to PLC)

Table 3.9

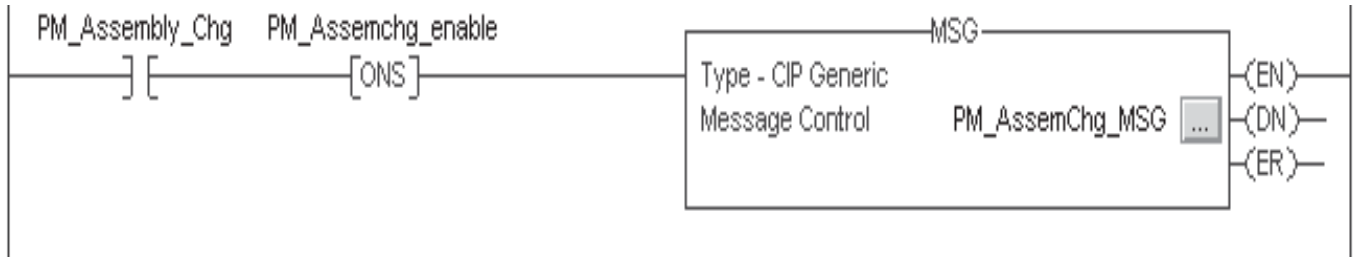
Attribute Name	CIP Class ID	EIP Instance ID	EIP Attribute ID	Data Type
TtoO Assembly Setup Instance 1	119	2	1	SINT
TtoO Assembly Setup Instance 2	119	2	2	SINT
TtoO Assembly Setup Instance 3	119	2	3	SINT
TtoO Assembly Setup Instance 4	119	2	4	SINT
TtoO Assembly Setup Instance 5	119	2	5	SINT
TtoO Assembly Setup Instance 6	119	2	6	SINT
TtoO Assembly Setup Instance 7	119	2	7	SINT
TtoO Assembly Setup Instance 8	119	2	8	SINT
TtoO Assembly Setup Instance 9	119	2	9	SINT
TtoO Assembly Setup Instance 10	119	2	10	SINT
TtoO Assembly Setup Instance 11	119	2	11	SINT
TtoO Assembly Setup Instance 12	119	2	12	SINT
TtoO Assembly Setup Instance 13	119	2	13	SINT
TtoO Assembly Setup Instance 14	119	2	14	SINT
TtoO Assembly Setup Instance 15	119	2	15	SINT
TtoO Assembly Setup Instance 16	119	2	16	SINT
TtoO Assembly Setup Instance 17	119	2	17	SINT
TtoO Assembly Setup Instance 18	119	2	18	SINT
TtoO Assembly Setup Instance 19	119	2	19	SINT
TtoO Assembly Setup Instance 20	119	2	20	SINT

Structure of 8-bit Data Type:

{0xCC, 0xII, 0xAA}

For example, the screen captures below explain and illustrate how to change a given member for both the O-to-T and T-to-O assemblies. To change other members within either instance, simply change the instance (1 or 2) and attribute value (1 to 20) in the MSG instruction. For a better understanding of what happens when the instruction is enabled, take a closer look at the message instruction configuration and its associated tags.

Figure 3.8



In configuring the MSG instruction it is important to use hexadecimal entries for the class, instance and attribute. In the example below (figure 3.9) the 16th location (attribute 10) of the T-to-O assembly structure (instance 1) will be changed. Looking at figure 3.6 above you will see that the 16th member of the T-to-O assembly defaults to “Profile Action Request.” Once the configuration is complete, click on the communication tab and define the path to the PM.

When the MSG instruction above is enabled this member will be overwritten, and the new attribute (state of digital output 6) will be defined by the class, instance and attribute contained in the source element (see figure 3.11 below).

Figure 3.9 & 3.10

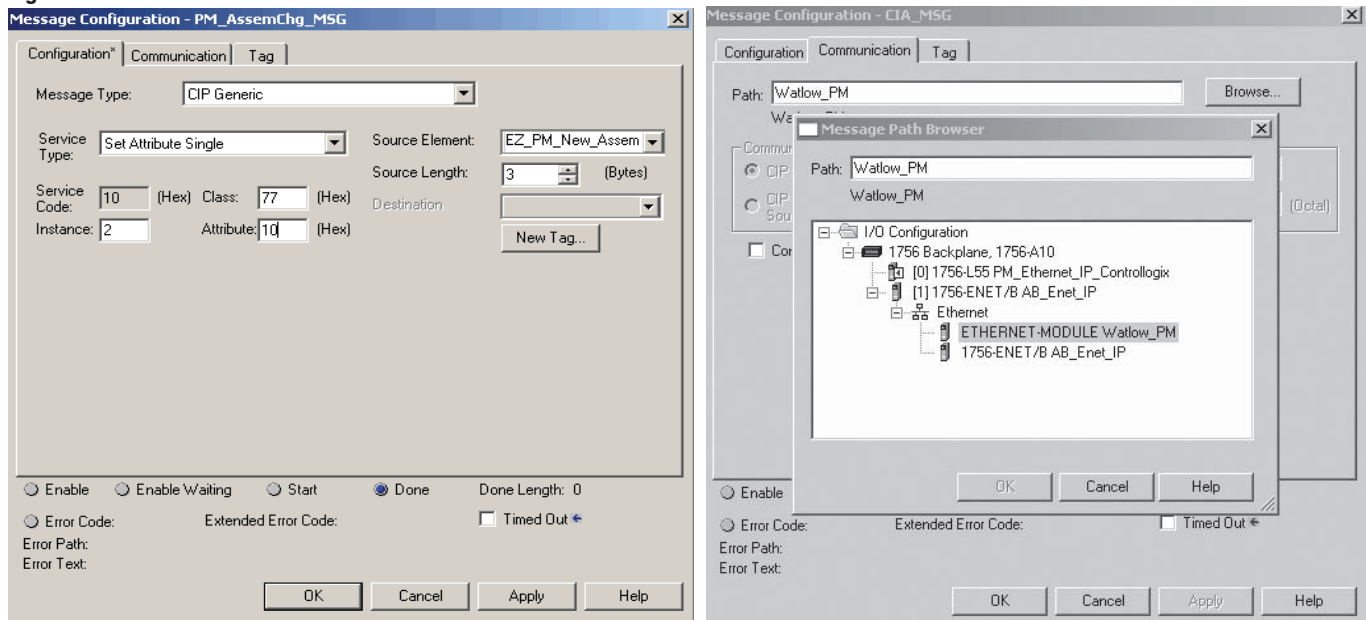


Figure 3.11

[-] EZ_PM_New_Assembly		{...}	Hex	SINT[3]	
[+] EZ_PM_New_Assembly[0]		16#6a	Hex	SINT	Class
[+] EZ_PM_New_Assembly[1]		16#06	Hex	SINT	Instance
[+] EZ_PM_New_Assembly[2]		16#07	Hex	SINT	Attribute

Each member in both the O-to-T and T-to-O assemblies can be changed in this manner. Also, any valid class, instance and attribute not found in the O-to-T and T-to-O assemblies can be read or written to explicitly using a rung of logic similar to the example in figure 3.3h

Saving Settings to Non-volatile Memory

When controller settings are entered from the controller front panel or a remote user interface (RUI) changes are always saved to non-volatile memory (EEPROM). If the controller loses power or is switched off its settings will be restored when power is reapplied.

The EEPROM will wear out after about 1,000,000 writes, which should not be a problem with changes made from the panel or RUI. However if the controller is receiving instructions from a PLC or a computer through a network connection, the EEPROM could, over time, wear out.

By default, settings made through the network are not saved to nonvolatile memory (59). However, every time a setting is changed through the front panel or RUI, all of the controller settings are saved to EEPROM, regardless of the setting of nonvolatile memory save. This parameter can only be changed via the network protocol (i.e., Modbus RTU, Modbus TCP, or EtherNet/IP) and will always be saved to EEPROM.

Non-volatile Save

Modbus Addr: 2494

EtherNet/IP & DeviceNet

Class: 150

Instance: 1

Attribute: 8

Enumeration: yes = 106, no = 59

Note:

Disabling EEPROM writes is available with PM firmware revision 2 and above.

4

Chapter 4 DeviceNet

Introduction to DeviceNet

DeviceNet is a low-cost communication link that connects industrial devices over a common network (such as: Watlow temperature controllers, limit switches, photoelectric sensors, proximity sensors, valve manifolds, motor starters, process sensors, bar code readers, variable frequency drives, panel displays, and operator interfaces) to higher-level devices such as programmable controllers and computers. DeviceNet, like EtherNet/IP uses the proven Common Industrial Protocol (CIP) to provide the control, configuration, and data collection capabilities for industrial devices. Being that this is an open protocol there are many independent vendors offering a wide array of devices to the end user. There are four components needed to read and or write any parameters to the PM control:

1. Node address or MAC ID (0 - 63)
2. Class ID (1 to 255)
3. Instance ID (0 to 255)
4. Attribute ID (1 to 255)

Since both DeviceNet and EtherNet/IP use CIP you will find the class, instance, and attributes in the tables that follow (Operations, Setup, Profile and Factory) are the same.

DeviceNet Communications

Although it is not an ODVA requirement for each node in a deviceNet network to have a Module Status and a Network Status indicator the EZ-ZONE™ PM does. The meaning of each of these LEDs is defined in table 1 and 2 below.

Table 1. Module Status (MOD) Indicator LED

Indicator LED	Description
Off	No power is applied to the device.
Flashing Green-Red	The device is performing a self-test.
Flashing Red	Major Recoverable Fault.
Red	Major Unrecoverable Fault.
Green	The device is operating normally.

Table 2. Network Status (NET) Indicator LED

Indicator LED	Description
Off	The device is not online. The device has not completed the duplicate MAC ID test yet. The device may not be powered..
Green	The device is online and has connections in the established state. For a Group 2 Only device it means that the device is allocated to a Master.
Red	Failed communication device. The device has detected an error that has rendered it incapable of communicating on the network (duplicate MAC ID or Bus-off).
Flashing Green	The device is online, but no connection has been allocated or an explicit connection has timed out.
Flashing Red	A poll connection has timed out.

Setting DeviceNet Communication Parameters from the Front Panel

Valid DeviceNet node addresses range from 0 - 63 and there are three available baud rates for the user to choose from: 125Kb, 250Kb, or 500Kb. The EZ-ZONE™ PM factory defaults are listed below:

Node address = 63, Baud rate = 125Kb

If the node address needs to be changed go to the control "Setup Page" following the steps below:

1. Push and hold the up and down arrow keys on the front panel for six seconds to go the the Setup Menu.
2. Push the up or down arrow key until **[ComM]** (Communications Menu) appears in upper display and **[SEE]** in the lower display.
3. Push the green Advance Key **[>]** to enter the Communications Menu **[ComM]**.
4. Push up arrow key to go to the Communications 2 Submenu. The upper display shows **[2]**, and the lower display shows **[ComM]**.
5. Push the Advance Key **[>]** where the upper display will show 63 (default node address) and lower display shows **[Add]**.
6. Push the down arrow to change the DeviceNet node address.

If the baud rate needs to be changed go to the control "Setup Page" following the steps below:

1. Push and hold the up and down arrow keys on the front panel for six seconds to go the the Setup Menu.
2. Push the up or down arrow key until **[ComM]** (Communications Menu) appears in upper display and **[SEE]** in the lower display.
3. Push the green Advance Key **[>]** to enter the Communications Menu **[ComM]**.
4. Push up arrow key to go to the Communications 2 Submenu. The upper display shows **[2]**, and the lower display shows **[ComM]**.
5. Push the Advance Key **[>]** twice where the upper display will show 125 (default baud rate) and lower display shows **[bAud]**.
6. Push the up or down arrow to change to the desired baud rate (125Kb, 250Kb, or 500Kb)

Once the above parameters have been changed cycle power on the DeviceNet network for the new parameters to take affect.

There are three prompts delivered to the user from the front panel of the PM that are related to DeviceNet. Two of which are defined above, **[bAud]** (network baud rate or speed) and **[Add]** (network node address). There is one other which is identified and explained below:

[FCE] (Quick Connect)

Quick Connect

The Quick Connect feature is an option enabled on a node-by-node basis. When enabled, a device transitions to the OnLine state concurrently with sending the first Duplicate MACID Request message. The device is still required to execute the network State Transition Diagram (STD) (Used to describe object behavior), including going offline anytime a Duplicate MACID response message is received.

Note:

Although this feature allows a device to begin participating in network activity faster, it is at the expense of a delay in the duplicate node detection algorithm. It is left up to the user to guarantee that no nodes exist with the same MAC ID and that no more than one Client device is configured to access the same device using the Predefined Master/Slave Connection Set. Bus errors may occur if either of these conditions exists. This feature is enabled within a device through a non-volatile attribute in the DeviceNet object. A device shall have this feature disabled (attribute set to '0') as the factory default. If it is desired to change this parameter from its default state of no to yes, go to the control "Setup Page" following the steps below:

1. Push and hold the up and down arrow keys on the front panel for six seconds to go the the Setup Menu.
2. Push the up or down arrow key until **[COP7]** (Communications Menu) appears in upper display and **[SEE]** in the lower display.
3. Push the green Advance Key **[⊕]** to enter the Communications Menu **[COP7]**.
4. Push up arrow key to go to the Communications 2 Submenu. The upper display shows **[2]**, and the lower display shows **[COP7]**.
5. Push the Advance Key **[⊕]** three times where the upper display will show **[no]** (default) and lower display shows **[FCE]**.
6. Push the up or down arrow to change from no to yes.

DeviceNet Connector

As can be seen in graphics below there is just one connector that is used to connect your PM control to the DeviceNet network. Figure 4.0 shows the back side the PM control where the connector on the far left is identified as slot A, the middle slotB, and the far right as slot C. The DeviceNet card will always reside in the middle slot or slot B and will be connected into the network accordingly. Figure 4.1 shows the Watlow supplied DeviceNet connector along with signal orientation.

Figure 4.0

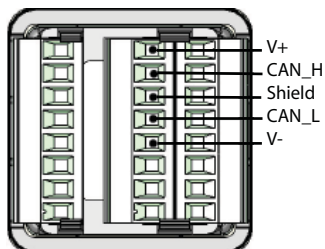
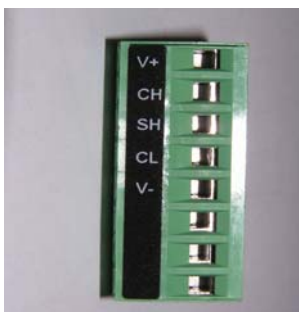


Figure 4.1



Signal	Function
V+	DeviceNet power
CAN_H	Positive side of the DeviceNet bus
Shield	Shield interconnect
CAN_L	Negative side of the DeviceNet bus
V-	DeviceNet power return

Commissioning the PM Using RSNetWorx for DeviceNet

The first step in getting your PM control up and running is to commission it over DeviceNet. The commissioning process involves identifying and selecting the appropriate communication parameters, node address, and lastly, memory mapping so as to enable passing data to and from specific addresses in the Device-Net scanner and the PLC. Set the baud rate and node address (as was described above) prior to connecting it on the network to avoid conflicts with baud rate or other devices on the network.

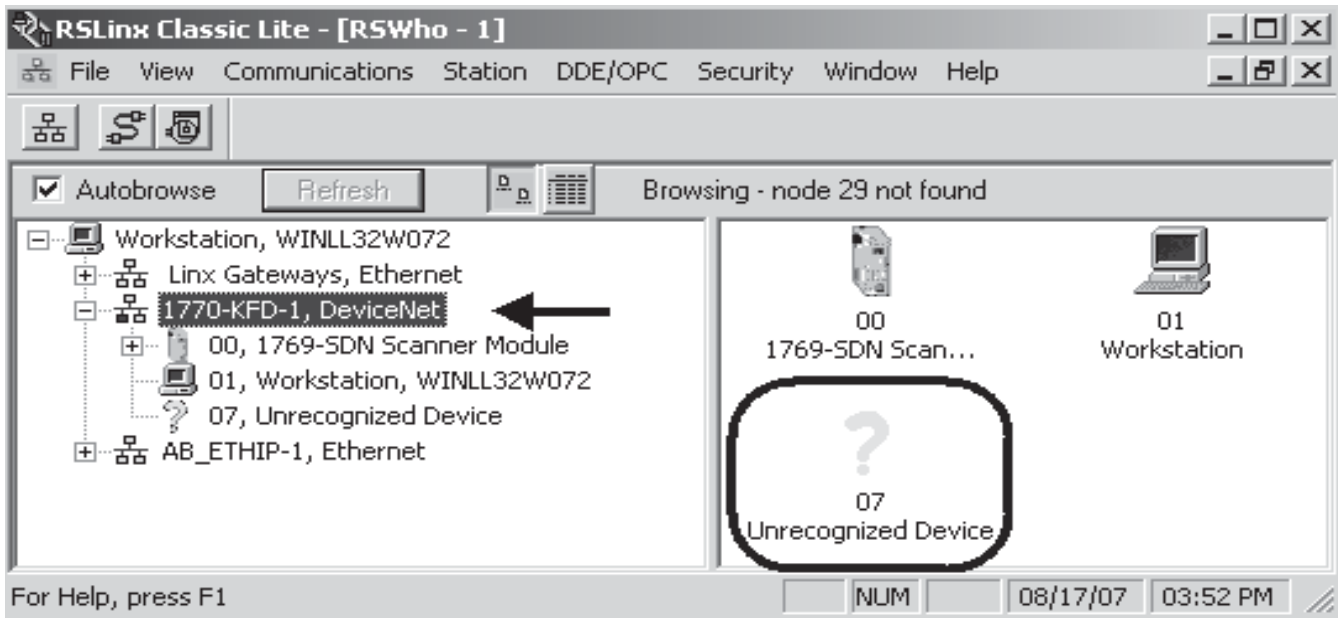
After the PM is physically connected in the network you should notice that the "Module" LED (MS, as identified on the PM) should be solid green where the "Network" LED (NS, as identified on the PM) should be blinking green (see definition above). Follow the steps below to establish connectivity over the network:

1. Open up RSLinx and configure the appropriate driver for the DeviceNet hardware you have on-hand.

Note: Keep in mind that there is a lot of available hardware to choose from. In the example below the hardware chosen is the Allen-Bradley 1770-KFD. You must first identify the hardware you are using.

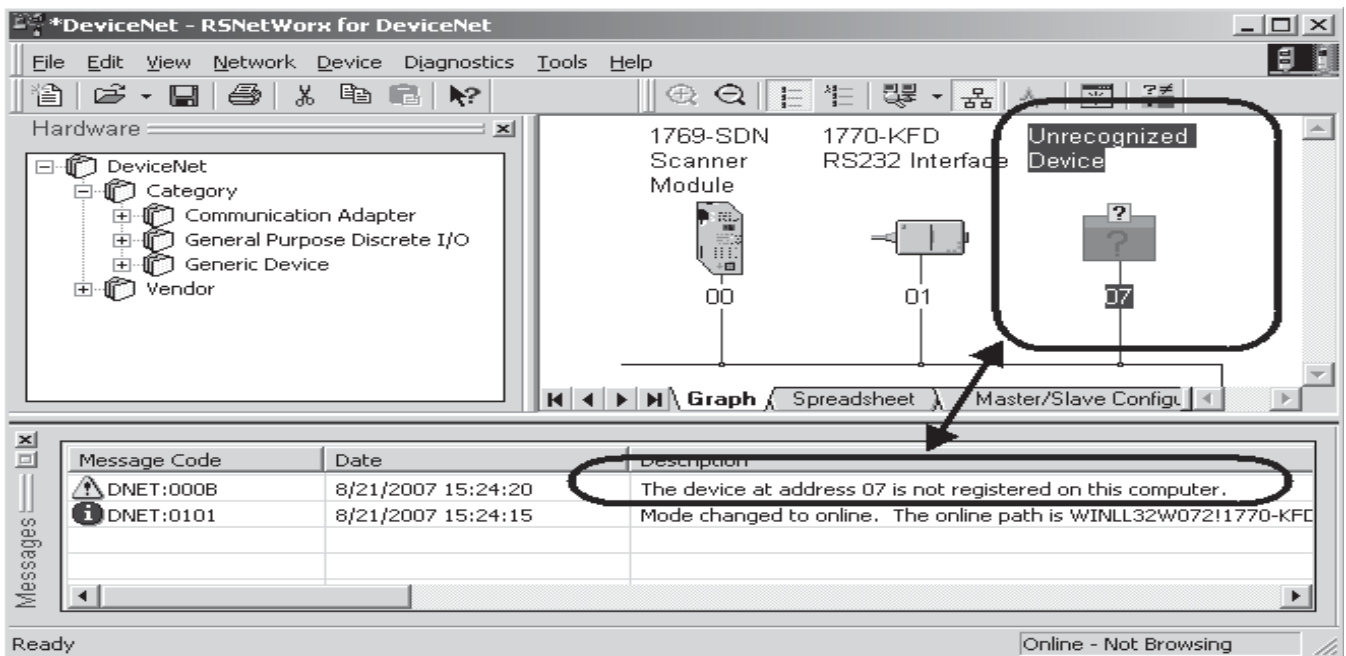
2. Verify that you have communications using the configured driver & hardware by clicking on RSWho.
 - Notice in figure 4.2 that three devices appear on the network where one device has a question mark. The question mark does not indicate a problem but does indicate that the EDS file associated with this device is not yet registered.

Figure 4.2



3. The next step in the process of commissioning the network is to open up RSNetWorx for DeviceNet. Once opened up go online selecting the hardware you previously configured in RSLinx. In figure 4.3 we again see that node 7 has a question mark but now within RSNetWorx we can also see that this device and its associated EDS file is not registered.

Figure 4.3



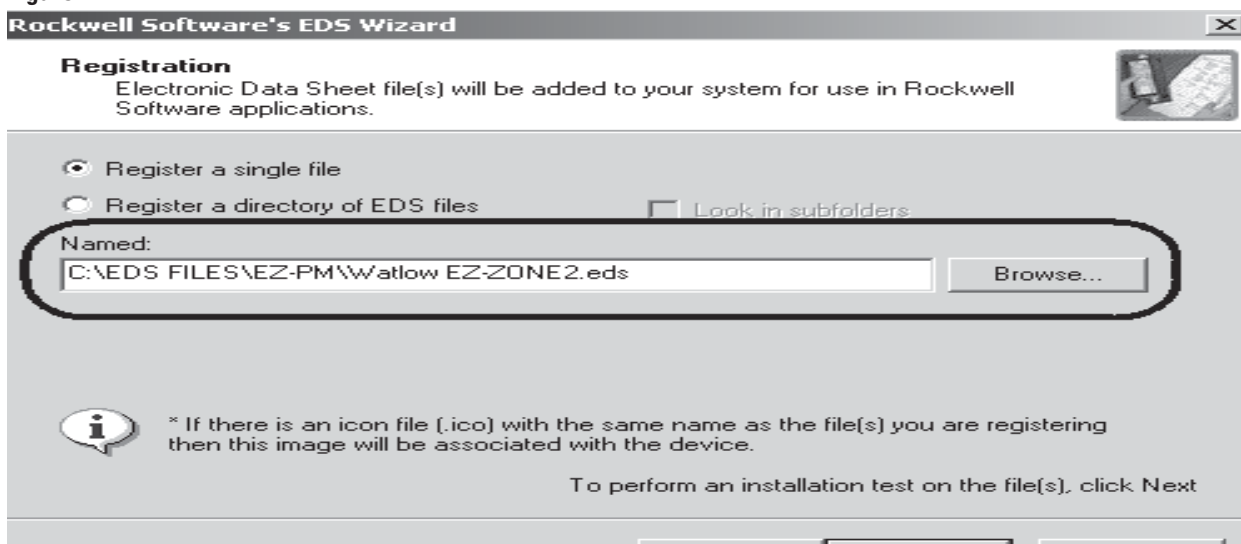
4. There are two ways to register the Watlow EZ-ZONE™ control on the network:
 1. Click on "Tools" and then "EDS Wizard" and point the software to the location of the Watlow provided electronic data sheet (EDS) and "Register an EDS File".
 2. Click on "Tools" and then "EDS Wizard" and then "Create a EDS file".

It is slightly easier to register the Watlow control if you have on-hand the Watlow provided EDS file. If you do not have the EDS file and do not want to wait to acquire it then option two above is the way to go. Next, we will now take a closer look at the steps involved for both options defined above.

Registering an EZ-ZONE™ PM Using Watlow Provided EDS File

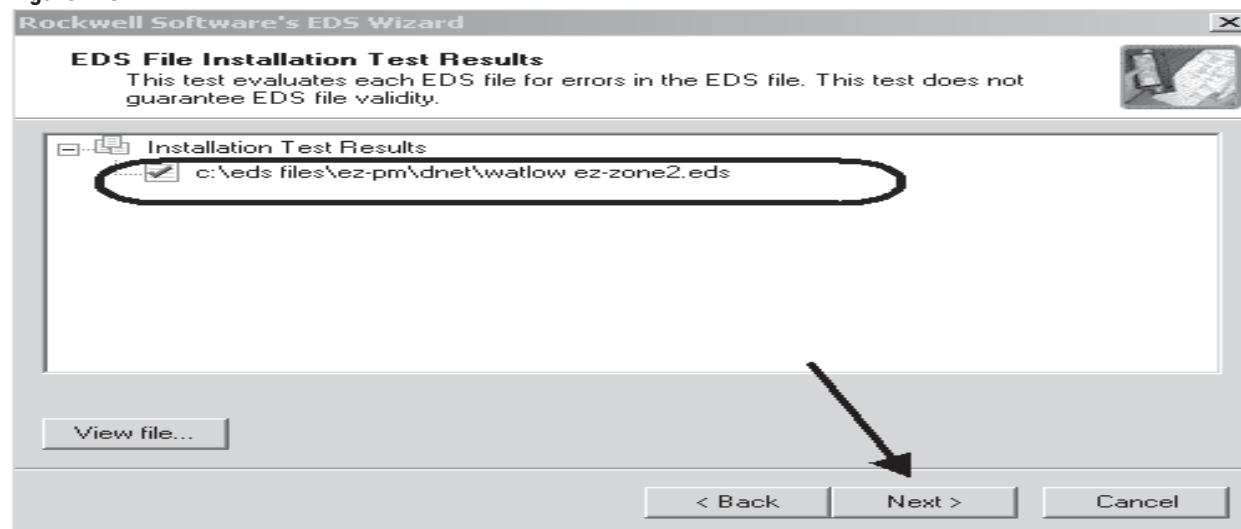
1. With RSNetWorx open and running as shown in figure 4.3 click on "Tools", then "EDS Wizard", then "Register an EDS File".
2. Click the browse button in figure 4.4 to point the software to the Watlow provided EDS file then click the next button.

Figure 4.4



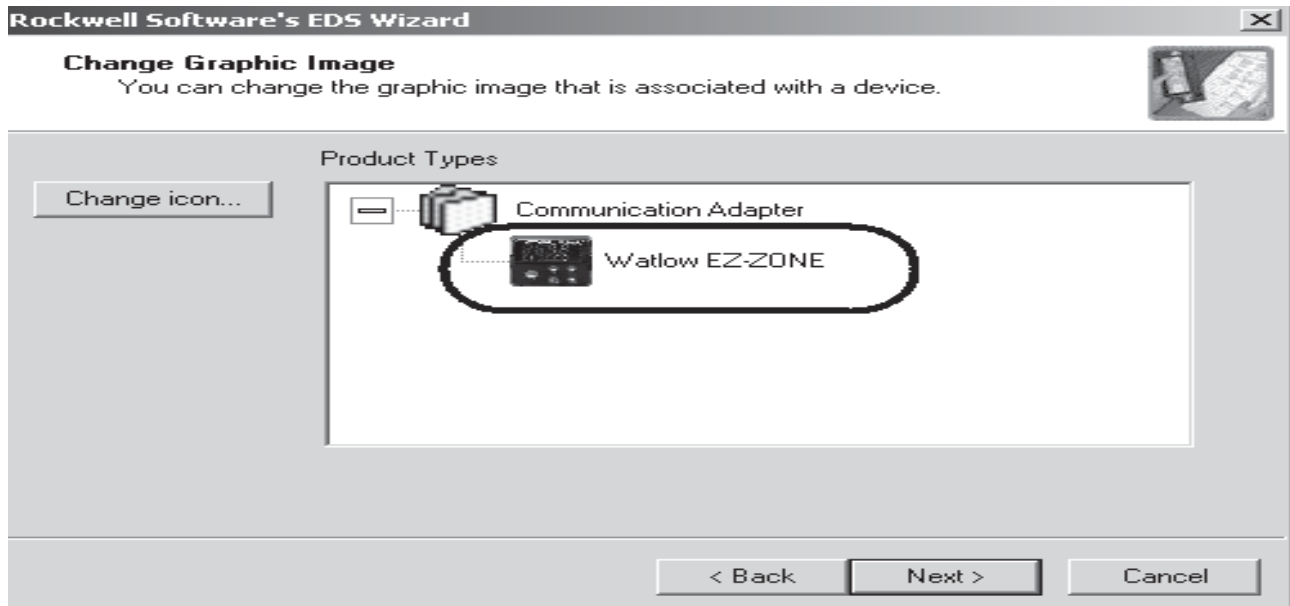
3. The graphic below (figure 4.5) shows that the file found passes the evaluation executed through RSNetWorx. Click the next button to proceed.

Figure 4.5



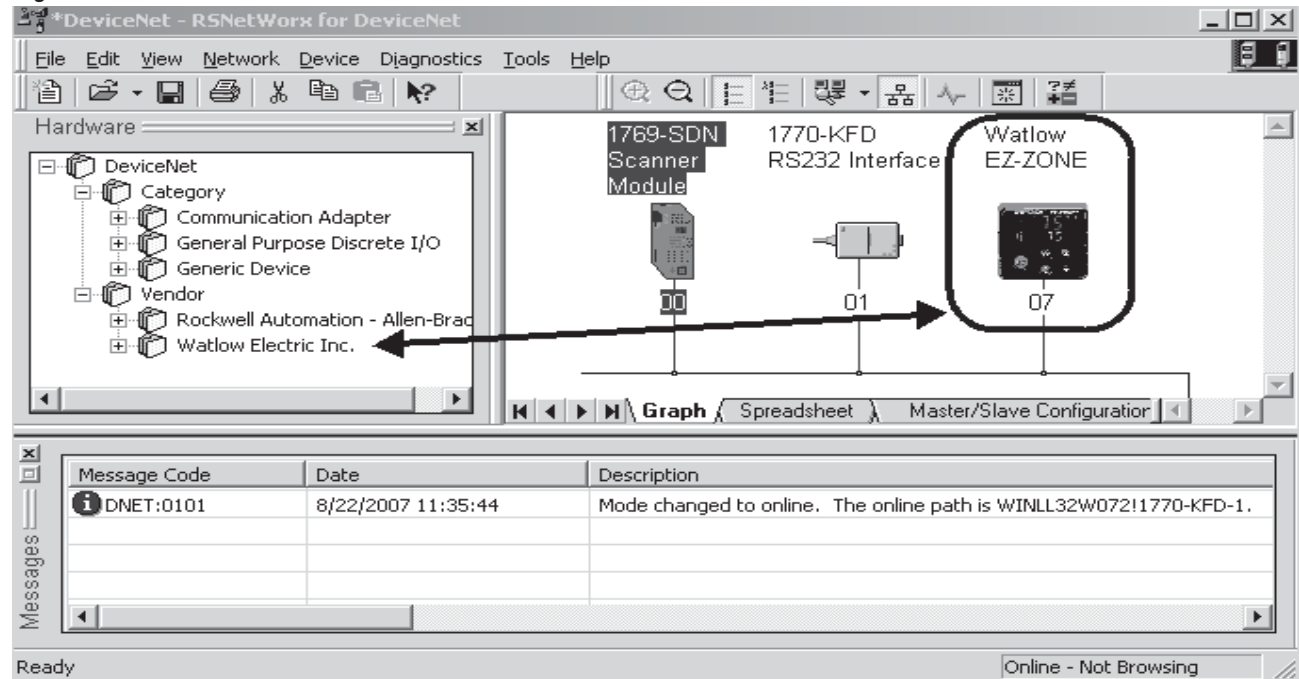
As can be seen at the bottom of figure 4.4 if there is an icon file with the same name as the EDS file there will be an automatic association of the icon with this device. We see in figure 4.6 that this association did indeed occur. If the icon didn't exist than RSNetWorx will use a default icon to graphically display the device when browsing the network.

Figure 4.6



4. At this point the registration is complete. Click next until the finish button appears and then click finish. Figure 4.7 below now shows Watlow Electric Inc. as a vendor and we can also see the graphical representation of the EZ-ZONE™ PM on the network.

Figure 4.7

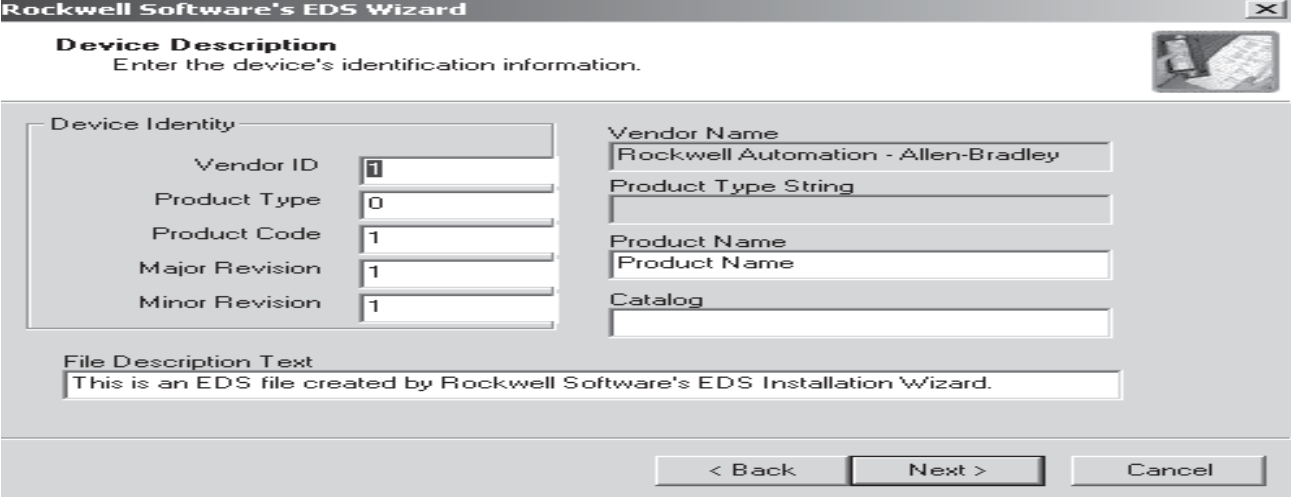


- Double clicking on the Watlow EZ-ZONE™ icon will open up a window that will contain four tabs.
- General (Device Identity)
 - Parameters (Device Identity, Device Name, Load factory defaults)
 - I/O Data Size (Input bytes, Output bytes)
 - EDS File (View file)

Registering an EZ-ZONE™ PM Without a Watlow EDS File

1. With RSNetWorx open and running as shown in figure 4.3 click on "Tools", then "EDS Wizard", then "Create an EDS File".
2. Click the next button

Figure 4.8

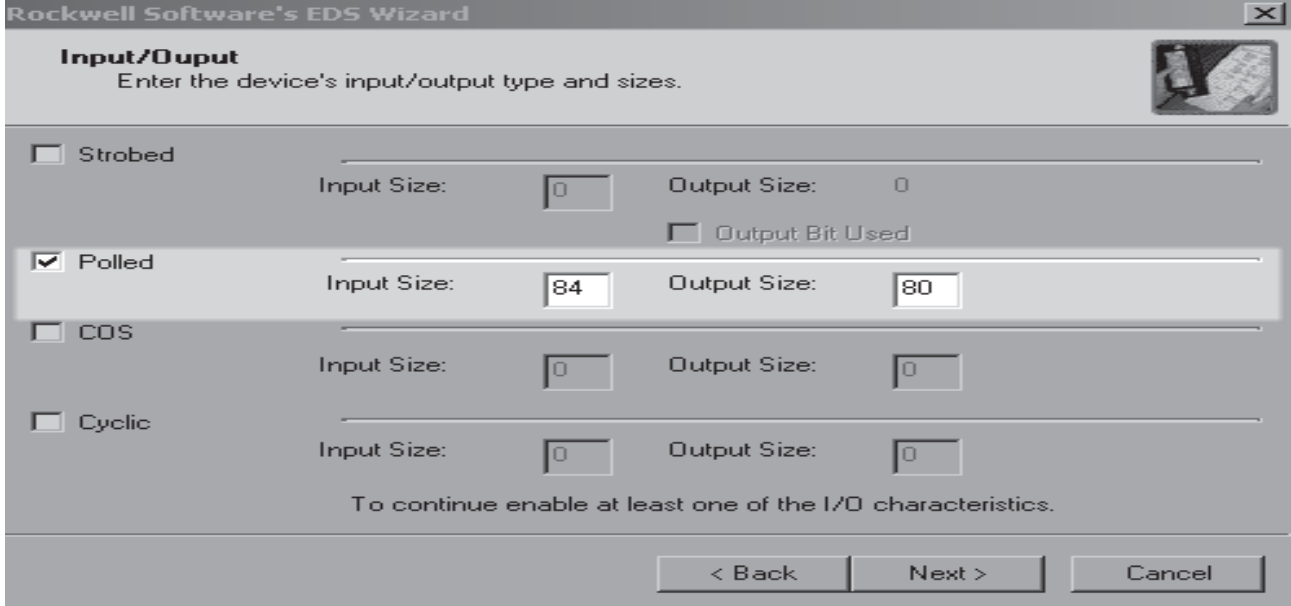


The screenshot shows the 'Device Description' window of the 'Rockwell Software's EDS Wizard'. The window title is 'Rockwell Software's EDS Wizard'. Below the title bar, the text reads 'Device Description' and 'Enter the device's identification information.' There is a small icon of a device in the top right corner. The main area contains two columns of input fields. The left column is titled 'Device Identity' and includes: Vendor ID (1), Product Type (0), Product Code (1), Major Revision (1), and Minor Revision (1). The right column is titled 'Vendor Name' and includes: Vendor Name (Rockwell Automation - Allen-Bradley), Product Type String, Product Name, Product Name, and Catalog. Below these fields is a 'File Description Text' field containing the text: 'This is an EDS file created by Rockwell Software's EDS Installation Wizard.' At the bottom of the window are three buttons: '< Back', 'Next >', and 'Cancel'.

3. Figure 4.8 shows the next screen that appears. Enter the information for each field as shown below:
 - Vendor ID = 153
 - Product Type = 12
 - Product Code = 301
 - Major Revision = 1
 - Minor Revision = 1
 - Vendor Name = Watlow Electric Inc.
 - Product Name = Watlow EZ-ZONE™
 - Catalog = A007-2841

Once complete click on the next button.

Figure 4.9



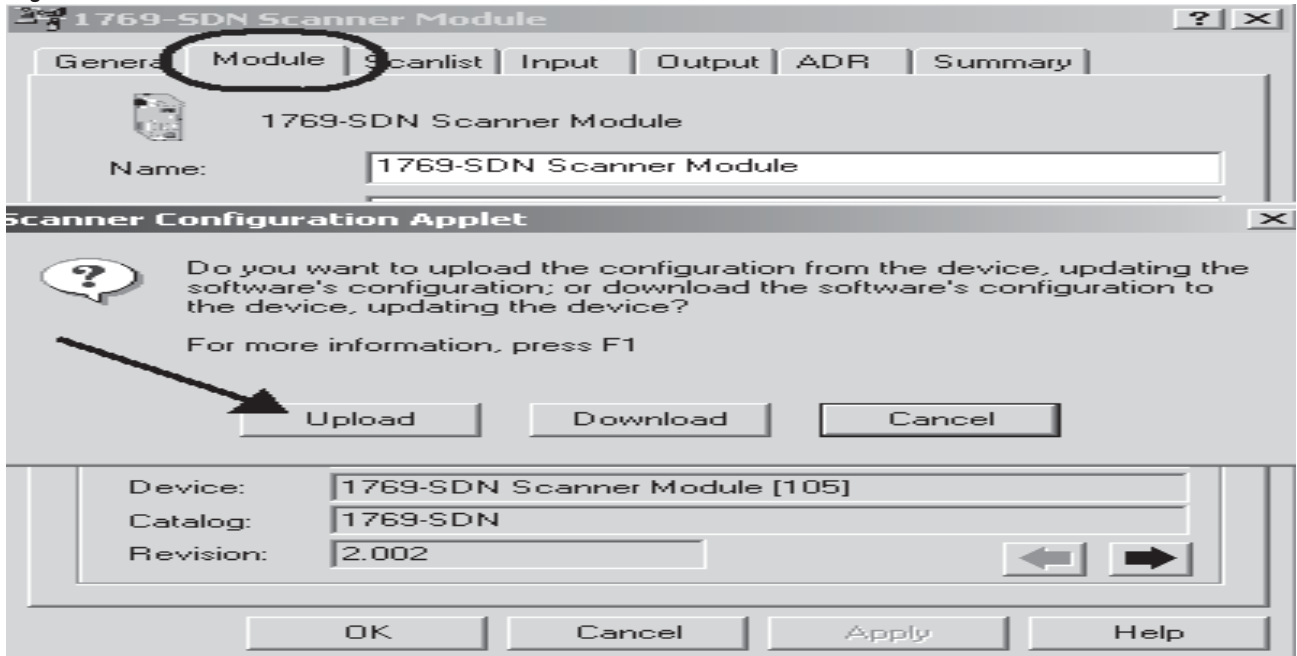
The screenshot shows the 'Input/Output' window of the 'Rockwell Software's EDS Wizard'. The window title is 'Rockwell Software's EDS Wizard'. Below the title bar, the text reads 'Input/Output' and 'Enter the device's input/output type and sizes.' There is a small icon of a device in the top right corner. The main area contains four radio button options for I/O characteristics: 'Strobed', 'Polled', 'COS', and 'Cyclic'. The 'Polled' option is selected. For the 'Polled' option, the 'Input Size' is set to 84 and the 'Output Size' is set to 80. There is also an unchecked checkbox for 'Output Bit Used'. Below these options is the text: 'To continue enable at least one of the I/O characteristics.' At the bottom of the window are three buttons: '< Back', 'Next >', and 'Cancel'.

4. As shown above click on the Polled check box and 84 input bytes and 80 output bytes. Click the next button when done. The next screen that appears will identify the device graphically with a default icon. Click the next button and then the finish button to complete the registration process.

Mapping the EZ-ZONE™ PM Into PLC Memory

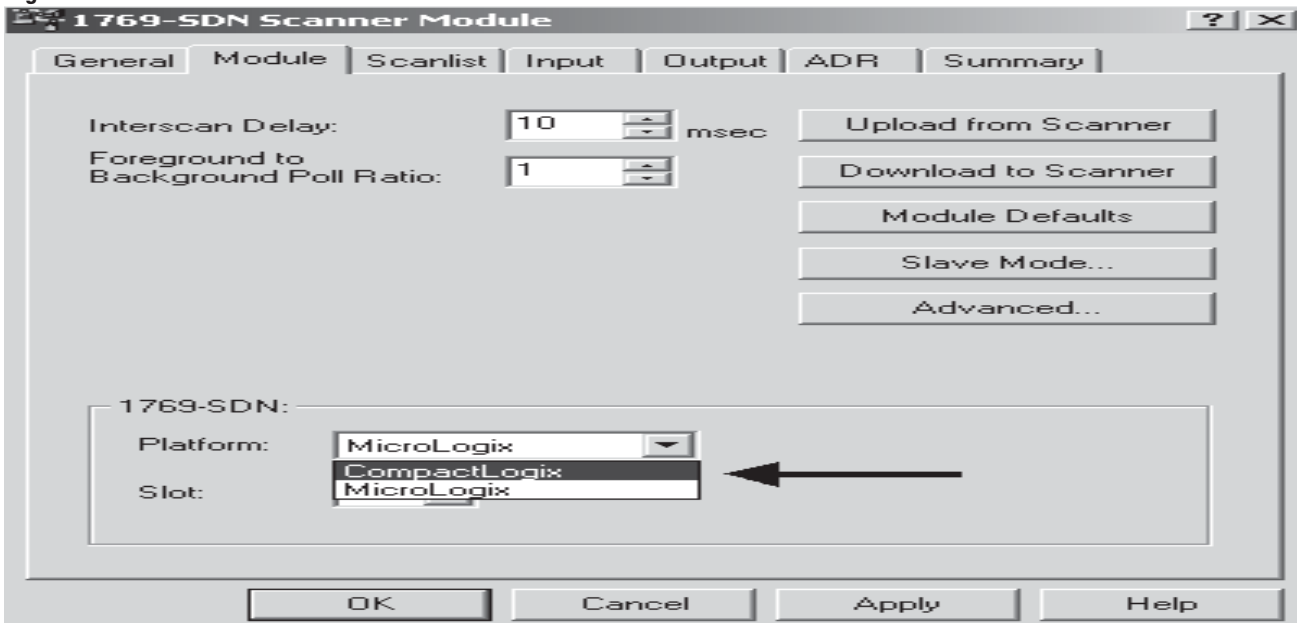
1. Double click on your DeviceNet scanner and once open (figure 4.10) click on the "Module" tab.
2. Click the "Upload" button

Figure 4.10



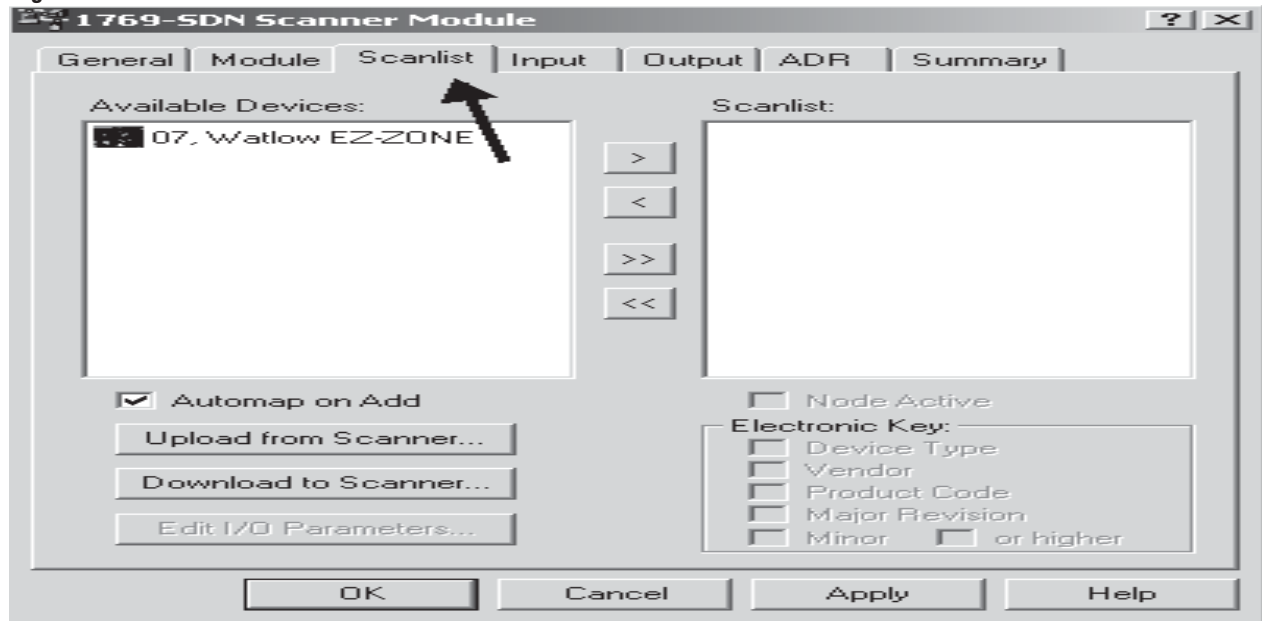
3. Once the upload is complete click on the "Platform" drop down box and select the appropriate control. In this case, the PM is connected to a CompactLogix. This selection will have an impact on the address for the MicroLogix is a 16-bit machine where the CompactLogix is 32-bits.

Figure 4.11



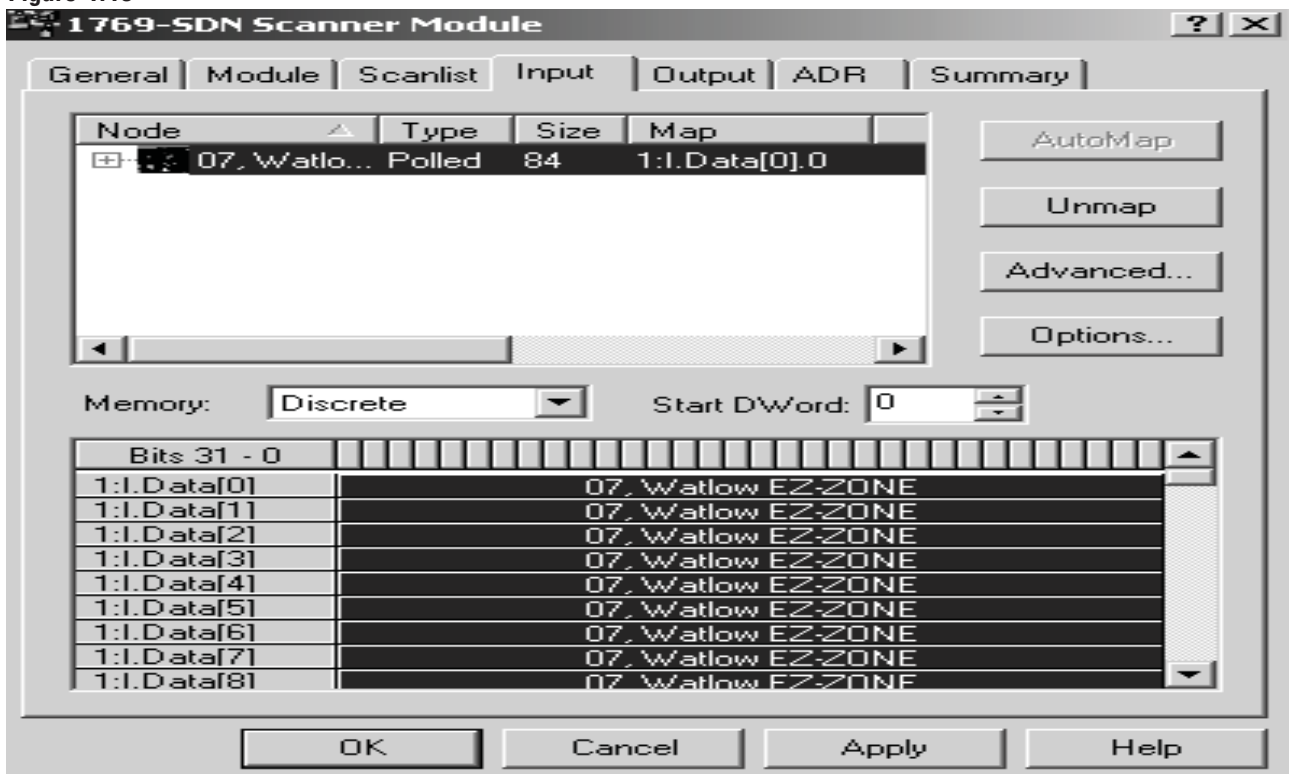
4. After selecting the CompactLogix as the platform click on the "Scanlist" tab. As figure 4.12 shows, the scanner will display all available devices on the network and all of those currently in the scanlist. In this case there is only one device on the network.
5. Click on the Watlow EZ-ZONE™ control and then click on the right arrow button located in the middle of the screen. Since the "Automap on Add" check box is checked when the right arrow button is pushed the PM control will be automatically mapped into specific addresses for both the input and the output.

Figure 4.12



4. As was stated previously, because the PLC platform chosen utilizes a 32-bit word we can see in figure 4.13 that the PM assembly structure will be mapped into 1:I.Data[0 - 20] in the PLC. Recall from our earlier exercise of registering the PM on the network that there are 84 total input bytes divided by 4 bytes per word which equals 21 words. This represents the T to O assembly structure (see Table 3.6) where the data is sourced at the target (PM) and sent to the originator (PLC).
5. Clicking on the "Output" tab will yield similar but slightly different results. Different in that there are a total of 80 output bytes versus 84 for the inputs. Dividing that number by 4 bytes per word we can see that there will be 20 output words consumed by this module: 1:O.Data[0 - 19]. This will represent the PM O to T assembly structure (see Table 3.7) which is sourced in the PLC (originator) and sent to the target (PM).

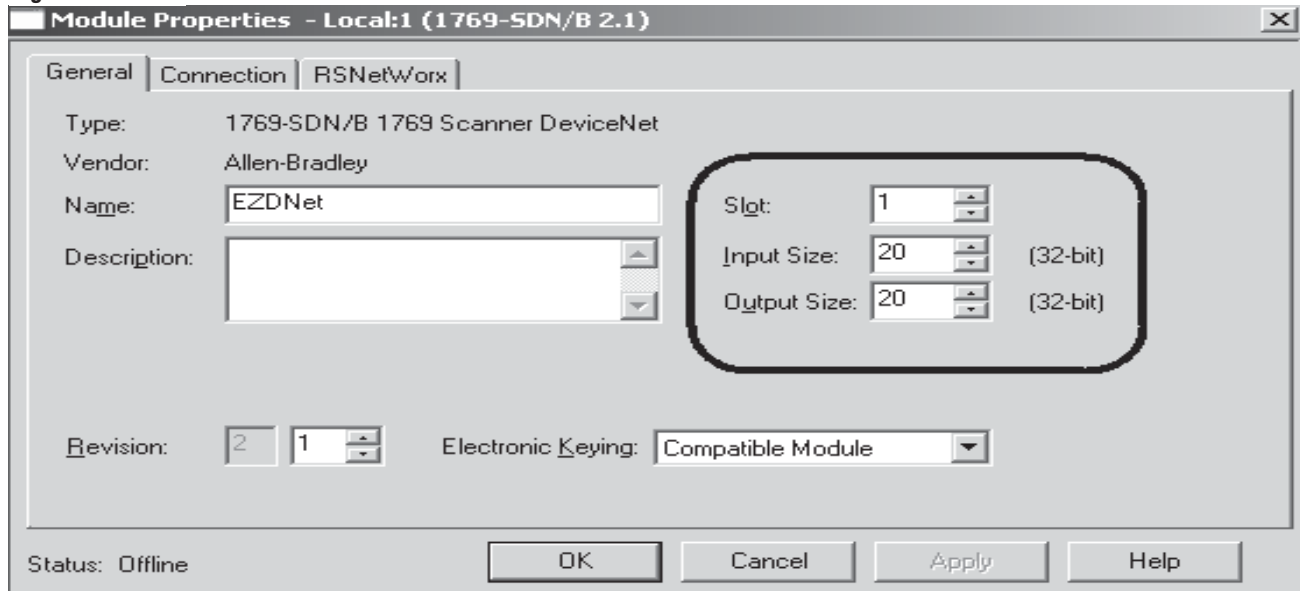
Figure 4.13



Configure and Program an Allen-Bradley CompactLogix L32E

Now that the DeviceNet scanner module has been configured lets take a closer look at the configuration in the PLC. After adding the DeviceNet scanner module to the PLC I/O structure notice the input and output size required to read and write to the the PM default assembly structure. If you do not have a need to work with the entire assembly structure than the I/O sizes can be decreased accordingly.

Figure 4.14



Because the Logix family of controls allows the user to create user defined data types it is suggested that you do so for ease of programming. An example of two user defined data types were created to represent the default O to T and T to O assembly structures. Notice that a couple of members identified in the T to O structure are identified as "Not Used". They are identified as such for two reasons:

1. When the PM PID control is equipped with the DeviceNet card analog input 2 is not an available option.
2. When the PM PID control is equipped with the DeviceNet card the integrated limit is not an available option.

Keep in mind that these particular members (and all members for that matter) can be modified according to your liking following the step-by-step procedure beginning under the section entitled "Ladder Logic Example"..

Figure 4.15

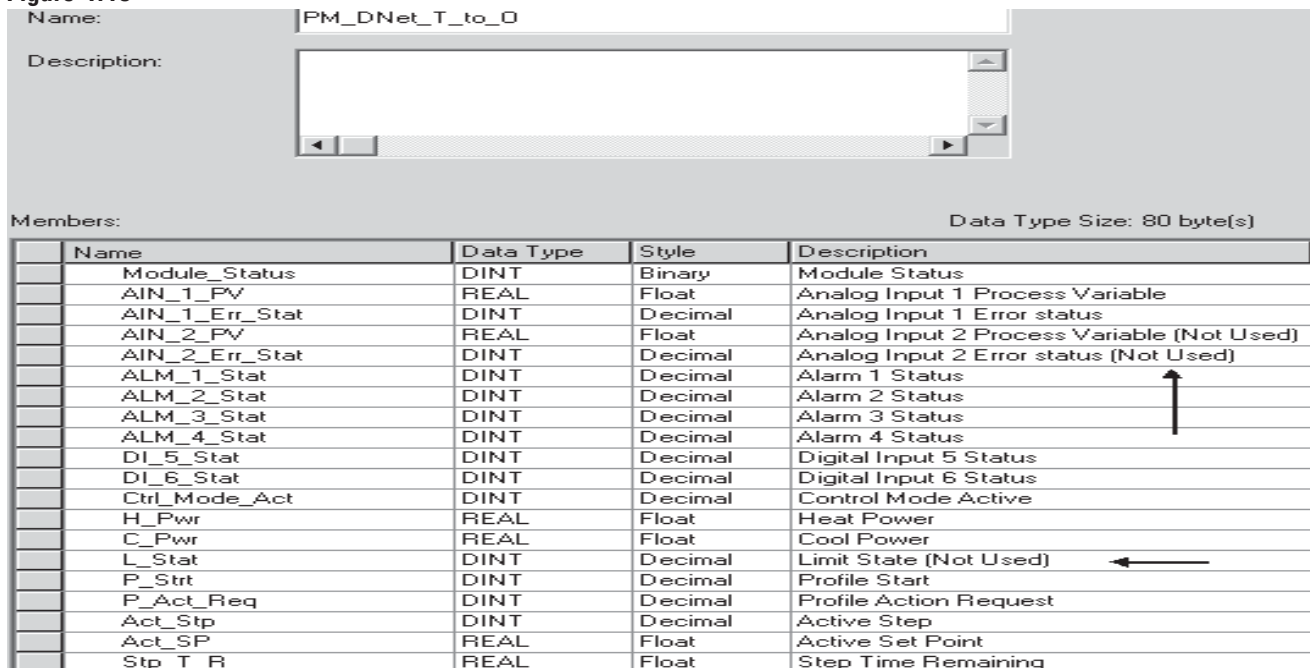


Figure 4.16

Name: PM_DNet_O_to_T

Description:

Members: Data Type Size: 80 byte(s)

Name	Data Type	Style	Description
Ctrl_Mode	DINT	Decimal	Loop Control Mode
CLSP	REAL	Float	Closed Loop Set Point
OLSP	REAL	Float	Open Loop Set Point
Alm_1_H_SP	REAL	Float	Alarm 1 High Set Point
Alm_1_L_SP	REAL	Float	Alarm 1 Low Set Point
Alm_2_H_SP	REAL	Float	Alarm 2 High Set Point
Alm_2_L_SP	REAL	Float	Alarm 2 Low Set Point
Alm_3_H_SP	REAL	Float	Alarm 3 High Set Point
Alm_3_L_SP	REAL	Float	Alarm 3 Low Set Point
Alm_4_H_SP	REAL	Float	Alarm 4 High Set Point
Alm_4_L_SP	REAL	Float	Alarm 4 Low Set Point
P_Act_Req	DINT	Decimal	Profile Action Request
P_Strt	DINT	Decimal	Profile Start
H_PB	REAL	Float	Heat Proportional Band
C_PB	REAL	Float	Cool Proportional Band
T_Int	REAL	Float	Time Integral
T_Der	REAL	Float	Time Derivative
H_Hys	REAL	Float	Heat Hysteresis
C_Hys	REAL	Float	Cool Hysteresis
Deadband	REAL	Float	Deadband

Again note that both of the above screen shots represent the factory defaults and that each member can be changed. Now create two controller tags that will use the data types just created in figure 4.15 and 4.16. As can be seen below the tag name is identified as PMDnet_T_to_O. Notice the data type selected (arrow, figure 4.17). Notice too, that the first member is identified as "Module Status"; bit 12 and bit 16 represent good communications between the DeviceNet card and the PM.

Figure 4.17

Tag Name	Value	Style	Type	Description
[-] PMDnet_T_to_O	{...}		PM_DNet_T_to_O	
[-] PMDnet_T_to_O.Module_Status	2#0000_0000_0000_0001_0001_0000_0000_0000	Binary	DINT	Module Status
[-] PMDnet_T_to_O.AIN_1_PV	93.64252	Float	REAL	Analog Input 1 Process Variable
[-] PMDnet_T_to_O.AIN_1_Err_Stat	61	Deci...	DINT	Analog Input 1 Error status
[-] PMDnet_T_to_O.AIN_2_PV	0.0	Float	REAL	Analog Input 2 Process Variable (Not Used)
[-] PMDnet_T_to_O.AIN_2_Err_Stat	0	Deci...	DINT	Analog Input 2 Error status (Not Used)
[-] PMDnet_T_to_O.AL1_Stat	7	Deci...	DINT	Alarm 1 Status
[-] PMDnet_T_to_O.AL2_Stat	88	Deci...	DINT	Alarm 2 Status
[-] PMDnet_T_to_O.AL3_Stat	88	Deci...	DINT	Alarm 3 Status
[-] PMDnet_T_to_O.AL4_Stat	88	Deci...	DINT	Alarm 4 Status
[-] PMDnet_T_to_O.DI5_Stat	41	Deci...	DINT	Digital Input 5 Status
[-] PMDnet_T_to_O.DI6_Stat	41	Deci...	DINT	Digital Input 6 Status
[-] PMDnet_T_to_O.Ctrl_Mode_Act	10	Deci...	DINT	Control Mode Active
[-] PMDnet_T_to_O.H_Pwr	0.0	Float	REAL	Heat Power
[-] PMDnet_T_to_O.C_Pwr	100.0	Float	REAL	Cool Power
[-] PMDnet_T_to_O.L_Stat	0	Deci...	DINT	Limit State (Not Used)
[-] PMDnet_T_to_O.P_Strt	1	Deci...	DINT	Profile Start
[-] PMDnet_T_to_O.P_Act_Req	61	Deci...	DINT	Profile Action Request
[-] PMDnet_T_to_O.Act_Stp	0	Deci...	DINT	Active Step
[-] PMDnet_T_to_O.Act_SP	0.0	Float	REAL	Active Set Point
[-] PMDnet_T_to_O.Stp_T_R	0.0	Float	REAL	Step Time Remaining

Figure 4.18

Tag Name	Value	Style	Type	Description
[-] PMDnet_O_to_T	{...}		PM_DNet_O_to_T	
[-] PMDnet_O_to_T.Ctrl_Mode	0	Decimal	DINT	Loop Control Mode
[-] PMDnet_O_to_T.CLSP	0.0	Float	REAL	Closed Loop Set Point
[-] PMDnet_O_to_T.OLSP	0.0	Float	REAL	Open Loop Set Point
[-] PMDnet_O_to_T.Alm_1_H_SP	0.0	Float	REAL	Alarm 1 High Set Point
[-] PMDnet_O_to_T.Alm_1_L_SP	0.0	Float	REAL	Alarm 1 Low Set Point
[-] PMDnet_O_to_T.Alm_2_H_SP	0.0	Float	REAL	Alarm 2 High Set Point
[-] PMDnet_O_to_T.Alm_2_L_SP	0.0	Float	REAL	Alarm 2 Low Set Point
[-] PMDnet_O_to_T.Alm_3_H_SP	0.0	Float	REAL	Alarm 3 High Set Point
[-] PMDnet_O_to_T.Alm_3_L_SP	0.0	Float	REAL	Alarm 3 Low Set Point
[-] PMDnet_O_to_T.Alm_4_H_SP	0.0	Float	REAL	Alarm 4 High Set Point
[-] PMDnet_O_to_T.Alm_4_L_SP	0.0	Float	REAL	Alarm 4 Low Set Point
[-] PMDnet_O_to_T.P_Act_Req	0	Decimal	DINT	Profile Action Request
[-] PMDnet_O_to_T.P_Strt	0	Decimal	DINT	Profile Start
[-] PMDnet_O_to_T.H_PB	0.0	Float	REAL	Heat Proportional Band
[-] PMDnet_O_to_T.C_PB	0.0	Float	REAL	Cool Proportional Band
[-] PMDnet_O_to_T.T_Int	0.0	Float	REAL	Time Integral
[-] PMDnet_O_to_T.T_Der	0.0	Float	REAL	Time Derivative
[-] PMDnet_O_to_T.H_Hys	0.0	Float	REAL	Heat Hysteresis
[-] PMDnet_O_to_T.C_Hys	0.0	Float	REAL	Cool Hysteresis
[-] PMDnet_O_to_T.Deadband	0.0	Float	REAL	Deadband

A user may want to monitor the status of these bits in the PLC program. If either of these bits goes to "0", communications have failed between the DeviceNet card and the PM

Taking a closer look at previous work, specifically, where the PM was mapped into PLC memory via the scanners scanlist (RSNetWorx) we can see below in figure 4.19 and 4.20 a direct correlation between the PLCs controller tags (screen shot below) and figure 4.13. In the addresses circled below in figure 4.19 notice that from the PLCs perspective that the scanner is identified as sitting in slot 1 and the "I" indicates inputs which represents, in this case, the default T to O assembly from the PM. In figure 4.20 we see the same relationship for the O to T assembly which represents data sent from the PLC to the PM..

Figure 4.19

Local:1:I.Data	{...}	Decimal	DINT[20]	
Local:1:I.Data[0]	69632	Decimal	DINT	
Local:1:I.Data[1]	1118197399	Decimal	DINT	Analog Input 1 FV
Local:1:I.Data[2]	61	Decimal	DINT	Analog Input 1 Error Status
Local:1:I.Data[3]	0	Decimal	DINT	Analog Input 2 FV (Not Used)
Local:1:I.Data[4]	0	Decimal	DINT	Analog Input 2 Error Status (Not Used)
Local:1:I.Data[5]	61	Decimal	DINT	Alarm 1 State
Local:1:I.Data[6]	88	Decimal	DINT	Alarm 2 State
Local:1:I.Data[7]	88	Decimal	DINT	Alarm 3 State
Local:1:I.Data[8]	88	Decimal	DINT	Alarm 4 State
Local:1:I.Data[9]	41	Decimal	DINT	Digital Input 5 State
Local:1:I.Data[10]	41	Decimal	DINT	Digital Input 6 State
Local:1:I.Data[11]	10	Decimal	DINT	Control Mode
Local:1:I.Data[12]	0	Decimal	DINT	Heat Power
Local:1:I.Data[13]	0	Decimal	DINT	Cool Power
Local:1:I.Data[14]	0	Decimal	DINT	Limit State (Not Used)
Local:1:I.Data[15]	1	Decimal	DINT	Profile Start
Local:1:I.Data[16]	61	Decimal	DINT	Profile Action Request
Local:1:I.Data[17]	0	Decimal	DINT	Active File
Local:1:I.Data[18]	0	Decimal	DINT	Active Set Point
Local:1:I.Data[19]	0	Decimal	DINT	Step time Remaining

Figure 4.20

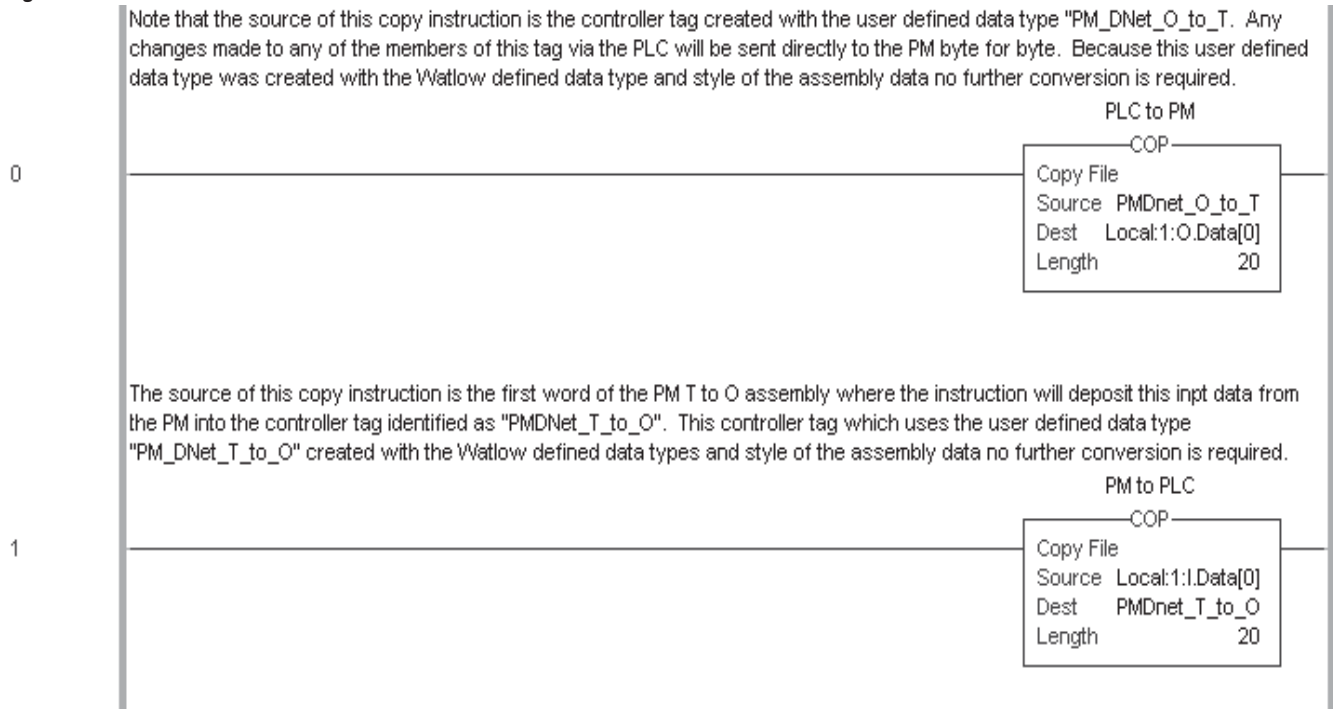
Local:1:O.Data	{...}	Decimal	DINT[20]	
Local:1:O.Data[0]	0	Decimal	DINT	Control Mode
Local:1:O.Data[1]	0	Decimal	DINT	Closed Loop Set Point
Local:1:O.Data[2]	0	Decimal	DINT	Open Loop Set Point
Local:1:O.Data[3]	0	Decimal	DINT	Alarm 1 High Set Point
Local:1:O.Data[4]	0	Decimal	DINT	Alarm 1 Low Set Point
Local:1:O.Data[5]	0	Decimal	DINT	Alarm 2 High Set Point
Local:1:O.Data[6]	0	Decimal	DINT	Alarm 2 Low Set Point
Local:1:O.Data[7]	0	Decimal	DINT	Alarm 3 High Set Point
Local:1:O.Data[8]	0	Decimal	DINT	Alarm 3 Low Set Point
Local:1:O.Data[9]	0	Decimal	DINT	Alarm 4 High Set Point
Local:1:O.Data[10]	0	Decimal	DINT	Alarm 4 Low Set Point
Local:1:O.Data[11]	0	Decimal	DINT	Profile Action Request
Local:1:O.Data[12]	0	Decimal	DINT	Profile Start
Local:1:O.Data[13]	0	Decimal	DINT	Heat Proportional Band
Local:1:O.Data[14]	0	Decimal	DINT	Cool Proportional Band
Local:1:O.Data[15]	0	Decimal	DINT	Time Integral
Local:1:O.Data[16]	0	Decimal	DINT	Time Derivative
Local:1:O.Data[17]	0	Decimal	DINT	Heat Hysteresis
Local:1:O.Data[18]	0	Decimal	DINT	Cool Proportional Band
Local:1:O.Data[19]	0	Decimal	DINT	Deadband

Notice that in figure 4.19 above that there is data coming in to the PLC delivered by the PM, this is without any programming! In figure 4.20 we can also see that since there is no program in the PLC that there is no data being sent to the PM. Lets take a closer look at some simple programming so that we can send data from the PLC to te PM.

Sending Data From PLC to PM via Ladder Logic

In figure 4.21 two copy instructions are used to move the data to and from the PM via the PLC logic.

Figure 4.21



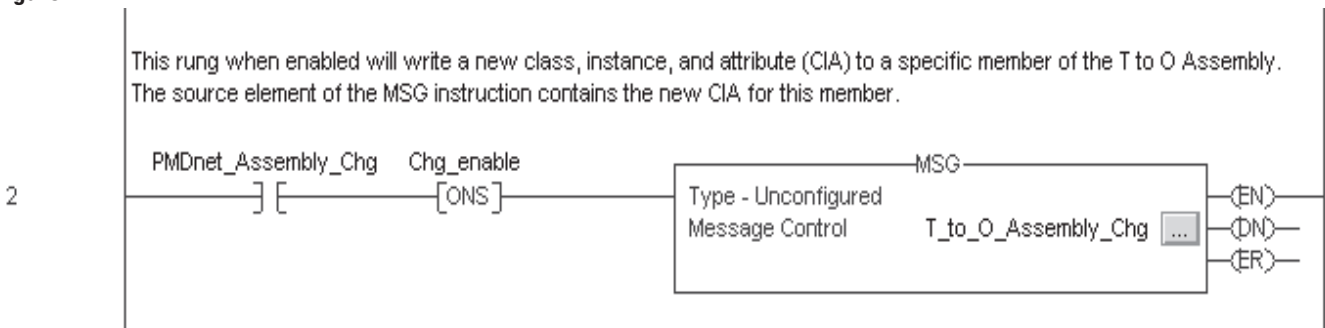
Changing the Default Assembly Structure in the PM

In figure 4.17 there were three members of the T to O assembly identified as not used due to the PM model used. As an example, lets change the default assembly of the fourth member (currently identified as "PMDnet_T_to_O.AIN_2_PV"), to "Autotune Set Point". Step-by-step, we will now look at what is required to change the default assembly for the third member with the status word being member 0. This same logic with some minor modifications can be used to modify any member of either assembly, input or output.

1. In figure 3.3g find the class, instance, and attribute that needs to be changed. In this case, because the status word is not shown (member 0) we will need to redefine Class 119, Instance 2, and Attribute 3.
2. Find the parameter "Autotune Set Point" in the Operations Page of this manual to acquire the class, instance, and attribute (CIA) information. In this case, the CIA is 151, 1, and 20 respectively. Figure 4.23 shows the hexadecimal equivalent of 97, 1, and 14.

Keep in mind that in the example below that it is the T to O assembly that will be modified. The user will be able to see what the current Autotune Set Point is as it is currently in the PM. If it is desired to be able to change the Autotune Set Point via the PLC then similar logic would need to be created to modify the O to T assembly as well. In fact, all that is really needed is that the instance identified in the MSG instruction below be changed to one instead of two and then modify the attribute desired. As can be seen in figure 3.3f instance one of class 119 represents the O to T assembly where instance two represents the T to O (figure 3.3g).

Figure 4.22



As was stated earlier in chapter 3 each of the assembly structures are twenty members long with each coming from the factory with a default configuration (Table 3.6 & 3.7). Any of the twenty members can be changed to your liking. As an alternative to modifying the assembly structures any given parameter can be read or written to using explicit messages as was done in figure 4.22.

Figure 4.23

[-] -PMDnet_New_Assembly	{...}	Hex	SINT[3]
[+] -PMDnet_New_Assembly[0]	16#97	Hex	SINT
[+] -PMDnet_New_Assembly[1]	16#01	Hex	SINT
[+] -PMDnet_New_Assembly[2]	16#14	Hex	SINT

Figure 4.24 below shows the configuration screen for MSG instruction in figure 4.22. Notice that the instruction is looking for Hex characters for the class, and attribute fields. As shown below, 77h (Class) equals 119d, 2d (Instance), 3h (Attribute). The source element is shown above in figure 4.23 where one can see that it is configured as a SINT with each byte corresponding to the CIA.

Figure 4.25 is the last piece of the puzzle. Click the browse button and find and select your device. After doing so, enter a comma and a space, followed by the port number (2), and then lastly, the device node address.

Figure 4.24

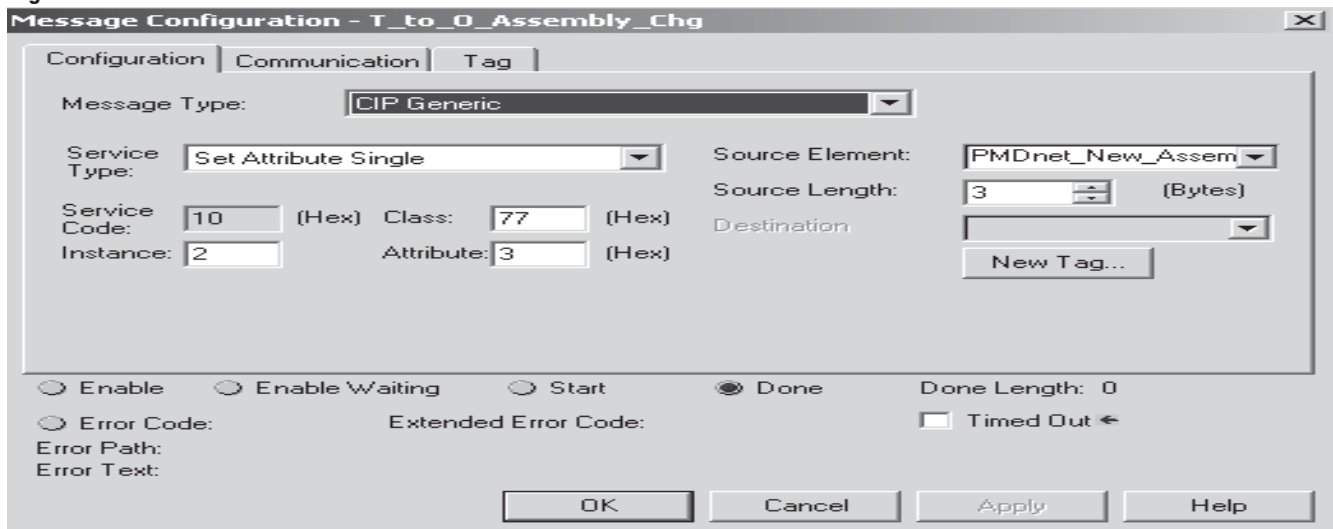
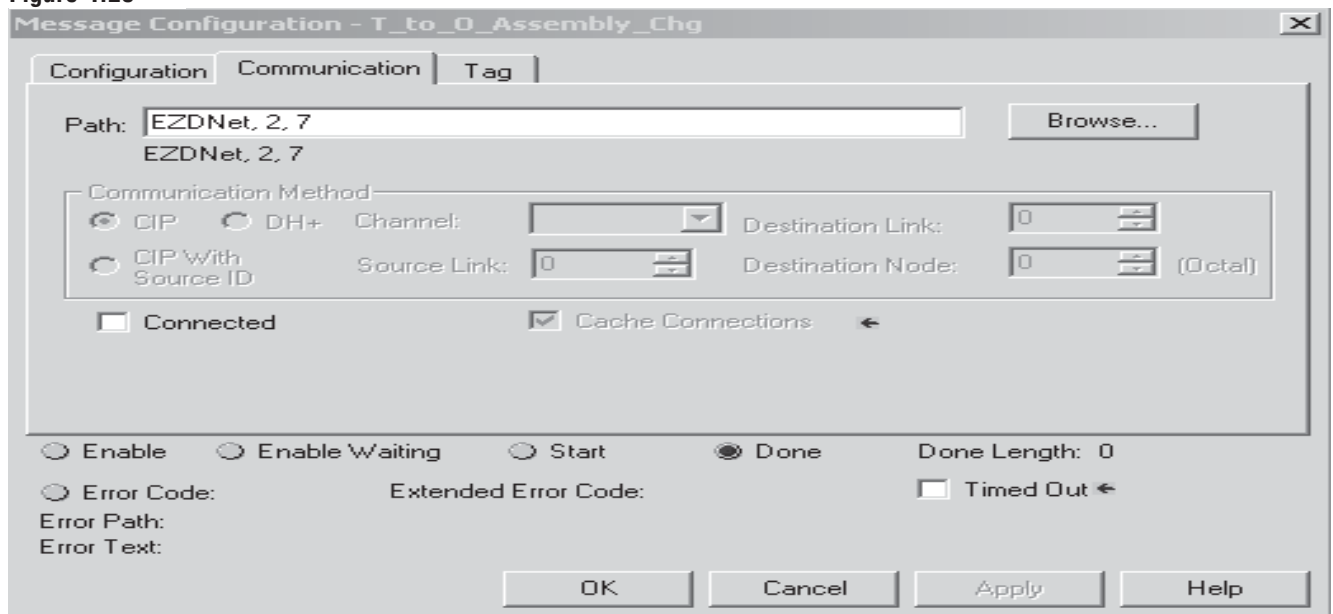


Figure 4.25



5

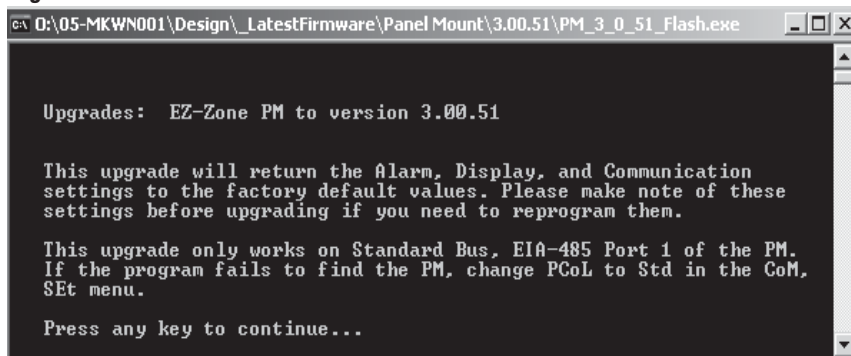
Chapter 5: Flashing Firmware

Flashing EZ-ZONE™ PM Firmware

There are occasions when Watlow may make modifications to the control firmware. If you are trying to determine if you have the latest firmware in your control call (507-494-5656) or e-mail (wintechsupport@watlow.com) Watlow technical support. In the event that Watlow technical support suggests that the control firmware be upgraded there is utility software that will be provided along with the executable to flash the control. The screen shots below illustrate a step-by-step approach to flashing your control.

1. Connect USB to EIA-485 converter to PC
2. Install USB driver from CD if prompted
3. Connect converter to EZ-ZONE™ PM
4. Unzip files to directory
5. Execute PM Flash exe file
6. When a EZ-ZONE™ PM is located, the message below is displayed

Figure 5.1



```
0:\05-MKWN001\Design\_LatestFirmware\Panel Mount\3.00.51\PM_3_0_51_Flash.exe

Upgrades:  EZ-Zone PM to version 3.00.51

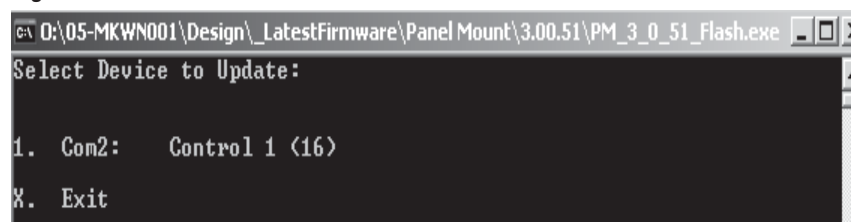
This upgrade will return the Alarm, Display, and Communication
settings to the factory default values. Please make note of these
settings before upgrading if you need to reprogram them.

This upgrade only works on Standard Bus, EIA-485 Port 1 of the PM.
If the program fails to find the PM, change PCol to Std in the CoM.
SEt menu.

Press any key to continue...
```

7. Press 1 to select the controller at this address

Figure 5.2



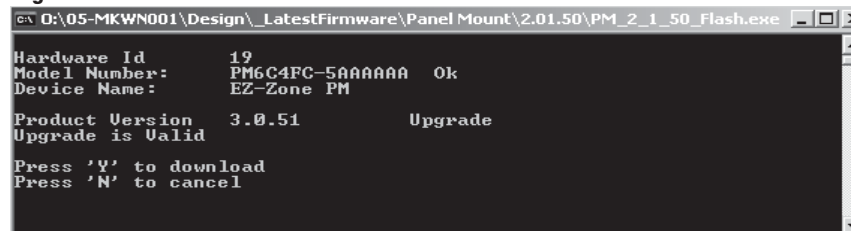
```
0:\05-MKWN001\Design\_LatestFirmware\Panel Mount\3.00.51\PM_3_0_51_Flash.exe

Select Device to Update:

1. Com2:   Control 1 (16)
X. Exit
```

8. Model number and firmware version in controller is displayed
9. Press 'Y' to start download - upgrade

Figure 5.3



```
0:\05-MKWN001\Design\_LatestFirmware\Panel Mount\2.01.50\PM_2_1_50_Flash.exe

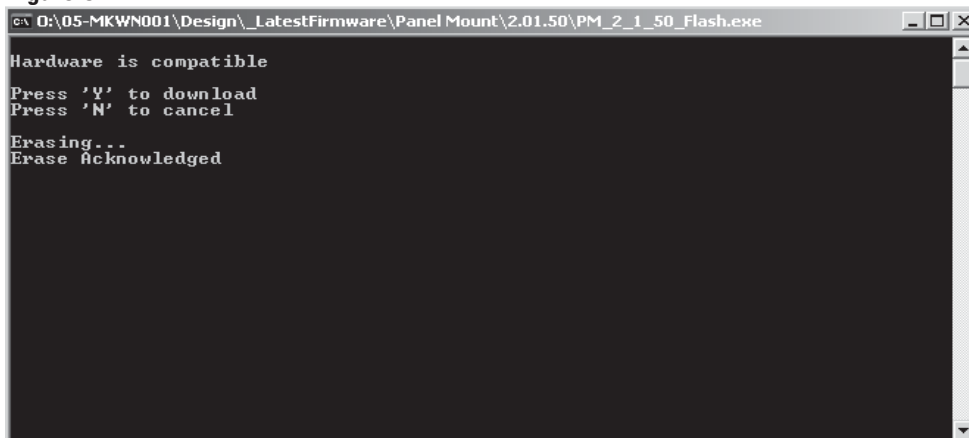
Hardware Id      19
Model Number:   PM6C4FC-5AAAAAA  Ok
Device Name:    EZ-Zone PM

Product Version 3.0.51          Upgrade
Upgrade is Valid

Press 'Y' to download
Press 'N' to cancel
```

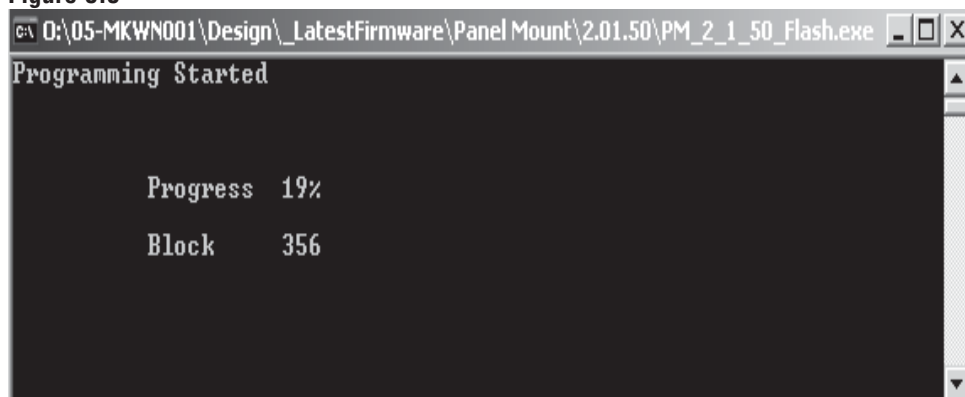
10. PM switches to flash mode
11. PM LED display blanks then flashes one segment

Figure 5.4



12. Then memory is erased

Figure 5.5



13. Progress on programming is displayed.

14. Block count increments during programming

15. Program closes when complete

6

Chapter 6: Operations Page

Parameter name Description	Modbus (less 40,001 offset) read/ write	CIP class instance attribute read/ write	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
Analog Input Menu								
Analog Input 1 Submenu								
<i>Analog Input 1</i> Process Value View the process value.	360 r	104 1 1 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C		floating point	X	X	X
<i>Analog Input 1</i> Error Status View the cause of the most recent error.	362 r	104 1 2 r	None (61) Open (65) Shorted (127) Measurement Error (140) Bad Calibration Data (139) Ambient Error (9) RTD Lead Resistance Error (141)	None	integer	X	X	X
<i>Analog Input 1</i> Calibration Offset Offset the input reading to compensate for lead wire resistance or other factors that cause the input reading to vary from the actual process value.	382 r/w	104 1 12 r/w	-1,999.000 to 9,999.000°F or units -1,110.555 to 5,555.000°C	0.0	floating point	X	X	X
Analog Input 2 Submenu								
<i>Analog Input 2</i> Process Value View the process value.	440 r	104 2 1 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C		floating point	X		
<i>Analog Input 2</i> Error Status View the cause of the most recent error.	442 r	104 2 2 r	None (61) Open (65) Shorted (127) Measurement Error (140) Bad Calibration Data (139) Ambient Error (9) RTD Lead Resistance Error (141)	None	integer	X		
<i>Analog Input 2</i> Calibration Offset Offset the input reading to compensate for lead wire resistance or other factors that cause the input reading to vary from the actual process value.	462 r/w	104 2 12 r/w	-1,999.000 to 9,999.000°F or units -1,110.555 to 5,555.000°C	0.0	floating point	X		
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 offset) read/ write	CIP class instance attribute read/ write	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
Digital Input/Output Menu								
Digital Input or Output 5 Submenu								
<i>Digital Output 5</i> Output State View the state of this output.	1012 r	106 5 7 r	On (63) Off (62)		integer	X	X	X
<i>Digital Input 5</i> Event Status View this event input state.	1328 r	110 1 5 r	Inactive (41) Active (5)		integer	X	X	X
Digital Input or Output 6 Submenu								
<i>Digital Output 6</i> Output State View the state of this output.	1042 r	106 6 7 r	On (63) Off (62)		integer	X	X	X
<i>Digital Input 6</i> Event Status View this event input state.	1348 r	110 2 5 r	Inactive (41) Active (5)		integer	X	X	X
Limit Menu								
<i>Limit</i> Low Set Point Set the low process value that will trigger the limit.	684 r/w	112 1 3 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X		X
<i>Limit</i> High Set Point Set the high process value that will trigger the limit.	686 r/w	112 1 4 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X		X
<i>Limit</i> Clear Request Write to this register to clear a limit state.	680 w	112 1 1 w	0		integer	X		X
<i>Limit</i> State View the limit state.	690 r	112 1 6 r	Off (62) None (61) High (51) Low (52) Error (28)		integer	X		X
Monitor Menu								
<i>Monitor</i> Control Mode Active View the current control mode.	1882 r	151 1 2 r	Off (62) Auto (10) Manual (54)		integer	X	X	
<i>Monitor</i> Heat Power View the current heat output level.	1904 r	151 1 13 r	0.0 to 100.0%	0.0	floating point	X	X	
<i>Monitor</i> Cool Power View the current cool output level.	1906 r	151 1 14 r	-100.0 to 0.0%	0.0	floating point	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 offset) read/ write	CIP class instance attribute read/ write	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt.*
<i>Monitor</i> Closed Loop Active Set Point View the closed loop set point currently in effect.	2172 r	107 1 7 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	75°F or units 24°C	floating point	X	X	
<i>Monitor</i> Open Loop Active Set Point View the open loop set point currently in effect.	2174 r	107 1 8 r	-100.0 to 100.0		floating point	X	X	
<i>Monitor</i> Filtered Process Value Active, Input 1 View the current filtered process value using this control input.	402 r	104 1 22 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C		floating point	X	X	X
<i>Monitor</i> Filtered Process Value Active, Input 2 View the current filtered process value using this control input.	482 r	104 2 22 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C		floating point	X	X	X
<i>Monitor</i> Unfiltered Process Value Active, Input 1 View the current unfiltered process value using the control input.	360 r	104 1 1 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C		floating point	X	X	X
<i>Monitor</i> Unfiltered Process Value Active, Input 2 View the current unfiltered process value using the control input.	440 r	104 2 1 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C		floating point	X	X	X
<i>Monitor</i> Alarm 1 State View the state of alarm 1.	1496 r	109 1 9 r	Startup (88) None (61) Blocked (12) Alarm Low (8) Alarm High (7) Error (28)		integer	X	X	X
<i>Monitor</i> Alarm 2 State View the state of alarm 2.	1546 r	109 2 9 r	Startup (88) None (61) Blocked (12) Alarm Low (8) Alarm High (7) Error (28)		integer	X	X	X
<i>Monitor</i> Alarm 3 State View the state of alarm 3	1596 r	109 3 9 r	Startup (88) None (61) Blocked (12) Alarm Low (8) Alarm High (7) Error (28)		integer	X	X	X
<i>Monitor</i> Alarm 4 State View the state of alarm 4	1646 r	109 4 9 r	Startup (88) None (61) Blocked (12) Alarm Low (8) Alarm High (7) Error (28)		integer	X	X	X
<i>Monitor</i> Ambient Temperature, Input 1 View the ambient temperature.	366 r	104 1 4 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C		floating point	X	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>Underlined parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 offset) read/ write	CIP class instance attribute read/ write	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Monitor</i> Ambient Temperature, Input 2 View the ambient temperature.	446 r	104 2 4 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C		floating point	X	X	X
<i>Monitor</i> Bumpless Set Point View the set point that will take effect if a bumpless transfer occurs.	2178 r	107 1 10 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C		floating point	X	X	
<i>Monitor</i> Control Loop Output Power View the output power.	1908 r	151 1 15 r	-100.0 to 100.0		floating point	X	X	
<i>Monitor</i> Event 1 Status View the status of event 1.	1328 r	110 1 5 r	Inactive (41) Active (5)		integer	X	X	X
<i>Monitor</i> Event 2 Status View the status of event 2.	1348 r	110 2 5r	Inactive (41) Active (5)		integer	X	X	X
<i>Monitor</i> EZ Key Status View the status of event 3.	1368 r	110 3 5 r	Inactive (41) Active (5)		integer	X	X	X
<i>Monitor</i> Limit State View the limit state.	690 r	112 1 6 r	Off (62) None (61) Limit High (51) Limit Low (52) Error (28)		integer	X		X
<i>Monitor</i> Ramp Active Set Point View the current ramp set point.	2190 r	107 1 16 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C		floating point	X	X	
<i>Monitor</i> Ramp Target Set Point View the target ramp set point.	2198 r	107 1 20 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C		floating point			
Loop Menu								
<i>Loop</i> Remote Enable Switch control to the remote set point.	2200 r/w	107 1 21 r/w	No (59) Yes (106)	No	integer	X		
<i>Loop</i> Remote Set Point Type Select how the remote set point will be de- termined.	2202 r/w	107 1 22 r/w	Auto (closed loop) (10) Manual (open loop) (54)	Auto	integer	X		
<i>Loop</i> Control Mode Select the method that the controller will use to control.	1880 r/w	151 1 1 r/w	Off (62) Auto (closed loop) (10) Manual (open loop) (54)	Auto	integer	X	X	
<i>Loop</i> Autotune Set Point Set the set point that the autotune will use, as a percentage of the current set point.	1918 r/w	151 1 20 r/w	50.0 to 200.0%	90.0	floating point	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be ac- cessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 offset) read/ write	CIP class instance attribute read/ write	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Loop</i> Autotune Request Start an autotune. While autotune is active, the Home Page will display Autotune . When the autotune is complete, the message will clear automatically.	1920 r/w	151 1 21 r/w	No (59) Yes (106)	No	integer	X	X	
<i>Loop</i> Closed Loop Set Point Set the set point that the controller will automatically control to.	2160 r/w	107 1 1 r/w	Low Set Point to High Set Point (Setup Page)	75.0	floating point	X	X	
<i>Loop</i> Idle Set Point Set a set point that can be triggered by an event state.	2176 r/w	107 1 9 r/w	Low Set Point to High Set Point (Setup Page)	75.0	floating point	X	X	
<i>Loop</i> Heat Proportional Band Set the proportional band for the heat outputs.	1890 r/w	151 1 6 r/w	0.001 to 9,999.000°F or units 0.001 to 5,555.000°C	25.0°F or units 14.0°C	floating point	X	X	
<i>Loop</i> Heat Hysteresis Set the control switching hysteresis for on-off control. This determines how far into the “on” region the process value needs to move before the output turns on.	1900 r/w	151 1 11 r/w	0.001 to 9,999.000°F or units 0.001 to 5,555.000°C	3.0°F or units 2.0°C	floating point	X	X	
<i>Loop</i> Cool Proportional Band Set the proportional band for the cool outputs.	1892 r/w	151 1 7 r/w	0.001 to 9,999.000°F or units 0.001 to 5,555.000°C	25.0°F or units 14.0°C	floating point	X	X	
<i>Loop</i> Cool Hysteresis Set the control switching hysteresis for on-off control. This determines how far into the “on” region the process value needs to move before the output turns on.	1902 r/w	151 1 12 r/w	0.001 to 9,999.000°F or units 0.001 to 5,555.000°C	3.0°F or units 2.0°C	floating point	X	X	
<i>Loop</i> Time Integral Set the PID integral for the outputs.	1894 r/w	151 1 8 r/w	0.0 to 9,999.000 seconds per repeat	180.0 seconds per repeat	floating point	X	X	
<i>Loop</i> Time Derivative Set the PID derivative time for the outputs.	1896 r/w	151 1 9 r/w	0.0 to 9,999.000 seconds	0.0 seconds	floating point	X	X	
<i>Loop</i> Dead Band Set the offset to the proportional band. With a negative value, both heating and cooling outputs are active when the process value is near the set point. A positive value keeps heating and cooling outputs from fighting each other.	1898 r/w	151 1 10 r/w	-1,000.0 to 1,000.0	0.0	floating point	X	X	
<i>Loop</i> Open-Loop Set Point Set a fixed level of output power when in manual (open-loop) mode.	2162 r/w	107 1 2 r/w	-100 to 100% (heat and cool) 0 to 100% (heat only) -100 to 0% (cool only)	0.0	floating point	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 offset) read/ write	CIP class instance attribute read/ write	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Loop</i> Loop Error Status View	1928 r	151 1 25 r	None (61) Open Loop (1274) Reversed Loop (1278)		integer	X	X	
<i>Loop</i> Loop Error Clear Clear an open-loop error.	1930 r/w	151 1 26 r	Ignore (204) Clear (129)		integer	X	X	
Alarm Menu								
Alarm 1 Submenu								
<i>Alarm 1</i> Low Set Point If Alarm Type (Setup Page, Alarm Menu) is set to: process - set the process value that will trigger a low alarm. deviation - set the span of units below the set point that will trigger a low alarm.	1482 r/w	109 1 2 r/w	-1,999.000 to 9,999.000°F or units -1,110.555 to 5,555.000°C	32.0°F or units 0.0°C	floating point	X	X	X
<i>Alarm 1</i> High Set Point If Alarm Type (Setup Page, Alarm Menu) is set to: process - set the process value that will trigger a high alarm. deviation - set the span of units above the set point that will trigger a high alarm.	1480 r/w	109 1 1 r/w	-1,999.000 to 9,999.000°F or units -1,110.555 to 5,555.000°C	300.0°F or units 150.0°C	floating point	X	X	X
<i>Alarm 1</i> Clear Request Write to this register to clear an alarm state.	1504 w	109 1 13 w	0		integer	X	X	X
<i>Alarm 1</i> Silence Request Write to this register to clear an alarm state.	1506 w	109 1 14 w	0		integer	X	X	X
<i>Alarm 1</i> Clearable Status View whether this alarm can be cleared.	1502 r	109 1 12 r	No (59) Yes (106)		integer	X	X	X
<i>Alarm 1</i> Silenced Status View whether this alarm is silenced.	1500 r	109 1 11 r	No (59) Yes (106)		integer	X	X	X
<i>Alarm 1</i> Latched Status View whether this alarm is latched.	1498 r	109 1 10 r	No (59) Yes (106)		integer	X	X	X
<i>Alarm 1</i> Working Process Value View the process value that this alarm is monitoring.	1516 r	109 1 19 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C		floating point	X	X	X
<i>Alarm 1</i> Working Set Point View the set point that this alarm is moni- toring.	1518 r	109 1 20 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C		floating point	X	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be ac- cessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 offset) read/ write	CIP class instance attribute read/ write	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt.*
Alarm 2 Submenu								
<i>Alarm 2</i> Low Set Point If Alarm Type (Setup Page, Alarm Menu) is set to: process - set the process value that will trigger a low alarm. deviation - set the span of units below the set point that will trigger a low alarm.	1532 r/w	109 2 2 r/w	-1,999.000 to 9,999.000°F or units -1,110.555 to 5,555.000°C	32.0°F or units 0.0°C	floating point	X	X	X
<i>Alarm 2</i> High Set Point If Alarm Type (Setup Page, Alarm Menu) is set to: process - set the process value that will trigger a high alarm. deviation - set the span of units above the set point that will trigger a high alarm.	1530 r/w	109 2 1 r/w	-1,999.000 to 9,999.000°F or units -1,110.555 to 5,555.000°C	300.0°F or units 150.0°C	floating point	X	X	X
<i>Alarm 2</i> Clear Request Write to this register to clear an alarm state.	1554 r/w	109 2 13 w	0		integer	X	X	X
<i>Alarm 2</i> Silence Request Write to this register to clear an alarm state.	1556 r/w	109 2 14 w	0		integer	X	X	X
<i>Alarm 2</i> Clearable Status View whether this alarm can be cleared.	1552 r	109 2 12 r	No (59) Yes (106)		integer	X	X	X
<i>Alarm 2</i> Silenced Status View whether this alarm is silenced.	1550 r	109 2 11 r	No (59) Yes (106)		integer	X	X	X
<i>Alarm 2</i> Latched Status View whether this alarm is latched.	1548 r	109 2 10 r	No (59) Yes (106)		integer	X	X	X
<i>Alarm 2</i> Working Process Value View the process value that this alarm is monitoring.	1566 r	109 2 19 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C		floating point	X	X	X
<i>Alarm 2</i> Working Set Point View the set point that this alarm is monitoring.	1568 r	109 2 20 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C		floating point	X	X	X
Alarm 3 Submenu								
Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.						Int.	PID	Lmt.
The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.								
<u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.								
*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.								

Parameter name Description	Modbus (less 40,001 offset) read/ write	CIP class instance attribute read/ write	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
Alarm 3 Low Set Point If Alarm Type (Setup Page, Alarm Menu) is set to: process - set the process value that will trigger a low alarm. deviation - set the span of units below the set point that will trigger a low alarm.	1582 r/w	109 3 2 r/w	-1,999.000 to 9,999.000°F or units -1,110.555 to 5,555.000°C	32.0°F or units 0.0°C	floating point	X	X	X
Alarm 3 High Set Point If Alarm Type (Setup Page, Alarm Menu) is set to: process - set the process value that will trigger a high alarm. deviation - set the span of units above the set point that will trigger a high alarm.	1580 r/w	109 3 1 r/w	-1,999.000 to 9,999.000°F or units -1,110.555 to 5,555.000°C	300.0°F or units 150.0°C	floating point	X	X	X
Alarm 3 Clear Request Write to this register to clear an alarm state.	1604 r/w	109 3 13 w	0		integer	X	X	X
Alarm 3 Silence Request Write to this register to clear an alarm state.	1606 r/w	109 3 14 w	0		integer	X	X	X
Alarm 3 Clearable Status View whether this alarm can be cleared.	1602 r	109 3 12 r	No (59) Yes (106)		integer	X	X	X
Alarm 3 Silenced Status View whether this alarm is silenced.	1600 r	109 3 11 r	No (59) Yes (106)		integer	X	X	X
Alarm 3 Latched Status View whether this alarm is latched.	1598 r	109 3 10 r	No (59) Yes (106)		integer	X	X	X
Alarm 3 Working Process Value View the process value that this alarm is monitoring.	1616 r	109 3 19 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C		floating point	X	X	X
Alarm 3 Working Set Point View the set point that this alarm is monitoring.	1618 r	109 3 20 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C		floating point	X	X	X
Alarm 4 Submenu								
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 offset) read/ write	CIP class instance attribute read/ write	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt.*
Alarm 4 Low Set Point If Alarm Type (Setup Page, Alarm Menu) is set to: process - set the process value that will trigger a low alarm. deviation - set the span of units below the set point that will trigger a low alarm.	1632 r/w	109 4 2 r/w	-1,999.000 to 9,999.000°F or units -1,110.555 to 5,555.000°C	32.0°F or units 0.0°C	floating point	X	X	X
Alarm 4 High Set Point If Alarm Type (Setup Page, Alarm Menu) is set to: process - set the process value that will trigger a high alarm. deviation - set the span of units above the set point that will trigger a high alarm.	1630 r/w	109 4 1 r/w	-1,999.000 to 9,999.000°F or units -1,110.555 to 5,555.000°C	300.0°F or units 150.0°C	floating point	X	X	X
Alarm 4 Clear Request Write to this register to clear an alarm state.	1654 r/w	109 4 13 w	0		integer	X	X	X
Alarm 4 Silence Request Write to this register to clear an alarm state.	1656 r/w	109 4 14 w	0		integer	X	X	X
Alarm 4 Clearable Status View whether this alarm can be cleared.	1652 r	109 4 12 r	No (59) Yes (106)		integer	X	X	X
Alarm 4 Silenced Status View whether this alarm is silenced.	1650 r	109 4 11 r	No (59) Yes (106)		integer	X	X	X
Alarm 4 Latched Status View whether this alarm is latched.	1648 r	109 4 10 r	No (59) Yes (106)		integer	X	X	X
Alarm 4 Working Process Value View the process value that this alarm is monitoring.	1666 r	109 4 19 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C		floating point	X	X	X
Alarm 4 Working Set Point View the set point that this alarm is monitoring.	1668 r	109 4 20 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C		floating point	X	X	X
Current Menu								
Current High Set Point Set the current value that will trigger a high heater error state.	1134 r/w	N.A.	-1,999.000 to 9,999.000	50.0	floating point	X		
Current Low Set Point Set the current value that will trigger a low heater error state.	1136 r/w	N.A.	-1,999.000 to 9,999.000	0.0	floating point	X		
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>Underlined parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 offset) read/ write	CIP class instance attribute read/ write	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Current</i> Read View the most recent value monitored by the current transformer.	1120 r	N.A.	-1,999.000 to 9,999.000		floating point	X		
<i>Current</i> Error View the cause of the most recent load fault.	1122 r	N.A.	None (61) Shorted (127) Open (65)	None	integer	X		
<i>Current</i> Heater Error View the cause of the most recent load fault monitored by the current transformer.	1124 r	N.A.	None (61) High (37) Low (53)	None	integer	X		
<i>Current</i> Detect Threshold For factory use.	1142 r/w	N.A.	3 to 59	9	integer	X		
<i>Current</i> Error Status View the cause of the most recent load fault monitored by the current transformer.	1160 r	N.A.	None (61) Fail (32)	None	integer	X		
<i>Current</i> Scaling Scale the current reading to match the current transformer.	1162 r/w	N.A.	0 to 9,999.000	50	floating point	X		
<i>Current</i> Reading Enable Set to Yes to enable the controller to display the current error message.	1126 r	N.A.	Yes (59) No (106)	No	integer	X		
Profile Status Menu	<p>* Some parameters in the Profile Status Menu can be changed for the currently running profile, but should only be changed by knowledgeable personnel and with caution. Changing parameters via the Profile Status Menu will not change the stored profile but will have an immediate impact on the profile that is running.</p> <p>Changes made to profile parameters in the Profiling Pages will be saved and will also have an immediate impact on the running profile.</p>							
<i>Profile Status</i> Start Select a profile or step that will be affected by Profile Action Request.	2520 r/w	122 1 1 r/w	0 to 40	0 (none)	integer	X	X	
<i>Profile Status</i> Action Request Select the action to apply to the profile (1 to 4) or step selected in Start.	2540 r	122 1 11 r/w	None (61) Start a Profile (196) Start a Step (89) Pause (146) Resume (147) End (148)	None	integer	X	X	
<i>Profile Status</i> Active Profile View the currently loaded profile.	2524 r	122 1 3 r	1 to 4	0 (none)	integer	X	X	
<i>Profile Status</i> Active Step View the currently running step.	2528 r	122 1 4 r	0 to 40	0 (none)	integer	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 offset) read/ write	CIP class instance attribute read/ write	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Profile Status</i> Step Type View the currently running step type.	2544 r	122 1 13 r	Unused Step (50) Time (143) Rate (81) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused Step	integer	X	X	
<i>Profile Status</i> *Active Target Set Point View the target set point of the current step.	2542 r	122 1 12 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Profile Status</i> Active Set Point Display the current set point, even if the profile is ramping.	2528 r	122 1 5 r	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Profile Status</i> *Step Time Remaining View the time remaining for the current step. Step is displayed in seconds. If the time exceeds 9,999 seconds, the display will show 9,999 and remain there while the control continues to decrement internally. Once the remaining time is equal to or less than 9,999 the display will represent the actual seconds remaining. As an example, if a three-hour soak time is currently being monitored, the first value displayed will be 9,999, and the display will remain at 9,999 until the remaining time is approximately equal to 2 hours and 46 minutes. At this point the display will track the actual seconds remaining.	2536 r	122 1 9 r	0 to 9,999.000 seconds	0.0	floating point	X	X	
<i>Profile Status</i> *Active Event Output 1 View the event output state of the current step.	2546 r	122 1 14 r	Off (62) On (63)	Off	integer	X	X	
<i>Profile Status</i> *Active Event Output 2 View the event output state of the current step.	2548 r	122 1 15 r	Off (62) On (63)	Off	integer	X	X	
<i>Profile Status</i> Jump Count Remaining View the jump counts remaining for the current loop. In a profile with nested loops, this may not indicate the actual jump counts remaining.	2538 r	122 1 10 r	0 to 9,999	0	integer	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>Underlined parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

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Chapter 7: Setup Page

Parameter name Description	Modbus (less 40,001 off- set) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt.*
Analog Input Menu								
Analog Input 1 Submenu								
Analog Input 1 Sensor Type Set the analog sensor type to match the device wired to this input. Note: There is no open-sensor detection for process inputs.	368 r/w	104 1 5 r/w	Off (62) Thermocouple (95) Millivolts (56) Volts dc (104) Milliamps dc (112) RTD 100 Ω (113) RTD 1,000 Ω (114) Potentiometer 1 kΩ (155)	Thermocouple	integer	X	X	X
Analog Input 1 Linearization Set the linearization to match the thermocouple wired to this input.	370 r/w	104 1 6 r/w	B (11) K (48) C (15) N (58) D (23) R (80) E (26) S (84) F (30) T (93) J (46)	J	integer	X	X	X
Analog Input 1 RTD Leads Set to match the number of leads on the RTD wired to this input.	372 r/w	104 1 7 r/w	2 (1) 3 (2)	2	floating point	X	X	X
Analog Input 1 Scale Low Set the low scale for process inputs. This value, in millivolts, volts or milliamps, will correspond to the Range Low displayed by the controller.	388 r/w	104 1 15 r/w	-100.0 to 1,000.0	0.0	floating point	X	X	X
Analog Input 1 Scale High Set the high scale for process inputs. This value, in millivolts, volts or milliamps, will correspond to the Range High displayed by the controller.	390 r/w	104 1 16 r/w	-100.0 to 1,000.0	20.0	floating point	X	X	X
Analog Input 1 Range Low Set the low range for the displayed process input units.	392 r/w	104 1 17 r/w	-1,999.000 to 9,999.000	0.0	floating point	X	X	X
Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu. The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes. <u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications. *Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 off- set) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Analog Input 1</i> Range High Set the high range for the displayed process input units.	394 r/w	104 1 18 r/w	-1,999.000 to 9,999.000	9,999.0	floating point	X	X	X
<i>Analog Input 1</i> Process Error Enable Turn the Process Error Low feature on or off.	418 r/w	104 1 30 r/w	Off (62) Low (53)	Off	integer	X	X	X
<i>Analog Input 1</i> Process Error Low If the process value drops below this value, it will trigger an input error.	420 r/w	104 1 31 r/w	-100.0 to 1,000.0	0.0	floating point	X	X	X
<i>Analog Input 1</i> Filter Time Filtering smooths out the process signal to both the display and the input. Increase the time to increase filtering.	386 r/w	104 1 14 r/w	0.0 to 60.0 seconds	0.5	floating point	X	X	X
<i>Analog Input 1</i> Error Latching Turn input error latching on or off. If latching is on errors must be manually cleared.	414 r/w	104 1 28 r/w	Off (62) On (63)	Off	integer	X	X	X
<i>Analog Input 1</i> Decimal Set the precision of the displayed value.	398 r/w	104 1 20 r/w	Whole (105) Tenths (94) Hundredths (40) Thousandths (96)	Whole	integer	X	X	X
<i>Analog Input 1</i> Sensor Backup Enable If the input 1 sensor fails, the controller will use the input 2 sensor.	410 r/w	104 1 26 r/w	Off (62) On (63)	Off	integer	X		
<i>Analog Input 1</i> Error Reset Write to this register to clear an error state.	416 w	104 1 29 w	0		integer	X	X	X
Analog Input 2 Submenu								
<i>Analog Input 2</i> Sensor Type Set the analog sensor type to match the device wired to this input. Note: There is no open-sensor detection for process inputs.	448 r/w	104 2 5 r/w	Off (62) Thermocouple (95) Millivolts (56) Volts dc (104) Milliamps dc (112) RTD 100 Ω (113) RTD 1,000 Ω (114) Potentiometer 1 kΩ (155)	Thermo- couple	integer	X		
<i>Analog Input 2</i> Linearization Set the linearization to match the thermocouple wired to this input.	450 r/w	104 2 6 r/w	B (11) K (48) C (15) N (58) D (23) R (80) E (26) S (84) F (30) T (93) J (46)	J	integer	X		
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</u></p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 off- set) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Analog Input 2</i> RTD Leads Set to match the number of leads on the RTD wired to this input.	452 r/w	104 2 7 r/w	2 3	2	floating point	X		
<i>Analog Input 2</i> Scale Low Set the low scale for process inputs. This value, in millivolts, volts or milliamps, will correspond to the Range Low displayed by the controller.	468 r/w	104 2 16 r/w	-100.0 to 1,000.0	0.0	floating point	X		
<i>Analog Input 2</i> Scale High Set the high scale for process inputs. This value, in millivolts, volts or milliamps, will correspond to the Range High displayed by the controller.	470 r/w	104 2 16 r/w	-100.0 to 1,000.0	20.0	floating point	X		
<i>Analog Input 2</i> Range Low Set the low range for the displayed process input units.	472 r/w	104 2 15 r/w	-1,999.000 to 9,999.000	0.0	floating point	X		
<i>Analog Input 2</i> Range High Set the high range for the displayed process input units.	474 r/w	104 2 18 r/w	-1,999.000 to 9,999.000	9,999.0	floating point	X		
<i>Analog Input 2</i> Process Error Enable Turn the Process Error Low feature on or off.	498 r/w	104 2 30 r/w	Off (62) Low	Off	integer	X		
<i>Analog Input 2</i> Process Error Low If the process value drops below this value, it will trigger an input error.	500 r/w	104 2 31 r/w	-100.0 to 1,000.0	0.0	floating point	X		
<i>Analog Input 2</i> Filter Time Filtering smooths out the process signal to both the display and the input. Increase the time to increase filtering.	466 r/w	104 2 14 r/w	0.0 to 60.0 seconds	0.5	floating point	X		
<i>Analog Input 2</i> Error Latching Turn input error latching on or off. If latching is on errors must be manually cleared.	494 r/w	104 2 28 r/w	Off (62) On (63)	Off	integer	X		
<i>Analog Input 2</i> Decimal Set the precision of the displayed value.	478 r/w	104 2 20 r/w	Whole (105) Tenths (94) Hundredths (40) Thousandths (96)	Whole	integer	X		
<i>Input 2</i> Error Reset Write to this register to clear an error state.	496 w	104 2 29 w	0		integer	X		
Digital Input/Output Menu								
Digital Input or Output 5 Submenu								
Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.						Int.	PID	Lmt.
The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.								
<u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.								
*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.								

Parameter name Description	Modbus (less 40,001 off- set) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Digital Input/Output 5</i> Direction Set the function to an input or output.	1000 r/w	106 5 1 r/w	Output (68) Input Voltage (193) Input Dry Contact (44)	Output	integer	X	X	X
<i>Digital Output 5</i> Function Select what function will drive this output.	1008 r/w	106 5 5 r/w	Off (62) Cool (20) Heat (36) Alarm (6) Event (29)	Off	integer	X	X	X
<i>Digital Output 5</i> Function Instance Select which source instance will drive the output.	1010 r/w	106 5 6 r/w	1 to 4	1 (output 5) 2 (output 6)	integer	X	X	X
<i>Digital Input 5</i> Level Select what action will be interpreted as a true state.	1320 r/w	110 1 1 r/w	High (37) Low (53)	High	integer	X	X	X
<i>Digital Input 5</i> Function Select the function that will be triggered by a true state.	1324 r/w	110 1 3 r/w	None (61) Idle Set Point Enable (107) Tune (98) Alarm Reset (6) Silence Alarms (108) Manual/Auto Mode (54) Control Outputs Off (90) Remote Set Point Enable (216) Lock Keypad (217) Force Alarm (218) TRU-TUNE+™ Disable (219) Alarm Outputs & Control Loop Off (220) Limit Reset (82) Profile Disable (206) Profile Hold/Resume (207) Profile Start Number (196) Profile Start/Stop (208) Restore User Settings (227)	None	integer	X	X	X
<i>Digital Input 5</i> Function Instance Select which instance of the Event Function will be triggered by a true state.	1322 r/w	119 1 2 r/w	0 All Instances (except profiles) (For example, if Digital Function is set to Silence Alarms and Function Instance is set to 0, then this digital input will silence both alarms.) 1 to 4	1	integer	X	X	X
Digital Input or Output 6 Submenu								
<i>Digital Input/Output 6</i> Direction Set the function to an input or output.	1030 r/w	106 6 1 r/w	Output (68) Input Voltage (193) Input Dry Contact (44)	Output	integer	X	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 off- set) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Digital Output 6</i> Function Select what function will drive this output.	1038 r/w	106 6 5 r/w	Off (62) Cool (20) Heat (36) Alarm (6) Event (29)	Off	integer	X	X	X
<i>Digital Output 6</i> Function Instance Select which source instance will drive the output.	1040 r/w	106 6 6 r/w	1 to 4	1 (output 5) 2 (output 6)	integer	X	X	X
<i>Digital Input 6</i> Level Select what action will be interpreted as a true state.	1340 r/w	110 2 1 r/w	High (37) Low (53)	High	integer	X	X	X
<i>Digital Input 6</i> Function Select the function that will be triggered by a true state.	1344 r/w	110 2 3 r/w	None (61) Idle Set Point Enable (107) Tune (98) Alarm Reset (6) Silence Alarms (108) Manual/Auto Mode (54) Control Outputs Off (90) Remote Set Point Enable (216) Lock Keypad (217) Force Alarm (218) TRU-TUNE+™ Disable (219) Alarm Outputs & Control Loop Off (220) Limit Reset (82) Profile Disable (206) Profile Hold/Resume (207) Profile Start Number (196) Profile Start/Stop (208) Restore User Settings (227)	None	integer	X	X	X
<i>Digital Input 6</i> Function Instance Select which instance of the Event Function will be triggered by a true state.	1342 r/w	110 2 2 r/w	0 All Instances (except profiles) (For example, if Digital Function is set to Silence Alarms and Function Instance is set to 0, then this digital input will silence both alarms.) 1 to 4	1	integer	X	X	X
Limit Menu								
<i>Limit</i> Sides Select which side or sides of the process value will be monitored.	688 r/w	112 1 5 r/w	Both (13) High (37) Low (53)	Both	integer	X		X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 off- set) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Limit</i> Hysteresis Set the hysteresis for the limit function. This determines how far into the safe range the process value must move before the limit turns the output back on.	682 r/w	112 1 2 r/w	0.001 to 9,999.0	3.0	floating point	X		X
<i>Limit</i> Integrate In a limit state the controller will turn off the outputs, terminate an active profile and freeze PID and TRU-TUNE+™ calculations.	694 r/w	112 1 8 r/w	No (59) Yes (106)	No	integer	X		
Loop Menu								
<i>Loop</i> Heat Algorithm Set the heat control method.	1884 r/w	151 1 3 r/w	PID (71) Off (62) On-Off (64)	PID	integer	X	X	
<i>Loop</i> Cool Algorithm Set the cool control method.	1886 r/w	151 1 4 r/w	Off (62) PID (71) On-Off (64)	Off	integer	X	X	
<i>Loop</i> Cool Output Curve Select a special cool output curve to change the responsiveness of the system.	1888 r/w	151 1 5 r/w	Off (62) Curve A (214) Curve 2 (215)	Off	integer	X	X	
<i>Loop</i> TRU-TUNE+™ Enable Enable or disable the TRU-TUNE+™ adaptive tuning feature.	1910 r/w	151 1 16 r/w	No (59) Yes (106)	No	integert	X	X	
<i>Loop</i> TRU-TUNE+™ Band Set the range, centered on the set point, within which TRU-TUNE+™ will be in effect. Use this function only if the controller is unable to adaptive tune automatically.	1912 r/w	151 1 17 r/w	0 Auto 1 to 1,000	0	integer	X	X	
<i>Loop</i> TRU-TUNE+™ Gain Select the responsiveness of the TRU-TUNE+™ adaptive tuning calculations. More responsiveness may increase overshoot.	1914 r/w	151 1 18 r/w	1 to 6 Most to least responsive	3	integer	X	X	
<i>Loop</i> Autotune Aggressiveness Select the aggressiveness of the autotuning calculations.	1916 r/w	151 1 19 r/w	Critical damped (21) Under damped (99) Over damped (69)	Critical	integer	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 off- set) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Loop</i> User Failure Action Select what the controller outputs will do when the user switches control to manual mode.	2182 r/w	107 1 12 r/w	Off, sets output power to 0% (62) Bumpless, maintains same output power, if it was less than 75% and stable, otherwise 0% (14) Manual Fixed, sets output power to Manual Power setting (54) User, sets output power to last open-loop set point the user entered (100)	Off	integer	X	X	
<i>Loop</i> Input Error Failure Select what the controller outputs will do when an input error switches control to manual mode.	2184 r/w	107 1 13 r/w	Off, sets output power to 0% (62) Bumpless, maintains same output power, if it was less than 75% and stable, otherwise 0% (14) Manual Fixed, sets output power to Manual Power setting (54) User, sets output power to last open-loop set point the user entered (100)	Off	integer	X	X	
<i>Loop</i> Manual Power Set the manual output power level that will take effect if an input error failure occurs.	2180 r/w	107 1 11 r/w	Set Point Open Loop Limit Low to Set Point Open Loop Limit High (Setup Page)	0.0	floating point	X	X	
<i>Loop</i> Open Loop Detect Enable Turn on the open-loop detect feature to monitor a closed-loop operation for the appropriate response.	1922 r/w	151 1 29 r/w	No (59) Yes (106)	No	integer	X	X	
<i>Loop</i> Open Loop Detect Time The Open Loop Detect Deviation value must occur for this time period to trigger an open-loop error.	1924 r/w	151 1 23 r/w	0 to 3,600 seconds	240	integer	X	X	
<i>Loop</i> Open Loop Detect Deviation Set the value that the process must deviate from the set point to trigger an open-loop error.	1926 r/w	151 1 24 r/w	-1,999.000 to 9,999.000	10.0	floating point	X	X	
<i>Loop</i> Ramp Action Select when the controller's set point will ramp to the defined end set point.	2186 r/w	107 1 14 r/w	Off (62) Startup (88) Set Point Change (85) Both (13)	Off	integer	X	X	
<i>Loop</i> Ramp Scale Select the scale of the ramp rate.	2188 r/w	107 1 15 r/w	Hours (39) Minutes (57)	Minutes	integer	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 off- set) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Loop</i> Ramp Rate Set the rate for the set point ramp. Set the time units for the rate with the Ramp Scale parameter.	2192 r/w	107 1 17 r/w	0.0 to 9,999.000	1.0	floating point	X	X	
<i>Loop</i> Low Set Point Set the low end of the set point range.	2164 r/w	107 1 3 r/w	-1,999.000 to 9,999.000	-1,999.000	floating point	X	X	
<i>Loop</i> High Set Point Set the high end of the set point range.	2166 r/w	107 1 4 r/w	-1,999.000 to 9,999.000	9,999.000	floating point	X	X	
<i>Loop</i> Set Point Low Limit Open Loop Set the minimum value of the open-loop set point range.	2168 r/w	107 1 5 r/w	-100 to 100%	-100	floating point	X	X	
<i>Loop</i> Set Point High Limit Open Loop Set the maximum value of the open-loop set point range.	2170 r/w	107 1 6 r/w	-100 to 100%	100	floating point	X	X	
<i>Loop</i> Closed Loop Active Set Point	2172 r/w	107 1 7 r/w	-1,999 to 9,999		floating point	X	X	
<i>Loop</i> Open Loop Active Set Point	2162 r/w	107 1 2 r/w	-1,999 to 9,999		floating point	X	X	
Output Menu								
Output 1 Submenu								
<i>Output 1 (process)</i> Type Select whether the process output will operate in volts or milliamps.	720 r/w	118 1 1 r/w	Volts (104) Milliamps (112)	Volts	integer	X	X	
<i>Output 1 (process)</i> Function Select what function will drive this output.	722 r/w	118 1 2 r/w	Off (62) Heat (36) Cool (20) Duplex (212) Alarm (6) Event (29) Retransmit (213)	Heat (output 1) Off (output 2)	integer	X	X	X
<i>Output 1 (process)</i> Retransmit Source Select the value that will be retransmitted.	724 r/w	118 1 3 r/w	Analog Input (142) Set Point (85) Current (22)	Analog Input	integer	X	X	
<i>Output 1 (process)</i> Function Instance Select which source instance will drive the output.	726 r/w	118 1 4 r/w	1 to 4	1	integer	X	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</u></p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 off- set) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Output 1 (process)</i> Scale Low Set the minimum value of the process output range in electrical units.	736 r/w	118 1 9 r/w	0.00 to 20.00	0.00	floating point	X	X	
<i>Output 1 (process)</i> Scale High Set the maximum value of the process output range in electrical units.	738 r/w	118 1 10 r/w	0.00 to 20.00	10.00	floating point	X	X	
<i>Output 1 (process)</i> Range Low Set the minimum value of the retransmit value range in process units. When the retransmit source is at this value, the retransmit output will be at its Scale Low value.	740 r/w	118 1 11 r/w	-1,999.000 to 9,999.000	0.0	floating point	X	X	
<i>Output 1 (process)</i> Range High Set the maximum value of the retransmit value range in process units. When the retransmit source is at this value, the retransmit output will be at its Scale High value.	742 r/w	118 1 12 r/w	-1,999.000 to 9,999.000	9,999.0	floating point	X	X	
<i>Output 1 (process)</i> Low Power Scale Set the minimum value of the output range.	744 r/w	118 1 13 r/w	0.0 to 100.0%	0.0	floating point	X	X	
<i>Output 1 (process)</i> High Power Scale Set the maximum value of the output range.	746 r/w	118 1 14 r/w	0.0 to 100.0%	100.0	floating point	X	X	
<i>Output 1 (process)</i> Calibration Offset Set an offset value for a process output.	732 r/w	118 1 7 r/w	-1,999.000 to 9,999.000	0.0	floating point	X	X	
<i>Output 1 (digital)</i> Function Select what function will drive this output.	888 r/w	106 1 5 r/w	Off (62) Heat (36) Cool (20) Alarm (6) Event (29) Limit (126)	Heat Alarm Off (outputs 3 & 4)	integer	X	X	
<i>Output 1 (digital)</i> Function Instance Select which source instance will drive the output.	890 r/w	106 1 6 r/w	1 to 4	1	integer	X	X	
<i>Output 1 (digital)</i> Control Set the output control type. This parameter is only used with PID control, but can be set anytime.	882 r/w	106 1 2 r/w	Fixed Time Base (34) Variable Time Base (103)	Fixed Time Base	integer	X	X	
<i>Output 1 (digital)</i> Time Base Set the time base for fixed-time-base control.	884 r/w	106 1 3 r/w	0.1 to 60.0 seconds (solid-state relay or switched dc) 5.0 to 60.0 seconds (mechanical relay or no-arc power control)	0.1 sec. [SSR & sw dc] 20.0 sec. [mech, relay, no-arc]	integer	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 off- set) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Output 1 (digital)</i> Low Power Scale The power output will never be less than the value specified and will represent the value at which output scaling begins.	896 r/w	106 1 9 r/w	0.0 to 100.0%	0.0%	floating point	X	X	
<i>Output 1 (digital)</i> High Power Scale The power output will never be greater than the value specified and will represent the value at which output scaling stops.	898 r/w	106 1 10 r/w	0.0 to 100.0%	100.0%	floating point	X	X	
<i>Output 1 (digital)</i> Power Monitor the power being supplied to this output.	894 r	106 1 8 r	0.0 to 100.0%		floating point	X	X	
Output 2 Submenu								
<i>Output 2 (digital)</i> Function Select what function will drive this output.	918 r/w	106 2 5 r/w	Off (62) Heat (36) Cool (20) Alarm (6) Event (29) Limit (126)	Heat Alarm Off (out- puts 3 & 4)	integer	X	X	
<i>Output 2 (digital)</i> Function Instance Select which source instance will drive the output.	920 r/w	106 2 6 r/w	1 to 4	1	integer	X	X	
<i>Output 2 (digital)</i> Control Set the output control type. This parameter is only used with PID control, but can be set anytime.	912 r/w	106 2 2 r/w	Fixed Time Base (34) Variable Time Base (103)	Fixed Time Base	integer	X	X	
<i>Output 2 (digital)</i> Time Base Set the time base for fixed-time-base control.	913 r/w	106 2 3 r/w	0.1 to 60.0 seconds (solid- state relay or switched dc) 5.0 to 60.0 seconds (mechani- cal relay or no-arc power control)	0.1 sec. [SSR & sw dc] 20.0 sec. [mech, relay, no-arc]	integer	X	X	
<i>Output 2 (digital)</i> Low Power Scale The power output will never be less than the value specified and will represent the value at which output scaling begins.	926 r/w	106 2 9 r/w	0.0 to 100.0%	0.0%	floating point	X	X	
<i>Output 2 (digital)</i> High Power Scale The power output will never be greater than the value specified and will represent the value at which output scaling stops.	928 r/w	106 2 10 r/w	0.0 to 100.0%	100.0%	floating point	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 off- set) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Output 2 (digital)</i> Power Monitor the power being supplied to this output.	924 r	106 2 8 r	0.0 to 100.0%		floating point	X	X	
Output 3 Submenu								
<i>Output 3 (process)</i> Type Select whether the process output will operate in volts or milliamps.	800 r/w	118 3 1 r/w	Volts (104) Milliamps (112)	Volts	integer	X		X
<i>Output 3 (process)</i> Function Select what function will drive this output.	802 r/w	118 3 2 r/w	Off (62) Heat (36) Cool (20) Duplex (212) Alarm (6) Event (29) Retransmit (213)	Heat (output 1) Off (out- put 2)	integer	X		X
<i>Output 3 (process)</i> Retransmit Source Select the value that will be retransmitted.	804 r/w	118 3 3 r/w	Analog Input (142) Set Point (85) Current (22)	Analog Input	integer	X		X
<i>Output 3 (process)</i> Function Instance Select which source instance will drive the output.	806 r/w	118 3 4 r/w	1 to 4	1	integer	X		X
<i>Output 3 (process)</i> Scale Low Set the minimum value of the process output range in electrical units.	816 r/w	118 3 9 r/w	0.00 to 20.00	0.00	floating point	X		X
<i>Output 3 (process)</i> Scale High Set the maximum value of the process output range in electrical units.	818 r/w	118 3 10 r/w	0.00 to 20.00	10.00	floating point	X		X
<i>Output 3 (process)</i> Range Low Set the minimum value of the retransmit value range in process units. When the retransmit source is at this value, the retransmit output will be at its Scale Low value.	820 r/w	118 3 11 r/w	-1,999.000 to 9,999.000	0.0	floating point	X		X
<i>Output 3 (process)</i> Range High Set the maximum value of the retransmit value range in process units. When the retransmit source is at this value, the retransmit output will be at its Scale High value.	822 r/w	118 3 12 r/w	-1,999.000 to 9,999.000	9,999.0	floating point	X		X
<i>Output 3 (process)</i> Low Power Scale Set the minimum value of the output range.	824 r/w	118 3 13 r/w	0.0 to 100.0%	0.0	floating point	X		
<i>Output 3 (process)</i> High Power Scale Set the maximum value of the output range.	826 r/w	118 3 14 r/w	0.0 to 100.0%	100.0	floating point	X		
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 off- set) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Output 3 (process)</i> Calibration Offset Set an offset value for a process output.	812 r/w	118 3 7 r/w	-1,999.000 to 9,999.000	0.0	floating point	X		X
<i>Output 3 (digital)</i> Function Select what function will drive this output.	948 r/w	106 3 5 r/w	Off (62) Heat (36) Cool (20) Alarm (6) Event (29) Limit (126)	Heat Alarm Off (out- puts 3 & 4)	integer	X		
<i>Output 3 (digital)</i> Function Instance Select which source instance will drive the output.	950 r/w	106 3 6 r/w	1 to 4	1	integer	X		
<i>Output 3 (digital)</i> Control Set the output control type. This parameter is only used with PID control, but can be set anytime.	942 r/w	106 3 2 r/w	Fixed Time Base (34) Variable Time Base (103)	Fixed Time Base	integer	X		
<i>Output 3 (digital)</i> Time Base Set the time base for fixed-time-base control.	944 r/w	109 3 3 r/w	0.1 to 60.0 seconds (solid- state relay or switched dc) 5.0 to 60.0 seconds (mechani- cal relay or no-arc power control)	0.1 sec. [SSR & sw dc] 20.0 sec. [mech, relay, no-arc]	integer	X		
<i>Output 3 (digital)</i> Low Power Scale The power output will never be less than the value specified and will represent the value at which output scaling begins.	956 r/w	106 3 9 r/w	0.0 to 100.0%	0.0%	floating point	X		
<i>Output 3 (digital)</i> High Power Scale The power output will never be greater than the value specified and will represent the value at which output scaling stops.	958 r/w	106 3 10 r/w	0.0 to 100.0%	100.0%	floating point	X		
<i>Output 3 (digital)</i> Power Monitor the power being supplied to this output.	954 r	106 3 8 r	0.0 to 100.0%		floating point	X	X	
Output 4 Submenu								
<i>Output 4 (digital)</i> Function Select what function will drive this output.	978 r/w	106 4 5 r/w	Off (62) Heat (36) Cool (20) Alarm (6) Event (29) Limit (126)	Heat Alarm Off (out- puts 3 & 4)	integer	X		X
<i>Output 4 (digital)</i> Function Instance Select which source instance will drive the output.	980 r/w	106 4 6 r/w	1 to 4	1	integer	X		X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 off- set) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Output 4 (digital)</i> Control Set the output control type. This parameter is only used with PID control, but can be set anytime.	972 r/w	106 4 2 r/w	Fixed Time Base (34) Variable Time Base (103)	Fixed Time Base	integer	X		
<i>Output 4 (digital)</i> Time Base Set the time base for fixed-time-base control.	974 r/w	106 4 3 r/w	0.1 to 60.0 seconds (solid- state relay or switched dc) 5.0 to 60.0 seconds (mechani- cal relay or no-arc power control)	0.1 sec. [SSR & sw dc] 20.0 sec. [mech, relay, no-arc]	integer	X		
<i>Output 4 (digital)</i> Low Power Scale The power output will never be less than the value specified and will represent the value at which output scaling begins.	986 r/w	106 4 9 r/w	0.0 to 100.0%	0.0%	floating point	X		
<i>Output 4 (digital)</i> High Power Scale The power output will never be greater than the value specified and will represent the value at which output scaling stops.	988 r/w	106 4 10 r/w	0.0 to 100.0%	100.0%	floating point	X		
<i>Output 4 (digital)</i> Power Monitor the power being supplied to this output.	984 r	106 4 8 r	0.0 to 100.0%		floating point	X	X	
Alarm Menu								
Alarm 1 Submenu								
<i>Alarm 1</i> Type Select how the alarm will or will not track the set point.	1508 r/w	109 1 15 r/w	Off (62) Process Alarm (76) Deviation Alarm (24)	Off	integer	X	X	X
<i>Alarm 1</i> Source Select what will trigger this alarm.	1512 r/w	109 1 17 r/w	Analog Input (142) Power (73) (process only) Current (22) (process only)	Analog Input	integer	X	X	X
<i>Alarm 1</i> Source Instance If Alarm Source is set to input, select which input to use.	1514 r/w	109 1 18 r/w	1 or 2	1	integer	X		
<i>Alarm 1</i> Hysteresis Set the hysteresis for an alarm. This determines how far into the safe region the process value needs to move before the alarm can be cleared.	1484 r/w	109 1 3 r/w	0.001 to 9,999.000	1.0	floating point	X	X	X
<i>Alarm 1</i> Logic Select what the output condition will be during the alarm state.	1488 r/w	109 1 5 r/w	Close On Alarm (17) Open On Alarm (66)	Close On Alarm	integer	X	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 off- set) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
Alarm 1 Sides Select which side or sides will trigger this alarm.	1486 r/w	109 1 4 r/w	Both (13) High (37) Low (53)	Both	integer	X	X	X
Alarm 1 Latching Turn alarm latching on or off. A latched alarm has to be turned off by the user.	1492 r/w	109 1 7 r/w	Non-Latching (60) Latching (49)	Non-Latching	integer	X	X	X
Alarm 1 Blocking Select when an alarm will be blocked. After startup and/or after the set point changes, the alarm will be blocked until the process value enters the normal range.	1494 r/w	109 1 8 r/w	Off (62) Startup (88) Set Point (85) Both (13)	Off	integer	X	X	X
Alarm 1 Silencing Turn alarm silencing on to allow the user to disable this alarm.	1490 r/w	109 1 6 r/w	Off (62) On (63)	Off	integer	X	X	X
Alarm 1 Display Display an alarm message when an alarm is active.	1510 r/w	109 1 16 r/w	On (63) Off (62)	On	integer	X	X	X
Alarm 2 Submenu								
Alarm 2 Type Select how the alarm will or will not track the set point.	1558 r/w	109 2 15 r/w	Off (62) Process Alarm (76) Deviation Alarm (24)	Off	integer	X	X	X
Alarm 2 Source Select what will trigger this alarm.	1562 r/w	109 2 17 r/w	Analog Input (142) Power (73) (process only) Current (22) (process only)	Analog Input	integer	X	X	X
Alarm 2 Source Instance If Alarm Source is set to input, select which input to use.	1564 r/w	109 2 18 r/w	1 or 2	1	integer	X		
Alarm 2 Hysteresis Set the hysteresis for an alarm. This determines how far into the safe region the process value needs to move before the alarm can be cleared.	1534 r/w	109 2 3 r/w	0.001 to 9,999.000	1.0	floating point	X	X	X
Alarm 2 Logic Select what the output condition will be during the alarm state.	1538 r/w	109 2 5 r/w	Close On Alarm (17) Open On Alarm (66)	Close On Alarm	integer	X	X	X
Alarm 2 Sides Select which side or sides will trigger this alarm.	1536 r/w	109 2 4 r/w	Both (13) High (37) Low (53)	Both	integer	X	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 off- set) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Alarm 2</i> Latching Turn alarm latching on or off. A latched alarm has to be turned off by the user.	1542 r/w	109 2 7 r/w	Non-Latching (60) Latching (49)	Non-Latching	integer	X	X	X
<i>Alarm 2</i> Blocking Select when an alarm will be blocked. After startup and/or after the set point changes, the alarm will be blocked until the process value enters the normal range.	1544 r/w	109 2 8 r/w	Off (62) Startup (88) Set Point (85) Both (13)	Off	integer	X	X	X
<i>Alarm 2</i> Silencing Turn alarm silencing on to allow the user to disable this alarm.	1540 r/w	109 2 6 r/w	Off (62) On (63)	Off	integer	X	X	X
<i>Alarm 2</i> Display Display an alarm message when an alarm is active.	1560 r/w	109 2 16 r/w	On (63) Off (62)	On	integer	X	X	X
Alarm 3 Submenu								
<i>Alarm 3</i> Type Select how the alarm will or will not track the set point.	1608 r/w	109 3 15 r/w	Off (62) Process Alarm (76) Deviation Alarm (24)	Off	integer	X	X	X
<i>Alarm 3</i> Source Select what will trigger this alarm.	1612 r/w	109 3 17 r/w	Analog Input (142) Power (73) (process only) Current (22) (process only)	Analog Input	integer	X	X	X
<i>Alarm 3</i> Source Instance If Alarm Source is set to input, select which input to use.	1614 r/w	109 3 18 r/w	1 or 2	1	integer	X		
<i>Alarm 3</i> Hysteresis Set the hysteresis for an alarm. This determines how far into the safe region the process value needs to move before the alarm can be cleared.	1584 r/w	109 3 3 r/w	0.001 to 9,999.000	1.0	floating point	X	X	X
<i>Alarm 3</i> Logic Select what the output condition will be during the alarm state.	1588 r/w	109 3 5 r/w	Close On Alarm (17) Open On Alarm (66)	Close On Alarm	integer	X	X	X
<i>Alarm 3</i> Sides Select which side or sides will trigger this alarm.	1586 r/w	109 3 4 r/w	Both (13) High (37) Low (53)	Both	integer	X	X	X
<i>Alarm 3</i> Latching Turn alarm latching on or off. A latched alarm has to be turned off by the user.	1592 r/w	109 3 7 r/w	Non-Latching (60) Latching (49)	Non-Latching	integer	X	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>Underlined parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 off- set) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt**
Alarm 3 Blocking Select when an alarm will be blocked. After startup and/or after the set point changes, the alarm will be blocked until the process value enters the normal range.	1594 r/w	109 3 8 r/w	Off (62) Startup (88) Set Point (85) Both (13)	Off	integer	X	X	X
Alarm 3 Silencing Turn alarm silencing on to allow the user to disable this alarm.	1590 r/w	109 3 6 r/w	Off (62) On (63)	Off	integer	X	X	X
Alarm 3 Display Display an alarm message when an alarm is active.	1610 r/w	109 3 16 r/w	On (63) Off (62)	On	integer	X	X	X
Alarm 4 Submenu								
Alarm 4 Type Select how the alarm will or will not track the set point.	1658 r/w	109 4 15 r/w	Off (62) Process Alarm (76) Deviation Alarm (24)	Off	integer	X	X	X
Alarm 4 Source Select what will trigger this alarm.	1662 r/w	109 4 17 r/w	Analog Input (142) Power (73) (process only) Current (22) (process only)	Analog Input	integer	X	X	X
Alarm 4 Source Instance If Alarm Source is set to input, select which input to use.	1664 r/w	109 4 18 r/w	1 or 2	1	integer	X		
Alarm 4 Hysteresis Set the hysteresis for an alarm. This determines how far into the safe region the process value needs to move before the alarm can be cleared.	1634 r/w	109 4 3 r/w	0.001 to 9,999.000	1.0	floating point	X	X	X
Alarm 4 Logic Select what the output condition will be during the alarm state.	1638 r/w	109 4 5 r/w	Close On Alarm (17) Open On Alarm (66)	Close On Alarm	integer	X	X	X
Alarm 4 Sides Select which side or sides will trigger this alarm.	1636 r/w	109 4 4 r/w	Both (13) High (37) Low (53)	Both	integer	X	X	X
Alarm 4 Latching Turn alarm latching on or off. A latched alarm has to be turned off by the user.	1642 r/w	109 4 7 r/w	Non-Latching (60) Latching (49)	Non- Latching	integer	X	X	X
Alarm 4 Blocking Select when an alarm will be blocked. After startup and/or after the set point changes, the alarm will be blocked until the process value enters the normal range.	1644 r/w	109 4 8 r/w	Off (62) Startup (88) Set Point (85) Both (13)	Off	integer	X	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>Underlined parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 off- set) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Alarm 4</i> Silencing Turn alarm silencing on to allow the user to disable this alarm.	1640 r/w	109 4 6 r/w	Off (62) On (63)	Off	integer	X	X	X
<i>Alarm 4</i> Display Display an alarm message when an alarm is active.	1660 r/w	109 4 16 r/w	On (63) Off (62)	On	integer	X	X	X
Current Menu								
<i>Current</i> Sides Select which side of the current to monitor.	1128 r/w	N.A.	Off (62) High (37) Low (53) Both (13)	Off	integer	X		
<i>Current</i> Reading Enable Display under- or over-range current.	1126 r/w	N.A.	No (59) Yes (106)	No	integer	X		
<i>Current</i> Limit Enable Trip the limit if a shorted solid-state relay (SSR) is detected.	1122 r/w	N.A.	No (59) Yes (106)	No	integer	X		
<i>Current</i> Detect Threshold For factory adjustment only.	1142 r/w	N.A.	0 to 32,767	9	integer	X		
<i>Current</i> Offset Calibrate the current reading with an offset value.	1140 r/w	N.A.	-1,999.000 to 9,999.000	0.0	floating point	X		
Function Key Menu								
<i>Function Key</i> Level Select what state the Function Key will be in at startup. Pressing the Function Key will toggle the selected action.	1360 r/w	110 3 1 r/w	High (37) Low (53)	High	integer	X	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values.</p> <p>The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 off- set) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Function Key</i> Digital Input Function Program the EZ Key to trigger an action.	1364 r/w	110 3 3 r/w	Limit Reset (82) None (61) Idle Set Point Enable (107) Tune (98) Alarm Reset (6) Silence Alarms (108) Manual/Auto Mode (54) Control Outputs Off (90) Remote Set Point Enable (216) Lock Keypad (217) Force Alarm (218) TRU-TUNE+™ Disable (219) Alarm Outputs & Control Loop Off (220) Profile Disable (206) Profile Hold/Resume (207) Profile Start Number (196) Profile Start/Stop (208) Restore User Settings (227)	None	integer	X	X	X
<i>Function Key</i> Instance Select which instance the EZ Key will affect. If only one instance is available, any selection will affect it.	1362 r/w	110 3 2 r/w	0 All Instances (except Profile) (For example, if Digital Function is set to Silence Alarms and Function Instance is set to 0, then the digital input would silence both alarms.) 1 to 4	0	integer	X	X	X
Global Menu								
<i>Global</i> Display Units Select whether temperatures will display in Celsius or Fahrenheit.			°F (30) °C (15)	°F		X	X	X
<i>Global</i> AC Line Frequency Set the frequency to the applied ac line power source.			50 Hz (3) 60 Hz (4)	60 Hz		X	X	X
<i>Global</i> Profile Type Set the profile startup to be based on a set point or a process value.	2534 r/w	122 1 8 r/w	Set Point (85) Process (75)	Set Point	integer	X	X	
<i>Global</i> Guaranteed Soak Enable Enables the guaranteed soak deviation function in profiles.	2530 r/w	122 1 6 r/w	Off (62) On (63)	Off	integer	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 off- set) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Global</i> Guaranteed Soak Deviation Set the value of the deviation band that will be used in all profile step types. The process value must enter the deviation band before the step can proceed.	2532 r/w	22 1 7 r/w	0.0 to 9,999.000	10.0	floating point	X	X	
Communications Menu								
Communications 1 Submenu								
<i>Communications 1</i> Protocol Set the protocol of this controller to the protocol that this network is using.	2592 r/w	150 1 9 r/w	Standard Bus (1286) Modbus RTU (1057)		integer	X	X	X
<i>Communications 1</i> Address Standard Bus Set the StandardBus network address of this controller. Each device on the network must have a unique address.	2480 r/w	150 1 1 r/w	1 to 16	1	integer	X	X	X
<i>Communications 1</i> Address Modbus Set the Modbus network address of this controller. Each device on the network must have a unique address.	2482 r/w	150 1 7 r/w	1 to 247	1	integer	X	X	X
<i>Communications 1</i> Baud Rate Modbus Set the speed of this controller's communications to match the speed of the network.	2484 r/w	150 1 2 r/w	9,600 19,200 38,400	38,400	integer	X	X	X
<i>Communications 1</i> Parity Modbus Set the parity of this controller to match the parity of the network.	2486 r/w	150 1 3 r/w	None (61) Even (191) Odd (192)	None	integer	X	X	X
<i>Communications 1</i> Word Order Modbus Select the order of the two, 16-bit words in the floating point values.	2494 r/w	150 1 5 r/w	Low-High (1331) High-Low (1330)	Low-High	integer	X	X	X
<i>Communications 1</i> Temperature Units Select whether temperatures on this communications channel will display in Celsius or Fahrenheit.	2490 r/w	150 1 6 r/w	°F (30) °C (15)	°F	integer	X	X	X
<i>Communications 1</i> Nonvolatile Memory Save Select whether changes will be saved to nonvolatile memory (EEPROM). This parameter will always be saved to nonvolatile memory. Whenever parameters are changed using a controller's front panel, all of the controller's settings will be saved to nonvolatile memory.	2494 r/w	150 1 8 r/w	No (59) Yes (106)	Yes (if Modbus is not available on this channel) No	integer	X	X	X
Communications 2 Submenu								
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>Underlined parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

Parameter name Description	Modbus (less 40,001 off- set) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt*
<i>Communications 2</i> Protocol Set the protocol of this controller to the protocol that this network is using.	2512 r/w	150 2 9 r/w	Standard Bus (1286) Modbus RTU (1057)		integer	X	X	X
<i>Communications 2</i> Address Standard Bus Set the StandardBus network address of this controller. Each device on the network must have a unique address.	2500 r/w	150 2 1 r/w	1 to 16 (Standard Bus) 1 to 247 (Modbus)	1	integer	X	X	X
<i>Communications 2</i> Address Modbus Set the Modbus network address of this controller. Each device on the network must have a unique address.	2502 r/w	150 2 7 r/w	1 to 16 (Standard Bus) 1 to 247 (Modbus)	1	integer	X	X	X
<i>Communications 2</i> Baud Rate Modbus Set the speed of this controller's communications to match the speed of the network.	2504 r/w	150 2 2 r/w	9,600 19,200 38,400	38,400	integer	X	X	X
<i>Communications 2</i> Parity Modbus Set the parity of this controller to match the parity of the network.	2506 r/w	150 2 3 r/w	None (61) Even (191) Odd (192)	None	integer	X	X	X
<i>Communications 2</i> Word Order Modbus Select the order of the two, 16-bit words in the floating point values.	2514 r/w	150 2 5 r/w	Low-High (1331) High-Low (1330)	Low-High	integer	X	X	X
<i>Communications 2</i> Temperature Units Select whether temperatures on this communications channel will display in Celsius or Fahrenheit.	2510 r/w	150 2 6 r/w	°F (30) °C (15)	°F	integer	X	X	X
<i>Communications 2</i> Nonvolatile Memory Save Select whether changes will be saved to nonvolatile memory (EEPROM). This parameter will always be saved to nonvolatile memory. Whenever parameters are changed using a controller's front panel, all of the controller's settings will be saved to nonvolatile memory.	2514 r/w	150 2 8 r/w	No (59) Yes (106)	No	integer	X	X	X
<i>Communications 2</i> IP Address Mode Select DHCP to let a DHCP server assign an address to this controller.			DHCP (1281) Fixed (1284)			X		X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p><u>Underlined</u> parameters are not accessible using a remote user's interface (RUI) or the controller's front panel. They can only be accessed using communications.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

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Chapter 8: Profiling Page

Note: Changes made to profile parameters in the Profiling Pages will be saved and will also have an immediate impact on the running profile.

should only be changed by knowledgeable personnel and with caution. Changing parameters via the Profile Status Menu will not change the stored profile but will have an immediate impact on the profile that is running.

Some parameters in the Profile Status Menu can be changed for the currently running profile, but

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
Step 1 Menu							
<i>Step 1 Parameters</i> Step 1 Type Select a step type.	2570 r/w	121 1 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 1 Parameters</i> Target Set Point Select the set point for this step.	2572 r/w	121 1 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 1 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	2574 r/w	121 1 3 r/w	0 to 99	0	integer	X	X
<i>Step 1 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	2576 r/w	121 1 4 r/w	0 to 59	0	integer	X	X
<i>Step 1 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	2578 r/w	121 1 5 r/w	0 to 59	0	integer	X	X
<i>Step 1 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	2580 r/w	121 1 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<i>Step 1 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	2582 r/w	121 1 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 1 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	2584 r/w	121 1 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 1 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	2586 r/w	121 1 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 1 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	2588 r/w	121 1 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™
<i>Step 1 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	2598 r/w	121 1 15 r/w	1 or 2	1	integer	X		
<i>Step 1 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	2590 r/w	121 1 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 1 Parameters</i> Jump Step Select a step to jump to.	2592 r/w	121 1 12 r/w	1 to 40	0	integer	X	X	
<i>Step 1 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	2594 r/w	121 1 13 r/w	0 to 9,999	0	integer	X	X	
<i>Step 1 Parameters</i> End Type Select what the controller will do when this profile ends.	2596 r/w	121 1 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X	
Step 2 Menu								
<i>Step 2 Parameters</i> Step 2 Type Select a step type.	2620 r/w	121 2 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X	
<i>Step 2 Parameters</i> Target Set Point Select the set point for this step.	2622 r/w	121 2 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 2 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	2624 r/w	121 2 3 r/w	0 to 99	0	integer	X	X	
<i>Step 2 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	2626 r/w	121 2 4 r/w	0 to 59	0	integer	X	X	
<i>Step 2 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	2628 r/w	121 2 5 r/w	0 to 59	0	integer	X	X	
<i>Step 2 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	2630 r/w	121 2 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X	
<i>Step 2 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	2632 r/w	121 2 7 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 2 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	2634 r/w	121 2 8 r/w	Off (62) On (63)	Off	integer	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values.</p> <p>The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 2 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	2636 r/w	121 2 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 2 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	2638 r/w	121 2 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 2 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	2648 r/w	121 2 15 r/w	1 or 2	1	integer	X	
<i>Step 2 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	2640 r/w	121 2 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 2 Parameters</i> Jump Step Select a step to jump to.	2642 r/w	121 2 12 r/w	1 to 40	0	integer	X	X
<i>Step 2 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	2644 r/w	121 2 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 2 Parameters</i> End Type Select what the controller will do when this profile ends.	2646 r/w	121 2 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 3 Menu							
<i>Step 3 Parameters</i> Step 3 Type Select a step type.	2670 r/w	121 3 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 3 Parameters</i> Target Set Point Select the set point for this step.	2672 r/w	121 3 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 3 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	2674 r/w	121 3 3 r/w	0 to 99	0	integer	X	X
<i>Step 3 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	2676 r/w	121 3 4 r/w	0 to 59	0	integer	X	X
<i>Step 3 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	2678 r/w	121 3 5 r/w	0 to 59	0	integer	X	X
<i>Step 3 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	2680 r/w	121 3 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 3 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	2682 r/w	121 3 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 3 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	2684 r/w	121 3 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 3 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	2686 r/w	121 3 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 3 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	2688 r/w	121 3 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 3 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	2698 r/w	121 3 15 r/w	1 or 2	1	integer	X	
<i>Step 3 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	2690 r/w	121 3 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 3 Parameters</i> Jump Step Select a step to jump to.	2692 r/w	121 3 12 r/w	1 to 40	0	integer	X	X
<i>Step 3 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	2694 r/w	121 3 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 3 Parameters</i> End Type Select what the controller will do when this profile ends.	2696 r/w	121 3 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 4 Menu							
<i>Step 4 Parameters</i> Step 4 Type Select a step type.	2720 r/w	121 4 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 4 Parameters</i> Target Set Point Select the set point for this step.	2722 r/w	121 4 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 4 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	2724 r/w	121 4 3 r/w	0 to 99	0	integer	X	X
<i>Step 4 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	2726 r/w	121 4 4 r/w	0 to 59	0	integer	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 4 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	2728 r/w	121 4 5 r/w	0 to 59	0	integer	X	X
<i>Step 4 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	2730 r/w	121 4 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<i>Step 4 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	2732 r/w	121 4 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 4 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	2734 r/w	121 4 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 4 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	2736 r/w	121 4 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 4 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	2738 r/w	121 4 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 4 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	2748 r/w	121 4 15 r/w	1 or 2	1	integer	X	
<i>Step 4 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	2740 r/w	121 4 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 4 Parameters</i> Jump Step Select a step to jump to.	2742 r/w	121 4 12 r/w	1 to 40	0	integer	X	X
<i>Step 4 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	2744 r/w	121 4 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 4 Parameters</i> End Type Select what the controller will do when this profile ends.	2746 r/w	121 4 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 5 Menu							
<i>Step 5 Parameters</i> Step 5 Type Select a step type.	2770 r/w	121 5 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 5 Parameters</i> Target Set Point Select the set point for this step.	2772 r/w	121 5 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM
<i>Step 5 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	2774 r/w	121 5 3 r/w	0 to 99	0	integer	X	X	
<i>Step 5 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	2776 r/w	121 5 4 r/w	0 to 59	0	integer	X	X	
<i>Step 5 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	2778 r/w	121 5 5 r/w	0 to 59	0	integer	X	X	
<i>Step 5 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	2780 r/w	121 5 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X	
<i>Step 5 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	2782 r/w	121 5 7 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 5 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	2784 r/w	121 5 8 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 5 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	2786 r/w	121 5 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X	
<i>Step 5 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	2788 r/w	121 5 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X	
<i>Step 5 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	2798 r/w	121 5 15 r/w	1 or 2	1	integer	X		
<i>Step 5 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	2790 r/w	121 5 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 5 Parameters</i> Jump Step Select a step to jump to.	2792 r/w	121 5 12 r/w	1 to 40	0	integer	X	X	
<i>Step 5 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	2794 r/w	121 5 13 r/w	0 to 9,999	0	integer	X	X	
<i>Step 5 Parameters</i> End Type Select what the controller will do when this profile ends.	2796 r/w	121 5 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X	
Step 6 Menu								
Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu. The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes. *Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.						Int.	PID	

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 6 Parameters</i> Step 6 Type Select a step type.	2820 r/w	121 6 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 6 Parameters</i> Target Set Point Select the set point for this step.	2822 r/w	121 6 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 6 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	2824 r/w	121 6 3 r/w	0 to 99	0	integer	X	X
<i>Step 6 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	2826 r/w	121 6 4 r/w	0 to 59	0	integer	X	X
<i>Step 6 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	2828 r/w	121 6 5 r/w	0 to 59	0	integer	X	X
<i>Step 6 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	2830 r/w	121 6 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<i>Step 6 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	2832 r/w	121 6 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 6 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	2834 r/w	121 6 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 6 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	2836 r/w	121 6 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 6 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	2838 r/w	121 6 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 6 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	2848 r/w	121 6 15 r/w	1 or 2	1	integer	X	
<i>Step 6 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	2840 r/w	121 6 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 6 Parameters</i> Jump Step Select a step to jump to.	2842 r/w	121 6 12 r/w	1 to 40	0	integer	X	X
<i>Step 6 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	2844 r/w	121 6 13 r/w	0 to 9,999	0	integer	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™
<i>Step 6 Parameters</i> End Type Select what the controller will do when this profile ends.	2846 r/w	121 6 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X	
Step 7 Menu								
<i>Step 7 Parameters</i> Step 7 Type Select a step type.	2870 r/w	121 7 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X	
<i>Step 7 Parameters</i> Target Set Point Select the set point for this step.	2872 r/w	121 7 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 7 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	2874 r/w	121 7 3 r/w	0 to 99	0	integer	X	X	
<i>Step 7 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	2876 r/w	121 7 4 r/w	0 to 59	0	integer	X	X	
<i>Step 7 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	2878 r/w	121 7 5 r/w	0 to 59	0	integer	X	X	
<i>Step 7 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	2880 r/w	121 7 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X	
<i>Step 7 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	2882 r/w	121 7 7 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 7 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	2884 r/w	121 7 8 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 7 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	2886 r/w	121 7 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X	
<i>Step 7 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	2888 r/w	121 7 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X	
<i>Step 7 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	2898 r/w	121 7 15 r/w	1 or 2	1	integer	X		
<i>Step 7 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	2890 r/w	121 7 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 7 Parameters</i> Jump Step Select a step to jump to.	2892 r/w	121 7 12 r/w	1 to 40	0	integer	X	X
<i>Step 7 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	2894 r/w	121 7 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 7 Parameters</i> End Type Select what the controller will do when this profile ends.	2896 r/w	121 7 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 8 Menu							
<i>Step 8 Parameters</i> Step 8 Type Select a step type.	2920 r/w	121 8 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 8 Parameters</i> Target Set Point Select the set point for this step.	2922 r/w	121 8 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 8 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	2924 r/w	121 8 3 r/w	0 to 99	0	integer	X	X
<i>Step 8 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	2926 r/w	121 8 4 r/w	0 to 59	0	integer	X	X
<i>Step 8 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	2928 r/w	121 8 5 r/w	0 to 59	0	integer	X	X
<i>Step 8 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	2930 r/w	121 8 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<i>Step 8 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	2932 r/w	121 8 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 8 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	2934 r/w	121 8 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 8 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	2936 r/w	121 8 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 8 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	2938 r/w	121 8 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™
<i>Step 8 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	2948 r/w	121 8 15 r/w	1 or 2	1	integer	X		
<i>Step 8 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	2940 r/w	121 8 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 8 Parameters</i> Jump Step Select a step to jump to.	2942 r/w	121 8 12 r/w	1 to 40	0	integer	X	X	
<i>Step 8 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	2944 r/w	121 8 13 r/w	0 to 9,999	0	integer	X	X	
<i>Step 8 Parameters</i> End Type Select what the controller will do when this profile ends.	2946 r/w	121 8 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X	
Step 9 Menu								
<i>Step 9 Parameters</i> Step 9 Type Select a step type.	2970 r/w	121 9 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X	
<i>Step 9 Parameters</i> Target Set Point Select the set point for this step.	2972 r/w	121 9 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 9 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	2974 r/w	121 9 3 r/w	0 to 99	0	integer	X	X	
<i>Step 9 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	2976 r/w	121 9 4 r/w	0 to 59	0	integer	X	X	
<i>Step 9 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	2978 r/w	121 9 5 r/w	0 to 59	0	integer	X	X	
<i>Step 9 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	2980 r/w	121 9 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X	
<i>Step 9 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	2982 r/w	121 9 7 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 9 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	2984 r/w	121 9 8 r/w	Off (62) On (63)	Off	integer	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values.</p> <p>The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 9 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	2986 r/w	121 9 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 9 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	2988 r/w	121 9 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 9 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	2998 r/w	121 9 15 r/w	1 or 2	1	integer	X	
<i>Step 9 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	2990 r/w	121 9 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 9 Parameters</i> Jump Step Select a step to jump to.	2992 r/w	121 9 12 r/w	1 to 40	0	integer	X	X
<i>Step 9 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	2994 r/w	121 9 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 9 Parameters</i> End Type Select what the controller will do when this profile ends.	2996 r/w	121 9 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 10 Menu							
<i>Step 10 Parameters</i> Step 10 Type Select a step type.	3020 r/w	121 10 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 10 Parameters</i> Target Set Point Select the set point for this step.	3022 r/w	121 10 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 10 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	3024 r/w	121 10 3 r/w	0 to 99	0	integer	X	X
<i>Step 10 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	3026 r/w	121 10 4 r/w	0 to 59	0	integer	X	X
<i>Step 10 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	3028 r/w	121 10 5 r/w	0 to 59	0	integer	X	X
<i>Step 10 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	3030 r/w	121 10 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 10 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	3032 r/w	121 10 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 10 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	3034 r/w	121 10 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 10 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	3036 r/w	121 10 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 10 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	3038 r/w	121 10 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 10 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3048 r/w	121 10 15 r/w	1 or 2	1	integer	X	
<i>Step 10 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	3040 r/w	121 10 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 10 Parameters</i> Jump Step Select a step to jump to.	3042 r/w	121 10 12 r/w	1 to 40	0	integer	X	X
<i>Step 10 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	3044 r/w	121 10 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 10 Parameters</i> End Type Select what the controller will do when this profile ends.	3046 r/w	121 10 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 11 Menu							
<i>Step 11 Parameters</i> Step 11 Type Select a step type.	3070 r/w	121 11 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 11 Parameters</i> Target Set Point Select the set point for this step.	3072 r/w	121 11 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 11 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	3074 r/w	121 11 3 r/w	0 to 99	0	integer	X	X
<i>Step 11 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	3076 r/w	121 11 4 r/w	0 to 59	0	integer	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 11 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	3078 r/w	121 11 5 r/w	0 to 59	0	integer	X	X
<i>Step 11 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	3080 r/w	121 11 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<i>Step 11 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	3082 r/w	121 11 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 11 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	3084 r/w	121 11 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 11 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	3086 r/w	121 11 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 11 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	3088 r/w	121 11 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 11 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3098 r/w	121 11 15 r/w	1 or 2	1	integer	X	
<i>Step 11 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	3090 r/w	121 11 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 11 Parameters</i> Jump Step Select a step to jump to.	3092 r/w	121 11 12 r/w	1 to 40	0	integer	X	X
<i>Step 11 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	3094 r/w	121 11 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 11 Parameters</i> End Type Select what the controller will do when this profile ends.	3096 r/w	121 11 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 12 Menu							
<i>Step 12 Parameters</i> Step 12 Type Select a step type.	3120 r/w	121 12 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 12 Parameters</i> Target Set Point Select the set point for this step.	3122 r/w	121 12 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™
<i>Step 12 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	3124 r/w	121 12 3 r/w	0 to 99	0	integer	X	X	
<i>Step 12 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	3126 r/w	121 12 4 r/w	0 to 59	0	integer	X	X	
<i>Step 12 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	3128 r/w	121 12 5 r/w	0 to 59	0	integer	X	X	
<i>Step 12 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	3130 r/w	121 12 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X	
<i>Step 12 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	3132 r/w	121 12 7 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 12 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	3134 r/w	121 12 8 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 12 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	3136 r/w	121 12 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X	
<i>Step 12 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	3138 r/w	121 12 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X	
<i>Step 12 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3148 r/w	121 12 15 r/w	1 or 2	1	integer	X		
<i>Step 12 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	3140 r/w	121 12 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 12 Parameters</i> Jump Step Select a step to jump to.	3142 r/w	121 12 12 r/w	1 to 40	0	integer	X	X	
<i>Step 12 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	3144 r/w	121 12 13 r/w	0 to 9,999	0	integer	X	X	
<i>Step 12 Parameters</i> End Type Select what the controller will do when this profile ends.	3146 r/w	121 12 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X	
Step 13 Menu								
Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu. The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes. *Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.						Int.	PID	

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 13 Parameters</i> Step 13 Type Select a step type.	3170 r/w	121 13 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 13 Parameters</i> Target Set Point Select the set point for this step.	3172 r/w	121 13 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 13 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	3174 r/w	121 13 3 r/w	0 to 99	0	integer	X	X
<i>Step 13 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	3176 r/w	121 13 4 r/w	0 to 59	0	integer	X	X
<i>Step 13 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	3178 r/w	121 13 5 r/w	0 to 59	0	integer	X	X
<i>Step 13 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	3180 r/w	121 13 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<i>Step 13 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	3182 r/w	121 13 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 13 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	3184 r/w	121 13 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 13 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	3186 r/w	121 13 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 13 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	3188 r/w	121 13 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 13 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3198 r/w	121 13 15 r/w	1 or 2	1	integer	X	
<i>Step 13 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	3190 r/w	121 13 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 13 Parameters</i> Jump Step Select a step to jump to.	3192 r/w	121 13 12 r/w	1 to 40	0	integer	X	X
<i>Step 13 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	3194 r/w	121 13 13 r/w	0 to 9,999	0	integer	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 13 Parameters</i> End Type Select what the controller will do when this profile ends.	3196 r/w	121 13 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 14 Menu							
<i>Step 14 Parameters</i> Step 14 Type Select a step type.	3220 r/w	121 14 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 14 Parameters</i> Target Set Point Select the set point for this step.	3222 r/w	121 14 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 14 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	3224 r/w	121 14 3 r/w	0 to 99	0	integer	X	X
<i>Step 14 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	3226 r/w	121 14 4 r/w	0 to 59	0	integer	X	X
<i>Step 14 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	3228 r/w	121 14 5 r/w	0 to 59	0	integer	X	X
<i>Step 14 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	3230 r/w	121 14 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<i>Step 14 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	3232 r/w	121 14 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 14 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	3234 r/w	121 14 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 14 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	3236 r/w	121 14 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 14 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	3238 r/w	121 14 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 14 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3248 r/w	121 14 15 r/w	1 or 2	1	integer	X	
<i>Step 14 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	3240 r/w	121 14 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 14 Parameters</i> Jump Step Select a step to jump to.	3242 r/w	121 14 12 r/w	1 to 40	0	integer	X	X
<i>Step 14 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	3244 r/w	121 14 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 14 Parameters</i> End Type Select what the controller will do when this profile ends.	3246 r/w	121 14 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 15 Menu							
<i>Step 15 Parameters</i> Step 15 Type Select a step type.	3270 r/w	121 15 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 15 Parameters</i> Target Set Point Select the set point for this step.	3272 r/w	121 15 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 15 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	3274 r/w	121 15 3 r/w	0 to 99	0	integer	X	X
<i>Step 15 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	3276 r/w	121 15 4 r/w	0 to 59	0	integer	X	X
<i>Step 15 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	3278 r/w	121 15 5 r/w	0 to 59	0	integer	X	X
<i>Step 15 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	3280 r/w	121 15 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<i>Step 15 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	3282 r/w	121 15 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 15 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	3284 r/w	121 15 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 15 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	3286 r/w	121 15 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 15 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	3288 r/w	121 15 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values.</p> <p>The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM PID*
<i>Step 15 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3298 r/w	121 15 15 r/w	1 or 2	1	integer	X		
<i>Step 15 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	3290 r/w	121 15 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 15 Parameters</i> Jump Step Select a step to jump to.	3292 r/w	121 15 12 r/w	1 to 40	0	integer	X	X	
<i>Step 15 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	3294 r/w	121 15 13 r/w	0 to 9,999	0	integer	X	X	
<i>Step 15 Parameters</i> End Type Select what the controller will do when this profile ends.	3296 r/w	121 15 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X	
Step 16 Menu								
<i>Step 16 Parameters</i> Step 16 Type Select a step type.	3320 r/w	121 16 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X	
<i>Step 16 Parameters</i> Target Set Point Select the set point for this step.	3322 r/w	121 16 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 16 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	3324 r/w	121 16 3 r/w	0 to 99	0	integer	X	X	
<i>Step 16 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	3326 r/w	121 16 4 r/w	0 to 59	0	integer	X	X	
<i>Step 16 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	3328 r/w	121 16 5 r/w	0 to 59	0	integer	X	X	
<i>Step 16 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	3330 r/w	121 16 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X	
<i>Step 16 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	3332 r/w	121 16 7 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 16 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	3334 r/w	121 16 8 r/w	Off (62) On (63)	Off	integer	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 16 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	3336 r/w	121 16 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 16 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	3338 r/w	121 16 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 16 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3348 r/w	121 16 15 r/w	1 or 2	1	integer	X	
<i>Step 16 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	3340 r/w	121 16 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 16 Parameters</i> Jump Step Select a step to jump to.	3342 r/w	121 16 12 r/w	1 to 40	0	integer	X	X
<i>Step 16 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	3344 r/w	121 16 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 16 Parameters</i> End Type Select what the controller will do when this profile ends.	3346 r/w	121 16 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 17 Menu							
<i>Step 17 Parameters</i> Step 17 Type Select a step type.	3370 r/w	121 17 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 17 Parameters</i> Target Set Point Select the set point for this step.	3372 r/w	121 17 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 17 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	3374 r/w	121 17 3 r/w	0 to 99	0	integer	X	X
<i>Step 17 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	3376 r/w	121 17 4 r/w	0 to 59	0	integer	X	X
<i>Step 17 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	3378 r/w	121 17 5 r/w	0 to 59	0	integer	X	X
<i>Step 17 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	3380 r/w	121 17 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 17 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	3382 r/w	121 17 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 17 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	3384 r/w	121 17 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 17 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	3386 r/w	121 17 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 17 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	3388 r/w	121 17 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 17 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3398 r/w	121 17 15 r/w	1 or 2	1	integer	X	
<i>Step 17 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	3390 r/w	121 17 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 17 Parameters</i> Jump Step Select a step to jump to.	3392 r/w	121 17 12 r/w	1 to 40	0	integer	X	X
<i>Step 17 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	3394 r/w	121 17 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 17 Parameters</i> End Type Select what the controller will do when this profile ends.	3396 r/w	121 17 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 18 Menu							
<i>Step 18 Parameters</i> Step 18 Type Select a step type.	3420 r/w	121 18 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 18 Parameters</i> Target Set Point Select the set point for this step.	3422 r/w	121 18 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 18 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	3424 r/w	121 18 3 r/w	0 to 99	0	integer	X	X
<i>Step 18 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	3426 r/w	121 18 4 r/w	0 to 59	0	integer	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 18 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	3428 r/w	121 18 5 r/w	0 to 59	0	integer	X	X
<i>Step 18 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	3430 r/w	121 18 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<i>Step 18 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	3432 r/w	121 18 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 18 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	3434 r/w	121 18 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 18 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	3436 r/w	121 18 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 18 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	3438 r/w	121 18 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 18 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3448 r/w	121 18 15 r/w	1 or 2	1	integer	X	
<i>Step 18 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	3440 r/w	121 18 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 18 Parameters</i> Jump Step Select a step to jump to.	3442 r/w	121 18 12 r/w	1 to 40	0	integer	X	X
<i>Step 18 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	3444 r/w	121 18 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 18 Parameters</i> End Type Select what the controller will do when this profile ends.	3446 r/w	121 18 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 19 Menu							
<i>Step 19 Parameters</i> Step 19 Type Select a step type.	3470 r/w	121 19 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 19 Parameters</i> Target Set Point Select the set point for this step.	3472 r/w	121 19 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM
<i>Step 19 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	3474 r/w	121 19 3 r/w	0 to 99	0	integer	X	X	
<i>Step 19 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	3476 r/w	121 19 4 r/w	0 to 59	0	integer	X	X	
<i>Step 19 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	3478 r/w	121 19 5 r/w	0 to 59	0	integer	X	X	
<i>Step 19 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	3480 r/w	121 19 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X	
<i>Step 19 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	3482 r/w	121 19 7 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 19 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	3484 r/w	121 19 8 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 19 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	3486 r/w	121 19 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X	
<i>Step 19 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	3488 r/w	121 19 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X	
<i>Step 19 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3498 r/w	121 19 15 r/w	1 or 2	1	integer	X		
<i>Step 19 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	3490 r/w	121 19 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 19 Parameters</i> Jump Step Select a step to jump to.	3492 r/w	121 19 12 r/w	1 to 40	0	integer	X	X	
<i>Step 19 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	3494 r/w	121 19 13 r/w	0 to 9,999	0	integer	X	X	
<i>Step 19 Parameters</i> End Type Select what the controller will do when this profile ends.	3496 r/w	121 19 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X	
Step 20 Menu								
Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu. The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes. *Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.						Int.	PID	

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 20 Parameters</i> Step 20 Type Select a step type.	3520 r/w	121 20 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 20 Parameters</i> Target Set Point Select the set point for this step.	3522 r/w	121 20 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 20 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	3524 r/w	121 20 3 r/w	0 to 99	0	integer	X	X
<i>Step 20 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	3526 r/w	121 20 4 r/w	0 to 59	0	integer	X	X
<i>Step 20 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	3528 r/w	121 20 5 r/w	0 to 59	0	integer	X	X
<i>Step 20 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	3530 r/w	121 20 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<i>Step 20 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	3532 r/w	121 20 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 20 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	3534 r/w	121 20 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 20 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	3536 r/w	121 20 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 20 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	3538 r/w	121 20 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 20 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3548 r/w	121 20 15 r/w	1 or 2	1	integer	X	
<i>Step 20 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	3540 r/w	121 20 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 20 Parameters</i> Jump Step Select a step to jump to.	3542 r/w	121 20 12 r/w	1 to 40	0	integer	X	X
<i>Step 20 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	3544 r/w	121 20 13 r/w	0 to 9,999	0	integer	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™
<i>Step 20 Parameters</i> End Type Select what the controller will do when this profile ends.	3546 r/w	121 20 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X	
Step 21 Menu								
<i>Step 21 Parameters</i> Step 21 Type Select a step type.	3570 r/w	121 21 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X	
<i>Step 21 Parameters</i> Target Set Point Select the set point for this step.	3572 r/w	121 21 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 21 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	3574 r/w	121 21 3 r/w	0 to 99	0	integer	X	X	
<i>Step 21 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	3576 r/w	121 21 4 r/w	0 to 59	0	integer	X	X	
<i>Step 21 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	3578 r/w	121 21 5 r/w	0 to 59	0	integer	X	X	
<i>Step 21 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	3580 r/w	121 21 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X	
<i>Step 21 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	3582 r/w	121 21 7 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 21 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	3584 r/w	121 21 8 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 21 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	3586 r/w	121 21 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X	
<i>Step 21 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	3588 r/w	121 21 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X	
<i>Step 21 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3598 r/w	121 21 15 r/w	1 or 2	1	integer	X		
<i>Step 21 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	3590 r/w	121 21 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 21 Parameters</i> Jump Step Select a step to jump to.	3592 r/w	121 21 12 r/w	1 to 40	0	integer	X	X
<i>Step 21 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	3594 r/w	121 21 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 21 Parameters</i> End Type Select what the controller will do when this profile ends.	3596 r/w	121 21 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 22 Menu							
<i>Step 22 Parameters</i> Step 22 Type Select a step type.	3620 r/w	121 22 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 22 Parameters</i> Target Set Point Select the set point for this step.	3622 r/w	121 22 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 22 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	3624 r/w	121 22 3 r/w	0 to 99	0	integer	X	X
<i>Step 22 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	3626 r/w	121 22 4 r/w	0 to 59	0	integer	X	X
<i>Step 22 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	3628 r/w	121 22 5 r/w	0 to 59	0	integer	X	X
<i>Step 22 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	3630 r/w	121 22 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<i>Step 22 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	3632 r/w	121 22 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 22 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	3634 r/w	121 22 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 22 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	3636 r/w	121 22 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 22 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	3638 r/w	121 22 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™
<i>Step 22 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3648 r/w	121 22 15 r/w	1 or 2	1	integer	X		
<i>Step 22 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	3640 r/w	121 22 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 22 Parameters</i> Jump Step Select a step to jump to.	3642 r/w	121 22 12 r/w	1 to 40	0	integer	X	X	
<i>Step 22 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	3644 r/w	121 22 13 r/w	0 to 9,999	0	integer	X	X	
<i>Step 22 Parameters</i> End Type Select what the controller will do when this profile ends.	3646 r/w	121 22 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X	
Step 23 Menu								
<i>Step 23 Parameters</i> Step 23 Type Select a step type.	3670 r/w	121 23 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X	
<i>Step 23 Parameters</i> Target Set Point Select the set point for this step.	3672 r/w	121 23 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 23 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	3674 r/w	121 23 3 r/w	0 to 99	0	integer	X	X	
<i>Step 23 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	3676 r/w	121 23 4 r/w	0 to 59	0	integer	X	X	
<i>Step 23 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	3678 r/w	121 23 5 r/w	0 to 59	0	integer	X	X	
<i>Step 23 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	3680 r/w	121 23 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X	
<i>Step 23 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	3682 r/w	121 23 7 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 23 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	3684 r/w	121 23 8 r/w	Off (62) On (63)	Off	integer	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values.</p> <p>The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 23 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	3686 r/w	121 23 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 23 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	3688 r/w	121 23 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 23 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3698 r/w	121 23 15 r/w	1 or 2	1	integer	X	
<i>Step 23 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	3690 r/w	121 23 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 23 Parameters</i> Jump Step Select a step to jump to.	3692 r/w	121 23 12 r/w	1 to 40	0	integer	X	X
<i>Step 23 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	3694 r/w	121 23 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 23 Parameters</i> End Type Select what the controller will do when this profile ends.	3696 r/w	121 23 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 24 Menu							
<i>Step 24 Parameters</i> Step 24 Type Select a step type.	3720 r/w	121 24 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 24 Parameters</i> Target Set Point Select the set point for this step.	3722 r/w	121 24 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 24 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	3724 r/w	121 24 3 r/w	0 to 99	0	integer	X	X
<i>Step 24 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	3726 r/w	121 24 4 r/w	0 to 59	0	integer	X	X
<i>Step 24 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	3728 r/w	121 24 5 r/w	0 to 59	0	integer	X	X
<i>Step 24 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	3730 r/w	121 24 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 24 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	3732 r/w	121 24 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 24 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	3734 r/w	121 24 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 24 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	3736 r/w	121 24 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 24 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	3738 r/w	121 24 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 24 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3748 r/w	121 24 15 r/w	1 or 2	1	integer	X	
<i>Step 24 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	3740 r/w	121 24 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 24 Parameters</i> Jump Step Select a step to jump to.	3742 r/w	121 24 12 r/w	1 to 40	0	integer	X	X
<i>Step 24 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	3744 r/w	121 24 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 24 Parameters</i> End Type Select what the controller will do when this profile ends.	3746 r/w	121 24 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 25 Menu							
<i>Step 25 Parameters</i> Step 25 Type Select a step type.	3770 r/w	121 25 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 25 Parameters</i> Target Set Point Select the set point for this step.	3772 r/w	121 25 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 25 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	3774 r/w	121 25 3 r/w	0 to 99	0	integer	X	X
<i>Step 25 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	3776 r/w	121 25 4 r/w	0 to 59	0	integer	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™
<i>Step 25 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	3778 r/w	121 25 5 r/w	0 to 59	0	integer	X	X	X
<i>Step 25 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	3780 r/w	121 25 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X	X
<i>Step 25 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	3782 r/w	121 25 7 r/w	Off (62) On (63)	Off	integer	X	X	X
<i>Step 25 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	3784 r/w	121 25 8 r/w	Off (62) On (63)	Off	integer	X	X	X
<i>Step 25 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	3786 r/w	121 25 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X	X
<i>Step 25 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	3788 r/w	121 25 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X	X
<i>Step 25 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3798 r/w	121 25 15 r/w	1 or 2	1	integer	X		
<i>Step 25 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	3790 r/w	121 25 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	X
<i>Step 25 Parameters</i> Jump Step Select a step to jump to.	3792 r/w	121 25 12 r/w	1 to 40	0	integer	X	X	X
<i>Step 25 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	3794 r/w	121 25 13 r/w	0 to 9,999	0	integer	X	X	X
<i>Step 25 Parameters</i> End Type Select what the controller will do when this profile ends.	3796 r/w	121 25 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X	X
Step 26 Menu								
<i>Step 26 Parameters</i> Step 26 Type Select a step type.	3820 r/w	121 26 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X	X
<i>Step 26 Parameters</i> Target Set Point Select the set point for this step.	3822 r/w	121 26 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™
<i>Step 26 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	3824 r/w	121 26 3 r/w	0 to 99	0	integer	X	X	
<i>Step 26 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	3826 r/w	121 26 4 r/w	0 to 59	0	integer	X	X	
<i>Step 26 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	3828 r/w	121 26 5 r/w	0 to 59	0	integer	X	X	
<i>Step 26 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	3830 r/w	121 26 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X	
<i>Step 26 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	3832 r/w	121 26 7 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 26 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	3834 r/w	121 26 8 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 26 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	3836 r/w	121 26 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X	
<i>Step 26 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	3838 r/w	121 26 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X	
<i>Step 26 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3848 r/w	121 26 15 r/w	1 or 2	1	integer	X		
<i>Step 26 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	3840 r/w	121 26 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 26 Parameters</i> Jump Step Select a step to jump to.	3842 r/w	121 26 12 r/w	1 to 40	0	integer	X	X	
<i>Step 26 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	3844 r/w	121 26 13 r/w	0 to 9,999	0	integer	X	X	
<i>Step 26 Parameters</i> End Type Select what the controller will do when this profile ends.	3846 r/w	121 26 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X	
Step 27 Menu								
Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu. The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes. *Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.						Int.	PID	

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 27 Parameters</i> Step 27 Type Select a step type.	3870 r/w	121 27 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 27 Parameters</i> Target Set Point Select the set point for this step.	3872 r/w	121 27 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 27 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	3874 r/w	121 27 3 r/w	0 to 99	0	integer	X	X
<i>Step 27 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	3876 r/w	121 27 4 r/w	0 to 59	0	integer	X	X
<i>Step 27 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	3878 r/w	121 27 5 r/w	0 to 59	0	integer	X	X
<i>Step 27 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	3880 r/w	121 27 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<i>Step 27 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	3882 r/w	121 27 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 27 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	3884 r/w	121 27 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 27 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	3886 r/w	121 27 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 27 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	3888 r/w	121 27 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 27 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3898 r/w	121 27 15 r/w	1 or 2	1	integer	X	
<i>Step 27 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	3890 r/w	121 27 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 27 Parameters</i> Jump Step Select a step to jump to.	3892 r/w	121 27 12 r/w	1 to 40	0	integer	X	X
<i>Step 27 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	3894 r/w	121 27 13 r/w	0 to 9,999	0	integer	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 27 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3898 r/w	121 27 15 r/w	1 or 2	1	integer	X	
<i>Step 27 Parameters</i> End Type Select what the controller will do when this profile ends.	3896 r/w	121 27 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 28 Menu							
<i>Step 28 Parameters</i> Step 28 Type Select a step type.	3920 r/w	121 28 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 28 Parameters</i> Target Set Point Select the set point for this step.	3922 r/w	121 28 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 28 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	3924 r/w	121 28 3 r/w	0 to 99	0	integer	X	X
<i>Step 28 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	3926 r/w	121 28 4 r/w	0 to 59	0	integer	X	X
<i>Step 28 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	3928 r/w	121 28 5 r/w	0 to 59	0	integer	X	X
<i>Step 28 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	3930 r/w	121 28 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<i>Step 28 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	3932 r/w	121 28 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 28 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	3934 r/w	121 28 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 28 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	3936 r/w	121 28 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 28 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	3938 r/w	121 28 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 28 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3948 r/w	121 28 15 r/w	1 or 2	1	integer	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 28 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	3940 r/w	121 28 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 28 Parameters</i> Jump Step Select a step to jump to.	3942 r/w	121 28 12 r/w	1 to 40	0	integer	X	X
<i>Step 28 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	3944 r/w	121 28 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 28 Parameters</i> End Type Select what the controller will do when this profile ends.	3946 r/w	121 28 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 29 Menu							
<i>Step 29 Parameters</i> Step 29 Type Select a step type.	3970 r/w	121 29 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 29 Parameters</i> Target Set Point Select the set point for this step.	3972 r/w	121 29 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 29 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	3974 r/w	121 29 3 r/w	0 to 99	0	integer	X	X
<i>Step 29 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	3976 r/w	121 29 4 r/w	0 to 59	0	integer	X	X
<i>Step 29 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	3978 r/w	121 29 5 r/w	0 to 59	0	integer	X	X
<i>Step 29 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	3980 r/w	121 29 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<i>Step 29 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	3982 r/w	121 29 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 29 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	3984 r/w	121 29 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 29 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	3986 r/w	121 29 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™
<i>Step 29 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	3988 r/w	121 29 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X	
<i>Step 29 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	3998 r/w	121 29 15 r/w	1 or 2	1	integer	X		
<i>Step 29 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	3990 r/w	121 29 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 29 Parameters</i> Jump Step Select a step to jump to.	3992 r/w	121 29 12 r/w	1 to 40	0	integer	X	X	
<i>Step 29 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	3994 r/w	121 29 13 r/w	0 to 9,999	0	integer	X	X	
<i>Step 29 Parameters</i> End Type Select what the controller will do when this profile ends.	3996 r/w	121 29 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X	
Step 30 Menu								
<i>Step 30 Parameters</i> Step 30 Type Select a step type.	4020 r/w	121 30 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X	
<i>Step 30 Parameters</i> Target Set Point Select the set point for this step.	4022 r/w	121 30 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 30 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	4024 r/w	121 30 3 r/w	0 to 99	0	integer	X	X	
<i>Step 30 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	4026 r/w	121 30 4 r/w	0 to 59	0	integer	X	X	
<i>Step 30 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	4028 r/w	121 30 5 r/w	0 to 59	0	integer	X	X	
<i>Step 30 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	4030 r/w	121 30 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X	
<i>Step 30 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	4032 r/w	121 30 7 r/w	Off (62) On (63)	Off	integer	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 30 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	4034 r/w	121 30 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 30 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	4036 r/w	121 30 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 30 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	4038 r/w	121 30 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 30 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	4048 r/w	121 30 15 r/w	1 or 2	1	integer	X	
<i>Step 30 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	4040 r/w	121 30 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 30 Parameters</i> Jump Step Select a step to jump to.	4042 r/w	121 30 12 r/w	1 to 40	0	integer	X	X
<i>Step 30 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	4044 r/w	121 30 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 30 Parameters</i> End Type Select what the controller will do when this profile ends.	4046 r/w	121 30 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 31 Menu							
<i>Step 31 Parameters</i> Step 31 Type Select a step type.	4070	121 31 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 31 Parameters</i> Target Set Point Select the set point for this step.	4072 r/w	121 31 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 31 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	4074 r/w	121 31 3 r/w	0 to 99	0	integer	X	X
<i>Step 31 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	4076 r/w	121 31 4 r/w	0 to 59	0	integer	X	X
<i>Step 31 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	4078 r/w	121 31 5 r/w	0 to 59	0	integer	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™
<i>Step 31 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	4080 r/w	121 31 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X	
<i>Step 31 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	4082 r/w	121 31 7 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 31 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	4084 r/w	121 31 8 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 31 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	4086 r/w	121 31 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X	
<i>Step 31 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	4088 r/w	121 31 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X	
<i>Step 31 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	4098 r/w	121 31 15 r/w	1 or 2	1	integer	X		
<i>Step 31 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	4090 r/w	121 31 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 31 Parameters</i> Jump Step Select a step to jump to.	4092 r/w	121 31 12 r/w	1 to 40	0	integer	X	X	
<i>Step 31 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	4094 r/w	121 31 13 r/w	0 to 9,999	0	integer	X	X	
<i>Step 31 Parameters</i> End Type Select what the controller will do when this profile ends.	4096 r/w	121 31 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X	
Step 32 Menu								
<i>Step 32 Parameters</i> Step 32 Type Select a step type.	4120 r/w	121 32 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X	
<i>Step 32 Parameters</i> Target Set Point Select the set point for this step.	4122 r/w	121 32 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 32 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	4124 r/w	121 32 3 r/w	0 to 99	0	integer	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 32 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	4126 r/w	121 32 4 r/w	0 to 59	0	integer	X	X
<i>Step 32 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	4128 r/w	121 32 5 r/w	0 to 59	0	integer	X	X
<i>Step 32 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	4130 r/w	121 32 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<i>Step 32 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	4132 r/w	121 32 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 32 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	4134 r/w	121 32 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 32 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	4136 r/w	121 32 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 32 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	4138 r/w	121 32 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 32 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	4148 r/w	121 32 15 r/w	1 or 2	1	integer	X	
<i>Step 32 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	4140 r/w	121 32 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 32 Parameters</i> Jump Step Select a step to jump to.	4142 r/w	121 32 12 r/w	1 to 40	0	integer	X	X
<i>Step 32 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	4144 r/w	121 32 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 32 Parameters</i> End Type Select what the controller will do when this profile ends.	4146 r/w	121 32 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 33 Menu							
<i>Step 33 Parameters</i> Step 33 Type Select a step type.	4170 r/w	121 33 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™
<i>Step 33 Parameters</i> Target Set Point Select the set point for this step.	4172 r/w	121 33 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	X
<i>Step 33 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	4174 r/w	121 33 3 r/w	0 to 99	0	integer	X	X	X
<i>Step 33 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	4176 r/w	121 33 4 r/w	0 to 59	0	integer	X	X	X
<i>Step 33 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	4178 r/w	121 33 5 r/w	0 to 59	0	integer	X	X	X
<i>Step 33 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	4180 r/w	121 33 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X	X
<i>Step 33 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	4182 r/w	121 33 7 r/w	Off (62) On (63)	Off	integer	X	X	X
<i>Step 33 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	4184 r/w	121 33 8 r/w	Off (62) On (63)	Off	integer	X	X	X
<i>Step 33 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	4186 r/w	121 33 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X	X
<i>Step 33 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	4188 r/w	121 33 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X	X
<i>Step 33 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	4198 r/w	121 33 15 r/w	1 or 2	1	integer	X		
<i>Step 33 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	4190 r/w	121 33 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	X
<i>Step 33 Parameters</i> Jump Step Select a step to jump to.	4192 r/w	121 33 12 r/w	1 to 40	0	integer	X	X	X
<i>Step 33 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	4194 r/w	121 33 13 r/w	0 to 9,999	0	integer	X	X	X
<i>Step 33 Parameters</i> End Type Select what the controller will do when this profile ends.	4196 r/w	121 33 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X	X
Step 34 Menu								
Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.						Int.	PID	
The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.								
*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.								

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 34 Parameters</i> Step 34 Type Select a step type.	4220 r/w	121 34 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 34 Parameters</i> Target Set Point Select the set point for this step.	4222 r/w	121 34 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 34 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	4224 r/w	121 34 3 r/w	0 to 99	0	integer	X	X
<i>Step 34 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	4226 r/w	121 34 4 r/w	0 to 59	0	integer	X	X
<i>Step 34 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	4228 r/w	121 34 5 r/w	0 to 59	0	integer	X	X
<i>Step 34 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	4230 r/w	121 34 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<i>Step 34 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	4232 r/w	121 34 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 34 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	4234 r/w	121 34 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 34 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	4236 r/w	121 34 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 34 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	4238 r/w	121 34 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 34 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	4248 r/w	121 34 15 r/w	1 or 2	1	integer	X	
<i>Step 34 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	4240 r/w	121 34 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 34 Parameters</i> Jump Step Select a step to jump to.	4242 r/w	121 34 12 r/w	1 to 40	0	integer	X	X
<i>Step 34 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	4244 r/w	121 34 13 r/w	0 to 9,999	0	integer	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™
<i>Step 34 Parameters</i> End Type Select what the controller will do when this profile ends.	4246 r/w	121 34 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X	
Step 35 Menu								
<i>Step 35 Parameters</i> Step 35 Type Select a step type.	4270 r/w	121 35 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X	
<i>Step 35 Parameters</i> Target Set Point Select the set point for this step.	4272 r/w	121 35 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 35 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	4274 r/w	121 35 3 r/w	0 to 99	0	integer	X	X	
<i>Step 35 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	4276 r/w	121 35 4 r/w	0 to 59	0	integer	X	X	
<i>Step 35 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	4278 r/w	121 35 5 r/w	0 to 59	0	integer	X	X	
<i>Step 35 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	4280 r/w	121 35 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X	
<i>Step 35 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	4282 r/w	121 35 7 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 35 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	4284 r/w	121 35 8 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 35 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	4286 r/w	121 35 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X	
<i>Step 35 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	4288 r/w	121 35 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X	
<i>Step 35 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	4298 r/w	121 35 15 r/w	1 or 2	1	integer	X		
<i>Step 35 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	4290 r/w	121 35 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 35 Parameters</i> Jump Step Select a step to jump to.	4292 r/w	121 35 12 r/w	1 to 40	0	integer	X	X
<i>Step 35 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	4294 r/w	121 35 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 35 Parameters</i> End Type Select what the controller will do when this profile ends.	4296 r/w	121 35 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 36 Menu							
<i>Step 36 Parameters</i> Step 36 Type Select a step type.	4320 r/w	121 36 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 36 Parameters</i> Target Set Point Select the set point for this step.	4322 r/w	121 36 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 36 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	4324 r/w	121 36 3 r/w	0 to 99	0	integer	X	X
<i>Step 36 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	4326 r/w	121 36 4 r/w	0 to 59	0	integer	X	X
<i>Step 36 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	4328 r/w	121 36 5 r/w	0 to 59	0	integer	X	X
<i>Step 36 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	4330 r/w	121 36 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<i>Step 36 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	4332 r/w	121 36 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 36 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	4334 r/w	121 36 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 36 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	4336 r/w	121 36 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 36 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	4338 r/w	121 36 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values.</p> <p>The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™
<i>Step 36 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	4348 r/w	121 36 15 r/w	1 or 2	1	integer	X		
<i>Step 36 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	4340 r/w	121 36 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 36 Parameters</i> Jump Step Select a step to jump to.	4342 r/w	121 36 12 r/w	1 to 40	0	integer	X	X	
<i>Step 36 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	4344 r/w	121 36 13 r/w	0 to 9,999	0	integer	X	X	
<i>Step 36 Parameters</i> End Type Select what the controller will do when this profile ends.	4346 r/w	121 36 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X	
Step 37 Menu								
<i>Step 37 Parameters</i> Step 37 Type Select a step type.	4370 r/w	121 37 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X	
<i>Step 37 Parameters</i> Target Set Point Select the set point for this step.	4372 r/w	121 37 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 37 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	4374 r/w	121 37 3 r/w	0 to 99	0	integer	X	X	
<i>Step 37 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	4376 r/w	121 37 4 r/w	0 to 59	0	integer	X	X	
<i>Step 37 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	4378 r/w	121 37 5 r/w	0 to 59	0	integer	X	X	
<i>Step 37 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	4380 r/w	121 37 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X	
<i>Step 37 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	4382 r/w	121 37 7 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 37 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	4384 r/w	121 37 8 r/w	Off (62) On (63)	Off	integer	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values.</p> <p>The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit.</p> <p>NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 37 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	4386 r/w	121 37 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 37 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	4388 r/w	121 37 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 37 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	4398 r/w	121 37 15 r/w	1 or 2	1	integer	X	
<i>Step 37 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	4390 r/w	121 37 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 37 Parameters</i> Jump Step Select a step to jump to.	4392 r/w	121 37 12 r/w	1 to 40	0	integer	X	X
<i>Step 37 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	4394 r/w	121 37 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 37 Parameters</i> End Type Select what the controller will do when this profile ends.	4396 r/w	121 37 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 38 Menu							
<i>Step 38 Parameters</i> Step 38 Type Select a step type.	4420 r/w	121 38 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 38 Parameters</i> Target Set Point Select the set point for this step.	4422 r/w	121 38 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 38 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	4424 r/w	121 38 3 r/w	0 to 99	0	integer	X	X
<i>Step 38 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	4426 r/w	121 38 4 r/w	0 to 59	0	integer	X	X
<i>Step 38 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	4428 r/w	121 38 5 r/w	0 to 59	0	integer	X	X
<i>Step 38 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	4430 r/w	121 38 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 38 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	4432 r/w	121 38 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 38 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	4434 r/w	121 38 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 38 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	4436 r/w	121 38 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 38 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	4438 r/w	121 38 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 38 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	4448 r/w	121 38 15 r/w	1 or 2	1	integer	X	
<i>Step 38 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	4440 r/w	121 38 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 38 Parameters</i> Jump Step Select a step to jump to.	4442 r/w	121 38 12 r/w	1 to 40	0	integer	X	X
<i>Step 38 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	4444 r/w	121 38 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 38 Parameters</i> End Type Select what the controller will do when this profile ends.	4446 r/w	121 38 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 39 Menu							
<i>Step 39 Parameters</i> Step 39 Type Select a step type.	4470	121 39 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 39 Parameters</i> Target Set Point Select the set point for this step.	4472 r/w	121 39 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 39 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	4474 r/w	121 39 3 r/w	0 to 99	0	integer	X	X
<i>Step 39 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	4476 r/w	121 39 4 r/w	0 to 59	0	integer	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*
<i>Step 39 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	4478 r/w	121 39 5 r/w	0 to 59	0	integer	X	X
<i>Step 39 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	4480 r/w	121 39 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X
<i>Step 39 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	4482 r/w	121 39 7 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 39 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	4484 r/w	121 39 8 r/w	Off (62) On (63)	Off	integer	X	X
<i>Step 39 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	4486 r/w	121 39 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 39 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	4488 r/w	121 39 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X
<i>Step 39 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	4498 r/w	121 39 15 r/w	1 or 2	1	integer	X	
<i>Step 39 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	4490 r/w	121 39 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<i>Step 39 Parameters</i> Jump Step Select a step to jump to.	4492 r/w	121 39 12 r/w	1 to 40	0	integer	X	X
<i>Step 39 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	4494 r/w	121 39 13 r/w	0 to 9,999	0	integer	X	X
<i>Step 39 Parameters</i> End Type Select what the controller will do when this profile ends.	4496 r/w	121 39 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X
Step 40 Menu							
<i>Step 40 Parameters</i> Step 40 Type Select a step type.	4520 r/w	121 40 1 r/w	Unused Step (50) Time (143) Rate (1120) Soak (87) Wait For Event (144) Wait For Process (209) Wait For Both (210) Jump Loop (116) End (27)	Unused	integer	X	X
<i>Step 40 Parameters</i> Target Set Point Select the set point for this step.	4522 r/w	121 40 2 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™
<i>Step 40 Parameters</i> Hours Select the hours (plus Minutes and Seconds) for a timed step.	4524 r/w	121 40 3 r/w	0 to 99	0	integer	X	X	
<i>Step 40 Parameters</i> Minutes Select the minutes (plus Hours and Seconds) for a timed step.	4526 r/w	121 40 4 r/w	0 to 59	0	integer	X	X	
<i>Step 40 Parameters</i> Seconds Select the seconds (plus Hours and Minutes) for a timed step.	4528 r/w	121 40 5 r/w	0 to 59	0	integer	X	X	
<i>Step 40 Parameters</i> Rate Select the rate for ramping in degrees or units per minute.	4530 r/w	121 40 6 r/w	0 to 9,999.000°F or units per minute 0 to 5,555.000°C	0.0	floating point	X	X	
<i>Step 40 Parameters</i> Event Output 1 Select whether Event Output 1 is on or off during this step.	4532 r/w	121 40 7 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 40 Parameters</i> Event Output 2 Select whether Event Output 2 is on or off during this step.	4534 r/w	121 40 8 r/w	Off (62) On (63)	Off	integer	X	X	
<i>Step 40 Parameters</i> Wait Event 1 Select the event state that must be satisfied during this step. Digital input 5 provides the state of this event.	4536 r/w	121 40 9 r/w	Off (62) On (63) None (61)	Off	integer	X	X	
<i>Step 40 Parameters</i> Wait Event 2 Select the event state that must be satisfied during this step. Digital input 6 provides the state of this event.	4538 r/w	121 40 10 r/w	Off (62) On (63) None (61)	Off	integer	X	X	
<i>Step 40 Parameters</i> Wait For Process Instance Select which analog input Wait For Process will use.	4548 r/w	121 40 15 r/w	1 or 2	1	integer	X		
<i>Step 40 Parameters</i> Wait For Process Value The step will wait until the process value is equal to the Wait-for Process Value. Once the Wait For Process is satisfied, this step ends.	4540 r/w	121 40 11 r/w	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18.0°C	floating point	X	X	
<i>Step 40 Parameters</i> Jump Step Select a step to jump to.	4542 r/w	121 40 12 r/w	1 to 40	0	integer	X	X	
<i>Step 40 Parameters</i> Jump Count Set the number of jumps. A value of 0 creates an infinite loop. Loops can be nested four deep.	4544 r/w	121 40 13 r/w	0 to 9,999	0	integer	X	X	
<i>Step 40 Parameters</i> End Type Select what the controller will do when this profile ends.	4546 r/w	121 40 14 r/w	Control Mode set to Off (62) Hold last closed-loop set point in the profile (47) User, reverts to previous set point (100)	User	integer	X	X	
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	

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Chapter 9: Factory Page

Parameter name Description	Modbus (less 40,001 offset) read/write	CIP class instance attribute	Range	Default	Data Type	EZ-ZONE™ PM Int.*	EZ-ZONE™ PM PID*	EZ-ZONE™ PM Lmt.*
Diagnostics Menu								
<i>Diagnostics Menu</i> Hardware ID Display the hardware ID number.	0 r	101 1 1 r	ASCII character string		floating point	X	X	X
<i>Diagnostics Menu</i> Firmware ID Display the controller's custom firm- ware revision number.	2 r	101 1 2 r	ASCII character string		floating point	X	X	X
<i>Diagnostics Menu</i> Software Revision Display this controller's firmware revi- sion number.	4 r	101 1 3 r	ASCII character string		floating point	X	X	X
<i>Diagnostics Menu</i> Software Build Display the firmware build number.	6 r	101 1 4 r	ASCII character string		floating point	X	X	X
<i>Diagnostics Menu</i> User Restore Set Replace all of this controller's settings with another set.	24 r/w	101 1 13 r/w	None (61) User Set 1 (101) User Set 2 (102) Factory Default (33)	None	integer	X	X	X
<i>Diagnostics Menu</i> User Save Set Save all of this controller's settings to the selected set.	26 r/w	101 1 14 r/w	None (61) User Set 1 (101) User Set 2 (102)	None	integer	X	X	X
<i>Diagnostics Menu</i> Device Status Displays "Fail" if the controller sub- system has failed and the controller requires repair.	30 r	101 1 16 r	OK (138) Fail (32)	OK	integer	X	X	X
<p>Integers are unsigned, 16-bit values. Floating point values are IEEE 754 32-bit floating point values. The default Modbus order is Low Word-High Word. The order can be changed in the Communications Menu.</p> <p>The default serial data format is: 9,600 baud; 8 data bits; no parity; 1 stop bit. NOTE: Avoid continuous writes within loops. Excessive writes to the EEPROM will cause premature EEPROM failure. The EEPROM is rated for 1,000,000 writes.</p> <p>*Some of the parameters are not functional in some configurations of each model. Check the user's manual for information.</p>						Int.	PID	Lmt.

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