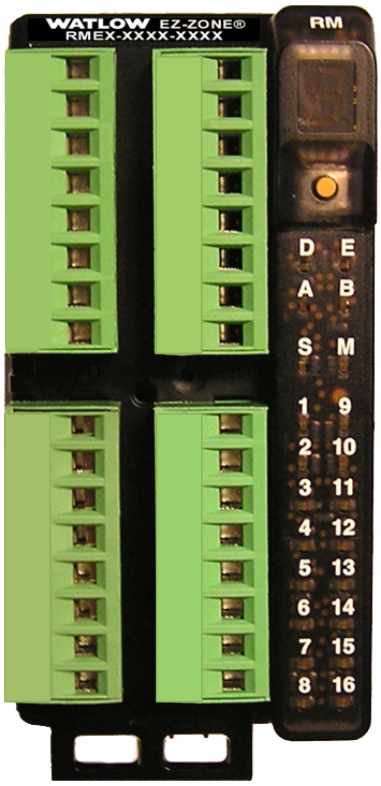
EZ-ZONE® RME (Expansion) Module

User's Guide



Expansion Module

WATLOW®
Powered by Possibility

TOTAL CUSTOMER SATISFACTION
3 Year Warranty

ISO 9001
Registered Company
Winona, Minnesota USA

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0600-0073-0000 Rev. E

Made in the U.S.A.

March 2016

Safety Information

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. Further explanations follow:

Symbol	Explanation
	CAUTION – Warning or Hazard that needs further explanation than label on unit can provide. Consult User's Guide for further information.
	ESD Sensitive product, use proper grounding and handling techniques when installing or servicing product.
	Unit protected by double/reinforced insulation for shock hazard prevention.
	Do not throw in trash, use proper recycling techniques or consult manufacturer for proper disposal.
	Enclosure made of Poly carbonate material. Use proper recycling techniques or consult manufacturer for proper disposal.
	Unit can be powered with either alternating current (ac) voltage or direct current (dc) voltage.
	Unit is a Listed device per Underwriters Laboratories®. It has been evaluated to United States and Canadian requirements for Process Control Equipment. UL 61010 and CSA C22.2 No. 61010. File E185611 QUYX, QUYX7. See: www.ul.com
	Unit is a Listed device per Underwriters Laboratories®. It has been evaluated to United States and Canadian requirements for Hazardous Locations Class 1 Division II Groups A, B, C and D. ANSI/ISA 12.12.01-2007. File E184390 QUZW, QUZW7. See: www.ul.com

CE	Unit is compliant with European Union directives. See Declaration of Conformity for further details on Directives and Standards used for Compliance.
FM APPROVED	Unit has been reviewed and approved by Factory Mutual as a Temperature Limit Device per FM Class 3545 standard. See: www.fmglobal.com
CSA	Unit has been reviewed and approved by CSA International for use as Temperature Indicating-Regulating Equipment per CSA C22.2 No. 24. See: www.csa-international.org

Warranty

The EZ-ZONE® RME (Expansion) module 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. Watlows' obligations hereunder, at Watlows' 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 RME module, 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 for an Applications Engineer. Please have the following information available when calling:

- Complete model number
- All configuration information
- User's Guide
- Factory Page

Return Material Authorization

1. Call Watlow Customer Service, (507) 454-5300, for a Return Material Authorization number before returning any item for repair. If you do not know why the product failed, contact an Application Engineer or Product Manager. All Return Material Authorization’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 a Return Material Authorization 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 misuse, 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 RM modules and accessories.
6. If the unit cannot be repaired, 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.

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

TC Table Contents

TC

Table of Contents (cont.)

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Table of Contents (cont.)

1 Chapter 1: Overview

Available EZ-ZONE RM System Literature and Resources

Document Title and Part Number	Description
EZ-ZONE Rail Mount Access (RMA) User's Guide, part number: 0600-0072-0000	Describes how to connect the RM system into an industrial network, how to use data logging, module backup and the real-time clock.
EZ-ZONE Rail Mount Controller (RMC) User's Guide, part number: 0600-0070-0000	The RMC module is an advanced integrated controller capable of PID and limit control. This document describes how to configure and program all loops of control and communications.
EZ-ZONE Rail Mount High Density (RMH) User's Guide, part number: 0600-0074-0000	This module extends the density of the standard RM modules (number of control loops and I/O points). The User Guide describes common usage, communications and the number I/O points available.
EZ-ZONE Rail Mount Scanner (RMS) User's Guide, part number: 0600-0071-0000	This module adds monitoring points to the RM system. This document describes common usage and the various types of I/O available.
EZ-ZONE Rail Mount Limit (RML) User's Guide, part number: 0600-0075-0000	This module will protect against unwanted thermal runaway and over temperature conditions. The User Guide describes configuration, programming and communications capabilities.
EZ-ZONE Remote User Interface (RUI) User's Guide, part number: 0600-0060-0000	The RUI provides a visual LED display to the RM configuration and setup menus. This document illustrates and describes connections and also describes the Home Page for each RM module as viewed from the RUI.
EZ-ZONE RM Specification Sheet, part number: WIN-EZRM-0414	Describes RM hardware options, features, benefits and technical specifications.
Watlow Support Tools DVD, part number: 0601-0001-0000	Contains all related user documents, tutorial videos, application notes, utility tools, etc...

The DVD described above ships with the product and as stated contains all of the literature above as well as much more. If the DVD is not available one can be acquired by contacting Watlow Customer Service at 1-507-454-5300.

As an alternative to the DVD, all of the user documentation described above can also be found on the Watlow website. Click on the following link to find your document of choice: http://www.watlow.com/literature/index.cfm. Once there, simply type in the desired part number (or name) into the search box and download free copies.

Your Comments are Appreciated

In an effort to continually improve our technical literature and ensure that we are providing information that is useful to you, we would very much appreciate your comments and suggestions. Please send any comments you may have to the following e-mail address: TechlitComments@watlow.com

Introduction

The EZ-ZONE® Rail Mount Expansion module (RME) takes the pain out of adding I/O points to your RM system architecture.

It just got a whole lot easier to solve the thermal requirements of your system. The RME module is provided in a space-saving, rail-mount package and is highly scalable where you only pay for what you need. For those applications that require the ability to configure/ monitor the control over a network, other communications protocols are also available (e.g., EtherNet/IP, DeviceNet, Modbus TCP and Profibus DP) when used in conjunction with an RM Access (RMA) module or when using a Remote User Interface/ Gateway (RUI/GTW).

Standard Features and Benefits

- Provides two mounting options (DIN rail, chassis mount)
- Reduces wiring time and termination complexity compared to connecting discrete products
- Reduces panel space and installation cost

Integrated Power Controller Output

- Provides an optional dual Solid-State Relay (SSR) outputs, which can drive up to 10 amps into resistive loads. Terminals for the ring lug connection is optional
- Reduces component count and cost of ownership
- Saves panel space and simplifies wiring

Communication Capabilities

- Supports network connectivity to a PC or PLC
- Watlow Standard Bus or Modbus® RTU
- Provides plug and play capabilities with Remote User Interface (RUI's) and RMA module
- Free standard bus communications port and free PC software EZ-ZONE Configurator and Composer

Additional Control Integration Options

- Provides a sequencer function
- Includes programmable timer functions
- Includes programmable counter functions
- Allows for simple math and logic programming options

Integrated Thermal Loop Diagnostics

- Users can easily tell that the entire thermal system is functioning properly
- Provides complete system diagnostics that are far superior to simple discrete level diagnostics
- Helps prevent load loss or allow for maintenance to be scheduled when more convenient.
- Provides notification of system problems to help reduce maintenance and service costs

Off-the-Shelf Designed System Solution

- Improves system reliability with a factory integrated solution that minimizes inter-module connections and potential problems at screw termination points.
- Reduces installation cost
- Eliminates compatibility headaches often encountered with using many different components and brands

RME Handles High Ambient Temperatures

- Operates in an unprecedented temperature range of -18 to 65°C (0 to 149°F) for cabinets and panel enclosures with elevated temperature levels

Optional Access Module Available

- Serves as a configuration station
- Provides communication capabilities between the other modules and the PC or PLC
- Stores corresponding module parameter settings for easy auto-configuration of other additional modules or replacement modules
- Serves as a configuration station, which programs initial module setup or automatic programming of modules if swapping out after initial installation
- Provides a USB port for uploading and downloading data log files directly to a PC
- Saves time and increases reliability of parameter setting
- Logs process data

Memory for Saving and Restoring User-Defined Parameter Default Settings

- Allows customers to save and restore their own defined defaults for machine parameter settings
- Reduces service calls and downtime due to inadvertent end user parameter adjustments

RM Modules Allow for Greater Design Flexibility

- Saves money because you do not pay for any more than you need and don't settle for any less functionality than you need

Synergistic Module Control (SMC)

- Allows outputs selected for control (heat/cool), alarms or events to be located in any physical module, regardless of which module is connected to the input sensor

Split-Rail Control (SRC)

- Allows modules to be mounted together or mounted remotely from one another
- Shares control operation via Synergistic Module Control (SMC) capability
- Allows individual modules to be mounted closer to the physical input and output devices to which they are wired
- Improves system reliability and lowers wiring costs

Agency Certifications: UL® listed, CE, RoHS, W.E.E.E. SEMI F47-0200, Class 1 Div. 2 Rating on Selected Models

- Assures prompt product acceptance
- Reduces panel builder's documentation and agency costs

Removable Connectors

- Assures reliable wiring and reduces service calls
- Simplifies installation
- Provides a terminal option for accepting ring lug connection

Three-Year Warranty

- Demonstrates Watlow’s reliability and product support

A Conceptual View of the RM System

The flexibility of the RM system software and hardware allows for a large range of configurations. Focusing on the RME module, acquiring a better understanding of its overall functionality and capabilities while at the same time planning out how this module can be used will deliver maximum effectiveness in your application.

The RM system at a high level can have a total of 17 modules installed, one of which can be an Access module and the others (16 maximum) can be any combination of available RM modules. Each installed RM module must have a unique Standard Bus address ranging from 1-9, A-F, H (10 -16). The Access module will be delivered with a default Standard Bus address of 17 (J). If not using the default zone address the user will need to define each zone address via the button on the face of each module.

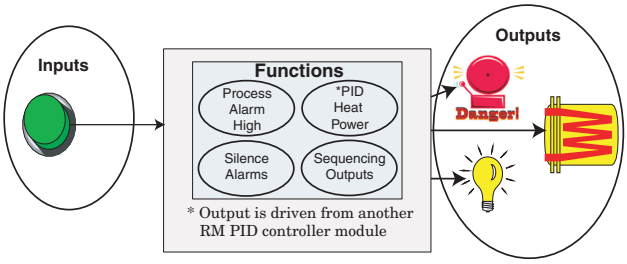
The RME can be considered an accessory RM module in that by itself it has no PID control loops. However, used in conjunction with an RM Controller (RMC) or RM High Density (RMH) module the RME provides increased I/O capabilities. Outputs of the RME can be used to drive output loads of various kinds. For instance, an RME module could be placed in a remote location (up to 200 feet away) from a PID controller such as an RMC or RMH to drive a heater. Some of the user selectable ordering options are listed below:

1. Class 2 or SELV (Saftey Extra Low Voltage) equivalent Power Supplies:
    - 90-264 Vac to 24Vdc @ 31 watts
    - 90-264 Vac to 24Vdc @ 60 watts
    - 90-264 Vac to 24Vdc @ 91 watts
2. RM Expansion Module can provide:
    - 1 to 24 Digital Inputs/Outputs (I/O)
    - 4 to 12 Form A Mechanical Relays
    - 2 to 4 Form A 10A Solid-State Relays
    - 16 inputs for external Current Transformers (CT)

When using this module, either as a stand-alone module or used in conjunction with any other RM module it is useful to remember that each process needs to be thought out carefully and the controller's inputs, functions and outputs configured properly.

Note:

Zones can communicate with one another over the backplane (local and split rail). Once the system is configured and running changing zone addresses without careful deliberation may cause disruption in operation.



What is an Instance?

The RM system can have many I/O points, in some cases, as described above, I/O can be placed in remote locations. For example, an RME module can have 24 digital I/O where each would be numbered from 1 to 24 and each would be considered a unique instance. They are named Digital I/O 1, 2, 3, etc... These instance numbers are then used when you link inputs, functions and outputs within a module or when linked to other modules. For example, when configuring an RME output for heat the control loop instance (1, 2, 3 or 4) and zone (1 to 24) to drive the output must be defined.

Functions

Functions, in simple terms, use input signals (real-world or internal), to calculate a value and deliver an output. A function may be as simple as configuring the function of the digital output, e.g., alarm, heat, etc..., or defining a set point for an alarm state to turn on or off.

To set up a function, one of the first things that must be considered is the function source and instance. For example, if the control is equipped with Digital Inputs (source) and it was decided to use DI 9 (instance) it can then be associated with an Action to reset an individual alarm or all alarms.

To configure a Digital Input as described above:

1. Navigate to the Setup Page and then to the Digital I/O menu.
2. Select the desired instance and set the direction to input voltage or input dry contact.
3. Navigate to the Setup Page and then the Action menu.
4. Set the Action Function to Alarm
5. Select which alarm instance will be reset (0 equals all)
6. Select the Source Function to Digital I/O
7. Select the Source Instance (step 2 above)
8. Select the Source Zone (0 equals the module being configured).
9. Select the Active Level to execute the desired function.

When the selected digital input is active the alarm or all alarms that are latched without a currently existing alarm condition will be reset. If a specific alarm instance (1 - 8) is selected (step 5 above), it will be that instance alone that will be reset.

Note:

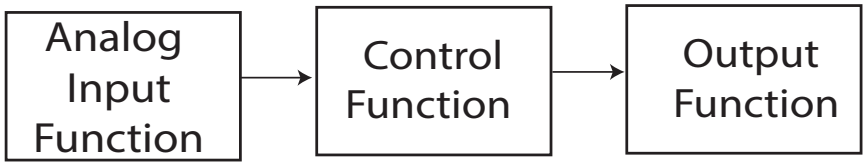
Alarms will reset automatically when the condition that caused the alarm goes back to a non-alarm state if the alarm latching prompt is set to non-latching (Setup Page, Alarm Menu).

Keep in mind that a function is a user-programmed internal process that does not execute any action outside of the controller. To have any affect outside of the controller, an output must be configured to respond to a function.

Some functions have a hardware input for which the source/s are preset and cannot be changed. As an example, CT 1 source function comes not surprisingly, from the CT attached to it. Most functions can accept more than one input and it would not be uncommon to see the output of one function (internal) serve as an input to another, as would be the case with a compare function. The source parameters for the first input to a function are called Source Function A, Source Instance A and Source Zone A and the second input, Source Function B, Source Instance B and Source Zone B and so on.

Inputs

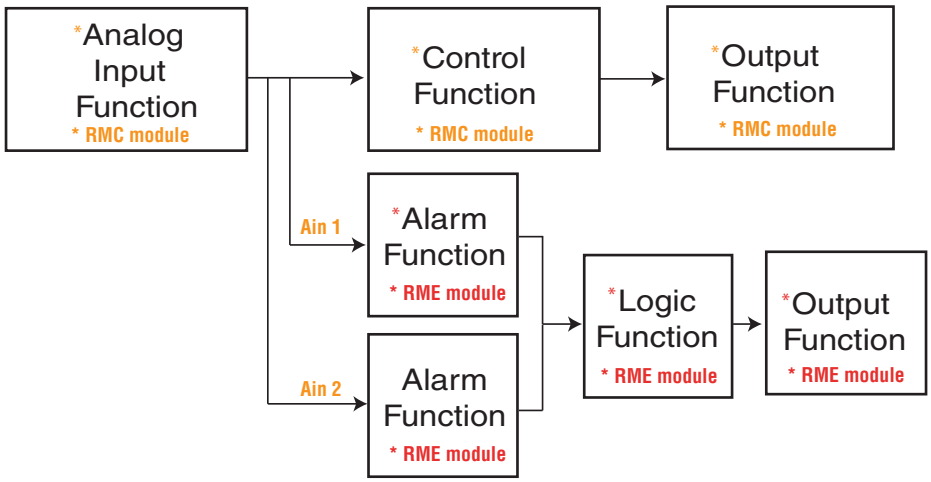
The inputs provide the information that any given programmed function can act upon. This information may come from an operator pushing a button, or as part of a more complex function it may represent one of ten inputs used for the Linearization function.
Each digital input reads whether a device is active or inactive. An RME module can be equipped with up to 24 digital inputs, where the RM system can have many more. Each digital I/O point must be configured to function as an input or an output with the direction parameter in the digital I/O Menu (Setup Page). Another concept that needs to be understood is the difference between an input tied to a real-world device such as a CT and one that is tied to an internal function.



In the example above one can see the Current function on the left which is connected to a real-world input device (CT) where on the far right the internal output of the Alarm function is tied to the input of the Output function where a real-world output device is then driven such as a siren or a flashing light. With a slight modification of the graphic above the example below now ties the real-world analog inputs from an RMC module directly to its PID control. The RME module is using the same analog input to drive an alarm function. For the sake of this example the following is true:

- Within the RME two unique high process alarms are configured for analog inputs 1 and 2 of the RMC module
- The logic block (within the RME module) is configured as an OR function
- The RME output function is tied to the internal output of the logical OR function

When either process alarm is true (analog input value is greater than the alarm high set point, the real-world output connected to the RME will be driven on.



Outputs

Outputs can perform various functions or actions in response to information provided by a function, such as a digital output to turn a light on or off, unlocking a door; or turning on a buzzer.

Assign a function to an output in the Output Menu or Digital Output Menu of the Setup Page. Then select which instance of that function will drive the selected output. For example, you might assign an output to respond to an internal output of a compare function.

You can assign more than one output to respond to a single instance of a function, e.g., alarm 2 could be used to trigger a light connected to output 1 and a siren connected to digital output 5.

Actions

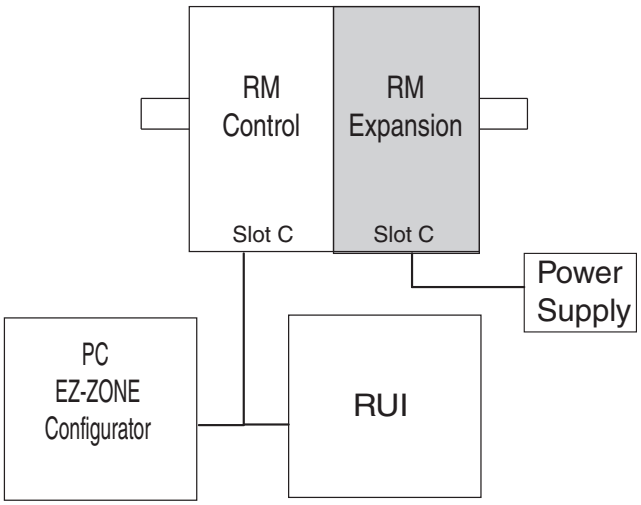
Based on a given input (Digital I/O, Logic function, etc..) the Action function can cause other functions to occur. To name a few, silencing alarms, turn control loops off and placing alarms in non-alarm state.

A Conceptual View of RM Hardware Configurations

Due to the scalability and flexibility in the system components a user has several options available in the way that the hardware can be connected. Listed below are a few examples.

RM System Connected to a Remote User Interface (RUI) and a PC

In this configuration the RUI and PC are connected to the RM system via Watlow's Standard Bus where both will be able to talk directly to any interconnected system module.

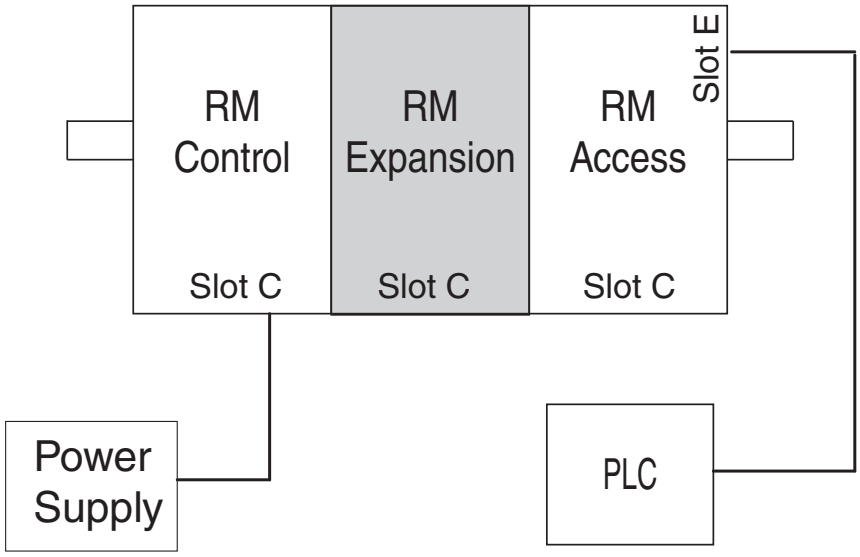


The PC running EZ-ZONE Configurator software and the RUI can be used to configure and then monitor both modules.

RM System Connected to a Programmable Logic Controller (PLC) on a DIN Rail

In this configuration the PLC can be connected to the RM system via the Access module using one or more available protocols:

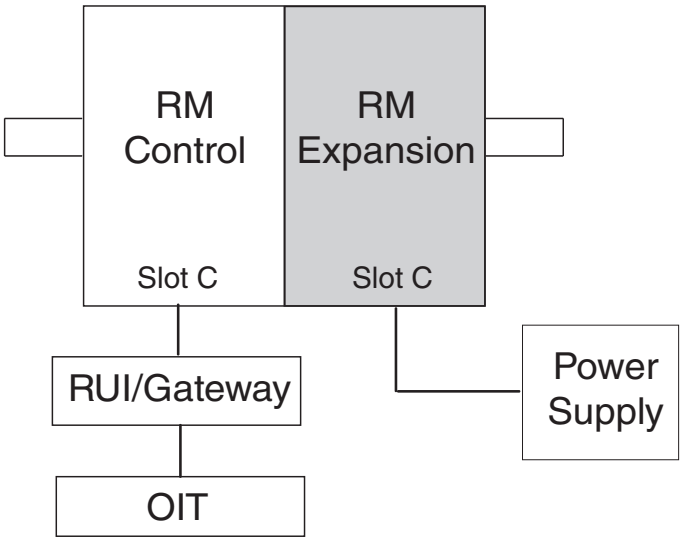
1. EtherNet/IP and or Modbus TCP
2. DeviceNet
3. Modbus RTU
4. Profibus DP



RM System Connected to an Operator Interface Terminal (OIT) through an RUI/Gateway

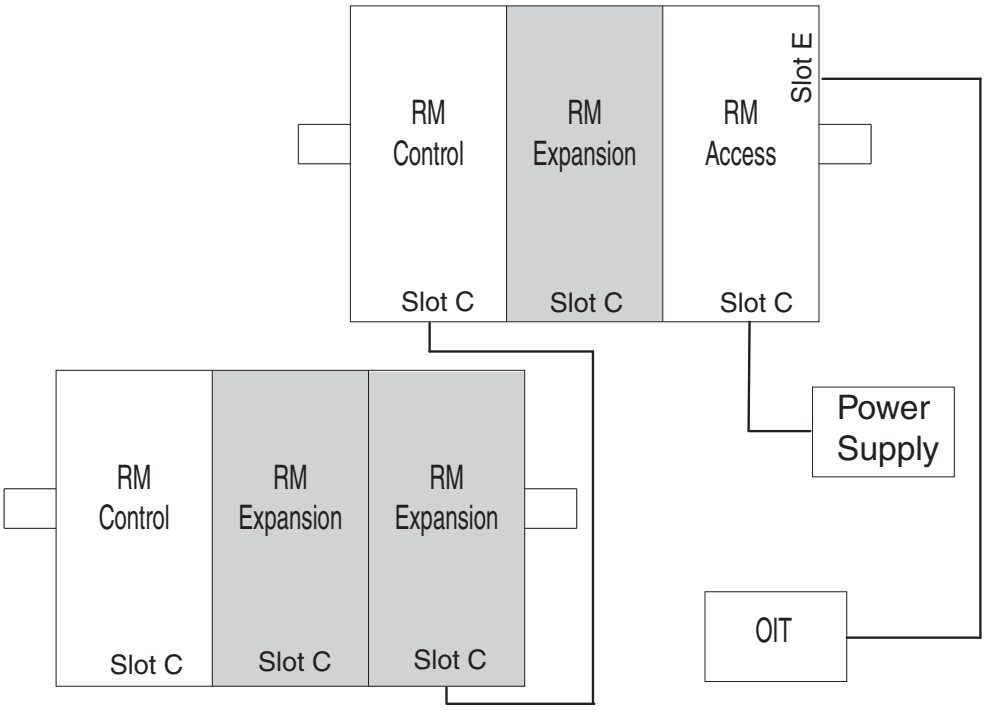
In this configuration the HMI can be running any of a number of protocols communicating to the RM system through Watlow's RUI/Gateway. Available protocols for the RUI/Gateway follow:

1. EtherNet/IP and or Modbus TCP
2. DeviceNet
3. Modbus RTU
4. Profibus DP



RM System Connected to a Split Rail with OIT

In this configuration both the Inter-module Bus (backplane communications) and Standard Bus are connected between rails to allow for remote capabilities. It is recommended that the split rail connection not exceed 200 feet. In this configuration the OIT can communicate with all modules (maximum 16 modules any combination with one Access module).



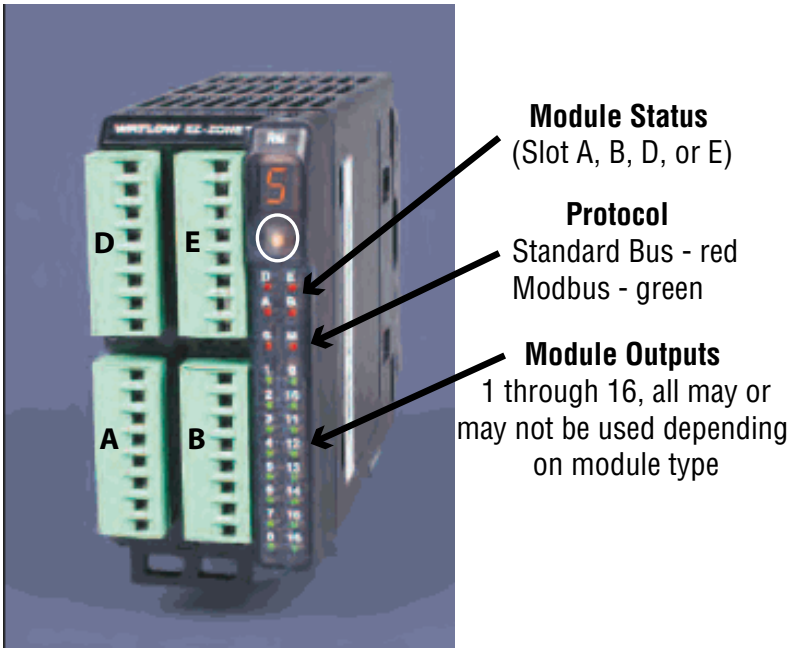
Module Orientation

The picture below represents one of six possible RM modules. All six will have four slots on the face (slot A, B, D, and E) and one on the bottom (slot C) not shown. All of these slots are not always used on all modules. On the face of the module there is a button (white circle) under the Zone address (5) that when pushed and held has the following functions:

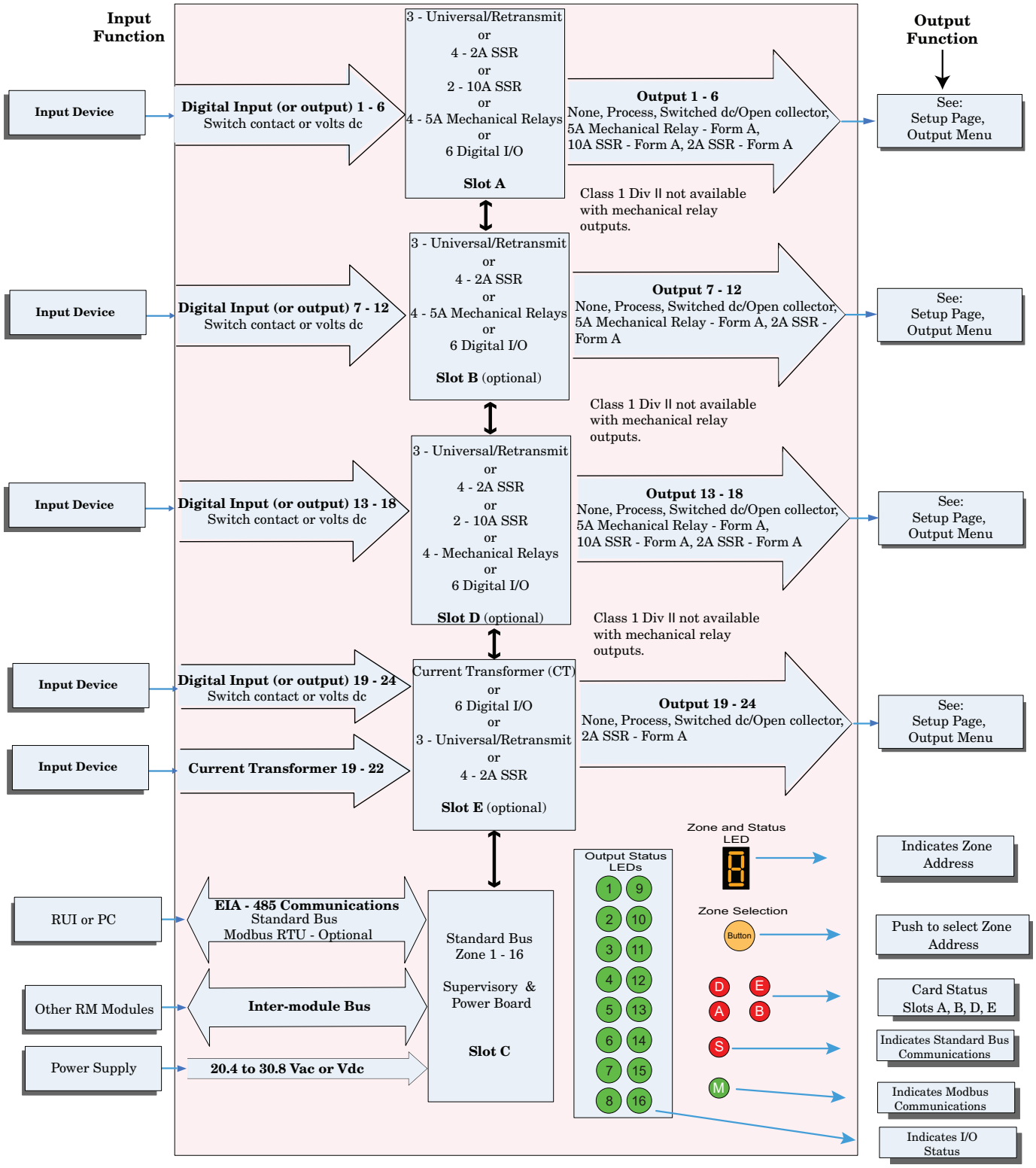
1. For any module, push and hold for ~ 2 seconds. The address will intensify indicating that it can now be changed. Release and repeatedly press to change to the desired unique address. Valid addresses over Standard Bus range from 1 -16 (1 - 9, A is 10, B is 11, C is 12, d is 13, E is 14, F is 15, and h is 16). The Access module is shipped at address J or 17

Note:

For correct operation and accuracy, the module must be mounted in a vertical orientation as shown.



EZ-ZONE RM-Expansion Module - System Diagram with up to 24 Inputs/Outputs



2 Chapter 2: Install and Wire

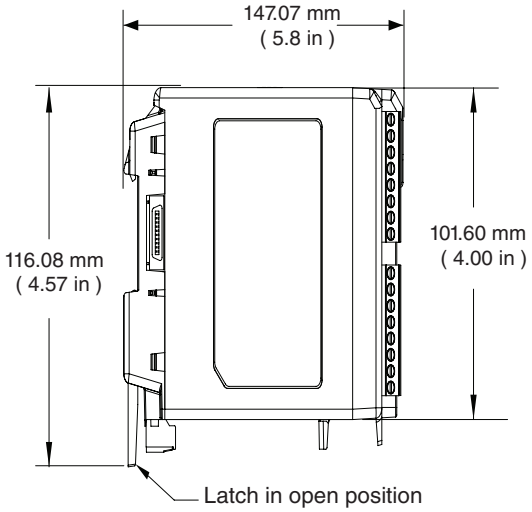
Dimensions

As can be seen below the dimensions of the RME module will change slightly based on the type of connector used.

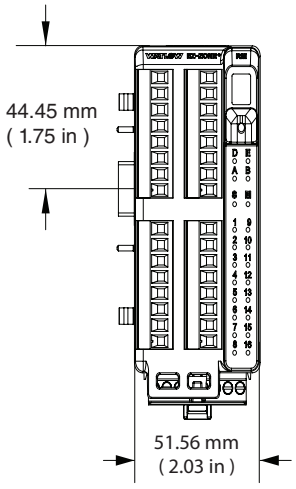
Note:

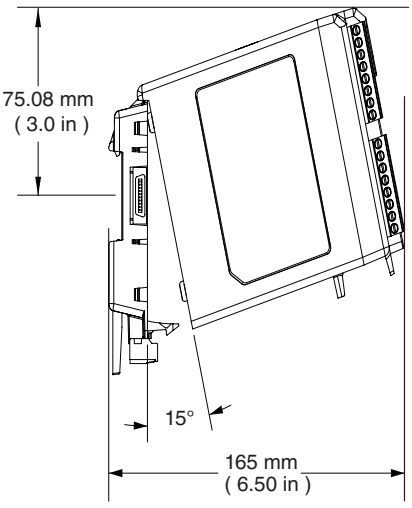
Modules should always be mounted vertically. For easy removal and placement of modules it is recommended that there be a 76.2 mm (3.00 in) clearance on the top, bottom and front of each module.

Module Removal Clearance



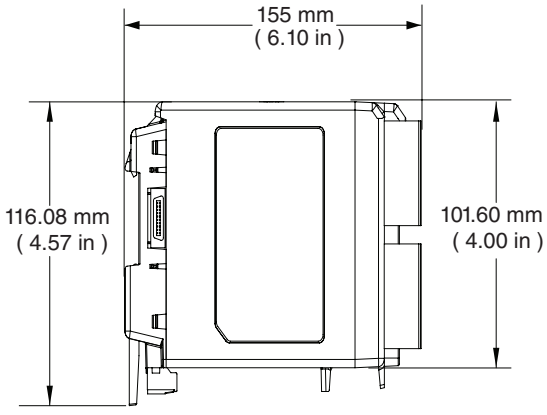
Standard Connectors



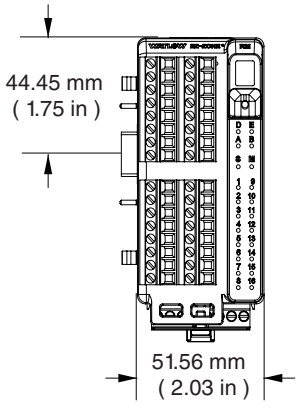


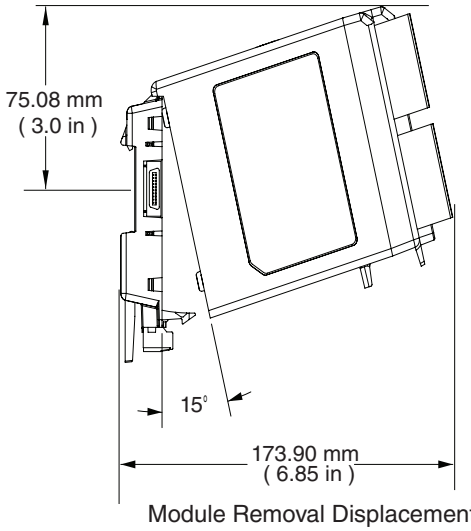
Module Removal Displacement

Module Removal Clearance



Straight Connectors

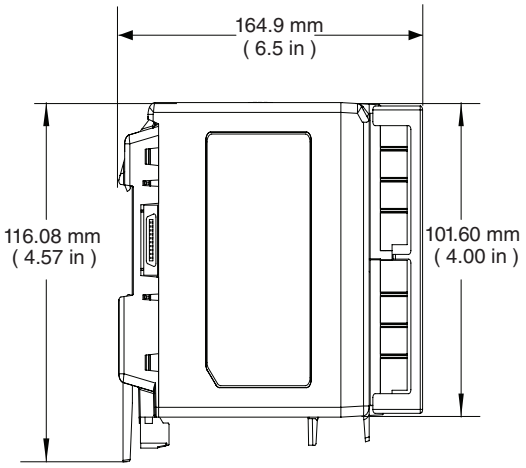




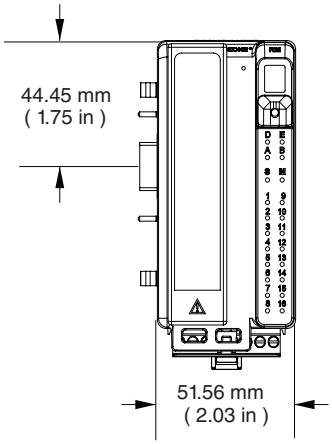
Module Removal Displacement

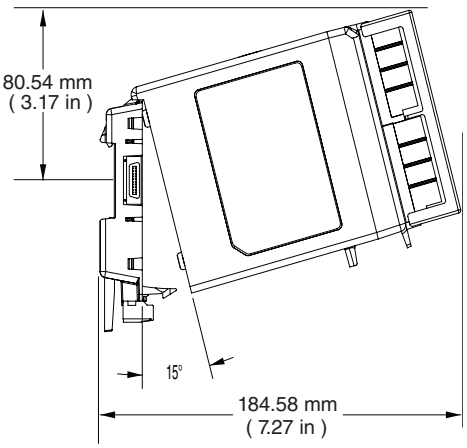
Dimensions (cont.)

Module Removal Clearance



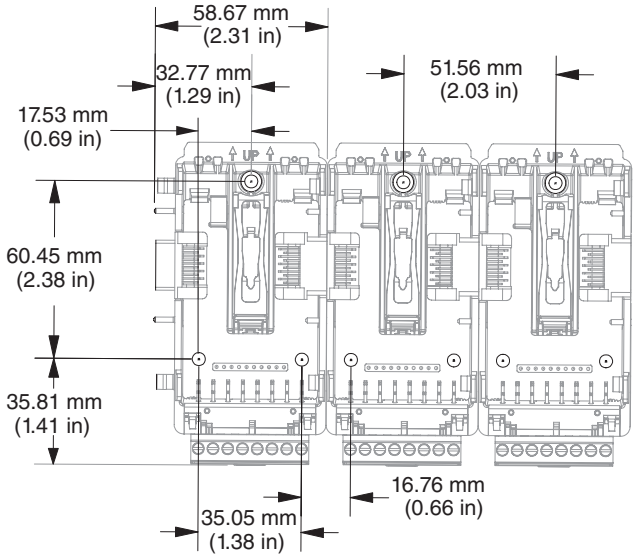
Ring Terminal Connectors





Module Removal Displacement

Chassis Mount Front View (Module Removed) - Screw Connection Pattern



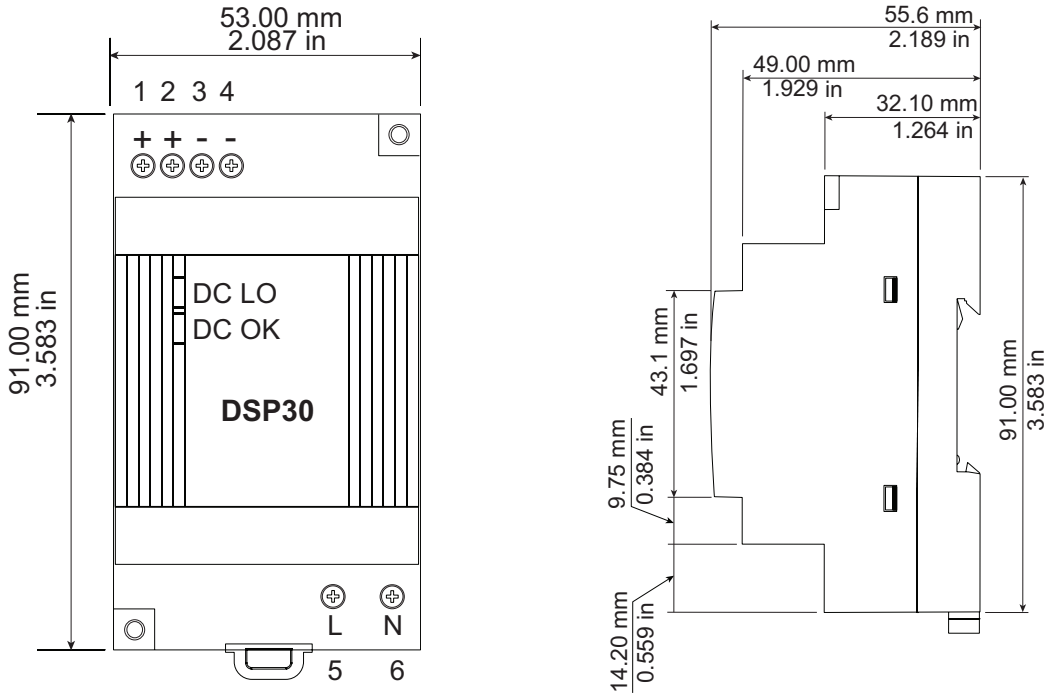
The view above is representative of the modular backplane without the module.

Recommended chassis mount hardware:

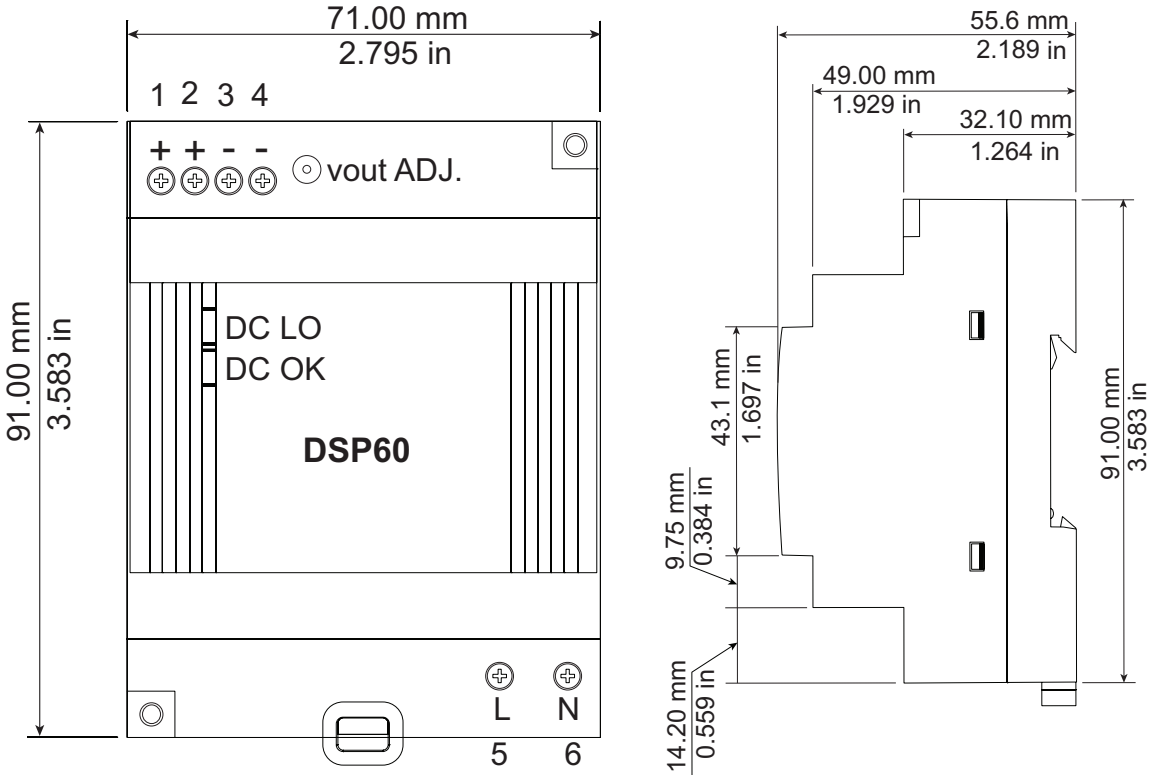
1. #8 screw, 3/4" long
2. Torque to 10 -15 in-lb
3. No washers of any kind

Power Supplies

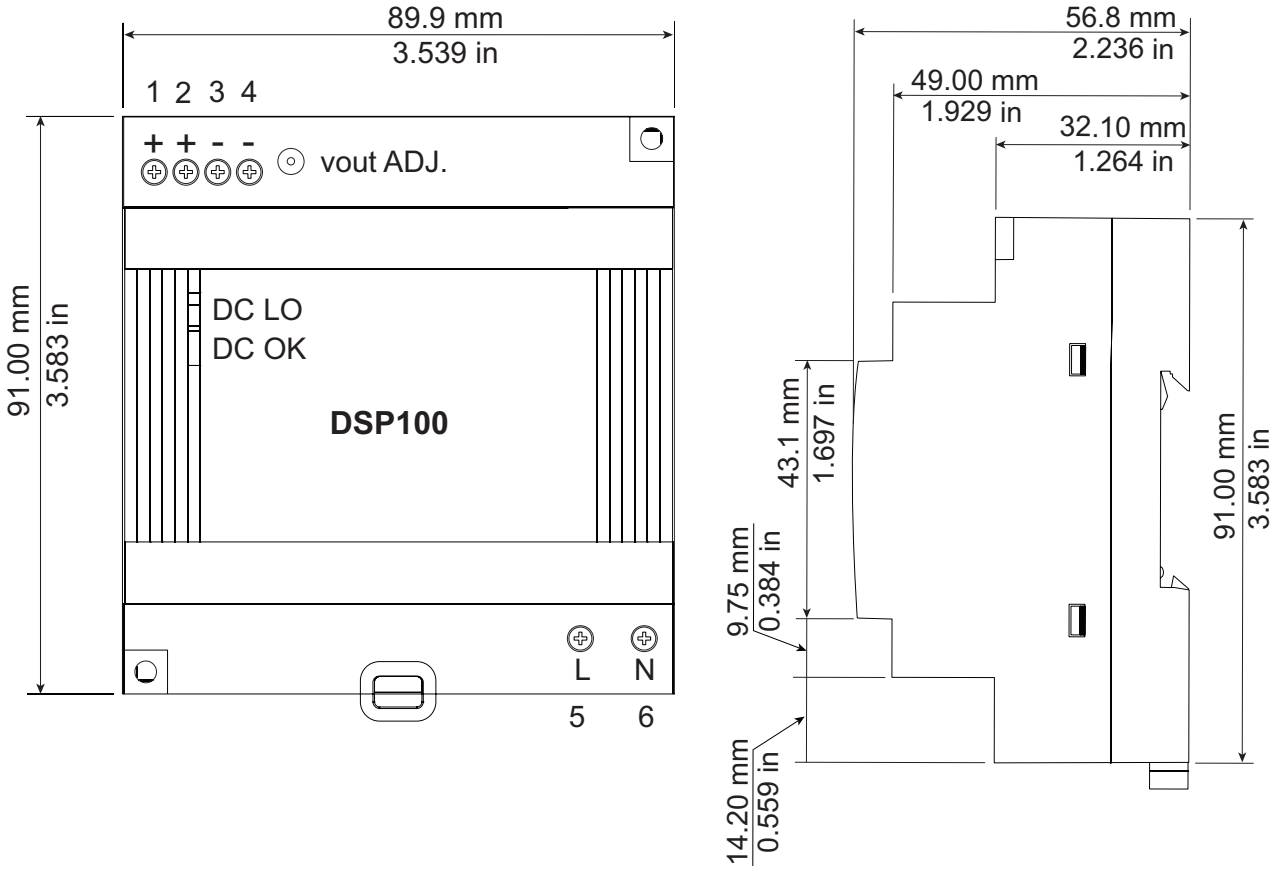
DSP 30



DSP 60



DSP 100



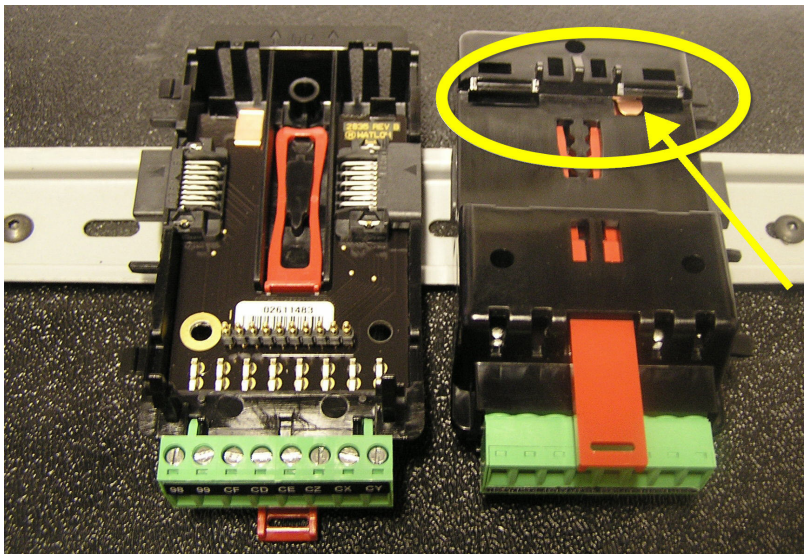
Power Supply Specifications				
		DSP 30	DSP60	DSP100
AC Input Voltage Range	VAC	90 - 264VAC, Class II double insulated (No ground connection required)		
Input Frequency	Hz	47 - 63Hz		
DC Input Voltage range	VDC	120 - 370VDC		
Inrush Current (115 / 230VAC)	A	25 / 50A	30 / 60A	30 / 60A
Output Voltage Accuracy	%	±1% of Nominal		
Over voltage Protection	V	120 - 145%		
LED Indicators	- - - -	Green LED = On, Red LED = DC Output Low		
Operating Temperature	- - - -	-25 to +71°C (Derate linearly 2.5%/°C from 55 to 71°C)		
Storage Temperature	- - - -	-25 to +85°C		
Operating Humidity	- - - -	20 - 95% RH (non condensing)		
Vibration (Operating)	- - - -	IEC 60068-2-6 (Mounting by rail: Random wave, 10-500 Hz, 2G, ea. along X, Y, Z axes 10 min/ cycle, 60 min)		
Safety Agency Approvals		UL1310 Class 2(1), UL508 Listed, UL60950-1, EN60950-1, CE		

For a comprehensive listing of these specifications point your browser to : http://us.tdk-lambda.com/lp/products/dsp-series.htm

RME Installation and Removal on a DIN Rail

Modular Backplane Connector

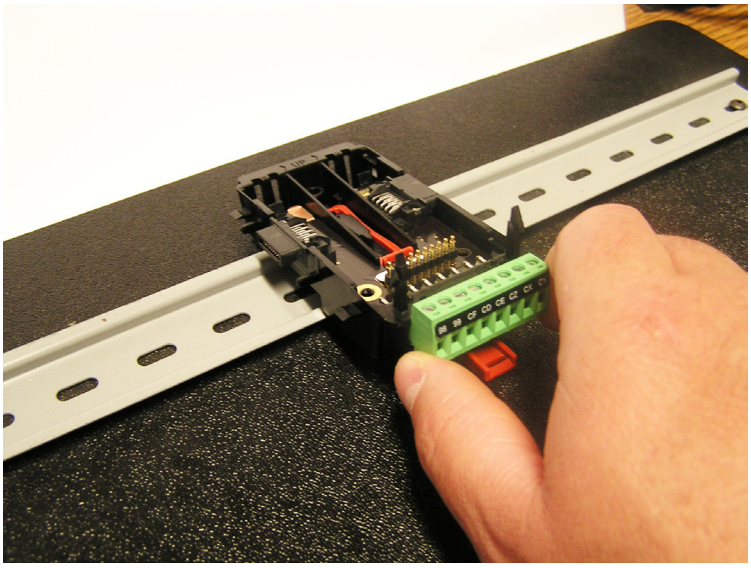
The picture on the right shows the Modular Backplane Connector, both front and rear view. The rear view is bringing in to focus a metal clip. If the DIN rail is grounded the Modular Backplane Connector and the module connected to it will be also (recommended).



Installing the Modular Backplane Connector

To install the backplane follow the steps below:

1. Hook backplane assembly to upper edge of DIN rail, (see rear view above, backplane hook detail that mates with upper rail edge is circled)
2. Next, rotate back plane assembly downward to engage the lower edge of the rail. (Note: Din Rail clipping distance ranges from 1.366 -1.389 inches. The back plane assembly will not latch onto the rail successfully if the rail is out of dimension).
3. For final positioning and locking, the red tab is to be pushed upward to further engage the bottom edge of the rail with an over center snap action latch. (The red locking tab protrudes from the bottom side of the back plane assembly).



Note:

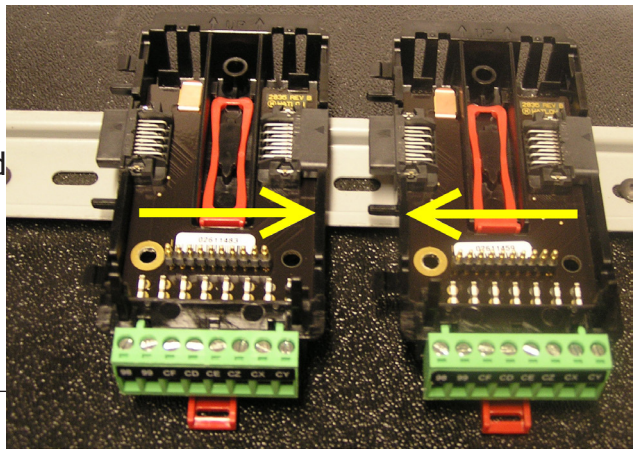
For easy removal and placement of modules it is recommended that there be a 76.2 mm (3.00 in) clearance on the top, bottom and front of each module.

Installing Multiple Modular Backplane Connectors

Multiple modules are easily aligned and latched together. Each module includes matched mating geometry that facilitates accurate and consistent interconnections.

To install backplane connectors follow the steps below:

1. Attach individual modules to the rail separately.
2. Laterally slide the modules together until they touch.
3. When the multi-module system is attached and laterally positioned to the desired placement the locking tab should be engaged to secure the control system to the rail.

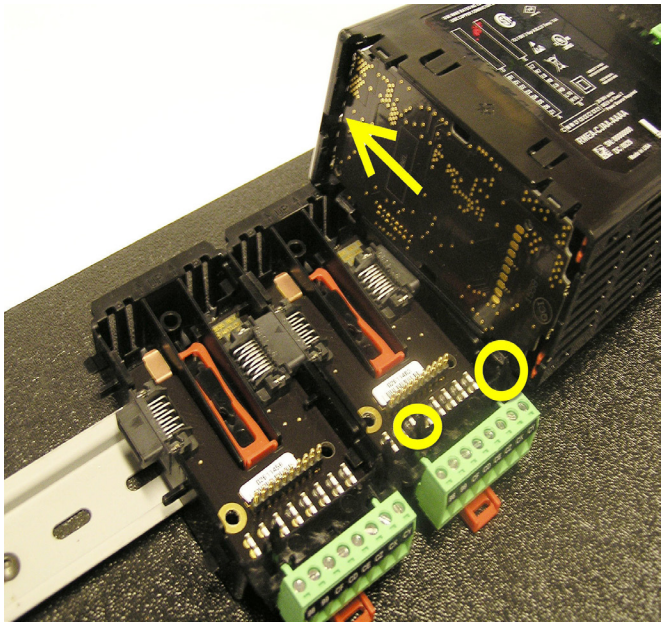


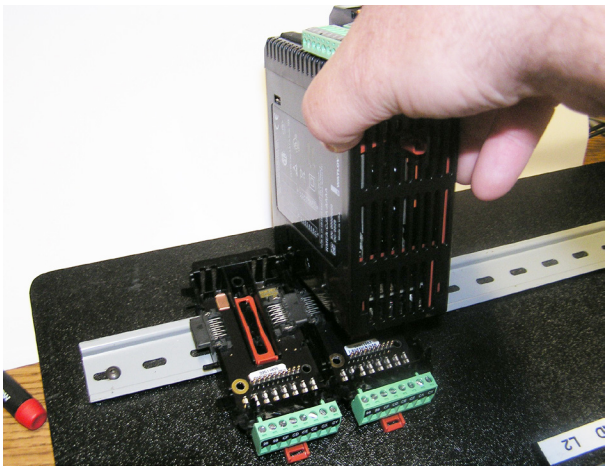
Module Installation

In the picture to the right notice that the arrow is pointing at the top lip of the module (on side).

To install modules on the backplane follow the steps below:

1. Slide the lip of the module over the top of the Modular Backplane Connector and then push down on the rear of the module. The module will then slide over the two posts just above the green connector (see pictures below).

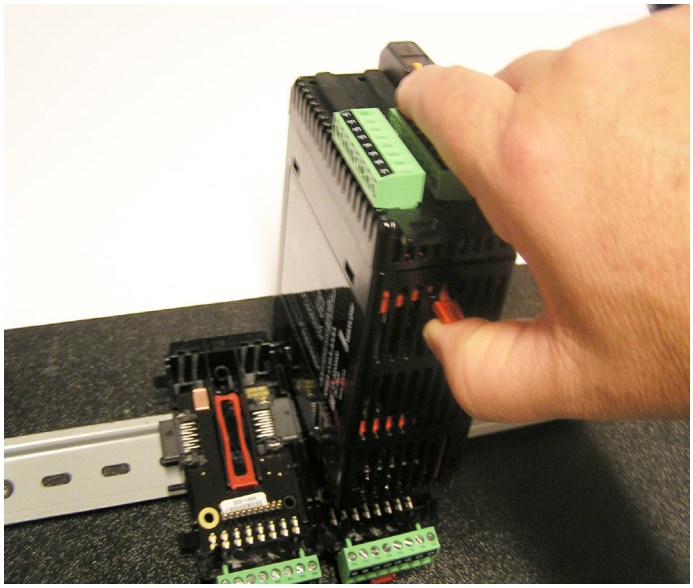




Module Removal

To remove a module from the backplane follow the steps below:

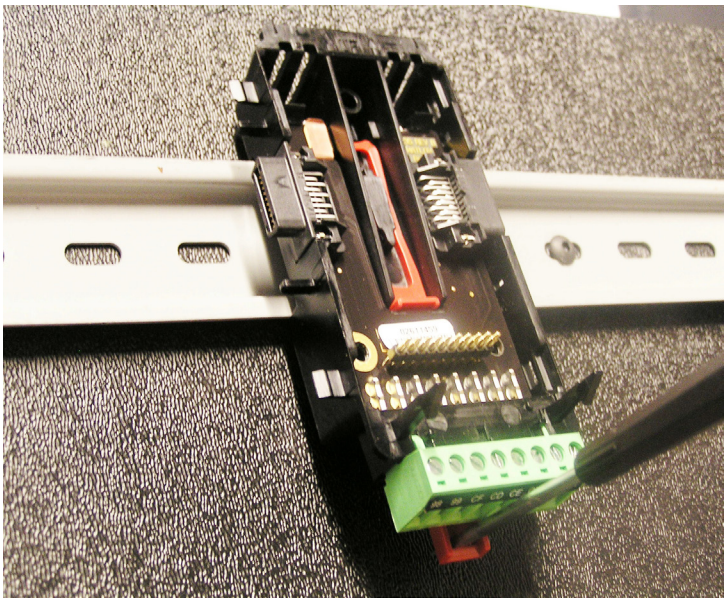
1. Find the red tab protruding from the bottom of the module and pull back on it as shown to the right.
2. Pull back on the red tab, the two mounting posts will then release the module.
3. Lift the module up and slide it up; this will release the module lip from the backplane.



Backplane Removal from DIN Rail

To remove a modular backplane connector from the DIN rail follow the steps below:

1. Insert a screw driver into the red locking tab just behind the green connector.
2. Apply downward pressure on the tab by lifting the screwdriver upwards..
3. When released, the tab will move downward and the connector can then be lifted up off of the DIN rail.



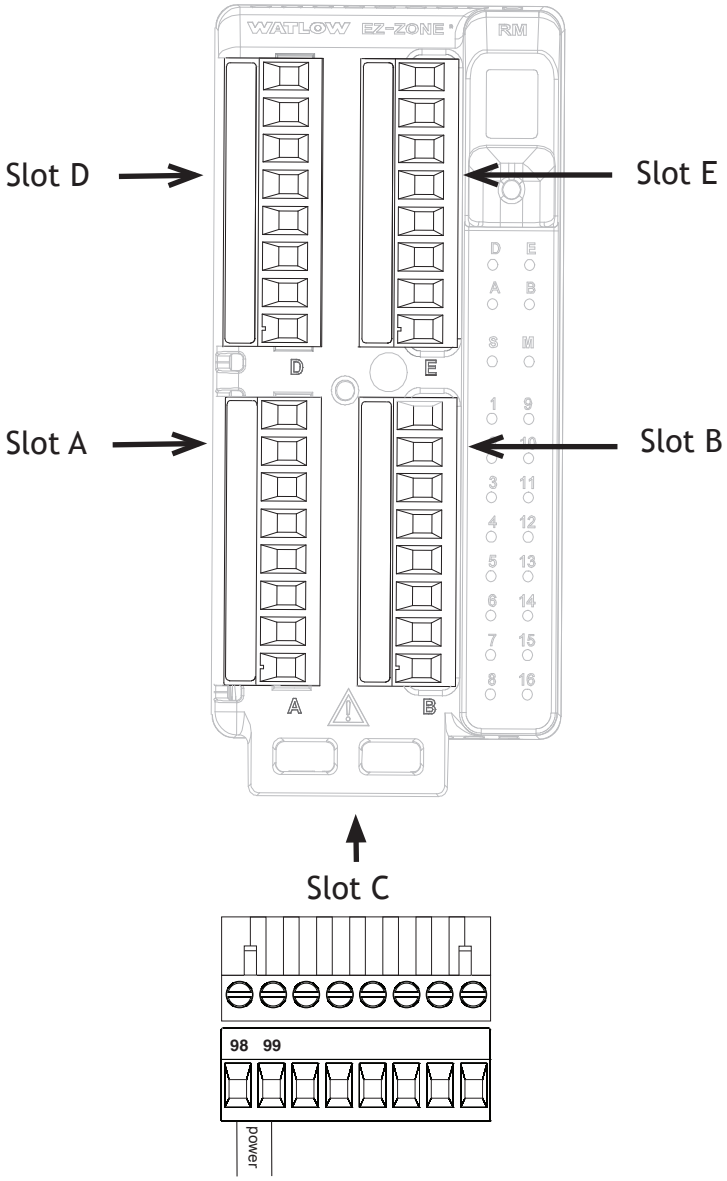
Wiring

Expansion Module (RME x - x x x x - x x x x)					
Slot A	**Slot B**	**Slot D**	**Slot E**	**Terminal Function**	**Configuration**
Inputs				Digital Inputs	
1 - 6	7 - 12	13 - 18	19 - 24		
B1	B7	B13	B19	Common	6 Digital Inputs Part # Digits 5, 6, 7, 8 Slot A: RME _ - [C] _ _ _ - _ _ _ _ Slot B: RME _ - _ [C] _ _ - _ _ _ _ Slot D: RME _ - _ _ [C] _ - _ _ _ _ Slot E: RME _ - _ _ _ [C] - _ _ _ _
D1	D7	D13	D19	dc+ input	
D2	D8	D14	D20	dc+ input	
D3	D9	D15	D21	dc+ input	
D4	D10	D16	D22	dc+ input	
D5	D11	D17	D23	dc+ input	
D6	D12	D18	D24	dc+ input	
Z1	Z7	Z13	Z19	Internal Supply	
				Current Transformer Inputs	
1 - 4	5 - 8	9 - 12	13 - 16		
T1	T5	T9	T13	mA ac	Quad Current Transformers Part # Digit 5, 6, 7, 8 Slot A: RME _ - [T] _ _ _ - _ _ _ _ Slot B: RME _ - _ [T] _ _ - _ _ _ _ Slot D: RME _ - _ _ [T] _- _ _ _ _ Slot E: RME _ - _ _ _ [T] - _ _ _ _
S1	S5	S9	S13	mA ac	
T2	T6	T10	T14	mA ac	
S2	S6	S10	S14	mA ac	
T3	T7	T11	T15	mA ac	
S3	S7	S11	S15	mA ac	
T4	T8	T12	T16	mA ac	
S4	S8	S12	S16	mA ac	
Outputs				Digital Outputs	
1 - 6	7 - 12	13 - 18	19 - 24		
B1	B7	B13	B19	common	Digital Inputs Part # Digits 5, 6, 7, 8 Slot A: RME _ - [C] _ _ _ - _ _ _ _ Slot B: RME _ - _ [C] _ _ - _ _ _ _ Slot D: RME _ - _ _ [C] _ - _ _ _ _ Slot E: RME _ - _ _ _ [C] - _ _ _ _
D1	D7	D13	D19	open collector/ switched dc	
D2	D8	D14	D20	open collector/ switched dc	
D3	D9	D15	D21	open collector/ switched dc	
D4	D10	D16	D22	open collector/ switched dc	
D5	D11	D17	D23	open collector/ switched dc	
D6	D12	D18	D24	open collector/ switched dc	
Z1	Z7	Z13	Z19	internal supply	
				4, 2A Solid-State Relay (SSR) Outputs	
1 - 4	7 - 10	13 - 16	19 - 22		
L1	L7	L13	L19	normally open	2A SSR Outputs Part # Digits 5, 6, 7, 8 Slot A: RME _ - [L] _ _ _ - _ _ _ _ Slot B: RME _ - _ [L] _ _ - _ _ _ _ Slot D: RME _ - _ _ [L] _ - _ _ _ _ Slot E: RME _ - _ _ _ [L] - _ _ _ _
K1	K7	K13	K19	common	
L2	L8	L14	L20	normally open	
- - -	- - -	- - -	- - -	*not used*	
- - -	- - -	- - -	- - -	*not used*	
L3	L9	L15	L21	normally open	
K3	K9	K15	K21	common	
L4	L10	L16	L22	normally open	
				Tri-State Process/Retransmit Outputs	
1 - 3	7 - 9	13 - 15	19 - 21		
F1	F7	F13	F19	voltage or current -	Tri-Process Outputs Part # Digits 5, 6, 7, 8 Slot A: RME _ - [F] _ _ _ - _ _ _ _ Slot B: RME _ - _ [F] _ _ - _ _ _ _ Slot D: RME _ - _ _ [F] _ - _ _ _ _ Slot E: RME _ - _ _ _ [F] - _ _ _ _
H1	H7	H13	H19	voltage + or current +	
- - -	- - -	- - -	- - -	not used	
F2	F8	F14	F20	voltage or current -	
H2	H8	H14	H20	voltage + or current +	
- - -	- - -	- - -	- - -	not used	
F3	F9	F15	F21	voltage or current -	
H3	H9	H15	H21	voltage + or current +	

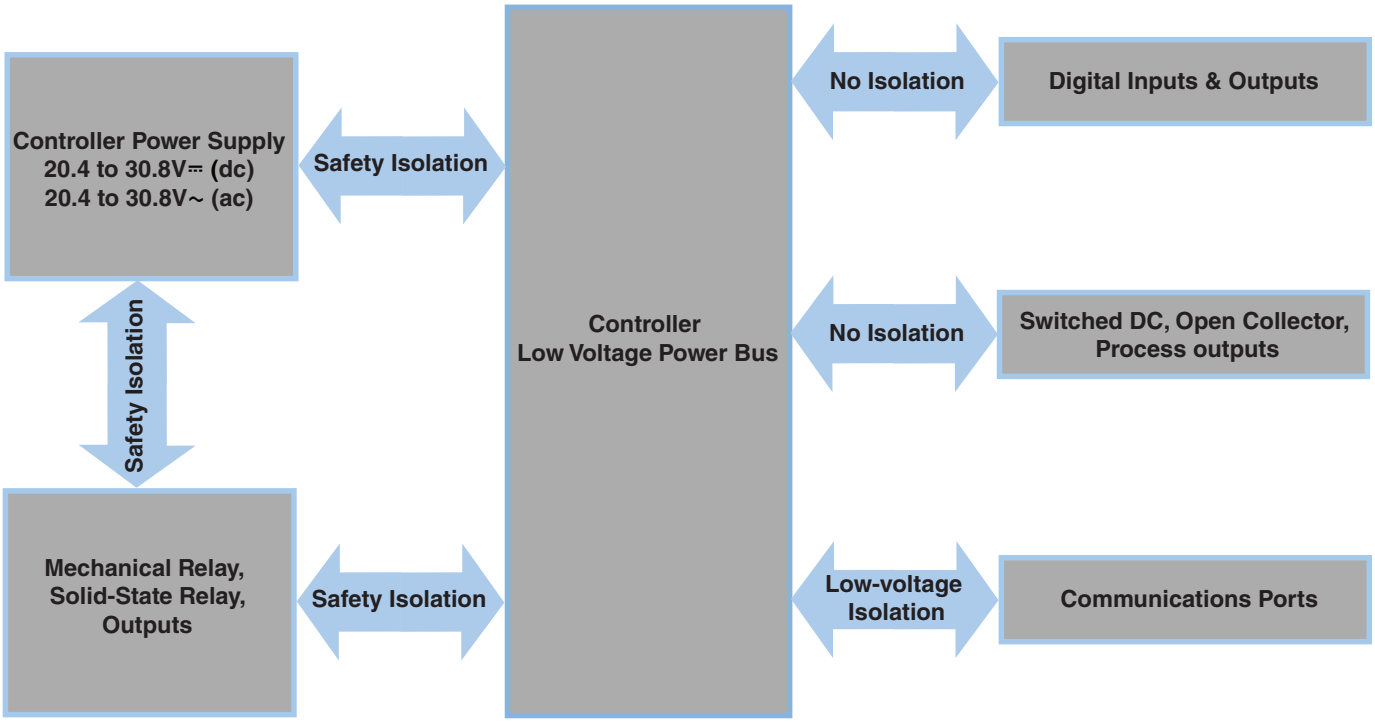
Expansion Module (RME x - x x x x - x x x x)					
Slot A	Slot B	Slot D	Slot E	Terminal Function	Configuration
Outputs (cont.)				2, 10A Form A SSR Outputs	
1 - 2	- - -	13 - 14	- - -		
L1 L1 K1 K1 L2 L2 K2 K2	- -	L13 L13 K13 K13 L14 L14 K14 K14	- -	normally open normally open common common normally open normally open common common	10A SSR Outputs Part # Digits 5, 7 Slot A: RME _ - [**K**] _ _ _ - _ _ _ _ Slot B: Not available Slot D: RME _ - _ _ [**K**] _ - _ _ _ _ Slot E: Not available
				4, 5A Form A Mechanical Relay Outputs	
1 - 4	7 - 10	13 - 16	- - -		
L1 K1 L2 K2 L3 K3 L4 K4	L7 K7 L8 K8 L9 K9 L10 K10	L13 K13 L14 K14 L15 K15 L16 K16	- -	normally open common normally open common normally open common normally open common	5A Mechanical Relay Outputs Part # Digits 5, 6, 7 Slot A: RME _ - [**J**] _ _ _ - _ _ _ _ Slot B: RME _ - _ [**J**] _ _ - _ _ _ _ Slot D: RME _ - _ _ [**J**] _ - _ _ _ _ Slot E: Not available

Power and Communications		
Slot C	Terminal Function	Configuration
98 99	Power input: ac or dc+ Power input: ac or dc-	All
CF CD CE	Standard Bus EIA-485 common Standard Bus EIA-485 T-/R- Standard Bus EIA-485 T+/R+	Standard Bus
CC CA CB	Standard Bus or Modbus RTU EIA-485 common Standard Bus or Modbus RTU EIA-485 T-/R- Standard Bus or Modbus RTU EIA-485 T+/R+	Standard Bus or Modbus Part # Digit 10 RME_ - _ _ _ _ - _ 1 _ _
CZ CX CY	Inter-module Bus Inter-module Bus Inter-module Bus	Inter-module Bus

All Modules - Front View -
Standard Connector



RME System Isolation Blocks



Low-voltage Isolation: 42V peak
Safety Isolation: 1,528V~ (ac)

Warning: ⚠
Use National Electric (NEC) or other country-specific standard wiring and safety practices when wiring and connecting this controller to a power source and to electrical sensors or peripheral devices. Failure to do so may result in damage to equipment and property, and/or injury or loss of life.

Note:
Maximum wire size termination and torque rating:

- 0.0507 to 3.30 mm² (30 to 12 AWG) single-wire termination or two 1.31 mm² (16 AWG)
- 0.57 Nm (5.0 in-lb.) torque

Note:
Adjacent terminals may be labeled differently, depending on the model number·

Note:
To prevent damage to the controller, do not connect wires to unused terminals.

Note:
Maintain electrical isolation between digital input-outputs, switched dc/open collector outputs and process outputs to prevent ground loops.

Note:
If the last two digits of the part number are "12", this equipment is suitable for use in CLASS I, DIVISION 2, Groups A, B, C and D or Non-Hazardous locations only. Temperature Code T4

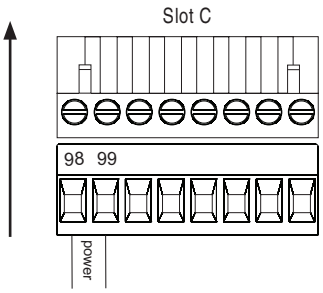
Warning: ⚠
Explosion Hazard – Substitution of component may impair suitability for CLASS I, DIVISION 2.

Warning: ⚠
Explosion Hazard - Do not disconnect while the circuit is live or unless the area is known to be free of ignitable concentrations of flammable substances.

Expansion Module Wiring (RMEx-xxxx-xxxx)

Low Power

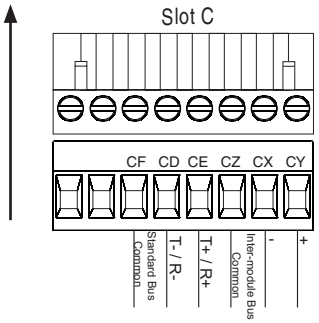
RME - All Model Numbers



- 20.4 to 30.8V ~ (ac) / ⎓ (dc) 14VA
- 47 to 63 Hz
- Expansion module power consumption, 7 Watts maximum
- 31 Watts maximum power available for P/S part #:0847-0299-0000
- 60 Watts maximum power available for P/S part #:0847-0300-0000
- 91 Watts maximum power available for P/S part #:0847-0301-0000
- Class 2 or Safety Extra Low Voltage (SELV) power source required to meet UL compliance standards

Communications

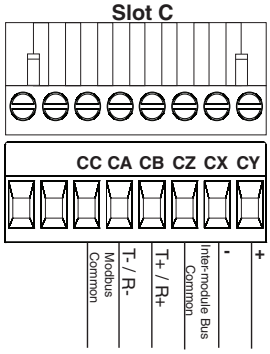
RMC Part # Digit 10 is A



- CF, CD, CE - Standard Bus EIA485 Communications
- CZ, CX, CY - Inter-module Bus EIA485 Communications
- Do not route network wires with power wires. Connect network wires in daisy-chain fashion when connecting multiple devices in a network

Communications

RMC Part # Digit 10 is 1



- CC, CA, CB - Modbus and Standard Bus EIA485 Communications (selectable via push button under zone address)
- CZ, CX, CY - Inter-module Bus EIA485 Communications
- Do not route network wires with power wires. Connect network wires in daisy-chain fashion when connecting multiple devices in a network

Modbus-IDA Terminal	EIA/TIA-485 Name	Watlow Terminal Label	Function
DO	A	CA or CD	T-/R-
D1	B	CB or CE	T+/R+
common	common	CC or CF	common

Warning: ⚠
Use National Electric (NEC) or other country-specific standard wiring and safety practices when wiring and connecting this controller to a power source and to electrical sensors or peripheral devices. Failure to do so may result in damage to equipment and property, and/or injury or loss of life.

Note:
Maximum wire size termination and torque rating:

- 0.0507 to 3.30 mm² (30 to 12 AWG) single-wire termination or two 1.31 mm² (16 AWG)
- 0.57 Nm (5.0 in-lb.) torque

Note:
Adjacent terminals may be labeled differently, depending on the model number·

Note:
To prevent damage to the controller, do not connect wires to unused terminals.

Note:
Maintain electrical isolation between digital input-outputs, switched dc/open collector outputs and process outputs to prevent ground loops.

Note:
If the last two digits of the part number are "12", this equipment is suitable for use in CLASS I, DIVISION 2, Groups A, B, C and D or Non-Hazardous locations only. Temperature Code T4

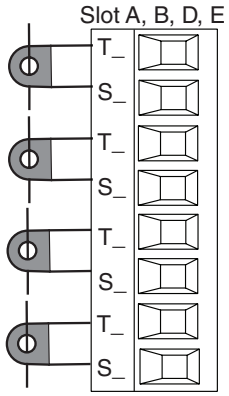
Warning: ⚠
Explosion Hazard – Substitution of component may impair suitability for CLASS I, DIVISION 2.

Warning: ⚠
Explosion Hazard - Do not disconnect while the circuit is live or unless the area is known to be free of ignitable concentrations of flammable substances.

Warning: ⚠
Explosion Hazard - Dry contact closure Digital Inputs shall not be used in Class I Division 2 Hazardous Locations unless switch used is approved for this application.

Quad Current Transformer Inputs 1 to 16

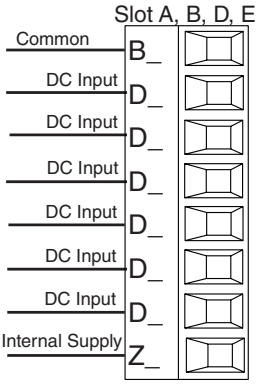
RME Part # Digit 5, 6, 7, 8 is T



- Input range is 0 to 50mA (ac).
- Current transformer part number: 16-0246
- 100 Ω input impedance
- Response time: 1 second maximum
- Accuracy +/-1mA typical

Digital Inputs 1 to 24

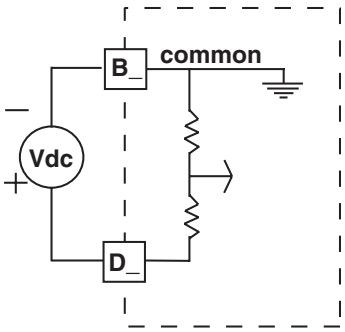
RME Part # Digit 5, 6, 7, 8 is C



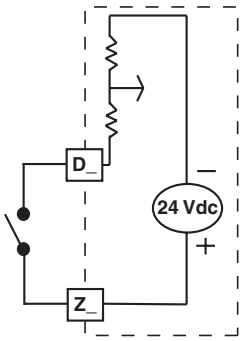
Digital Input Event Conditions

- Dry Contact
  - Input inactive when > 100KΩ
  - Input active when < 50Ω
- Voltage
  - Input inactive when < 2V
  - Input active when > 3V
- Six user configurable Digital Inputs/outputs per slot

Voltage Input



Dry Contact



Warning: ⚠
Use National Electric (NEC) or other country-specific standard wiring and safety practices when wiring and connecting this controller to a power source and to electrical sensors or peripheral devices. Failure to do so may result in damage to equipment and property, and/or injury or loss of life.

Note:
Maximum wire size termination and torque rating:

- 0.0507 to 3.30 mm² (30 to 12 AWG) single-wire termination or two 1.31 mm² (16 AWG)
- 0.57 Nm (5.0 in-lb.) torque

Note:
Adjacent terminals may be labeled differently, depending on the model number·

Note:
To prevent damage to the controller, do not connect wires to unused terminals.

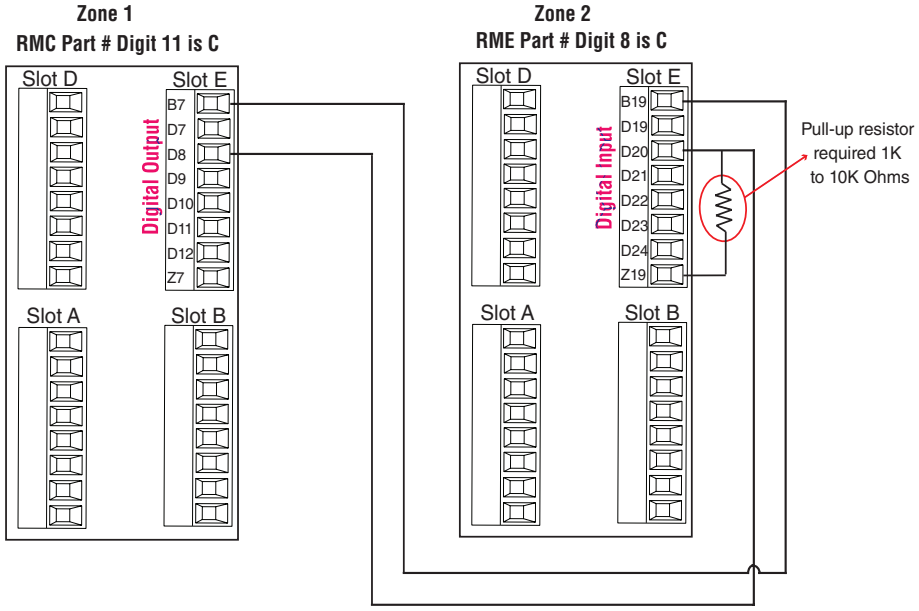
Note:
Maintain electrical isolation between digital input-outputs, switched dc/open collector outputs and process outputs to prevent ground loops.

Note:
If the last two digits of the part number are "12", this equipment is suitable for use in CLASS I, DIVISION 2, Groups A, B, C and D or Non-Hazardous locations only. Temperature Code T4

Warning: ⚠
Explosion Hazard – Substitution of component may impair suitability for CLASS I, DIVISION 2.

Warning: ⚠
Explosion Hazard - Do not disconnect while the circuit is live or unless the area is known to be free of ignitable concentrations of flammable substances.

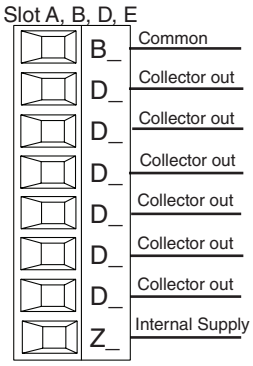
Connecting a Digital Output from One Zone to a Digital Input of Another Zone (Zone 1 to Zone 2 in this example)



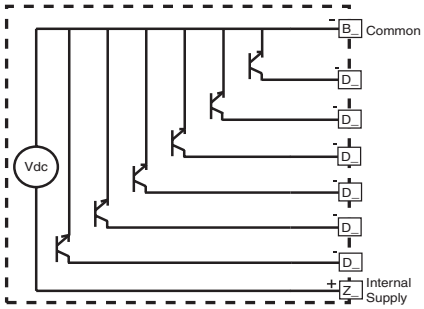
In the example above, digital output D8 from an RMC module (Zone 1) is connected to the digital input D20 of an RME module (Zone 2).

Note:
As shown in the graphic above, for this configuration, a pull-up resistor is required.

Digital Outputs 1 to 24 RME Part # Digit 5, 6, 7, 8 is C



- Maximum switched voltage is 32V⎓ (dc)
- Internal supply provides a constant power output of 750mW
- Maximum output sink current per output is 1.5A (external class 2 or *SELV supply required)



- Six user configurable Digital Outputs per slot
- Total sink current for all outputs not to exceed 8A
- Do not connect outputs in parallel

* Safety Extra Low Voltage

Warning: ⚠

Use National Electric (NEC) or other country-specific standard wiring and safety practices when wiring and connecting this controller to a power source and to electrical sensors or peripheral devices. Failure to do so may result in damage to equipment and property, and/or injury or loss of life.

Note:

Maximum wire size termination and torque rating:

- 0.0507 to 3.30 mm² (30 to 12 AWG) single-wire termination or two 1.31 mm² (16 AWG)
- 0.57 Nm (5.0 in-lb.) torque

Note:

Adjacent terminals may be labeled differently, depending on the model number·

Note:

To prevent damage to the controller, do not connect wires to unused terminals.

Note:

Maintain electrical isolation between digital input-outputs, switched dc/open collector outputs and process outputs to prevent ground loops.

Note:

If the last two digits of the part number are "12", this equipment is suitable for use in CLASS I, DIVISION 2, Groups A, B, C and D or Non-Hazardous locations only. Temperature Code T4

Warning: ⚠

Explosion Hazard – Substitution of component may impair suitability for CLASS I, DIVISION 2.

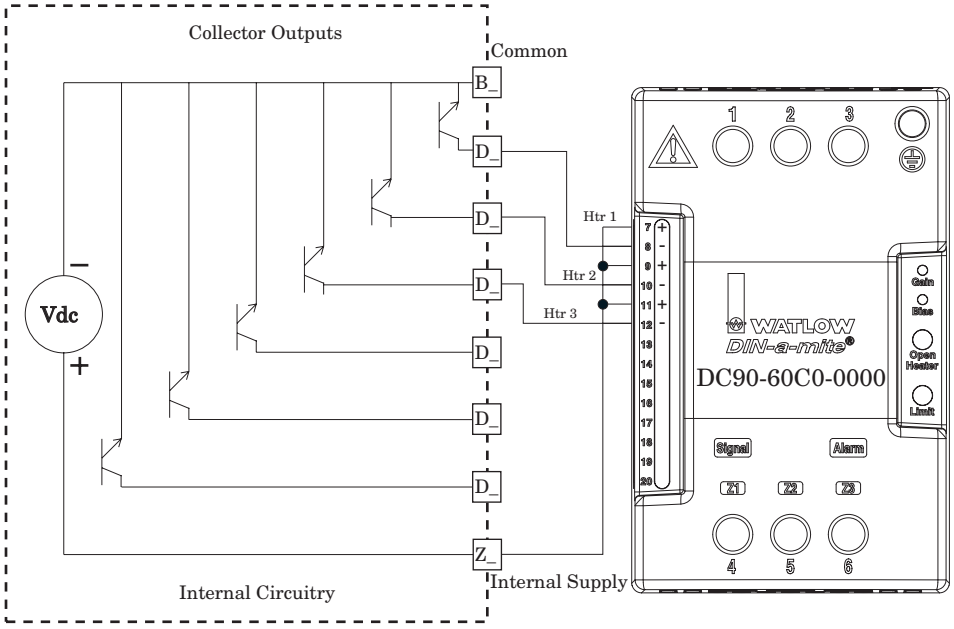
Warning: ⚠

Explosion Hazard - Do not disconnect while the circuit is live or unless the area is known to be free of ignitable concentrations of flammable substances.

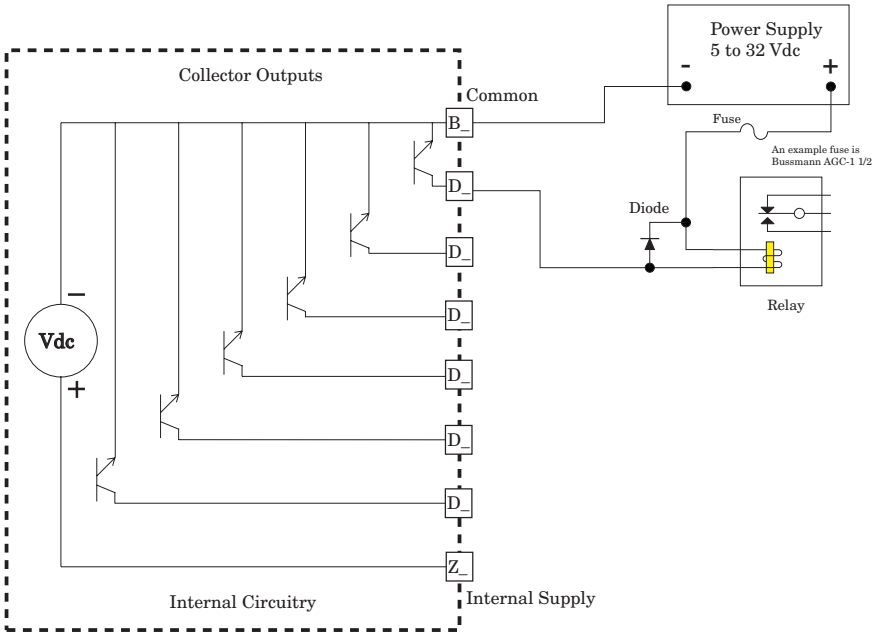
Quencharc Note:

Switching pilot duty inductive loads (relay coils, solenoids, etc.) with the mechanical relay, Solid-State relay or open collector output options requires use of an R.C. suppressor.

Digital Output Wiring Example - Switched DC to DIN-A-MITE®



Digital Output (1 to 24) Wiring Example - Open Collector



Warning: ⚠
Use National Electric (NEC) or other country-specific standard wiring and safety practices when wiring and connecting this controller to a power source and to electrical sensors or peripheral devices. Failure to do so may result in damage to equipment and property, and/or injury or loss of life.

Note:
Maximum wire size termination and torque rating:

- 0.0507 to 3.30 mm² (30 to 12 AWG) single-wire termination or two 1.31 mm² (16 AWG)
- 0.57 Nm (5.0 in-lb.) torque

Note:
Adjacent terminals may be labeled differently, depending on the model number·

Note:
To prevent damage to the controller, do not connect wires to unused terminals.

Note:
Maintain electrical isolation between digital input-outputs, switched dc/open collector outputs and process outputs to prevent ground loops.

Note:
If the last two digits of the part number are "12", this equipment is suitable for use in CLASS I, DIVISION 2, Groups A, B, C and D or Non-Hazardous locations only. Temperature Code T4

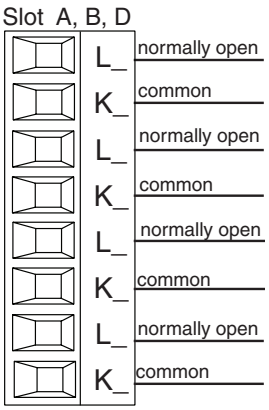
Warning: ⚠
Explosion Hazard – Substitution of component may impair suitability for CLASS I, DIVISION 2.

Warning: ⚠
Explosion Hazard - Do not disconnect while the circuit is live or unless the area is known to be free of ignitable concentrations of flammable substances.

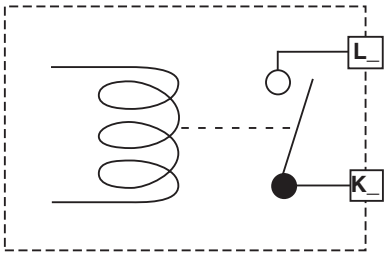
Quencharc Note:
Switching pilot duty inductive loads (relay coils, solenoids, etc.) with the mechanical relay, Solid-State relay or open collector output options requires use of an R.C. suppressor.

Quad Mechanical Relays, Form A Outputs 1-4, 7-10, 13-16

RME Part # Digit 5, 6, or 7 is J

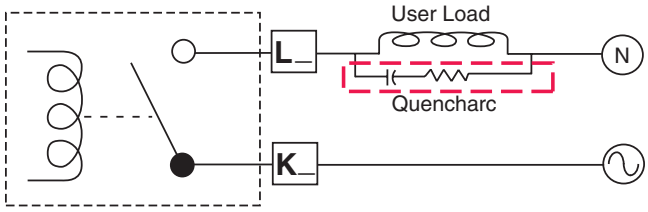


- 5A at 240V~ (ac) or 30V⎓ (dc) maximum resistive load
- 20mA at 24V minimum load
- 125VA pilot duty at 120/240V~ (ac), 25 VA at 24V~ (ac)
- 100,000 cycles at rated load
- Output does not supply power
- For use with ac or dc
- Not available in slot E
- See Quencharc note.



Quencharc Wiring Example

In this example the Quencharc circuit (Watlow part# 0804-0147-0000) is used to protect the RME internal circuitry from the counter electromagnetic force from the inductive user load when de-engergized. It is recommended that this or an equivalent Quencharc be used when connecting inductive loads to the RME outputs.



Warning: ⚠
Use National Electric (NEC) or other country-specific standard wiring and safety practices when wiring and connecting this controller to a power source and to electrical sensors or peripheral devices. Failure to do so may result in damage to equipment and property, and/or injury or loss of life.

Note:
Maximum wire size termination and torque rating:

- 0.0507 to 3.30 mm² (30 to 12 AWG) single-wire termination or two 1.31 mm² (16 AWG)
- 0.57 Nm (5.0 in-lb.) torque

Note:
Adjacent terminals may be labeled differently, depending on the model number·

Note:
To prevent damage to the controller, do not connect wires to unused terminals.

Note:
Maintain electrical isolation between digital input-outputs, switched dc/open collector outputs and process outputs to prevent ground loops.

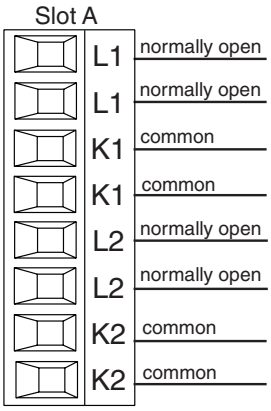
Note:
If the last two digits of the part number are "12", this equipment is suitable for use in CLASS I, DIVISION 2, Groups A, B, C and D or Non-Hazardous locations only. Temperature Code T4

Warning: ⚠
Explosion Hazard – Substitution of component may impair suitability for CLASS I, DIVISION 2.

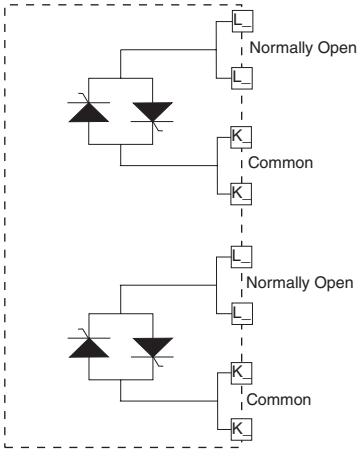
Warning: ⚠
Explosion Hazard - Do not disconnect while the circuit is live or unless the area is known to be free of ignitable concentrations of flammable substances.

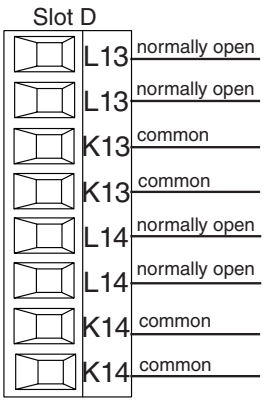
Dual 10A SSR Outputs 1 and 2, 13 and 14

RME Part # Digit 5 or 7 is K

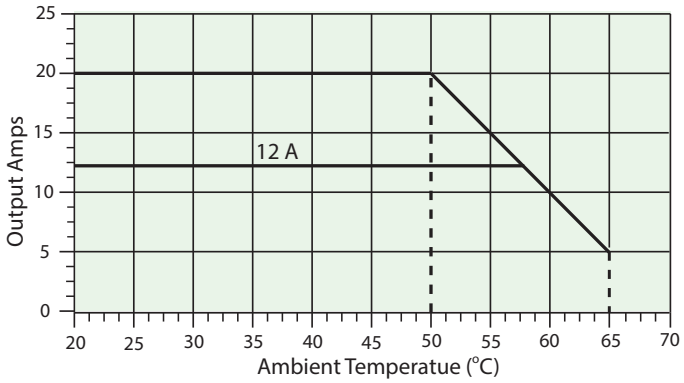


- Maximum resistive load 10A per output @ 240V~ (ac)
- Maximum 20A per slot @ 50 °C
- Maximum 12A per slot @ 65 °C
- Minimum holding current 10mA





Total Output Amps Per Slot



Warning: ⚠
Use National Electric (NEC) or other country-specific standard wiring and safety practices when wiring and connecting this controller to a power source and to electrical sensors or peripheral devices. Failure to do so may result in damage to equipment and property, and/or injury or loss of life.

Note:
Maximum wire size termination and torque rating:

- 0.0507 to 3.30 mm² (30 to 12 AWG) single-wire termination or two 1.31 mm² (16 AWG)
- 0.57 Nm (5.0 in-lb.) torque

Note:
Adjacent terminals may be labeled differently, depending on the model number·

Note:
To prevent damage to the controller, do not connect wires to unused terminals.

Note:
Maintain electrical isolation between digital input-outputs, switched dc/open collector outputs and process outputs to prevent ground loops.

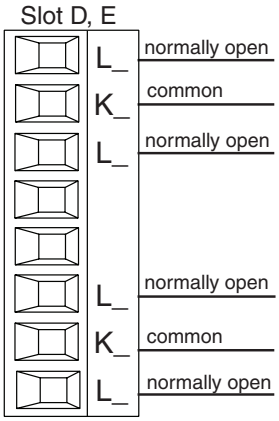
Note:
If the last two digits of the part number are "12", this equipment is suitable for use in CLASS I, DIVISION 2, Groups A, B, C and D or Non-Hazardous locations only. Temperature Code T4

Warning: ⚠
Explosion Hazard – Substitution of component may impair suitability for CLASS I, DIVISION 2.

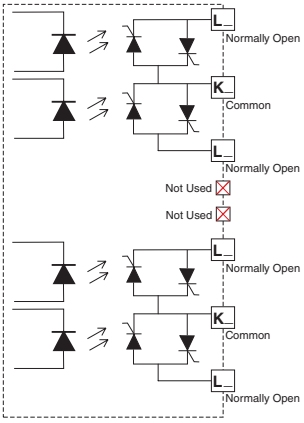
Warning: ⚠
Explosion Hazard - Do not disconnect while the circuit is live or unless the area is known to be free of ignitable concentrations of flammable substances.

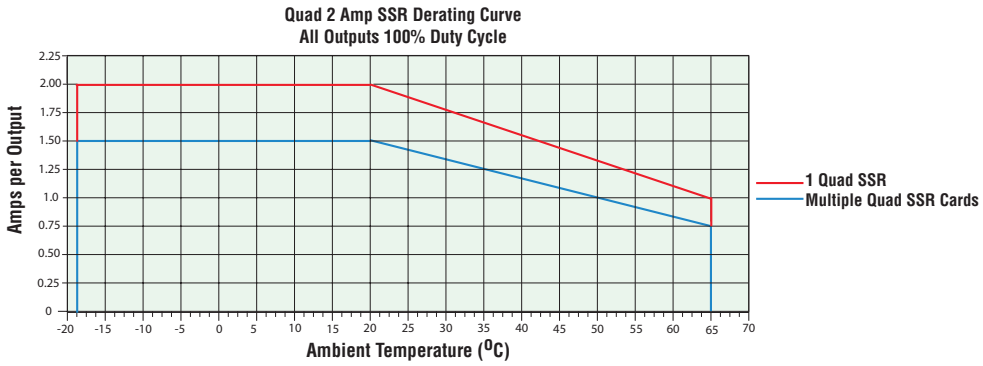
Quad 2A SSR Outputs 1-4, 7-10, 13-16, 19 - 22

RME Part # Digit 5, 6, 7, 8 is L



- 2A at 20 to 264V~ (ac) maximum resistive load
- 50 VA 120/240V~ (ac) pilot duty
- Optical isolation, without contact suppression
- Maximum off state leakage of 105µA
- Output does not supply power.
- Do not use on dc loads.
- N.O., COM, N.O wiring (shared common) between each set of outputs.
- 100,000 cycle endurance tested resistive and pilot duty.
- Minimum holding current 10mA
- See Quencharc note.





Note:
Each of the four SSR outputs has internal circuitry that will protect it from over heating. Outputs may be disabled (shut off) automatically if internal temperatures exceed those listed in the graph above. After the output temperature drops approximately 10 °C the outputs will once again be enabled for operation.

Warning: ⚠
Use National Electric (NEC) or other country-specific standard wiring and safety practices when wiring and connecting this controller to a power source and to electrical sensors or peripheral devices. Failure to do so may result in damage to equipment and property, and/or injury or loss of life.

Note:
Maximum wire size termination and torque rating:

- 0.0507 to 3.30 mm² (30 to 12 AWG) single-wire termination or two 1.31 mm² (16 AWG)
- 0.57 Nm (5.0 in-lb.) torque

Note:
Adjacent terminals may be labeled differently, depending on the model number·

Note:
To prevent damage to the controller, do not connect wires to unused terminals.

Note:
Maintain electrical isolation between digital input-outputs, switched dc/open collector outputs and process outputs to prevent ground loops.

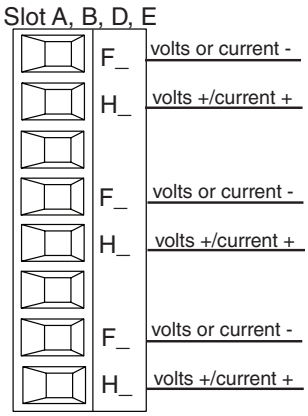
Note:
If the last two digits of the part number are "12", this equipment is suitable for use in CLASS I, DIVISION 2, Groups A, B, C and D or Non-Hazardous locations only. Temperature Code T4

Warning: ⚠
Explosion Hazard – Substitution of component may impair suitability for CLASS I, DIVISION 2.

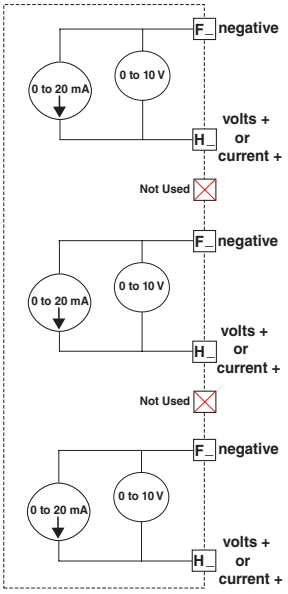
Warning: ⚠
Explosion Hazard - Do not disconnect while the circuit is live or unless the area is known to be free of ignitable concentrations of flammable substances.

Tri-Process/Retransmit Outputs 1-3, 7-9, 13-15, 19-21

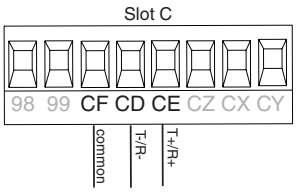
RME Part # Digit 5, 6, 7, 8 is F



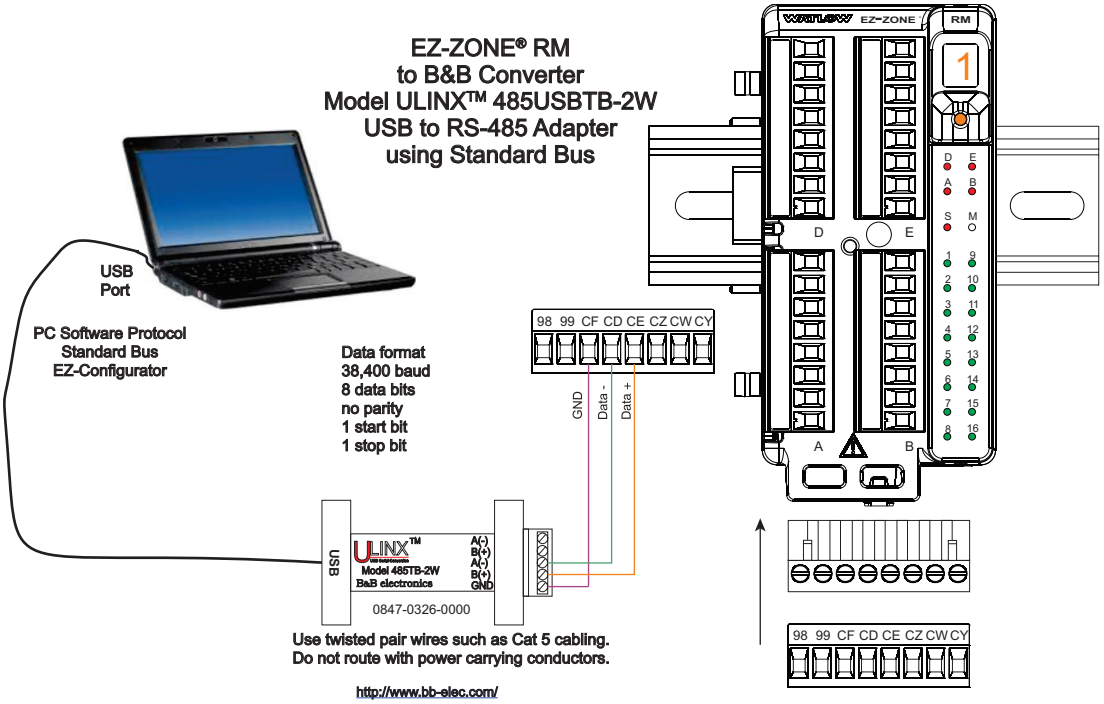
- 0 to 20mA into 400Ω maximum load
- 0 to 10V⎓ (dc) into 4kΩ minimum load
- Outputs are scalable
- Output supplies power
- Each output can be independently set for voltage or current.
- Output may be used as retransmit or control.



Standard Bus EIA-485 Communications

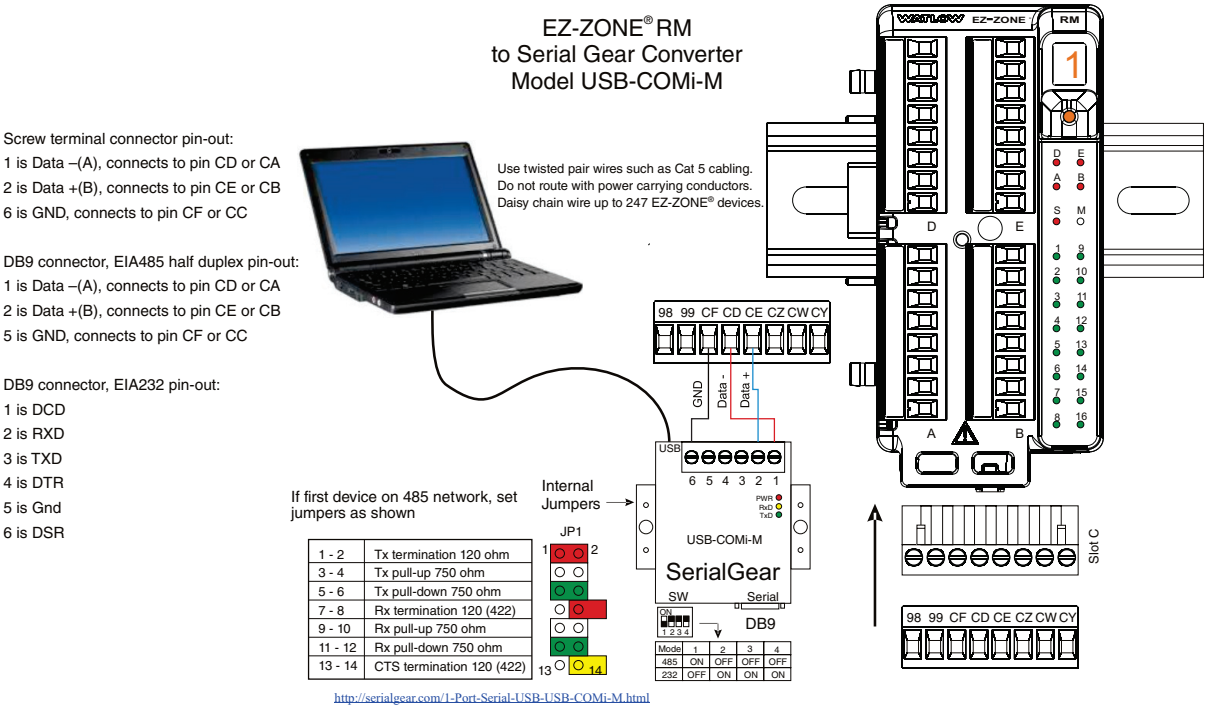


- Wire T-/R- to the A terminal of the EIA-485 port.
- Wire T+/R+ to the B terminal of the EIA-485 port.
- Wire common to the common terminal of the EIA-485 port.
- Do not route network wires with power wires. Connect network wires in daisy-chain fashion when connecting multiple devices in a network.
- A 120 Ω termination resistor may be required across T+/R+ and T-/R-, placed on the last controller on the network.
- Do not connect more than 16 EZ-ZONE RM controllers on a network.
- Maximum network length: 1,200 meters (4,000 feet)
- 1/8th unit load on EIA-485 bus

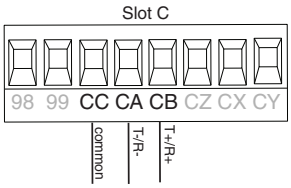


Note:

Do not leave a USB to EIA-485 converter connected to Standard Bus without power (i.e., disconnecting the USB end from the computer while leaving the converter connected on Standard Bus). Disturbance on the Standard Bus may occur.

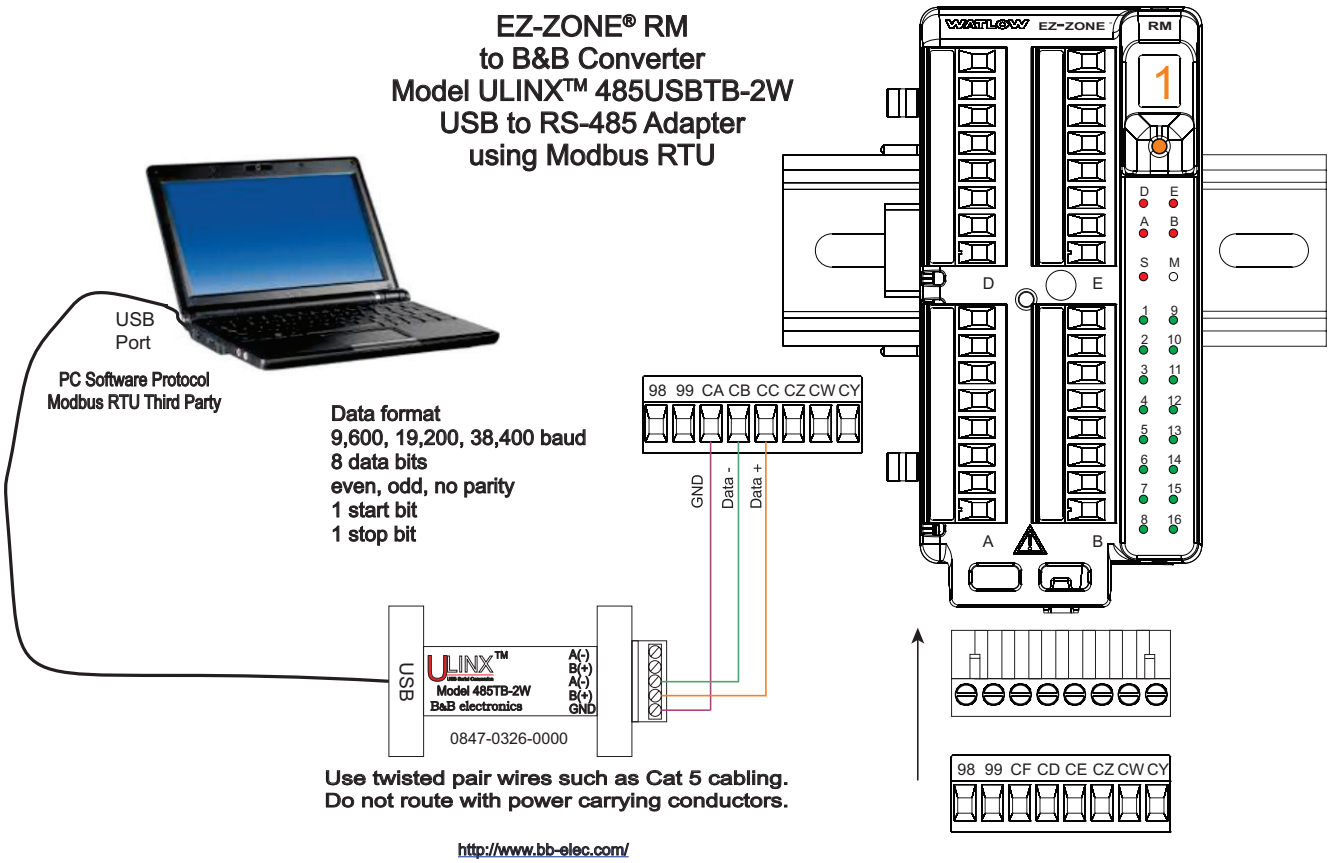


Modbus RTU or Standard Bus EIA-485 Communcations



- Wire T-/R- to the A terminal of the EIA-485 port.
- Wire T+/R+ to the B terminal of the EIA-485 port.
- Wire common to the common terminal of the EIA-485 port.
- Do not route network wires with power wires. Connect network wires in daisy-chain fashion when connecting multiple devices in a network.
- A termination resistor may be required. Place a 120 Ω resistor across T+/R+ and T-/R- of last controller on network.
- Only one protocol per port is available at a time: either Modbus RTU or Standard Bus.
- Do not connect more than 16 EZ-ZONE controllers on a Standard Bus network.
- Maximum number of EZ-ZONE controllers on a Modbus network is 247.
- Maximum network length: 1,200 meters (4,000 feet)
- 1/8th unit load on EIA-485 bus
- RME _ - _ _ _ _ - _ 1 _ _

Modbus-IDA Terminal	EIA/TIA-485 Name	Watlow Terminal Label	Function
DO	A	CA or CD	T-/R-
D1	B	CB or CE	T+/R+
common	common	CC or CF	common



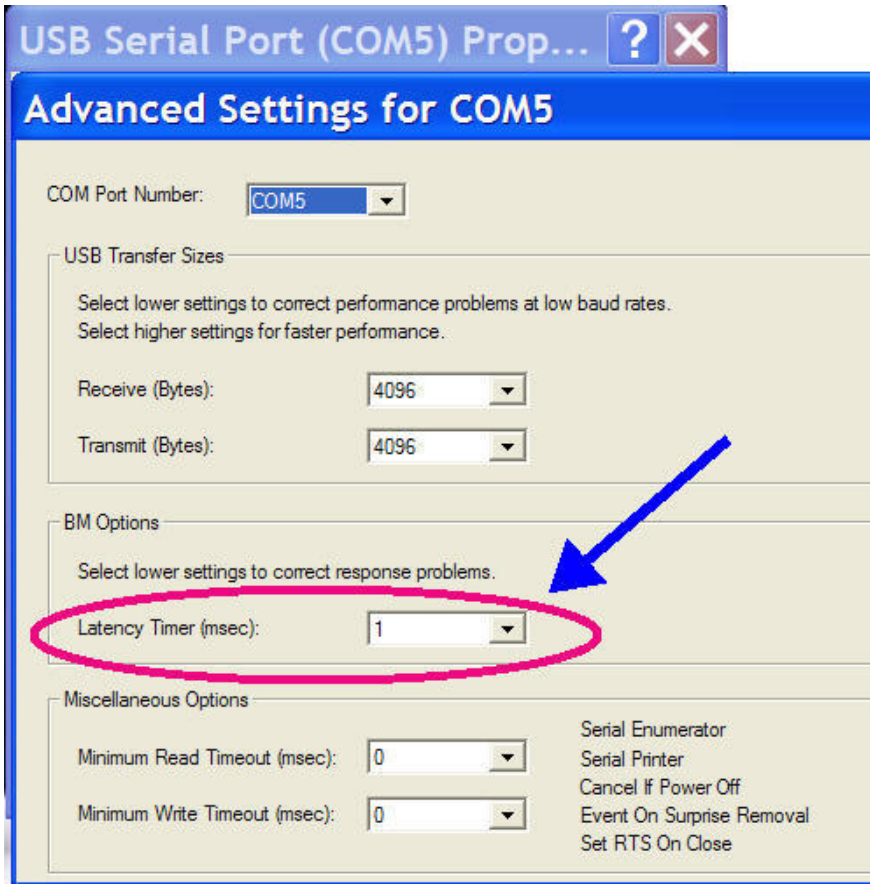
Note:

When connecting the USB converter to the PC it is suggested that the Latency Timer be changed from the default of 16 msec to 1 msec. Failure to make this change may cause communication loss between the PC running EZ-ZONE Configurator or Composer software and the control.

To modify Latency Timer settings follow the steps below:

1. Navigate to Device Manager on the PC.
2. Double click on Ports.
3. Right click on the USB serial port in use and select Properties.
4. Click the tab labeled Port settings and then click the Advance button.

Graphic below shows the advanced settings dialog box for the com port in use.



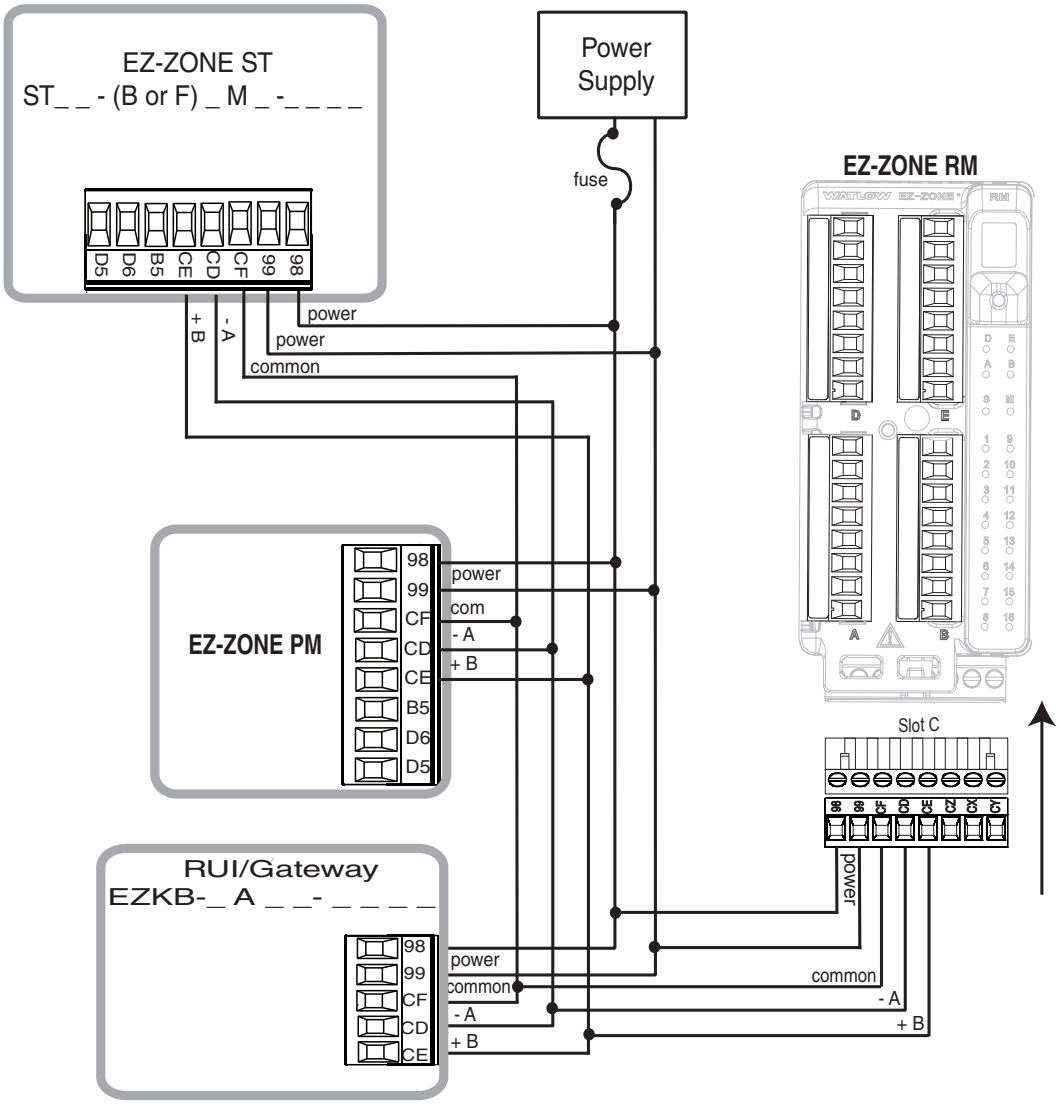
Wiring a Serial EIA-485 Network

Do not route network wires with power wires. Connect network wires in daisy-chain fashion when connecting multiple devices in a network. A termination resistor may be required. Place a 120 Ω resistor across T+/R+ and T-/R- of the last controller on a network. Only one protocol per port is available at a time: either Modbus RTU or Standard Bus.

Note:

Termination resistors when used, require a termination resistor at both ends of the network.

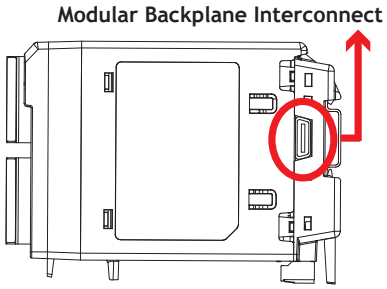
A Network Using Watlow's Standard Bus and an RUI/Gateway



Connecting the Modules

RM System Connections

The RME module can be installed as a stand-alone module or it can be interconnected on the DIN rail as shown below. When modules are connected together as shown, power and communications are shared between modules over the modular backplane interconnection (red circle). Therefore, bringing the necessary power and communications wiring to any one module (connector in slot C) is sufficient. The modular backplane interconnect comes standard with every module ordered and is generic in nature, meaning any of the RM modules can use it.



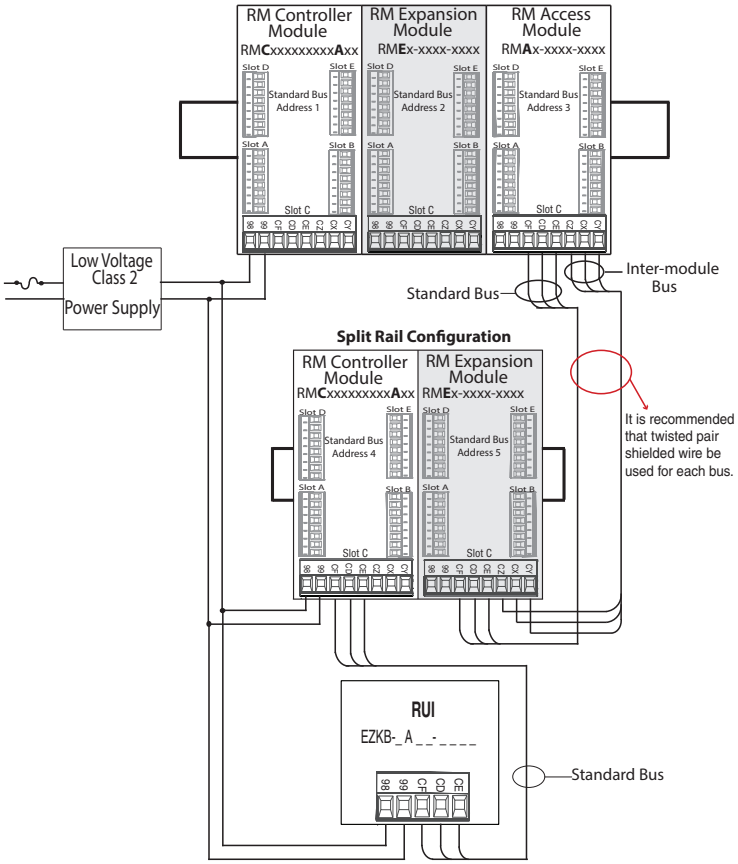
Notice in the split rail system diagram that a single power supply is being used across both DIN rails. One notable consideration when designing the hardware layout would be the available power supplied and the loading affect of all of the modules used. Watlow provides three options for power supplies listed below:

1. 90-264 Vac to 24Vdc @ 31 watts (Part #: 0847-0299-0000)
2. 90-264 Vac to 24Vdc @ 60 watts (Part #: 0847-0300-0000)
3. 90-264 Vac to 24Vdc @ 91 watts (Part #: 0847-0301-0000)

With regards to the modular loading affect, maximum power for each is listed below:

1. RMCxxxxxxxxxxxx @ 7 watts / 14VA
2. **RMEx-xxxx-xxxx @ 7 watts / 14VA**
3. RMAx-xxxx-xxxx @ 4 watts / 9VA

So, in the split rail system diagram to the right, the maximum power consumption on the supply would be 38 Watts.



- 2 RMC modules consumes 7W
- 2 RME modules consumes 7W
- 1 RMA module consumes 4W
- 1 Remote User Interface consumes 6W

With this power requirement the second or third power supply should be used.

Another hardware configuration scenario that could present itself (graphic not shown) would be a configuration that requires more than one supply. Lets make some assumptions pertaining to the split rail system diagram shown above. The power supply used is the 91W supply. The top DIN rail now has the following modules:

- 2 RMC modules consumes 14W
- 1 RMA consumes 4W
- **11 RME modules consumes 77W**

As it can now be understood, the total power requirement exceeds 91W. In this case, another power supply would be required. To incorporate another supply in this system simply disconnect pins 99 and 98 on the remote DIN rail and connect another appropriately sized

power supply to those same pins.

When using a split rail configuration ensure that the interconnections for the Inter-module Bus and Standard Bus do not exceed 200 feet. Standard Bus and the Inter-module Buses are different protocols and both are required for split rail configurations. Without having both connected, communications between modules would not be possible.

Note:
Unit is not provided with a disconnect, use of an external disconnect is required. It should be located in close proximity to the unit and be labeled as the disconnect for the unit.

Note:
Connecting power supplies in parallel is not allowed. When power consumption is greater than 91 watts use a split rail configuration.

Conventions Used in the Menu Pages

To better understand the menu pages that follow review the naming conventions used. When encountered throughout this document, the word "default" implies as shipped from the factory. Each page (Operations, Setup, Profile and Factory) and their associated menus have identical headers defined below:

Header Name	Definition
Display	Visually displayed information from the control.
Parameter Name	Describes the function of the given parameter.
Range	Defines options available for this prompt, i.e., min/max values (numerical), yes/no, etc... (further explanation below).
Default	Values as delivered from the factory.
Modbus Relative Address	Identifies unique parameters using either the Modbus RTU or Modbus TCP protocols (further explanation below).
CIP (Common Industrial Protocol)	If used in conjunction with an RMA module identifies unique parameters using either the DeviceNet or EtherNet/IP protocol (further explanation below).
Profibus Index	If used in conjunction with an RMA module identifies unique parameters using Profibus DP protocol (further explanation below).
Parameter ID	Identifies unique parameters used with other software such as, LabVIEW.
Data Type and Access (R/W)	uint = Unsigned 16 bit integer dint = Signed 32-bit, long string = ASCII (8 bits per character) float = IEEE 754 32-bit RWES = **R**eadable **W**ritable **E**EPROM (saved) **U**ser Set (saved)

Display

When the RME module is used in conjunction with the RUI (optional equipment) visual information from the control is displayed to the observer using a fairly standard 7 segment display. Due to the use of this technology, several characters displayed need some interpretation, see the list below:

1 = 1	7 = 7	c, C = c	i = i	o = o	u = u
2 = 2	8 = 8	d = d	J = J	P = P	v = v
3 = 3	9 = 9	E = E	K = K	q = q	W = W
4 = 4	0 = 0	F = F	L = L	r = r	y = y
5 = 5	A = A	g = g	M = M	S = S	Z = Z
6 = 6	b = b	h = h	n = n	t = t	

Range

Within this column notice that on occasion there will be numbers found within parenthesis. This number represents the enumerated value for that particular selection. Range selections can be made simply by writing the enumerated value of choice using any of the available communications protocols. As an example, turn to the RME Setup Page and look at the Alarm Menu and then the Alarm Type. To turn the alarm off using Modbus simply write the value of 62 (off) to register 1468 and send that value to the control.

Note:

With firmware release 9.0 and above, two new parameters (Minimum and Maximum) were added to allow ranges to be opened up to display full values. Unsigned integer may take on a range of 0 to 65,535 and floating point may take on a range of -3.4E+38 to 3.4E+38. Prior to revision 9.0, ranges were clamped to accommodate the seven segment LED display of the RUI. Both of these new parameters can be found in the Setup Page under the Global Menu.

Communication Protocols

All modules come with the standard offering of Watlow's Standard Bus protocol used primarily for inter-module communications as well as for configuration using EZ-ZONE Configurator software (free download from Watlow's web site (http://www.watlow.com). The RMA module has options for several different protocols listed below:

- Modbus RTU 232/485
- EtherNet/IP, Modbus TCP
- DeviceNet
- Profibus DP

To learn more about the RM Access module click on the link below. Once there simply type in RM in the Keyword field. http://www.watlow.com/literature/manuals.cfm

Modbus RTU Protocol

All Modbus registers are 16-bits and as displayed in this manual are relative addresses (actual). Some legacy software packages limit available Modbus registers to 40000 to 49999 (5 digits). Many applications today require access to all available Modbus registers which range from 400001 to 465535 (6 digits). Watlow controls support 6 digit Modbus registers.

Note:
In this User's Guide all values shown representing Modbus addresses are added to 400,001 or 40,001 to acquire the absolute address.

For parameters listed as float, notice that only one (low order) of the two registers is listed, this is true throughout this document. By default, the low order word contains the two low bytes of the 32-bit parameter. As an example, look in the Controller Operations Page for the Alarm Low Set Point. Find the column identified in the header as Modbus and notice that it lists register 1442 under Map 1. Because this parameter is a float, it is actually represented by registers 1442 (low order bytes) and 1443 (high order bytes). The Modbus specification does not dictate which register should be high or low order so Watlow provides the user the ability to swap this order (Setup Page, Communications Menu) from the default low/high to high/low.

Note:
With the release of firmware revision 9.00 and above, new functions where introduced into this product line. With the introduction of these new functions there was a reorganization of Modbus registers. Notice the reference to Map 1 and Map 2 registers in the column identified as Modbus Relative Address in each of the tables that follow. Select Map 1 or Map 2 in the Setup Page under the Communications Menu. This setting, Map 1 or Map 2, will apply across the controller.

It should also be noted that most of the cells in the Modbus column contain wording pertaining to an offset for Map 1 and Map 2. Several parameters in the controller contain more than one instance; such as, Alarms (8), Current (16), etc... The Modbus register shown always represents instance one. Take for an example the Silence Alarm parameter found in the Setup Page under the Alarm Menu. Instance one of Map 1 is shown as address 1492 and +60 is identified as the offset to the next instance for Map 1 and Map 2. If there was a desire to silence the alarm for instance 3, simply add 120 to 1492 to find its address, in this case, the instance 3 address for Alarm Silence is 1612 and write the value of 0 to it.
RME _ - _ _ _ _ - A 1 _ _
or
RMA _ - A **[2, 3]** _ _ - A A _
or
EZKB - x [2,3] _ _ - _ _ _ _

To learn more about the Modbus protocol point your browser to http://www.modbus.org.

Note:
Some values will be rounded off to fit in the four-character RUI display. Full values can be read with other interfaces. In firmware 9.0 and above, a user may specify ranges greater than may displayed by an RUI. If greater or less than an RUI can display, the display will show Value High uAL.H or Value Low uAL.L.

3 Chapter 3: Operations Pages

RME Operation Page Parameters

To navigate to the Operations Page using the RUI, follow the steps below:

1. From the Home Page, press both the Up and Down keys for three seconds. What appears in the upper display is dependent on ordering options and oPEr will appear in the lower display.
2. Press the Up or Down key to view available menus.
3. Press the Advance Key to enter the menu of choice.
4. If a submenu exists (more than one instance), press the Up or Down key to select and then press the Advance Key to enter.
5. Press the Up or Down key to move through available menu prompts.
6. Press the Infinity Key to move backwards through the levels: parameter to submenu, submenu to menu, menu to Home Page.
7. Press and hold the Infinity Key for two seconds to return to the Home Page.

On the following pages, top level menus are identified with a yellow background color.

Note:
Some of these menus and parameters may not appear, depending on the controller's options. See model number information in the Appendix for more information. If there is only one instance of a menu, no submenus will appear.

Note:
Some of the listed parameters may not be visible. Parameter visibility is dependent upon controller part number.

d io
oPEr Digital Input/Output Menu
1
d io Digital Input/Output (1 to 24)
doS Output State
d iS Input State

ACt
oPEr Action Menu
1
ACt Action (1 to 8)
E iS Event Status

ALM
oPEr Alarm Menu
1
ALM Alarm (1 to 8)
ALo Low Set Point
Ah i High Set Point
ACLr Clear Alarm *
ASir Silence Alarm *
ASt Alarm State *

CUrr
oPEr Current Menu
1
CUrr Current (1 to 16)
Ch i High Set Point
CLo Low Set Point
LdCu Load Current RMS
CEr Current Error
hEr Heater Error

Lnr
oPEr Linearization Menu
1
Lnr Linearization (1 to 8)
SuA Source Value A
oFSt Offset
ou Output Value

CPE
oPEr Compare Menu
1
CPE Compare (1 to 8)
SuA Source Value A
Sub Source Value B
ou Output Value

tMr
oPEr Timer Menu
1
tMr Timer (1 to 8)
SuA Source Value A
Sub Source Value B
Et Elapsed Time
ou Output Value

Ctr
oPEr Counter Menu
1
Ctr Counter (1 to 8)
Cnt Count
SuA Source Value A
Sub Source Value B
ou Output Value

LgC
oPEr Logic Menu
1
LgC Logic (1 to 16)
SuA Source Value A
Sub Source Value B
SuC Source Value C
Sud Source Value D
SuE Source Value E
SuF Source Value F
Sug Source Value G
Suh Source Value H
ou Output Value

MAt
oPEr Math Menu
1
MAt Math (1 to 8)
SuA Source Value A
Sub Source Value B
SuC Source Value C
Sud Source Value D
SuE Source Value E
oFSt Offset
ou Output Value

SoF
oPEr Special Output Function Menu
1
SoF Special Output Function (1 to 4)
SuA Source Value A
Sub Source Value B
ou.1 Output Value 1
ou.2 Output Value 2
ou.3 Output Value 3
ou.4 Output Value 4

Note:
Some values will be rounded off to fit in the four-character RUI display. Full values can be read with other interfaces. In firmware 9.0 and above, a user may specify ranges greater than may displayed by an RUI. If greater or less than an RUI can display, the display will show Value High uAL.H or Value Low uAL.L.

RME Module • Operations Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
d io oPEr **Digital Input/Output Menu**								
do.S do.S	*Digital Output (1 to 24)* **Output State** View the state of this output.	oFF Off (62) on On (63)	- - - -	***Instance 1*** Map 1 Map 2 372 432 *Map 1 Offset to next instance equals +30* *Map 2 Offset to next instance equals +40*	0x6A (106) 1 to 24 7	28	6007	uint R
d i.S di.S	*Digital Input (7 to 12)* **Input State** View this event input state.	oFF Off (62) on On (63)	- - - -	***Instance 1*** Map 1 Map 2 380 440 *Map 1 Offset to next instance equals +30* *Map 2 Offset to next instance equals +40*	0x6A (106) 1 to 24 0xB (11)	- - - -	6011	uint R
No Display	*Digital Input (1 to 24)* **Source Error** View reported cause for input malfunction.	None (61) Open (65) Shorted (127) Measurement error (140) Bad calibration data (139) Ambient error (9) RTD error (14) Fail (32) Math error (1423) Not sourced (246) Stale (1617)	- - - -	***Instance 1*** Map 1 Map 2 388 448 *Map 1 Offset to next instance equals +30* *Map 2 Offset to next instance equals +40*	0x6A (106) 1 to 24 0x0F (15)	- - - -	6015	uint R
* These parameters/prompts are available in these menus with firmware revisions 6.0 and above. ** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module • Operations Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
ACt oPEr **Action Menu**								
E.S Ei.S	*Action (1 to 8)* **Event Input Status** View this input state.	oFF Off (62) on On (63)	- - - -	***Instance 1*** Map 1 Map 2 1288 2988 *Map 1 and Map 2 Offset to next instance equals +20*	0x6E (110) 1 to 8 5	74	10005	uint R
ALM oPEr **Alarm Menu**								
A.Lo A.Lo	*Alarm (1 to 8)* **Low Set Point** If 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 from the set point that will trigger a low alarm. A negative set point represents a value below closed loop set point. A positive set point represents a value above closed loop set point.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	32.0°F or units 0.0°C	***Instance 1*** Map 1 Map 2 1442 3142 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 2	0	9002	float RWES

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Operations Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
A.hi A.hi	*Alarm (1 to 8)* **High Set Point** If 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 from the set point that will trigger a low alarm. A negative set point represents a value below closed loop set point. A positive set point represents a value above closed loop set point.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	300.0°F or units 150.0°C	***Instance 1*** Map 1 Map 2 1440 3140 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 1	1	9001	float RWES
A.CLr A.CLr	*Alarm (1 to 8)* **Clear Alarm** Write to this register to clear an alarm	0	- - - -	***Instance 1*** Map 1 Map 2 1464 3164 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 0xD (13)	14	9013	uint W
A.Sir A.Sir	*Alarm (1 to 8)* **Silence Alarm** Write to this register to silence an alarm	0	- - - -	***Instance 1*** Map 1 Map 2 1466 3166 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 0xE (14)	15	9014	uint W
A.St A.St	*Alarm (1 to 8)* **Alarm State** Current state of alarm	Startup (88) None (61) Blocked (12) Alarm low (8) Alarm high (7) Error (28)	- - - -	***Instance 1*** Map 1 Map 2 1456 3156 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 9	- - - -	9009	uint R
* These parameters/prompts are available in these menus with firmware revisions 6.0 and above. ** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module • Operations Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
No Display	*Alarm (1 to 8)* **Alarm Clearable** Read to see if alarm can be cleared.	no No (59) YES Yes (106)	- - - -	***Instance 1*** Map 1 Map 2 1462 3162 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 0xC (12)	- - - -	9012	uint R
No Display	*Alarm (1 to 8)* **Silenced** Read to see if alarm is active but has been silenced by Silence Alarm.	Yes (106) No (59)	- - - -	***Instance 1*** Map 1 Map 2 1460 3160 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 4 0x0B (11)	- - - -	9011	uint R
No Display	*Alarm (1 to 8)* **Latched** Read to see if alarm is currently latched.	Yes (106) No (59)	- - - -	***Instance 1*** Map 1 Map 2 1458 3158 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 4 0x0A (10)	- - - -	9010	uint R
CUrr oPEr **Current Menu**								
Ch i C.hi	*Current (1 to 16)* **High Set Point** Set the current value that will trigger a high heater error state.	-1,999.000 to 9,999.000	50.0	***Instance 1*** Map 1 Map 2 1094 1394 *Map 1 Offset to next instance equals +50* *Map 2 Offset to next instance equals +100*	0x73 (115) 1 to 16 8	- - - -	15008	float RWES
CLo C.Lo	*Current (1 to 16)* **Low Set Point** Set the current value that will trigger a low heater error state.	-1,999.000 to 9,999.000	0.0	***Instance 1*** Map 1 Map 2 1096 1396 *Map 1 Offset to next instance equals +50* *Map 2 Offset to next instance equals +100*	0x73 (115) 1 to 16 9	- - - -	15009	float RWES

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Operations Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
Ld.Cu Ld.Cu	*Current (1 to 16)* **Current** The measured current value with scaling and offset applied when associated output is on.	0 to 9,999.00	- - - -	***Instance 1*** Map 1 Map 2 1092 1392 *Map 1 Offset to next instance equals +50* *Map 2 Offset to next instance equals +100*	0x73 (115) 1 to 16 7	- - - -	15007	float R
No Display	*Current (1 to 16)* **Sample and Hold Current** Samples and holds the last valid current reading, this transmitter will reset on a controller power cycle.	-1,999.000 to 9,999.000	- - - -	***Instance 1*** Map 1 Map 2 1080 1380 *Map 1 Offset to next instance equals +50* *Map 2 Offset to next instance equals +100*	0x73 (115) 1 to 16 1	- - - -	15001	float R
C.Er C.Er	*Current (1 to 4)* **Current Error** View the cause of the most recent load fault.	nonE None (61) Shrt Shorted (127) oPEn Open (65)	- - - -	***Instance 1*** Map 1 Map 2 1082 1382 *Map 1 Offset to next instance equals +50* *Map 2 Offset to next instance equals +100*	0x73 (115) 1 to 16 2	- - - -	15002	uint R
h.Er h.Er	*Current (1 to 16)* **Heater Error** View the cause of the most recent load fault monitored by the current transformer.	nonE None (61) h iGh High (37) LobJ Low (53)	- - - -	***Instance 1*** Map 1 Map 2 1084 1384 *Map 1 Offset to next instance equals +50* *Map 2 Offset to next instance equals +100*	0x73 (115) 1 to 16 3	- - - -	15003	uint R

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Operations Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
No Display	*Current (1 to 16)* **Actual Power** Power delivered to output monitored by CT.	0.0 to 100.0%	- - - -	***Instance 1*** Map 1 Map 2 1118 1418 *Map 1 Offset to next instance equals +50* *Map 2 Offset to next instance equals +100*	0x73 (115) 1 to 16 0x14 (20)	- - - -	15020	float R
No Display	*Current (1 to 16)* **Error Status** View the cause of the most recent load fault	None (61) Fail (32)	- - - -	***Instance 1*** Map 1 Map 2 1120 1420 *Map 1 Offset to next instance equals +50* *Map 2 Offset to next instance equals +100*	0x73 (115) 1 to 16 21	- - - -	15021	uint R
LnroPEr **Linearization Menu**								
Su.A Su.A	*Linearization (1 to 8)* **Source Value A** View the value of Source A.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	- - - -	***Instance 1*** Map 1 Map 2 5546 6526 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 4	- - - -	34004	float R
oFSt oFSt	*Linearization (1 to 8)* **Offset** Set an offset to be applied to this function's output.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0	***Instance 1*** Map 1 Map 2 5550 6530 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 6	- - - -	34006	float RWES
o.u o.v	*Linearization (1 to 8)* **Output Value** View the value of this function's output.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	- - - -	***Instance 1*** Map 1 Map 2 5552 6532 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 7	- - - -	34007	float R

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Operations Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
No Display	*Linearization (1 to 8)* **Error** View reported cause for Linearization output malfunction.	None (61) Open (65) Shorted (127) Measurement error (140) Bad calibration data (139) Ambient error (9) RTD error (14) Fail (32) Math error (1423) Not sourced (246) Stale (1617) Can't process (1659)	- - - -	***Instance 1*** Map 1 Map 2 5594 6574 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 0x1C (28)	- - - -	34028	uint R
CPE oPEr **Compare Menu**								
Su.A Su.A	*Compare (1 to 8)* **Source Value A** View the value of Source A.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	- - - -	***Instance 1*** Map 1 Map 2 3992 5492 *Map 1 and Map 2 Offset to next instance equals +40*	0x80 (128) 1 to 8 7	- - - -	28007	float R
Su.b Su.b	*Compare (1 to 8)* **Source Value B** View the value of Source B.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	- - - -	***Instance 1*** Map 1 Map 2 3994 5494 *Map 1 and Map 2 Offset to next instance equals +40*	0x80 (128) 1 to 8 8	- - - -	28008	float R
o.u o.v	*Compare (1 to 8)* **Output Value** View the value of this function's output.	oFF Off (62) on On (63)	- - - -	***Instance 1*** Map 1 Map 2 3998 5498 *Map 1 and Map 2 Offset to next instance equals +40*	0x80 (128) 1 to 8 0xA (10)	- - - -	28010	uint R
* These parameters/prompts are available in these menus with firmware revisions 6.0 and above. ** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module • Operations Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
No Display	*Compare (1 to 8)* **Error** Read reported cause for compare error	None (61) Open (65) Shorted (127) Measurement Error (140) Bad Cal Data (139) Ambient Error (9) RTD Error (141) Fail (32) Math Error (1423) Not Sourced (246) Stale (1617)	- - - -	***Instance 1*** Map 1 Map 2 4004 5504 *Map 1 and Map 2 Offset to next instance equals +40*	0x80 (128) 1 to 8 0x0D (13)	- - - -	28013	uint R
tMr oPEr **Timer Menu**								
Su.A Su.A	*Timer (1 to 8)* **Source Value A** View the value of Source A.	oFF Off (62) on On (63)	- - - -	***Instance 1*** Map 1 Map 2 4952 6132 *Map 1 and Map 2 Offset to next instance equals +50*	0x83 (131) 1 to 8 7	- - - -	31007	uint R
Su.b Su.b	*Timer (1 to 8)* **Source Value B** View the value of Source B.	oFF Off (62) on On (63)	- - - -	***Instance 1*** Map 1 Map 2 4954 6134 *Map 1 and Map 2 Offset to next instance equals +50*	0x83 (131) 1 to 8 8	- - - -	31008	uint R
E.t E.t	*Timer (1 to 8)* **Elapsed Time** View the value of this function's elapsed time.	0 to 9,999.000 seconds	- - - -	***Instance 1*** Map 1 Map 2 4970 6150 *Map 1 and Map 2 Offset to next instance equals +50*	0x83 (131) 1 to 8 0x10 (16)	- - - -	31016	float R
o.u o.v	*Timer (1 to 8)* **Output Value** View the value of this function's output.	oFF Off (62) on On (63)	- - - -	***Instance 1*** Map 1 Map 2 4958 6138 *Map 1 and Map 2 Offset to next instance equals +50*	0x83 (131) 1 to 8 0xA (10)	- - - -	31010	uint R
* These parameters/prompts are available in these menus with firmware revisions 6.0 and above. ** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module • Operations Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
No Display	*Timer (1 to 8)* **Error** Read reported cause for timer error	None (61) Open (65) Shorted (127) Measurement Error (140) Bad Cal Data (139) Ambient Error (9) RTD Error (141) Fail (32) Math Error (1423) Not Sourced (246) Stale (1617)	- - - -	***Instance 1*** Map 1 Map 2 4974 6154 *Map 1 and Map 2 Offset to next instance equals +50*	0x83 (131) 1 to 8 0x12 (18)	- - - -	31018	uint R
CtrL oPEr **Counter Menu**								
CnE Cnt	*Counter (1 to 8)* **Count** View the function's total count.	0 to 9,999	- - - -	***Instance 1*** Map 1 Map 2 4488 5828 *Map 1 and Map 2 Offset to next instance equals +40*	0x82 (130) 1 to 8 0xF (15)	217	30015	uint R
Su.A Su.A	*Counter (1 to 8)* **Source Value A** View the value of Source A.	oFF Off (62) on On (63)	- - - -	***Instance 1*** Map 1 Map 2 4472 5812 *Map 1 and Map 2 Offset to next instance equals +40*	0x82 (130) 1 to 8 7	- - - -	30007	uint R
Su.b Su.b	*Counter (1 to 8)* **Source Value B** View the value of Source B.	oFF Off (62) on On (63)	- - - -	***Instance 1*** Map 1 Map 2 4474 5814 *Map 1 and Map 2 Offset to next instance equals +40*	0x82 (130) 1 to 8 8	- - - -	30008	uint R
o.u o.v	*Counter (1 to 8)* **Output Value** View the value of this function's output.	oFF Off (62) on On (63)	- - - -	***Instance 1*** Map 1 Map 2 4478 5818 *Map 1 and Map 2 Offset to next instance equals +40*	0x82 (130) 1 to 8 0xA (10)	- - - -	30010	uint R
* These parameters/prompts are available in these menus with firmware revisions 6.0 and above. ** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module • Operations Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
No Display	*Counter (1 to 8)* **Error** Read reported cause for counter error	None (61) Open (65) Shorted (127) Measurement Error (140) Bad Cal Data (139) Ambient Error (9) RTD Error (141) Fail (32) Math Error (1423) Not Sourced (246) Stale (1617)	- - - -	***Instance 1*** Map 1 Map 2 4490 5830 *Map 1 and Map 2 Offset to next instance equals +40*	0x82 (130) 1 to 8 0x10 (16)	- - - -	30016	uint R
LOG oPEr **Logic Menu**								
Su.A Su.A	*Logic (1 to 16)* **Source Value A** View the value of Source A.	oFF Off (62) on On (63)	- - - -	***Instance 1*** Map 1 Map 2 3068 4248 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0x19 (25)	- - - -	27025	uint R
Su.b Su.b	*Logic (1 to 16)* **Source Value B** View the value of Source B.	oFF Off (62) on On (63)	- - - -	***Instance 1*** Map 1 Map 2 3070 4250 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0x1A (26)	- - - -	27026	uint R
Su.C Su.C	*Logic (1 to 16)* **Source Value C** View the value of Source C.	oFF Off (62) on On (63)	- - - -	***Instance 1*** Map 1 Map 2 3072 4252 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0x1B (27)	- - - -	27027	uint R
Su.d Su.d	*Logic (1 to 16)* **Source Value D** View the value of Source D.	oFF Off (62) on On (63)	- - - -	***Instance 1*** Map 1 Map 2 3074 4254 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0x1C (28)	- - - -	27028	uint R

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Operations Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
Su.E Su.E	*Logic (1 to 16)* **Source Value E** View the value of Source E.	oFF Off (62) on On (63)	- - - -	***Instance 1*** Map 1 Map 2 3076 4256 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0x1D (29)	- - - -	27029	uint R
Su.F Su.F	*Logic (1 to 16)* **Source Value F** View the value of Source F.	oFF Off (62) on On (63)	- - - -	***Instance 1*** Map 1 Map 2 3078 4258 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0x1E (30)	- - - -	27030	uint R
Su.g Su.g	*Logic (1 to 16)* **Source Value G** View the value of Source G.	oFF Off (62) on On (63)	- - - -	***Instance 1*** Map 1 Map 2 3080 4260 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0x1F (31)	- - - -	27031	uint R
Su.h Su.h	*Logic (1 to 16)* **Source Value H** View the value of Source H.	oFF Off (62) on On (63)	- - - -	***Instance 1*** Map 1 Map 2 3082 4262 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0x20 (32)	- - - -	27032	uint R
o.u o.v	*Logic (1 to 16)* **Output Value** View the value of this function's output.	oFF Off (62) on On (63)	- - - -	***Instance 1*** Map 1 Map 2 3086 4266 *Map 1 and Map 2 Offset to next instance equals +80*	7F (127) 1 to 16 0x22 (34)	- - - -	27034	uint R

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Operations Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
No Display	*Logic (1 to 16)* **Error** Read reported cause for logic error	None (61) Open (65) Shorted (127) Measurement Error (140) Bad Cal Data (139) Ambient Error (9) RTD Error (141) Fail (32) Math Error (1423) Not Sourced (246) Stale (1617)	- - - -	***Instance 1*** Map 1 Map 2 3090 4270 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0x24 (36)	- - - -	27036	uint R
MAt oPEr **Math Menu**								
Su.A Su.A	*Math (1 to 8)* **Source Value A** View the value of Source A.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	- - - -	***Instance 1*** Map 1 Map 2 2210 3670 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0x10 (16)	- - - -	25016	float R
Su.b Su.b	*Math (1 to 8)* **Source Value B** View the value of Source B.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	- - - -	***Instance 1*** Map 1 Map 2 2212 3672 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0x11 (17)	- - - -	25017	float R
Su.C Su.C	*Math (1 to 8)* **Source Value C** View the value of Source C.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	- - - -	***Instance 1*** Map 1 Map 2 2214 3674 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0x12 (18)	- - - -	25018	float R
Su.d Su.d	*Math (1 to 8)* **Source Value D** View the value of Source D.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	- - - -	***Instance 1*** Map 1 Map 2 2216 3676 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0x13 (19)	- - - -	25019	float R
* These parameters/prompts are available in these menus with firmware revisions 6.0 and above. ** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module • Operations Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
Su.E Su.E	*Math (1 to 8)* **Source Value E** View the value of Source E.	oFF Off (62) on On (63)	- - - -	***Instance 1*** Map 1 Map 2 2218 3678 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0x14 (20)	- - - -	25020	uint R
oFSt oFSt	*Math (1 to 8)* **Offset** Set an offset to be applied to this function's output.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0	***Instance 1*** Map 1 Map 2 2224 3684 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0x17 (23)	- - - -	25023	float RWES
o.u o.v	*Math (1 to 8)* **Output Value** View the value of this function's output.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	- - - -	***Instance 1*** Map 1 Map 2 2222 3682 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0x16 (22)	- - - -	25022	float R
No Display	*Math (1 to 8)* **Error** Read reported cause for logic error	None (61) Open (65) Shorted (127) Measurement Error (140) Bad Cal Data (139) Ambient Error (9) RTD Error (141) Fail (32) Math Error (1423) Not Sourced (246) Stale (1617)	- - - -	***Instance 1*** Map 1 Map 2 2236 3696 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0x1D (29)	- - - -	25029	uint R
SoF oPEr **Special Output Function Menu**								
Su.A Su.A	*Special Output Function (1 to 4)* **Source Value A** View the value of Source A.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	- - - -	***Instance 1*** Map 1 Map 2 6632 7412 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 7	- - - -	35007	float R

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Operations Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
Su.b Su.b	*Special Output Function (1 to 4)* **Source Value B** View the value of Source B.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	- - - -	***Instance 1*** Map 1 Map 2 6634 7414 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 8	- - - -	35008	float R
o.u 1 o.v1	*Special Output Function (1 to 4)* **Output Value 1** View the value of this function's Output 1.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	- - - -	***Instance 1*** Map 1 Map 2 6638 7418 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0xA (10)	- - - -	35010	float R
No Display	*Special Output Function (1 to 4)* **Error 1** View reported cause for output malfunction.	None (61) Open (65) Shorted (127) Measurement error (140) Bad calibration data (139) Ambient error (9) RTD error (14) Fail (32) Math error (1423) Not sourced (246) Stale (1617) Can't process (1659)	- - - -	***Instance 1*** Map 1 Map 2 6640 7420 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0x0B (11)	- - - -	35011	uint R
o.u2 o.v2	*Special Output Function (1 to 4)* **Output Value 2** View the value of this function's Output 2.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	- - - -	***Instance 1*** Map 1 Map 2 6642 7422 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0xC (12)	- - - -	35012	float R
* These parameters/prompts are available in these menus with firmware revisions 6.0 and above. ** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module • Operations Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
No Display	*Special Output Function (1 to 4)* **Error 2** View reported cause for output malfunction.	None (61) Open (65) Shorted (127) Measurement error (140) Bad calibration data (139) Ambient error (9) RTD error (14) Fail (32) Math error (1423) Not sourced (246) Stale (1617) Can't process (1659)	- - - -	***Instance 1*** Map 1 Map 2 6644 7424 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0x0D (13)	- - - -	35013	uint R
o.v3	*Special Output Function (1 to 4)* **Output Value 3** View the value of this function's Output 3.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	- - - -	***Instance 1*** Map 1 Map 2 6646 7426 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0xE (14)	- - - -	35014	float R
No Display	*Special Output Function (1 to 4)* **Error 3** View reported cause for output malfunction.	None (61) Open (65) Shorted (127) Measurement error (140) Bad calibration data (139) Ambient error (9) RTD error (14) Fail (32) Math error (1423) Not sourced (246) Stale (1617) Can't process (1659)	- - - -	***Instance 1*** Map 1 Map 2 6648 7428 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0x0F (15)	- - - -	35015	uint R
o.v4	*Special Output Function (1 to 4)* **Output Value 4** View the value of this function's Output 4.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	- - - -	***Instance 1*** Map 1 Map 2 6650 7430 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0x10 (16)	- - - -	35016	float R

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Operations Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
No Display	*Special Output Function (1 to 4)* **Error 4** View reported cause for output malfunction.	None (61) Open (65) Shorted (127) Measurement error (140) Bad calibration data (139) Ambient error (9) RTD error (14) Fail (32) Math error (1423) Not sourced (246) Stale (1617) Can't process (1659)	- - - -	***Instance 1*** Map 1 Map 2 6652 7432 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0x11 (17)	- - - -	35017	uint R
* These parameters/prompts are available in these menus with firmware revisions 6.0 and above. ** R: Read, W: Write, E: EEPROM, S: User Set								

4 Chapter 4: Setup Pages

RME Setup Page Parameters

To navigate to the Setup Page using the RUI, follow the steps below:

1. From the Home Page, press and hold both the Up ▲ and Down ▼ keys for six seconds. What appears in the upper display is dependent on ordering options and SEt will appear in the lower display.

Note:
If keys are released when oPEr is displayed, press the Infinity Key ∞ or reset key to exit and repeat until SEt is displayed.

2. Press the Up ▲ or Down ▼ key to view available menus.
3. Press the Advance Key ◎ to enter the menu of choice.
4. If a submenu exists (more than one instance), press the Up ▲ or Down ▼ key to select and then press the Advance Key ◎ to enter.
5. Press the Up ▲ or Down ▼ key to move through available menu prompts.
6. Press the Infinity Key ∞ to move backwards through the levels: parameter to submenu, submenu to menu, menu to Home Page.
7. Press and hold the Infinity Key ∞ for two seconds to return to the Home Page.

On the following pages, top level menus are identified with a yellow background color.

Note:
Some of these menus and parameters may not appear, depending on the controller's options. See model number information in the Appendix for more information. If there is only one instance of a menu, no submenus will appear.

Note:
Some of the listed parameters may not be visible. Parameter visibility is dependent upon controller part number.

d io
SEt **Digital Input/Output Menu**
1
d io Digital Input/Output (1 to 24)
dir Direction
Fn Function
F1 Output Function Instance
S2.A Output Source Zone A
oCt Time Base Type
otb Fixed Time Base
oLo Low Power Scale
oh1 High Power Scale

ACt
SEt **Action Menu**
1
ACt Action (1 to 8)
Fn Function
F1 Function Instance
SFn.A Source Function A
S1.A Source Instance A
S2.A Source Zone A
LEv Active Level

otPt
SEt **Output Menu**
1
otPt Output (1 to 4, 7 to 9, 13 to 16, 19 to 21)
Fn Function
F1 Output Function Instance
S2.A Output Source Zone A
oCt Time Base Type
otb Fixed Time Base
oLo Low Power Scale
oh1 High Power Scale
otPt Output (1-3, 7-9, 13-15, 19-21 process)
oty Output Type
Fn Function
F1 Output Function Instance
S2.A Source Zone A

SLo Scale Low
Sh i Scale High
rLo Range Low
ch i Range High
oCA Calibration Offset

ALM

SEt **Alarm Menu**

1

ALM Alarm (1 to 8)

AtY Type
SrA Alarm Source
iSA Alarm Source Instance
S2A Alarm Source Zone
AhY Hysteresis
ALG Logic
ASd Sides
ALo Low Set Point *
Ah i High Set Point *
ALA Latching
AbL Blocking
AS i Silencing
AdSP Display
AdL Delay Time
ACLr Clear Alarm *
AS ir Silence Alarm *
ASt Alarm State *

CUrr

SEt **Current Menu**

1

CUrr Current (1 to 16)

CSd Sides
CUr Indicate Reading
Cdt Detection Threshold
CSC Input Scaling
CoFS Heater Offset
CS i Monitored Output
Er99 Monitored Zone

Lnr

SEt **Linearization Menu**

1

Lnr Linearization (1 to 8)

Fn Function
SFnA Source Function A
S iA Source Instance A
S2A Source Zone A
Unit Units
iP 1 Input Point 1
oP 1 Output Point 1
iP2 Input Point 2
oP2 Output Point 2
iP3 Input Point 3
oP3 Output Point 3
iP4 Input Point 4
oP4 Output Point 4
iP5 Input Point 5
oP5 Output Point 5
iP6 Input Point 6
oP6 Output Point 6
iP7 Input Point 7
oP7 Output Point 7
iP8 Input Point 8
oP8 Output Point 8
iP9 Input Point 9
oP9 Output Point 9
iP 10 Input Point 10
oP 10 Output Point 10

CPE

SEt **Compare Menu**

Fn

CPE Compare (1 to 8)

1 Function
toL Tolerance
SFnA Source Function A
S iA Source Instance A
S2A Source Zone A
SFnb Source Function B
S ib Source Instance B
S2b Source Zone B
Erh Error Handling

tMr

SEt **Timer Menu**

1

tMr Timer (1 to 8)

Fn Function
SFnA Source Function A
S iA Source Instance A
S2A Source Zone A
SASA Run Active Level
SFnb Source Function B
S ib Source Instance B
S2b Source Zone B
SASb Reset Active Level
t i Time
LEu Transmitter Active Level

Ctr

SEt Counter Menu

1

Ctr Counter (1 to 8)

Fn Function
SFnA Source Function A
S iA Source Instance A
S2A Source Zone A
SASA Count Active Level
SFnb Source Function B
S ib Source Instance B
S2b Source Zone B
SASb Reset Active Level
LoAd Load Value
trgt Target Value
LAt Latching

LGC

SEt **Logic Menu**

1

LGC Logic (1 to 16)

Fn Function
SFnA Source Function A
S iA Source Instance A
S2A Source Zone A
SFnb Source Function B
S ib Source Instance B
S2b Source Zone B
SFnC Source Function C
S iC Source Instance C
S2C Source Zone C
SFnd Source Function D
S id Source Instance D
S2d Source Zone D
SFnE Source Function E
S iE Source Instance E
S2E Source Zone E
SFnF Source Function F
S iF Source Instance F
S2F Source Zone F
SFnG Source Function G
S iG Source Instance G
S2G Source Zone G

SFnH Source Function H
S iH Source Instance H
S2.H Source Zone H
Er.H Error Handling

MATH

SEt **Math Menu**

1

MATH Math (1 to 8)

Fn Function
SFnA Source Function A
S iA Source Instance A
S2.A Source Zone A
SFnb Source Function B
S ib Source Instance B
S2.b Source Zone B
SFnC Source Function C
S iC Source Instance C
S2.C Source Zone C
SFnd Source Function D
S id Source Instance D
S2.d Source Zone D
SFnE Source Function E
S iE Source Instance E
S2.E Source Zone E
S.Lo Scale Low
S.hi Scale High
Unit Units
r.Lo Range Low
r.hi Range High
P.unt Pressure Units
A.unt Altitude Units
FiL Filter

SoF

SEt **Special Output Function Menu**

1

SoF Special Output Function (1 to 4)

Fn Function
SFnA Source Function A
S iA Source Instance A
S2.A Source Zone A
SFnb Source Function B
S ib Source Instance B
S2.b Source Zone B
PonA Input A Turn On
PoF.A Input A Turn Off
Ponb Input B Turn On
PoF.b Input B Turn Off
ont Minimum On Time
oF.t Minimum Off Time
t.t Valve Travel Time
db Dead Band
oS.1 Output 1 Size
oS.2 Output 2 Size
oS.3 Output 3 Size
oS.4 Output 4 Size
t.dL Time Delay
ot.L Output Order

uAr

SEt **Variable Menu**

1

uAr Variable (1 to 16)

tYPE Data Type
Unit Units
d iG Digital
AnLG Analog

GLbL

SEt **Global Menu**

GLbL Global

C_F Display Units
AC.LF AC Line Frequency
MAXH Maximum
MiN Minimum
dPrS Display Pairs
USr.S Save Settings As
USr.r Restore Settings From

COMM

SEt **Communications Menu**

COMM Communications

bAUd Baud Rate
PAr Parity
MdhL Modbus Word Order
C_F Display Units
MAP Data Map
nu.S Non-Volatile Save

Note:

Some values will be rounded off to fit in the four-character RUI display. Full values can be read with other interfaces. In firmware 9.0 and above, a user may specify ranges greater than may displayed by an RUI. If greater or less than an RUI can display, the display will show Value High uAL.H or Value Low uAL.L.

RME Module • Setup Page

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
d io SEt **Digital Input/Output Menu**								
d ir dir	*Digital Input/ Output (1 to 24)* **Direction** Set this function to operate as an input or output.	OtPt Output (68) in Input Voltage (193) iCon Input Dry Contact (44)	Output	***Instance 1*** Map 1 Map 2 360 420 *Map 1 Offset to next instance equals +30* *Map 2 Offset to next instance equals +40*	0x6A (106) 1 to 24 1	82	6001	uint RWES

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Setup Page

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
Fn Fn	*Digital Output (1 to 24)* **Function** Select what function will drive this output.	oFF Off (62) A1 Analog Input (142) ALM Alarm (6) C.Pr Cool Power (161) h.Pr Heat Power (160) CPE Compare (230) Ctr Counter (231) d1o Digital I/O (1142) Ent.A Profile Event Out A (233) Ent.b Profile Event Out B (234) Ent.C Profile Event Out C (235) Ent.d Profile Event Out D (236) Ent.E Profile Event Out E (247) Ent.F Profile Event Out F (248) Ent.9 Profile Event Out G (249) Ent.h Profile Event Out H (250) FUn Function Key (1001) LGC Logic (239) Lnr Linearization (238) MATH Math (240) Pu Process Value (241) SoF.1 Special Function Output 1 (1532) SoF.2 Special Function Output 2 (1533) SoF.3 Special Function Output 3 (1534) SoF.4 Special Function Output 4 (1535) tMR Timer (244) uAr Variable (245) h.Er Heater Error (184)	Off	***Instance 1*** Map 1 Map 2 368 428 *Map 1 Offset to next instance equals +30* *Map 2 Offset to next instance equals +40*	0x 6A (106) 1 to 24 5	83	6005	uint RWES

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Setup Page								
Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
F 1 Fi	*Digital Output (1 to 24)* **Output Function Instance** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 370 430 *Map 1 Offset to next instance equals +30* *Map 2 Offset to next instance equals +40*	0x6A (106) 1 to 24 6	84	6006	uint RWES
S2.A SZ.A	*Digital Output (1 to 24)* **Output Source Zone** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 382 442 *Map 1 Offset to next instance equals +30* *Map 2 Offset to next instance equals +40*	0x6A (106) 1 to 24 0xC (12)	- - - -	6012	uint RWES
o.Ct o.Ct	*Digital Output (1 to 24)* **Time Base Type** Set the output control type. This parameter is only used with PID control, but can be set anytime.	FtB Fixed Time Base (34) utB Variable Time Base (103)	Fixed Time Base	***Instance 1*** Map 1 Map 2 362 422 *Map 1 Offset to next instance equals +30* *Map 2 Offset to next instance equals +40*	0x6A (106) 1 to 24 2	85	6002	uint RWES
o.tb o.tb	*Digital Output (1 to 24)* **Fixed Time Base** Set the time base for fixed-time-base control.	0.1 to 60.0 seconds	1.0	***Instance 1*** Map 1 Map 2 364 424 *Map 1 Offset to next instance equals +30* *Map 2 Offset to next instance equals +40*	0x6A (106) 1 to 24 3	86	6003	float RWES

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Setup Page								
Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
o.Lo o.Lo	*Digital Output (1 to 24)* **Low Power Scale** The power output will never be less than the value specified and will represent the value at which output scaling begins.	0.0 to 100.0	0.0	***Instance 1*** Map 1 Map 2 376 436 *Map 1 Offset to next instance equals +30* *Map 2 Offset to next instance equals +40*	0x6A (106) 1 to 24 9	87	6009	float RWES
o.hi o.hi	*Digital Output (1 to 24)* **High Power Scale** The power output will never be greater than the value specified and will represent the value at which output scaling stops.	0.0 to 100.0	100.0	***Instance 1*** Map 1 Map 2 378 438 *Map 1 Offset to next instance equals +30* *Map 2 Offset to next instance equals +40*	0x6A (106) 1 to 24 A (10)	88	6010	float RWES
ACt SEt **Action Menu**								
Fn Fn	*Action (1 to 8)* **Action Function** Set the action that will be triggered by this function.	nonE None (61) USr.r User Set Restore (227) ALM Alarm (6) S.iL Silence Alarms (108) AoF Control Loops Off and Alarms to Non-alarm State (220) F.AL Force Alarm to Occur (218)	None	***Instance 1*** Map 1 Map 2 1284 2984 *Map 1 and Map 2 Offset to next instance equals +20*	0x6E (110) 1 to 8 3	138	10003	uint RWES
F.i Fi	*Action (1 to 8)* **Function Instance** Set the instance of the function selected above.	0 to 25	0	***Instance 1*** Map 1 Map 2 1286 2986 *Map 1 and Map 2 Offset to next instance equals +20*	0x6E (110) 1 to 8 4	139	10004	uint RWES

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
SFn.A SFn.A	*Action (1 to 8)* **Source Function A** Set the event or function that will trigger the action.	nonE None (61) ALM Alarm (6) CPE Compare (230) Ctr Counter (231) d io Digital I/O (1142) Ent.A Profile Event Out A (233) Ent.b Profile Event Out B (234) Ent.C Profile Event Out C (235) Ent.d Profile Event Out D (236) Ent.E Profile Event Out E (247) Ent.F Profile Event Out F (248) Ent.9 Profile Event Out G (249) Ent.h Profile Event Out H (250) Fun Function Key (1001) L iM Limit (126) LgC Logic (239) tMr Timer (244) uAr Variable (245) h.Er Heater Error (184)	None	***Instance 1*** Map 1 Map 2 1290 2990 *Map 1 and Map 2 Offset to next instance equals +20*	0x6E (110) 1 to 8 6	- - - -	10006	uint RWES
Si.A Si.A	*Action (1 to 8)* **Source Instance A** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 1282 2982 *Map 1 and Map 2 Offset to next instance equals +20*	0x6E (110) 1 to 8 2	- - - -	10002	uint RWES
SZ.A SZ.A	*Action (1 to 8)* **Source Zone A** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 1292 2992 *Map 1 and Map 2 Offset to next instance equals +20*	0x6E (110) 1 to 8 7	- - - -	10007	uint RWES

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
LEu LEv	*Action (1 to 8)* **Active Level** Set the action that will be considered a true state.	LoUJ Low (53) h iGh High (37)	High	***Instance 1*** Map 1 Map 2 1280 2980 *Map 1 and Map 2 Offset to next instance equals +20*	0x6E (110) 1 to 8 1	137	10001	uint RWES
* These parameters/prompts are available in these menus with firmware revisions 6.0 and above. ** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module • Setup Page								
Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
otPt SEt **Output Menu**								
Fn Fn	*Output Digital (1 to 24)* **Function** Select what function will drive this output.	oFF Off (62) Ai Analog Input (142) ALM Alarm (6) C.Pr Cool Power (161) h.Pr Heat Power (160) CPE Compare (230) Ctr Counter (231) dio Digital I/O (1142) Ent.A Profile Event Out A (233) Ent.b Profile Event Out B (234) Ent.C Profile Event Out C (235) Ent.d Profile Event Out D (236) Ent.E Profile Event Out E (247) Ent.F Profile Event Out F (248) Ent.9 Profile Event Out G (249) Ent.h Profile Event Out H (250) FUn Function Key (1001) LgC Logic (239) Lnr Linearization (238) MAtH Math (240) Pu Process Value (241) SoF.1 Special Function Output 1 (1532) SoF.2 Special Function Output 2 (1533) SoF.3 Special Function Output 3 (1534) SoF.4 Special Function Output 4 (1535) tMr Timer (244) uAr Variable (245) h.Er Heater Error (184)	off	***Instance 1*** Map 1 Map 2 368 428 *Map 1 Offset to next instance equals +30* *Map 2 Offset to next instance equals +40*	0x6A (106) 1 to (24) 5	- - - -	6005	uint RWES

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
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RME Module • Setup Page								
Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
F 1 Fi	*Output Digital (1 to 24)* **Output Function Instance** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 370 430 *Map 1 Offset to next instance equals +30* *Map 2 Offset to next instance equals +40*	0x6A (106) 1 to (24) 6	- - - -	6006	uint RWES
S2.A SZ.A	*Output Digital (1 to 24)* **Output Source Zone** Set the instance of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 382 442 *Map 1 Offset to next instance equals +30* *Map 2 Offset to next instance equals +40*	0x6A (106) 1 to 8 0xC (12)	- - - -	6012	uint RWES
o.Ct o.Ct	*Output Digital (1 to 24)* **Time Base Type** Set the output control type. This parameter is only used with PID control, but can be set anytime.	Ftb Fixed Time Base (34) utb Variable Time Base (103)	Fixed Time Base	***Instance 1*** Map 1 Map 2 362 422 *Map 1 Offset to next instance equals +30* *Map 2 Offset to next instance equals +40*	0x6A (106) 1 to 8 2	- - - -	6002	uint RWES
o.tb o.tb	*Output Digital (1 to 24)* **Fixed Time Base** Set the time base for fixed-time-base control.	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)	1.0 sec. [SSR & sw dc] 20.0 sec. [mech, relay, NO-ARC]	***Instance 1*** Map 1 Map 2 364 424 *Map 1 Offset to next instance equals +30* *Map 2 Offset to next instance equals +40*	0x6A (106) 1 to 8 3	- - - -	6003	float RWES

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
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RME Module • Setup Page								
Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
o.Lo o.Lo	*Output Digital (1 to 24)* **Low Power Scale** The power output will never be less than the value specified and will represent the value at which output scaling begins.	0.0 to 100.0%	0.0%	***Instance 1*** Map 1 Map 2 376 436 *Map 1 Offset to next instance equals +30* *Map 2 Offset to next instance equals +40*	0x6A (106) 1 to 8 9	- - - -	6009	float RWES
o.hi o.hi	*Output Digital (1 to 24)* **High Power Scale** The power output will never be greater than the value specified and will represent the value at which output scaling stops.	0.0 to 100.0%	100.0%	***Instance 1*** Map 1 Map 2 378 438 *Map 1 Offset to next instance equals +30* *Map 2 Offset to next instance equals +40*	0x6A (106) 1 to 8 0xA (10)	- - - -	6010	float RWES
o.ty o.ty	*Output Process (1 to 3, 7 to 9, 13 to 15, 19 to 21)* **Output Type *** Select whether the process output will operate in volts or milliamps.	volt Volts (104) mA Milliamps (112)	Volts	***Instance 1*** Map 1 Map 2 6990 7820 *Map 1 and Map 2 Offset to next instance equals +60*	0x76 (118) 1-3, 7-9, 13-15, 19-21 1	95	18001	uint RWES

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RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
Fn Fn	*Output Process (1 to 3, 7 to 9, 13 to 15, 19 to 21)* **Function** Set the type of function that will drive this output.	oFF Off (62) A I Analog Input (142) CUrr Current (22) C.Pr Cool Power (161) h.Pr Heat Power (160) PUJr Power (73) Lnr Linearization (238) MAtH Math (240) Pu Process Value (241) SP.C Set Point Closed (242) SP.o Set Point Open (243) SoF.1 Special Function Output 1 (1532) SoF.2 Special Function Output 2 (1533) SoF.3 Special Function Output 3 (1534) SoF.4 Special Function Output 4 (1535) uAr Variable (245) WJAt Wattage (1697) Ld.Vo Load Voltage (1698) Ldr Load Resistance (1183)	Off	***Instance 1*** Map 1 Map 2 6992 7822 *Map 1 and Map 2 Offset to next instance equals +60*	0x76 (118) 1-3, 7-9, 13-15, 19-21 2	96	18002	uint RWES
Fi Fi	*Output Process (1 to 3, 7 to 9, 13 to 15, 19 to 21)* **Output Function Instance*** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 6996 7826 *Map 1 and Map 2 Offset to next instance equals +60*	0x76 (118) 1-3, 7-9, 13-15, 19-21 4	- - - -	18004	uint RWES
SZ.A SZ.A	*Output Process (1 to 3, 7 to 9, 13 to 15, 19 to 21)* **Source Zone A *** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 7026 7856 *Map 1 and Map 2 Offset to next instance equals +60*	00x76 (118) 1-3, 7-9, 13-15, 19-21 0x13 (19)	- - - -	18019	uint RWES

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RME Module • Setup Page								
Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
S.Lo S.Lo	*Output Process (1 to 3, 7 to 9, 13 to 15, 19 to 21)* **Scale Low*** Set the scale low for process output in electrical units. This value, in volts or milliamps, will correspond to 0% PID power output or the range low value.	-100.0 to 100.0	0.00	***Instance 1*** Map 1 Map 2 7006 7836 *Map 1 and Map 2 Offset to next instance equals +60*	00x76 (118) 1-3, 7-9, 13-15, 19-21 9	- - - -	18009	float RWES
S.hi S.hi	*Output Process (1 to 3, 7 to 9, 13 to 15, 19 to 21)* **Scale High*** Set the scale high for process output in electrical units. This value, in volts or milliamps, will correspond to 0% PID power output or the range high value.	-100.0 to 100.0	10.00	***Instance 1*** Map 1 Map 2 7008 7838 *Map 1 and Map 2 Offset to next instance equals +60*	0x76 (118) 1-3, 7-9, 13-15, 19-21 0xA (10)	- - - -	18010	float RWES
r.Lo r.Lo	*Output Process (1 to 3, 7 to 9, 13 to 15, 19 to 21)* **Range Low*** Use to set the minimum value in process units. This will correspond with the Scale Low value.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	0.0°F or units -18°C	***Instance 1*** Map 1 Map 2 7010 7840 *Map 1 and Map 2 Offset to next instance equals +60*	0x76 (118) 1-3, 7-9, 13-15, 19-21 0xB (11)	- - - -	18011	float RWES
* These parameters/prompts are available in these menus with firmware revisions 6.0 and above. ** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module • Setup Page

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
r.hi r.hi	*Output Process (1 to 3, 7 to 9, 13 to 15, 19 to 21)* **Range High*** Use to set the maximum value in process units. This will correspond with the Scale High value.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	100 F or units 38 C	***Instance 1*** Map 1 Map 2 7012 7842 *Map 1 and Map 2 Offset to next instance equals +60*	0x76 (118) 1-3, 7-9, 13-15, 19-21 0xC (12)	- - - -	18012	float RWES
o.CA o.CA	*Output Process (1 to 3, 7 to 9, 13 to 15, 19 to 21)* **Calibration Offset*** Set an offset value for a process output.	-1,999.000 to 9,999.000°F or units -1,110.555 to 5,555.000°C	0.0°F or units 0.0°C	***Instance 1*** Map 1 Map 2 7002 7832 *Map 1 and Map 2 Offset to next instance equals +60*	0x76 (118) 1-3, 7-9, 13-15, 19-21 7	- - - -	18007	float RWES
ALM1 SEt **Alarm Menu**								
A.ty A.ty	*Alarm (1 to 8)* **Type** Select whether the alarm trigger is a fixed value or will track the set point.	oFF Off (62) Pr.AL Process Alarm (76)	Off	***Instance 1*** Map 1 Map 2 1468 3168 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 0xF (15)	2	9015	uint RWES
Sr.A Sr.A	*Alarm (1 to 8)* **Alarm Source** Select what will trigger this alarm.	nonE None (61) A1 Analog Input (142) PWJr PID Power (73) Lnr Linearization (238) MAtH Math (240) Pu Process Value (241) uAr Variable (245) CUrr Current (22) Cur Current Read is Sample Hold (179) WJAt Wattage (1697) LdUo Load Voltage (1698) Ldr Load Resistance (1183)	Analog Input Firmware Revision 9 and above = None	***Instance 1*** Map 1 Map 2 1472 3172 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 0x11 (17)	3	9017	uint RWES

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RME Module • Setup Page								
Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
iS.A iS.A	*Alarm (1 to 8)* **Alarm Source Instance** Set the instance of the function selected above.	1 or 250	1	***Instance 1*** Map 1 Map 2 1474 3174 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 0x12 (18)	4	9018	uint RWES
SZ.A SZ.A	*Alarm (1 to 8)* **Alarm Source Zone** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 1488 3188 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 0x19 (25)	- - - -	9025	uint RWES
A.hy A.hy	*Alarm (1 to 8)* **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.	0.001 to 9,999.000°F or units 0.001 to 5,555.000°C	1.0°F or units 1.0°C	***Instance 1*** Map 1 Map 2 1444 3144 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 3	6	9003	float RWES
A.Lg A.Lg	*Alarm (1 to 8)* **Logic** Select what the output condition will be during the alarm state.	ALC Close On Alarm (17) ALo Open On Alarm (66)	Close On Alarm	***Instance 1*** Map 1 Map 2 1448 3148 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 5	7	9005	uint RWES
A.Sd A.Sd	*Alarm (1 to 8)* **Sides** Select which side or sides will trigger this alarm.	both Both (13) high High (37) Lolo Low (53)	Both	***Instance 1*** Map 1 Map 2 1446 3146 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 4	8	9004	uint RWES

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RME Module • Setup Page								
Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
A.Lo A.Lo	*Alarm (1 to 8)* **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 from the closed loop set point that will trigger a low alarm. A negative set point represents a value below closed loop set point. A positive set point represents a value above closed loop set point.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	32.0°F or units 0.0°C	***Instance 1*** Map 1 Map 2 1442 3142 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 2	0	9002	float RWES
A.hi A.hi	*Alarm (1 to 8)* **High Set Point *** If Alarm Type (Setup Page, Alarm Menu) is set to: **process** - set the process value that will trigger a high alarm.	-1,999.000 to 9,999.000°F or units -1,128.000 to 5,537.000°C	300.0°F or units 150.0°C	***Instance 1*** Map 1 Map 2 1440 3140 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 1	1	9001	float RWES
A.LA A.LA	*Alarm (1 to 8)* **Latching** Turn alarm latching on or off. A latched alarm has to be turned off by the user.	nLAt Non-Latching (60) LAt Latching (49)	Non-Latching	***Instance 1*** Map 1 Map 2 1452 3152 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 7	9	9007	uint RWES

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RME Module • Setup Page								
Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
AbL A.bL	*Alarm (1 to 8)* **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.	oFF Off (62) Str Startup (88) StPt Set Point (85) both Both (13)	Off	***Instance 1*** Map 1 Map 2 1454 3154 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 8	10	9008	uint RWES
AS i A.Si	*Alarm (1 to 8)* **Silencing** Turn alarm silencing on to allow the user to disable this alarm.	oFF Off (62) on On (63)	Off	***Instance 1*** Map 1 Map 2 1450 3150 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 6	11	9006	uint RWES
AdSP A.dSP	*Alarm (1 to 8)* **Display** Display an alarm message when an alarm is active.	oFF Off (62) on On (63)	On	***Instance 1*** Map 1 Map 2 1470 3170 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 0x10 (16)	12	9016	uint RWES
AdL A.dL	*Alarm (1 to 8)* **Delay Time** Set the span of time that the alarm will be delayed after the process value exceeds the alarm set point.	0 to 9,999 seconds	0	***Instance 1*** Map 1 Map 2 1480 3180 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 0x15 (21)	13	9021	uint RWES
ACLr A.CLr	*Alarm (1 to 8)* **Clear Alarm *** Write to this register to clear an alarm	0	- - - -	***Instance 1*** Map 1 Map 2 1462 3162 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 0xD (13)	14	9013	uint W

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RME Module • Setup Page

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
A.SirA.Sir	*Alarm (1 to 8)* **Silence Alarm *** Write to this register to silence an alarm	0	- - - -	***Instance 1*** Map 1 Map 2 1466 3166 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 0xE (14)	15	9014	uint W
A.StA.St	*Alarm (1 to 8)* **Alarm State *** Current state of alarm	Startup (88) None (61) Blocked (12) Alarm low (8) Alarm high (7) Error (28)	- - - -	***Instance 1*** Map 1 Map 2 1456 3156 *Map 1 and Map 2 Offset to next instance equals +60*	0x6D (109) 1 to 8 9	- - - -	9009	uint R
CurrSEt **Current Menu**				**Note:** For further description and usage tips see the CT Application Note in this User's Guide.				
C.SdC.Sd	*Current (1 to 16)* **Sides** Use Current Sides to select which side of the current to monitor.	oFF Off (62) high High (37) lowL Low (53) both Both (13)	off	***Instance 1*** Map 1 Map 2 1088 1388 *Map 1 Offset to next instance equals +50* *Map 2 Offset to next instance equals +100*	0x73 (115) 1 to 16 5	145	15005	uint RWES
C.UrC.Ur	*Current (1 to 16)* **Indicate Reading** Use Indicate Reading to display solid-state relay (SSR) failure and heater failure messages on the RUI (remote user interface).	no No (59) YES Yes (106)	no	***Instance 1*** Map 1 Map 2 1086 1386 *Map 1 Offset to next instance equals +50* *Map 2 Offset to next instance equals +100*	0x73 (115) 1 to 16 4	146	15004	uint RWES

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RME Module • Setup Page								
Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
C.dt C.dt	*Current (1 to 16)* **Detection Threshold** Current Detection Threshold is for factory use only.	3 to 59	9	***Instance 1*** Map 1 Map 2 1102 1402 *Map 1 Offset to next instance equals +50* *Map 2 Offset to next instance equals +100*	0x73 (115) 1 to 16 0xC (12)	147	15012	uint RWES
C.SC C.SC	*Current (1 to 16)* **Input Scaling** Use Input Scaling to adjust scaling to match the transformer's high range, in amperes.	0 to 9,999.000	50.0	***Instance 1*** Map 1 Map 2 1122 1422 *Map 1 Offset to next instance equals +50* *Map 2 Offset to next instance equals +100*	0x73 (115) 1 to 16 0x16 (22)	148	15022	float RWES
C.oFS C.oFS	*Current (1 to 16)* **Heater Offset** Heater Current Offset is used to calibrate the current reading with an offset value.	-9,999.000 to 9,999.000	0.0	***Instance 1*** Map 1 Map 2 1100 1400 *Map 1 Offset to next instance equals +50* *Map 2 Offset to next instance equals +100*	0x73 (115) 1 to 16 0xB (11)	149	15011	float RWES
C.Si C.Si	*Current (1 to 16)* **Monitored Output** With Monitored Output, set the output on which the current will be monitored.	1 to 250	1	***Instance 1*** Map 1 Map 2 1116 1416 *Map 1 Offset to next instance equals +50* *Map 2 Offset to next instance equals +100*	0x73 (115) 1 to 16 0x13 (19)	150	15019	uint RWES

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RME Module • Setup Page

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
SZ SZ	*Current (1 to 16)* **Monitored Zone** Set the zone of the function selected above.	0 to 24	1	***Instance 1*** Map 1 Map 2 - - - - 1450 *Map 2 Offset to next instance equals +100*	0x73 (115) 1 to 16 0x24 (36)	- - - -	15036	uint RWES
Lnr SEt **Linearization Menu**								
Fn Fn	*Linearization (1 to 8)* **Function** Set how this function will linearize Source A.	oFF Off (62) intr Interpolated (1482) StPd Stepped (1483)	Off	***Instance 1*** Map 1 Map 2 5548 6528 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 5	- - - -	34005	uint RWES
SFnA SFn.A	*Linearization (1 to 8)* **Source Function A** Set the type of function that will be used for this source.	nonE None (61) AI Analog Input (142) CUrr Current (22) C.Pr Cool Power (161) h.Pr Heat Power (160) PwJr Power (73) Lnr Linearization (238) MAtH Math (240) Pu Process Value (241) SP.C Set Point Closed (242) SP.o Set Point Open (243) uAr Variable (245)	None	***Instance 1*** Map 1 Map 2 5540 6520 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 1	155	34001	uint RWES
SiA Si.A	*Linearization (1 to 8)* **Source Instance A** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 5542 6522 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 2	- - - -	34002	uint RWES

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RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
SZ.A SZ.A	*Linearization (1 to 8)* **Source Zone A** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 5544 6524 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 3	- - - -	34003	uint RWES
Unit Unit	*Linearization (1 to 8)* **Units** Set the units of the output value.	Src Source (1539) nonE None (61) AbP Absolute Temperature (1540) rtP Relative Temperature (1541) PWr Power (73) Pro Process (75) rh Relative Humidity (1538)	Source	***Instance 1*** Map 1 Map 2 5596 6576 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 0x1D (29)	156	34029	uint RWES
ip.1 ip.1	*Linearization (1 to 8)* **Input Point 1** Set the value that will be mapped to output 1.	-1,999.000 to 9,999.000	0.0	***Instance 1*** Map 1 Map 2 5554 6534 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 8	157	34008	float RWES
op.1 op.1	*Linearization (1 to 8)* **Output Point 1** Set the value that will be mapped to input 1.	-1,999.000 to 9,999.000	0.0	***Instance 1*** Map 1 Map 2 5574 6554 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 0x12 (18)	158	34018	float RWES
ip.2 ip.2	*Linearization (1 to 8)* **Input Point 2** Set the value that will be mapped to output 2.	-1,999.000 to 9,999.000	1.0	***Instance 1*** Map 1 Map 2 5556 6536 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 9	159	34009	float RWES
op.2 op.2	*Linearization (1 to 8)* **Output Point 2** Set the value that will be mapped to input 2.	-1,999.000 to 9,999.000	1.0	***Instance 1*** Map 1 Map 2 5576 6556 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 0x13 (19)	160	34019	float RWES

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Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
iP.3 ip.3	*Linearization (1 to 8)* **Input Point 3** Set the value that will be mapped to output 3.	-1,999.000 to 9,999.000	2.0	***Instance 1*** Map 1 Map 2 5558 6538 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 0xA (10)	161	34010	float RWES
oP.3 op.3	*Linearization (1 to 8)* **Output Point 3** Set the value that will be mapped to input 3.	-1,999.000 to 9,999.000	2.0	***Instance 1*** Map 1 Map 2 5578 6558 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 0x14 (20)	162	34020	float RWES
iP.4 ip.4	*Linearization (1 to 8)* **Input Point 4** Set the value that will be mapped to output 4.	-1,999.000 to 9,999.000	3.0	***Instance 1*** Map 1 Map 2 5560 6540 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 0xB (11)	163	34011	float RWES
oP.4 op.4	*Linearization (1 to 8)* **Output Point 4** Set the value that will be mapped to input 4.	-1,999.000 to 9,999.000	3.0	***Instance 1*** Map 1 Map 2 5580 6560 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 0x15 (21)	164	34021	float RWES
iP.5 ip.5	*Linearization (1 to 8)* **Input Point 5** Set the value that will be mapped to output 5.	-1,999.000 to 9,999.000	4.0	***Instance 1*** Map 1 Map 2 5562 6542 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 0xC (12)	165	34012	float RWES
oP.5 op.5	*Linearization (1 to 8)* **Output Point 5** Set the value that will be mapped to input 5.	-1,999.000 to 9,999.000	4.0	***Instance 1*** Map 1 Map 2 5582 6562 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 0x16 (22)	166	34022	float RWES

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RME Module • Setup Page								
Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
ip.6	*Linearization (1 to 8)* **Input Point 6** Set the value that will be mapped to output 6.	-1,999.000 to 9,999.000	5.0	***Instance 1*** Map 1 Map 2 5564 6544 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 0xD (13)	167	34013	float RWES
op.6	*Linearization (1 to 8)* **Output Point 6** Set the value that will be mapped to input 6.	-1,999.000 to 9,999.000	5.0	***Instance 1*** Map 1 Map 2 5584 6564 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 0x17 (23)	168	34023	float RWES
ip.7	*Linearization (1 to 8)* **Input Point 7** Set the value that will be mapped to output 7.	-1,999.000 to 9,999.000	6.0	***Instance 1*** Map 1 Map 2 5566 6546 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 E (14)	169	34014	float RWES
op.7	*Linearization (1 to 8)* **Output Point 7** Set the value that will be mapped to input 7.	-1,999.000 to 9,999.000	6.0	***Instance 1*** Map 1 Map 2 5586 6566 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 0x18 (24)	170	34024	float RWES
ip.8	*Linearization (1 to 8)* **Input Point 8** Set the value that will be mapped to output 8.	-1,999.000 to 9,999.000	7.0	***Instance 1*** Map 1 Map 2 5568 6548 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 0xF (15)	171	34015	float RWES
op.8	*Linearization (1 to 8)* **Output Point 8** Set the value that will be mapped to input 8.	-1,999.000 to 9,999.000	7.0	***Instance 1*** Map 1 Map 2 5588 6568 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 0x19 (25)	172	34025	float RWES

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
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RME Module • Setup Page

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
ip.9	*Linearization (1 to 8)* **Input Point 9** Set the value that will be mapped to output 9.	-1,999.000 to 9,999.000	8.0	***Instance 1*** Map 1 Map 2 5570 6550 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 0x10 (16)	173	34016	float RWES
op.9	*Linearization (1 to 8)* **Output Point 9** Set the value that will be mapped to input 9.	-1,999.000 to 9,999.000	8.0	***Instance 1*** Map 1 Map 2 5590 6570 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 0x1A (26)	174	34026	float RWES
ip.10	*Linearization (1 to 8)* **Input Point 10** Set the value that will be mapped to output 10.	-1,999.000 to 9,999.000	9.0	***Instance 1*** Map 1 Map 2 5572 6552 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 0x11 (17)	175	34017	float RWES
op.10	*Linearization (1 to 8)* **Output Point 10** Set the value that will be mapped to input 10.	-1,999.000 to 9,999.000	9.0	***Instance 1*** Map 1 Map 2 5592 6572 *Map 1 and Map 2 Offset to next instance equals +70*	0x86 (134) 1 to 8 0x1B (27)	176	34027	float RWES
CPE SEt **Compare Menu**								
Fn Fn	*Compare (1 to 8)* **Function** Set operator that will be used to compare Source A to Source B.	oFF Off (62) gt Greater Than (1435) Lt Less Than (1436) E Equal To (1437) nE Not Equal To (1438) goE Greater or Equal (1439) LoE Less or Equal (1440)	Off	***Instance 1*** Map 1 Map 2 3996 5496 *Map 1 and Map 2 Offset to next instance equals +40*	0x80 (128) 1 to 8 9	229	28009	uint RWES

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RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
toL toL	*Compare (1 to 8)* **Tolerance** If the difference between Source A and Source B is less than this value the two will appear to be equal.	0 to 9,999.000	0.1	***Instance 1*** Map 1 Map 2 4000 5500 *Map 1 and Map 2 Offset to next instance equals +40*	0x80 (128) 1 to 8 0xB (11)	230	28011	float RWES
SFn.A SFn.A	*Compare (1 to 8)* **Source Function A** Set the type of function that will be used for this source.	none None (61) Ai Analog Input (142) Curr Current (22) C.Pr Cool Power (161) h.Pr Heat Power (160) PWr Power (73) Lnr Linearization (238) MAtH Math (240) Pu Process Value (241) SP.C Set Point Closed (242) SP.o Set Point Open (243) uAr Variable (245) WAtt Wattage (1697) Ld.Vo Load Voltage (1698) Ld.r Load Resistance (1183)	None	***Instance 1*** Map 1 Map 2 3980 5480 *Map 1 and Map 2 Offset to next instance equals +40*	0x80 (128) 1 to 8 1	- - - -	28001	uint RWES
Si.A Si.A	*Compare (1 to 8)* **Source Instance A** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 3984 5484 *Map 1 and Map 2 Offset to next instance equals +40*	0x80 (128) 1 to 8 3	- - - -	28003	uint RWES
SZ.A SZ.A	*Compare (1 to 8)* **Source Zone A** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 3988 5488 *Map 1 and Map 2 Offset to next instance equals +40*	0x80 (128) 1 to 8 5	- - - -	28005	uint RWES
* These parameters/prompts are available in these menus with firmware revisions 6.0 and above. ** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module • Setup Page

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
SFn.b SFn.b	*Compare (1 to 8)* **Source Function B** Set the type of function that will be used for this source. This represents the timer reset signal.	nonE None (61) A i Analog Input (142) CUrr Current (22) C.Pr Cool Power (161) h.Pr Heat Power (160) PUJr Power (73) Lnr Linearization (238) MAtH Math (240) Pu Process Value (241) SP.C Set Point Closed (242) SP.o Set Point Open (243) uAr Variable (245) WJAt Wattage (1697) Ld.Uo Load Voltage (1698) Ld.r Load Resistance (1183)	None	***Instance 1*** Map 1 Map 2 3982 5482 *Map 1 and Map 2 Offset to next instance equals +40*	0x80 (128) 1 to 8 2	- - - -	28002	uint RWES
Si.b Si.b	*Compare (1 to 8)* **Source Instance B** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 3986 5486 *Map 1 and Map 2 Offset to next instance equals +40*	0x80 (128) 1 to 8 4	- - - -	28004	uint RWES
SZ.b SZ.b	*Compare (1 to 8)* **Source Zone B** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 3990 5490 *Map 1 and Map 2 Offset to next instance equals +40*	0x80 (128) 1 to 8 6	- - - -	28006	uint RWES
Er.h Er.h	*Compare (1 to 8)* **Error Handling** Use Error Handling to select the output value and error output state of this function if it receives an error signal from one or more sources and it cannot determine the output value.	t.G True Good (1476) t.b True Bad (1477) F.G False Good (1478) F.b False Bad (1479)	False Bad	***Instance 1*** Map 1 Map 2 4002 5502 *Map 1 and Map 2 Offset to next instance equals +40*	0x80 (128) 1 to 8 0xC (12)	- - - -	28012	uint RWES

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RME Module • Setup Page								
Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
tMr SEt **Timer Menu**								
Fn Fn	*Timer (1 to 8)* **Function** Set how the timer will function.	oFF Off (62) on.P On Pulse (1471) dEL Delay (1472) o.S One Shot (1473) rEt Retentive (1474)	Off	***Instance 1*** Map 1 Map 2 4956 6136 *Map 1 and Map 2 Offset to next instance equals +50*	0x83 (131) 1 to 8 9	223	31009	uint RWES
SFn.A SFn.A	*Timer (1 to 8)* **Source Function A** Set the type of function that will be used for this source. This represents the timer run signal.	nonE None (61) ALM Alarm (6) CPE Compare (230) Ctr Counter (231) d io Digital I/O (1142) Ent.A Profile Event Out A (233) Ent.b Profile Event Out B (234) Ent.C Profile Event Out C (235) Ent.d Profile Event Out D (236) Ent.E Profile Event Out E (247) Ent.F Profile Event Out F (248) Ent.9 Profile Event Out G (249) Ent.h Profile Event Out H (250) FUn Function Key (1001) L9C Logic (239) SoF.1 Special Function Output 1 (1532) SoF.2 Special Function Output 2 (1533) SoF.3 Special Function Output 3 (1534) SoF.4 Special Function Output 4 (1535) tMr Timer (244) h.Er Heater Error (184) uAr Variable (245)	None	***Instance 1*** Map 1 Map 2 4940 6120 *Map 1 and Map 2 Offset to next instance equals +50*	0x83 (131) 1 to 8 1	- - - -	31001	uint RWES

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RME Module • Setup Page

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
Si.A	*Timer (1 to 8)* **Source Instance A** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 4944 6124 *Map 1 and Map 2 Offset to next instance equals +50*	0x83 (131) 1 to 8 3	- - - -	31003	uint RWES
SZ.A	*Timer (1 to 8)* **Source Zone A** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 4948 6128 *Map 1 and Map 2 Offset to next instance equals +50*	0x83 (131) 1 to 8 5	- - - -	31005	uint RWES
SAS.A	*Timer (1 to 8)* **Run Active Level** Set what state will be read as on.	High High (37) Low Low (53)	High	***Instance 1*** Map 1 Map 2 4960 6140 *Map 1 and Map 2 Offset to next instance equals +50*	0x83 (131) 1 to 8 0xB (11)	- - - -	31011	uint RWES

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RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
SFn.b SFn.b	*Timer (1 to 8)* **Source Function B** Set the type of function that will be used to reset a retentive timer.	nonE None (61) ALM Alarm (6) C.Pr Cool Power (161) CPE Compare (230) Ctr Counter (231) d io Digital I/O (1142) Ent.A Profile Event Out A (233) Ent.b Profile Event Out B (234) Ent.C Profile Event Out C (235) Ent.d Profile Event Out D (236) Ent.E Profile Event Out E (247) Ent.F Profile Event Out F (248) Ent.9 Profile Event Out G (249) Ent.h Profile Event Out H (250) FUn Function Key (1001) L9C Logic (239) SoF.1 Special Function Output 1 (1532) SoF.2 Special Function Output 2 (1533) SoF.3 Special Function Output 3 (1534) SoF.4 Special Function Output 4 (1535) tMr Timer (244) hEr Heater Error (184) uAr Variable (245)	None	***Instance 1*** Map 1 Map 2 4942 6122 *Map 1 and Map 2 Offset to next instance equals +50*	0x83 (131) 1 to 8 2	- - - -	31002	uint RWES
Si.b Si.b	*Timer (1 to 8)* **Source Instance B** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 4946 6126 *Map 1 and Map 2 Offset to next instance equals +50*	0x83 (131) 1 to 8 4	- - - -	31004	uint RWES

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RME Module • Setup Page

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
SZ.b SZ.b	*Timer (1 to 8)* **Source Zone B** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 4950 6130 *Map 1 and Map 2 Offset to next instance equals +50*	0x83 (131) 1 to 8 6	- - - -	31006	uint RWES
SASb SAS.b	*Timer (1 to 8)* **Reset Active Level** Set what state will be read as on.	High High (37) Low Low (53)	High	***Instance 1*** Map 1 Map 2 4962 6142 *Map 1 and Map 2 Offset to next instance equals +50*	0x83 (131) 1 to 8 0xC (12)	- - - -	31012	uint RWES
ti ti	*Timer (1 to 8)* **Time** Set the time span that will be measured in tenths of a second.	0 to 9,999.000	0.1	***Instance 1*** Map 1 Map 2 4964 6144 *Map 1 and Map 2 Offset to next instance equals +50*	0x83 (131) 1 to 8 0xD (13)	224	31013	float RWES
LEv LEv	*Timer (1 to 8)* **Transmitter Active Level** Set which output state will indicate on.	High High (37) Low Low (53)	High	***Instance 1*** Map 1 Map 2 4966 6146 *Map 1 and Map 2 Offset to next instance equals +50*	0x83 (131) 1 to 8 0xE (14)	- - - -	31014	uint RWES
CtrSEt **Counter Menu**								
Fn Fn	*Counter (1 to 8)* **Function** Set whether the counter increments or decrements the count value. Decrementing 0 returns 9,999. Incrementing 9,999 returns 0.	UP Up (1456) dn Down (1457)	Up	***Instance 1*** Map 1 Map 2 4476 5816 *Map 1 and Map 2 Offset to next instance equals +40*	0x82 (130) 1 to 8 9	- - - -	30009	uint RWES

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RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
SFn.A SFn.A	*Counter (1 to 8)* **Source Function A** Set the type of function that will be used for the counter clock signal.	nonE None (61) ALM Alarm (6) CPE Compare (230) Ctr Counter (231) d io Digital I/O (1142) Ent.A Profile Event Out A (233) Ent.b Profile Event Out B (234) Ent.C Profile Event Out C (235) Ent.d Profile Event Out D (236) Ent.E Profile Event Out E (247) Ent.F Profile Event Out F (248) Ent.9 Profile Event Out G (249) Ent.h Profile Event Out H (250) FUn Function Key (1001) LgC Logic (239) tMr Timer (244) h.Er Heater Error (184) uAr Variable (245)	None	***Instance 1*** Map 1 Map 2 4460 5800 *Map 1 and Map 2 Offset to next instance equals +40*	0x82 (130) 1 to 8 1	- - - -	30001	uint RWES
Si.A Si.A	*Counter (1 to 8)* **Source Instance A** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 4464 5804 *Map 1 and Map 2 Offset to next instance equals +40*	0x82 (130) 1 to 8 3	- - - -	30003	uint RWES
SZ.A SZ.A	*Counter (1 to 8)* **Source Zone A** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 4468 5808 *Map 1 and Map 2 Offset to next instance equals +40*	0x82 (130) 1 to 8 5	- - - -	30005	uint RWES

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RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
SA5.A SAS.A	*Counter (1 to 8)* **Count Active Level** Set what output state will indicate on.	both Both (130) h.gh High (37) Lo.J Low (53)	High	***Instance 1*** Map 1 Map 2 4480 5820 *Map 1 and Map 2 Offset to next instance equals +40*	0x82 (130) 1 to 8 0xB (11)	- - - -	30011	uint RWES
SFn.b SFn.b	*Counter (1 to 8)* **Source Function B** Set the type of function that will be used for the counter load signal.	nonE None (61) ALM7 Alarm (6) CPE Compare (230) Ctr Counter (231) d.o Digital I/O (1142) Ent.A Profile Event Out A (233) Ent.b Profile Event Out B (234) Ent.C Profile Event Out C (235) Ent.d Profile Event Out D (236) Ent.E Profile Event Out E (247) Ent.F Profile Event Out F (248) Ent.9 Profile Event Out G (249) Ent.h Profile Event Out H (250) FUn Function Key (1001) L9C Logic (239) tM7r Timer (244) h.Er Heater Error (184) uAr Variable (245)	None	***Instance 1*** Map 1 Map 2 4462 5802 *Map 1 and Map 2 Offset to next instance equals +40*	0x82 (130) 1 to 8 2	- - - -	30002	uint RWES
Si.b Si.b	*Counter (1 to 8)* **Source Instance B** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 4466 5806 *Map 1 and Map 2 Offset to next instance equals +40*	0x82 (130) 1 to 8 4	- - - -	30004	uint RWES

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RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
SZ.b SZ.b	*Counter (1 to 8)* **Source Zone B** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 4470 5810 *Map 1 and Map 2 Offset to next instance equals +40*	0x82 (130) 1 to 8 6	- - - -	30006	uint RWES
SAS.b SAS.b	*Counter (1 to 8)* **Reset Active Level** Set what output state will indicate on.	High High (37) Low Low (53) both Both (130)	High	***Instance 1*** Map 1 Map 2 4482 5822 *Map 1 and Map 2 Offset to next instance equals +40*	0x82 (130) 1 to 8 0x0C (12)	- - - -	30012	uint RWES
LoAd LoAd	*Counter (1 to 8)* **Load Value** Set the counter's initial value.	0 to 9,999	0	***Instance 1*** Map 1 Map 2 4484 5824 *Map 1 and Map 2 Offset to next instance equals +40*	0x82 (130) 1 to 8 (13)	215	30013	uint RWES
trgt trgt	*Counter (1 to 8)* **Target Value** Set the value that will turn the output value on.	0 to 9,999	9,999	***Instance 1*** Map 1 Map 2 4486 5826 *Map 1 and Map 2 Offset to next instance equals +40*	0x82 (130) 1 to 8 0xE (14)	216	30014	uint RWES
LAt LAt	*Counter (1 to 8)* **Latching** Output latched.	no No (59) YES Yes (106)	No	***Instance 1*** Map 1 Map 2 4492 5832 *Map 1 and Map 2 Offset to next instance equals +40*	0x82 (130) 1 to 8 0x11 (17)	218	30017	uint RWES

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RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
LGC SEt **Logic Menu**								
Fn Fn	*Logic (1 to 16)* **Function** Set the operator that will be used to compare the sources.	oFF Off (62) And And (1426) nAnd Nand (1427) or Or (1442) nor Nor (1443) E Equal To (1437) nE Not Equal To (1438) LAt Latch (1444) rSFF RS Flip-Flop (1693)	Off	***Instance 1*** Map 1 Map 2 3084 4264 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0x21 (33)	235	27033	uint RWES
* These parameters/prompts are available in these menus with firmware revisions 6.0 and above. ** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
SFn.A SFn.A	*Logic (1 to 16)* **Source Function A** Set the type of function that will be used for this source.	nonE None (61) ALM Alarm (6) CPE Compare (230) Ctr Counter (231) d io Digital I/O (1142) Evt.A Profile Event Out A (233) Evt.b Profile Event Out B (234) Evt.C Profile Event Out C (235) Evt.d Profile Event Out D (236) Evt.E Profile Event Out E (247) Evt.F Profile Event Out F (248) Evt.9 Profile Event Out G (249) Evt.h Profile Event Out H (250) Fun Function Key (1001) L iM Limit (126) L9C Logic (239) SoF.1 Special Function Output 1 (1532) SoF.2 Special Function Output 2 (1533) SoF.3 Special Function Output 3 (1534) SoF.4 Special Function Output 4 (1535) tMr Timer (244) h.Er Heater Error (184) uAr Variable (245)	None	***Instance 1*** Map 1 Map 2 3020 4200 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 1	- - - -	27001	uint RWES
S iA Si.A	*Logic (1 to 16)* **Source Instance A** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 3036 4216 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 9	- - - -	27009	uint RWES

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RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
SZ.A SZ.A	*Logic (1 to 16)* **Source Zone A** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 3052 4232 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0x11 (17)	- - - -	27017	uint RWES
SFn.b SFn.b	*Logic (1 to 16)* **Source Function B** Set the type of function that will be used for this source.	nonE None (61) ALM Alarm (6) CPE Compare (230) Ctr Counter (231) d io Digital I/O (1142) Ent.A Profile Event Out A (233) Ent.b Profile Event Out B (234) Ent.C Profile Event Out C (235) Ent.d Profile Event Out D (236) Ent.E Profile Event Out E (247) Ent.F Profile Event Out F (248) Ent.9 Profile Event Out G (249) Ent.h Profile Event Out H (250) FUn Function Key (1001) L iM Limit (126) L9C Logic (239) SoF.1 Special Function Output 1 (1532) SoF.2 Special Function Output 2 (1533) SoF.3 Special Function Output 3 (1534) SoF.4 Special Function Output 4 (1535) tMr Timer (244) h.Er Heater Error (184) uAr Variable (245)	None	***Instance 1*** Map 1 Map 2 3022 4202 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 2	- - - -	27002	uint RWES

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RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
S i.b Si.b	*Logic (1 to 16)* **Source Instance B** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 3038 4218 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0xA (10)	- - - -	27010	uint RWES
S2.b SZ.b	*Logic (1 to 16)* **Source Zone B** Set the zone of the function selected above	0 to 24	0	***Instance 1*** Map 1 Map 2 3054 4234 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0x12 (18)	- - - -	27018	uint RWES
* These parameters/prompts are available in these menus with firmware revisions 6.0 and above. ** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
SFn.C SFn.C	*Logic (1 to 16)* **Source Function C** Set the type of function that will be used for this source.	nonE None (61) ALM Alarm (6) CPE Compare (230) Ctr Counter (231) d io Digital I/O (1142) Ent.A Profile Event Out A (233) Ent.b Profile Event Out B (234) Ent.C Profile Event Out C (235) Ent.d Profile Event Out D (236) Ent.E Profile Event Out E (247) Ent.F Profile Event Out F (248) Ent.9 Profile Event Out G (249) Ent.h Profile Event Out H (250) FUn Function Key (1001) L iM Limit (126) L9C Logic (239) SoF.1 Special Function Output 1 (1532) SoF.2 Special Function Output 2 (1533) SoF.3 Special Function Output 3 (1534) SoF.4 Special Function Output 4 (1535) tMMr Timer (244) h.Er Heater Error (184) uAr Variable (245)	None	***Instance 1*** Map 1 Map 2 3024 4204 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 3	- - - -	27003	uint RWES
S iC Si.C	*Logic (1 to 16)* **Source Instance C** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 3040 4220 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0xB (11)	- - - -	27011	uint RWES

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RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
SZ.C SZ.C	*Logic (1 to 16)* **Source Zone C** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 3056 4236 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0x13 (19)	- - - -	27019	uint RWES
SFn.d SFn.d	*Logic (1 to 16)* **Source Function D** Set the type of function that will be used for this source.	none None (61) ALM Alarm (6) CPE Compare (230) Ctr Counter (231) d io Digital I/O (1142) Ent.A Profile Event Out A (233) Ent.b Profile Event Out B (234) Ent.C Profile Event Out C (235) Ent.d Profile Event Out D (236) Ent.E Profile Event Out E (247) Ent.F Profile Event Out F (248) Ent.9 Profile Event Out G (249) Ent.h Profile Event Out H (250) FUn Function Key (1001) L iM Limit (126) L9C Logic (239) SoF.1 Special Function Output 1 (1532) SoF.2 Special Function Output 2 (1533) SoF.3 Special Function Output 3 (1534) SoF.4 Special Function Output 4 (1535) tMr Timer (244) h.Er Heater Error (184) uAr Variable (245)	None	***Instance 1*** Map 1 Map 2 3026 4206 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 4	- - - -	27004	uint RWES

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
5 i.d Si.d	*Logic (1 to 16)* **Source Instance D** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 3042 4222 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0xC (12)	- - - -	27012	uint RWES
52.d SZ.d	*Logic (1 to 16)* **Source Zone D** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 3058 4238 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0x14 (20)	- - - -	27020	uint RWES
* These parameters/prompts are available in these menus with firmware revisions 6.0 and above. ** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
SFn.E SFn.E	*Logic (1 to 16)* **Source Function E** Set the type of function that will be used for this source.	nonE None (61) ALM Alarm (6) CPE Compare (230) Ctr Counter (231) d io Digital I/O (1142) Ent.A Profile Event Out A (233) Ent.b Profile Event Out B (234) Ent.C Profile Event Out C (235) Ent.d Profile Event Out D (236) Ent.E Profile Event Out E (247) Ent.F Profile Event Out F (248) Ent.9 Profile Event Out G (249) Ent.h Profile Event Out H (250) Fun Function Key (1001) L iM Limit (126) L9C Logic (239) SoF.1 Special Function Output 1 (1532) SoF.2 Special Function Output 2 (1533) SoF.3 Special Function Output 3 (1534) SoF.4 Special Function Output 4 (1535) tMr Timer (244) hEr Heater Error (184) uAr Variable (245)	None	***Instance 1*** Map 1 Map 2 3028 4208 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 5	- - - -	27005	uint RWES
Si.E Si.E	*Logic (1 to 16)* **Source Instance E** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 3044 4224 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 D (13)	- - - -	27013	uint RWES

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RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
SZ.E SZ.E	*Logic (1 to 16)* **Source Zone E** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 3060 4240 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0x15 (21)	- - - -	27021	uint RWES
SFn.F SFn.F	*Logic (1 to 16)* **Source Function F** Set the type of function that will be used for this source.	none None (61) ALM Alarm (6) CPE Compare (230) Ctr Counter (231) d io Digital I/O (1142) Ent.A Profile Event Out A (233) Ent.b Profile Event Out B (234) Ent.C Profile Event Out C (235) Ent.d Profile Event Out D (236) Ent.E Profile Event Out E (247) Ent.F Profile Event Out F (248) Ent.9 Profile Event Out G (249) Ent.h Profile Event Out H (250) FUn Function Key (1001) L iM Limit (126) LgC Logic (239) SoF.1 Special Function Output 1 (1532) SoF.2 Special Function Output 2 (1533) SoF.3 Special Function Output 3 (1534) SoF.4 Special Function Output 4 (1535) tMr Timer (244) hEr Heater Error (184) uAr Variable (245)	None	***Instance 1*** Map 1 Map 2 3030 4210 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 6	- - - -	27006	uint RWES

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
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RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
5 .F Si.F	*Logic (1 to 16)* **Source Instance F** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 3046 4226 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0xE (14)	- - - -	27014	uint RWES
52.F SZ.F	*Logic (1 to 16)* **Source Zone F** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 3062 4242 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0x16 (22)	- - - -	27022	uint RWES
* These parameters/prompts are available in these menus with firmware revisions 6.0 and above. ** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
SFn.g SFn.g	*Logic (1 to 16)* **Source Function G** Set the type of function that will be used for this source.	nonE None (61) ALM Alarm (6) CPE Compare (230) Ctr Counter (231) d io Digital I/O (1142) Ent.A Profile Event Out A (233) Ent.b Profile Event Out B (234) Ent.C Profile Event Out C (235) Ent.d Profile Event Out D (236) Ent.E Profile Event Out E (247) Ent.F Profile Event Out F (248) Ent.g Profile Event Out G (249) Ent.h Profile Event Out H (250) Fun Function Key (1001) L im Limit (126) LgC Logic (239) SoF.1 Special Function Output 1 (1532) SoF.2 Special Function Output 2 (1533) SoF.3 Special Function Output 3 (1534) SoF.4 Special Function Output 4 (1535) tMr Timer (244) h.Er Heater Error (184) uAr Variable (245)	None	***Instance 1*** Map 1 Map 2 3032 4212 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 7	- - - -	27007	uint RWES
S i.g Si.g	*Logic (1 to 16)* **Source Instance G** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 3048 4228 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0xF (15)	- - - -	27015	uint RWES

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RME Module • Setup Page

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
SZ.g SZ.g	*Logic (1 to 16)* **Source Zone G** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 3064 4244 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0x17 (23)	- - - -	27023	uint RWES
SFn.h SFn.h	*Logic (1 to 16)* **Source Function H** Set the type of function that will be used for this source.	none None (61) ALM Alarm (6) CPE Compare (230) Ctr Counter (231) d io Digital I/O (1142) Ent.A Profile Event Out A (233) Ent.b Profile Event Out B (234) Ent.C Profile Event Out C (235) Ent.d Profile Event Out D (236) Ent.E Profile Event Out E (247) Ent.F Profile Event Out F (248) Ent.G Profile Event Out G (249) Ent.h Profile Event Out H (250) FUn Function Key (1001) Lim Limit (126) LGC Logic (239) SoF.1 Special Function Output 1 (1532) SoF.2 Special Function Output 2 (1533) SoF.3 Special Function Output 3 (1534) SoF.4 Special Function Output 4 (1535) tMr Timer (244) h.Er Heater Error (184) uAr Variable (245)	None	***Instance 1*** Map 1 Map 2 3034 4214 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 8	- - - -	27008	uint RWES

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
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RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
Si.h Si.h	*Logic (1 to 16)* **Source Instance H** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 3050 4230 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0x10 (16)	- - - -	27016	uint RWES
SZ.h SZ.h	*Logic (1 to 16)* **Source Zone H** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 3066 4246 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0x18 (24)	- - - -	27024	uint RWES
Er.h Er.h	*Logic (1 to 16)* **Error Handling** Use to select the output value and error output state of this function if it receives an error signal from one or more sources and it cannot determine the output value.	t.9 True Good (1476) t.b True Bad (1477) F.9 False Good (1478) F.b False Bad (1479)	False Bad	***Instance 1*** Map 1 Map 2 3088 4268 *Map 1 and Map 2 Offset to next instance equals +80*	0x7F (127) 1 to 16 0x23 (35)	- - - -	27035	uint RWES
* These parameters/prompts are available in these menus with firmware revisions 6.0 and above. ** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module • Setup Page

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
MAt SEt **Math Menu**								
Fn Fn	*Math (1 to 8)* **Function** Set the operator that will be applied to the sources.	oFF Off (62) Avg Average (1367) P.SC Process Scale (1371) d.SC Deviation Scale (1372) So Switch Over (1370) d iFF Differential (1373) rAt i Ratio (1374) Add Add (1375) MUL Multiply (1376) A.d iF Absolute Difference (1377) M in Minimum (1378) MAH Maximum (1379) root Square Root (1380) hold Sample and Hold (1381) ALt Pressure to Altitude (1649) dEvJ Dew Point (1650)	Off	***Instance 1*** Map 1 Map 2 2220 3680 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0x15 (21)	128	25021	uint RWES
SFn.A SFn.A	*Math (1 to 8)* **Source Function A** Set the type of function that will be used for this source.	nonE None (61) Ai Analog Input (142) CUrr Current (22) C.Pr Cool Power (161) h.Pr Heat Power (160) PUJr Power (73) Lnr Linearization (238) MAt Math (240) Pu Process Value (241) SP.C Set Point Closed (242) SP.o Set Point Open (243) uAr Variable (245) WJAt Wattage (1697) Ld.Uo Load Voltage (1698) Ld.r Load Resistance (1183)	None	***Instance 1*** Map 1 Map 2 2180 3640 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 1	- - - -	25001	uint RWES

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RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
S i.A Si.A	*Math (1 to 8)* **Source Instance A** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 2190 3650 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 6	- - - -	25006	uint RWES
S2.A SZ.A	*Math (1 to 8)* **Source Zone A** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 2200 3660 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0xB (11)	- - - -	25011	uint RWES
SFn.b SFn.b	*Math (1 to 8)* **Source Function B** Set the type of function that will be used for this source.	nonE None (61) A i Analog Input (142) CUrr Current (22) C.Pr Cool Power (161) h.Pr Heat Power (160) PUdr Power (73) Lnr Linearization (238) MAtH Math (240) Pu Process Value (241) SP.C Set Point Closed (242) SP.o Set Point Open (243) uAr Variable (245) UJAt Wattage (1697) Ld.Uo Load Voltage (1698) Ld.r Load Resistance (1183)	None	***Instance 1*** Map 1 Map 2 2182 3642 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 2	- - - -	25002	uint RWES
S i.b Si.b	*Math (1 to 8)* **Source Instance B** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 2192 3652 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 7	- - - -	25007	uint RWES
* These parameters/prompts are available in these menus with firmware revisions 6.0 and above. ** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
S2.b SZ.b	*Math (1 to 8)* **Source Zone B** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 2202 3662 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0xC (12)	- - - -	25012	uint RWES
SFn.C SFn.C	*Math (1 to 8)* **Source Function C** Set the type of function that will be used for this source.	nonE None (61) AI Analog Input (142) CUrr Current (22) C.Pr Cool Power (161) h.Pr Heat Power (160) PUJr Power (73) Lnr Linearization (238) MAtH Math (240) Pu Process Value (241) SP.C Set Point Closed (242) SP.o Set Point Open (243) uAr Variable (245) WAtt Wattage (1697) Ld.Uo Load Voltage (1698) Ld.r Load Resistance (1183)	None	***Instance 1*** Map 1 Map 2 2184 3644 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 3	- - - -	25003	uint RWES
S.iC Si.C	*Math (1 to 8)* **Source Instance C** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 2194 3654 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 8	- - - -	25008	uint RWES
S2.C SZ.C	*Math (1 to 8)* **Source Zone C** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 2204 3664 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0xD (13)	- - - -	25013	uint RWES

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RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
SFn.d SFn.d	*Math (1 to 8)* **Source Function D** Set the type of function that will be used for this source.	nonE None (61) A I Analog Input (142) CUrr Current (22) C.Pr Cool Power (161) h.Pr Heat Power (160) PUdr Power (73) Lnr Linearization (238) MAtH Math (240) Pu Process Value (241) SP.C Set Point Closed (242) SP.o Set Point Open (243) uAr Variable (245) UAtt Wattage (1697) Ld.Uo Load Voltage (1698) Ldr Load Resistance (1183)	None	***Instance 1*** Map 1 Map 2 2186 3646 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 4	- - - -	25004	uint RWES
S Id Si.d	*Math (1 to 8)* **Source Instance D** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 2196 3656 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 9	- - - -	25009	uint RWES
S2.d SZ.d	*Math (1 to 8)* **Source Zone D** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 2206 3666 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0xE (14)	- - - -	25014	uint RWES

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RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
SFn.E SFn.E	*Math (1 to 8)* **Source Function E** Set the type of function that will be used for this source.	nonE None (61) ALM Alarm (6) CPE Compare (230) Ctr Counter (231) d io Digital I/O (1142) Ent.A Profile Event Out A (233) Ent.b Profile Event Out B (234) Ent.C Profile Event Out C (235) Ent.d Profile Event Out D (236) Ent.E Profile Event Out E (247) Ent.F Profile Event Out F (248) Ent.9 Profile Event Out G (249) Ent.h Profile Event Out H (250) FUn Function Key (1001) LgC Logic (239) tMr Timer (244) uAr Variable (245) uWAt Wattage (1697) Ld.Uo Load Voltage (1698) Ld.r Load Resistance (1183)	None	***Instance 1*** Map 1 Map 2 2188 3648 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 5	- - - -	25005	uint RWES
Si.E Si.E	*Math (1 to 8)* **Source Instance E** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 2198 3658 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0xA (10)	- - - -	25010	uint RWES
SZ.E SZ.E	*Math (1 to 8)* **Source Zone E** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 2208 3668 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0xF (15)	- - - -	25015	uint RWES

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RME Module • Setup Page								
Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
S.Lo S.Lo	*Math (1 to 8)* **Scale Low** If Math function is set to Process Scale, this will scale Source A low value to Range Low setting.	-1,999.000 to 9,999.000	0.0	***Instance 1*** Map 1 Map 2 2226 3686 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0x18 (24)	129	25024	float RWES
S.hi S.hi	*Math (1 to 8)* **Scale High** If Math function is set to Process Scale, this will scale Source A high value to Range High setting.	-1,999.000 to 9,999.000	1.0	***Instance 1*** Map 1 Map 2 2228 3688 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0x19 (25)	130	25025	float RWES
Unit Unit	*Math (1 to 8)* **Units** Set units for Source.	SrC Source (1539) nonE None (61) AbP Absolute Temperature (1540) rbP Relative Temperature (1541) PWr Power (73) Pro Process (75) rh Relative Humidity (1538)	Source	***Instance 1*** Map 1 Map 2 2242 3702 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0x20 (32)	- - - -	25032	uint RWES
r.Lo r.Lo	*Math (1 to 8)* **Range Low** If Math function is set to Process Scale, this will output Source A Scale Low value to Range Low setting.	-1,999.000 to 9,999.000	0.0	***Instance 1*** Map 1 Map 2 2230 3690 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0x1A (26)	131	25026	float RWES
r.hi r.hi	*Math (1 to 8)* **Range High** If Math function is set to Process Scale, this will output Source A Scale High value to Range High setting.	-1,999.000 to 9,999.000	1.0	***Instance 1*** Map 1 Map 2 2232 3692 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0x1B (27)	132	25027	float RWES

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RME Module • Setup Page

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
P.unt P.unt	*Math (1 to 8)* **Pressure Units** If Math function is set for Pressure to Altitude units, set units of measure for conversion.	PSI Pressure Units (1671) PASc Pascal (1674) ATM Atmosphere (1675) mbr mbar (1672) torr Torr (1673)	Pressure Units	***Instance 1*** Map 1 Map 2 2238 3698 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0x1E (30)	- - - -	25030	uint RWES
A.unt A.unt	*Math (1 to 8)* **Altitude Units** If Math function is set for Pressure to Altitude units, set units of measure for conversion.	HFt Kilofeet (1671) Ft Feet (1674)	Kilofeet	***Instance 1*** Map 1 Map 2 2240 3700 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0x1F (31)	- - - -	25031	uint RWES
FiL FiL	*Math (1 to 8)* **Filter** Filtering smooths out the output signal of this function block. Increase the time to increase filtering.	0.0 to 60.0 seconds	0.0	***Instance 1*** Map 1 Map 2 2234 3694 *Map 1 and Map 2 Offset to next instance equals +70*	0x7D (125) 1 to 8 0x1C (28)	- - - -	25028	float RWES
SoF SEt **Special Output Function Menu**								
Fn Fn	*Special Output (1 to 4)* **Function** Set the function to match the device it will operate.	oFF Off (62) Co.C Compressor Control (1506) uAC Motorized Valve (1508) SEC Sequencer (1507)	Off	***Instance 1*** Map 1 Map 2 6636 7416 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 9	181	35009	uint RWES
SFnA SFn.A	*Special Output (1 to 4)* **Source Function A** Set the type of function that will be used for this source.	nonE None (61) AI Analog Input (142) CPr Cool Power (161) hPr Heat Power (160) PWDr Power (73) Lnr Linearization (238) MAtH Math (240) Pu Process Value (241) SoF.1 Special Function Output 1 (1532) uAr Variable (245)	None	***Instance 1*** Map 1 Map 2 6620 7400 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 1	182	35001	uint RWES

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RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
S i.A Si.A	*Special Output (1 to 4)* **Source Instance A** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 6624 7404 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 3	183	35003	uint RWES
S2.A SZ.A	*Special Output (1 to 4)* **Source Zone A** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 6628 7408 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 5	- - - -	35005	uint RWES
SFn.b SFn.b	*Special Output (1 to 4)* **Source Function B** Set the type of function that will be used for this source.	nonE None (61) C.Pr Cool Power (161) h.Pr Heat Power (160) PWJr Power (73) Lnr Linearization (238) MAtH Math (240) uAr Variable (245)	None	***Instance 1*** Map 1 Map 2 6622 7402 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 2	184	35002	uint RWES
S i.b Si.b	*Special Output (1 to 4)* **Source Instance B** Set the instance of the function selected above.	1 to 250	1	***Instance 1*** Map 1 Map 2 6626 7406 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 4	185	35004	uint RWES
S2.b SZ.b	*Special Output (1 to 4)* **Source Zone B** Set the zone of the function selected above.	0 to 24	0	***Instance 1*** Map 1 Map 2 6630 7410 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 6	- - - -	35006	uint RWES

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
Pon.A Pon.A	*Special Output (1 to 4)* **Input A Turn On** If Function is set to Compressor Control: Use Source A for a first loop to inform the function whether the compressor will soon be required. Set Power On Level 1 and Power Off Level 1 to the Source A values that will switch the compressor on and off.	-100.0 to 100.0%	0	***Instance 1*** Map 1 Map 2 6654 7434 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0x12 (18)	186	35018	float RWES
PoF.A PoF.A	*Special Output (1 to 4)* **Input A Turn Off**	-100.0 to 100.0%	5	***Instance 1*** Map 1 Map 2 6656 7436 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0x13 (19)	187	35019	float RWES
Pon.b Pon.b	*Special Output (1 to 4)* **Input B Turn On** If Function is set to Compressor Control: Use Source B for a second loop to inform the function whether the compressor will soon be required. Set Power On Level 2 and Power Off Level 2 to the Source B values that will switch the compressor on and off.	-100.0 to 100.0%	0	***Instance 1*** Map 1 Map 2 6658 7438 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0x14 (20)	188	35020	float RWES

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Setup Page								
Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
PoF.b PoF.b	*Special Output (1 to 4)* **Input B Turn Off**	-100.0 to 100.0%	5	***Instance 1*** Map 1 Map 2 6660 7440 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0x15 (21)	189	35021	float RWES
on.t on.t	*Special Output (1 to 4)* **Minimum On Time** If Function is set to Compressor Control: Set Minimum On Time and Minimum Off Time to the minimum span of time, in seconds, that the compressor will be on or off.	0 to 9,999 seconds	20	***Instance 1*** Map 1 Map 2 6662 7442 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0x16 (22)	190	35022	uint RWES
oF.t oF.t	*Special Output (1 to 4)* **Minimum Off Time**	0 to 9,999 seconds	20	***Instance 1*** Map 1 Map 2 6664 7444 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0x17 (23)	191	35023	uint RWES
t.t t.t	*Special Output (1 to 4)* **Valve Travel Time** If Function is set to Motorized Valve: Source A will determine the valve position. Set this time in seconds representing the time that it will take the valve to travel between fully closed and fully open.	10 to 9,999 seconds	120	***Instance 1*** Map 1 Map 2 6666 7446 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0x18 (24)	192	35024	uint RWES

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Setup Page								
Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
db db	*Special Output (1 to 4)* **Dead Band** If Function is set to Motorized Valve: Set to the minimum valve adjustment as a percentage, representing the movement of the valve in a single action. A small value improves accuracy and depletes valve life where a large value reduces the number of adjustments (less accurate) and the wear on the mechanism.	1.0 to 100.0%	2	***Instance 1*** Map 1 Map 2 6668 7448 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0x19 (25)	193	35025	float RWES
o.S1 o.S1	*Special Output (1 to 4)* **Output 1 Size** If Function is set to Sequencer: Set Output 1 Size, as a percentage of the total capacity of all output devices, or vernier output. This value must be larger than the values set for outputs 2 through 4.	0 to 9,999	10	***Instance 1*** Map 1 Map 2 6674 7454 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0x1C (28)	- - - -	35028	float RWES
* These parameters/prompts are available in these menus with firmware revisions 6.0 and above. ** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module • Setup Page								
Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
o.S2 o.S2	*Special Output (1 to 4)* **Output 2 Size** If Function is set to Sequencer: Set the size of outputs 2 through 4 to represent a percentage of the total output capacity. Outputs 2 through 4 will control using the ON-OFF algorithm.	0 to 9,999	0	***Instance 1*** Map 1 Map 2 6676 7456 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0x1D (29)	- - - -	35029	float RWES
o.S3 o.S3	*Special Output (1 to 4)* **Output 3 Size**	0 to 9,999	0	***Instance 1*** Map 1 Map 2 6678 7458 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0x1E (30)	- - - -	35030	float RWES
o.S4 o.S4	*Special Output (1 to 4)* **Output 4 Size**	0 to 9,999	0	***Instance 1*** Map 1 Map 2 6680 7460 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0x1F (31)	- - - -	35031	float RWES
t.dL t.dL	*Special Output (1 to 4)* **Time Delay** If Function is set to Sequencer: Set in seconds to represent the minimum span of time that must elapse between the turn on of one (on-off) output to the next.	0 to 9,999 seconds	0	***Instance 1*** Map 1 Map 2 6670 7450 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0x1A (26)	- - - -	35026	uint RWES

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
oto ot.o	*Special Output (1 to 4)* **Output Order** If Function is set to Sequencer: Set to Linear to turn the on-off outputs on in the same order every time. Select Progressive to rotate the order to balance usage and wear on contactors and heaters.	Lin Linear (1509) Pro Progressive (1510)	Linear	***Instance 1*** Map 1 Map 2 6672 7452 *Map 1 and Map 2 Offset to next instance equals +80*	0x87 (135) 1 to 4 0x1B (27)	- - - -	35027	uint RWES
uAr SEt **Variable Menu**								
tYPE tyPE	*Variable (1 to 16)* **Data Type** Set the variable's data type.	AnLg Analog (1215) dig Digital (1220)	Analog	***Instance 1*** Map 1 Map 2 6380 7080 *Map 1 and Map 2 Offset to next instance equals +20*	0x66 (102) 1 to 16 1	210	2001	uint RWES
Unit Unit	*Variable (1 to 16)* **Units** Set the variable's units. **Note:** Units are always in degrees F when used for temperature	AbS Absolute Temperature (1540) rEL Relative Temperature (1541) PWr Power (73) Pro Process (75) rh Relative Humidity (1538) nonE None (61)	Absolute Temperature	***Instance 1*** Map 1 Map 2 6392 7092 *Map 1 and Map 2 Offset to next instance equals +20*	0x66 (102) 1 to 16 7	- - - -	2007	uint RWES
dig dig	*Variable (1 to 16)* **Digital** Set the variable's value.	oFF Off (62) on On (63)	Off	***Instance 1*** Map 1 Map 2 6382 7082 *Map 1 and Map 2 Offset to next instance equals +20*	0x66 (102) 1 to 16 2	211	2002	uint RWES

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Setup Page

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
AnLg AnLg	*Variable (1 to 16)* **Analog** Set the variable's value.	-1,999.000 to 9,999.000	0.0	***Instance 1*** Map 1 Map 2 6384 7084 *Map 1 and Map 2 Offset to next instance equals +20*	0x66 (102) 1 to 16 3	212	2003	float RWES
GLbL SEt **Global Menu**								
C_F C_F	*Global* **Display Units** Select which scale to use for temperature.	F °F (30) C °C (15)	°F	***Instance 1*** Map 1 Map 2 6948 7728	0x67 (103) 1 5	110	3005	- - - -
AC.LF AC.LF	*Global* **AC Line Frequency** Set the frequency to the applied ac line power source.	50 50 Hz (3) 60 60 Hz (4)	60 Hz	***Instance 1*** Map 1 Map 2 366 426	0x6A (106) 1 4	- - - -	6004	uint RWES
dPrS dPrS	*Global* **Display Pairs** Defines the number of Display Pairs.	1 to 10	1	***Instance 1*** Map 1 Map 2 - - - - 7774	0x67 (103) 1 0x1C (28)	- - - -	3028	uint RWES
MAX MAX	*Global* **Maximum** Allows ranges to be opened up to display full values. Prior to firmware revision 9.0, ranges were clamped to accommodate the seven segment LED display of the RUI. Typically used with external display devices/software like HMIs and SpecView.	Floating Point [-3.4E+38 to 3.4E+38] Unsigned integer [0 to 65,535]	9999.0	***Instance 1*** Map 1 Map 2 - - - - 7808	0x67 (103) 1 0x2D (45)	- - - -	3045	float RW

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Setup Page

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP - Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type and Access **
Pn in Min	*Global* **Minimum** Allows ranges to be opened up to display full values. Prior to firmware revision 9.0, ranges were clamped to accommodate the seven segment LED display of the RUI. Typically used with external display devices/software like HMIs and SpecView.	Floating Point [-3.4E+38 to 3.4E+38] Unsigned integer [0 to 65,535]	-1,999.0	***Instance 1*** Map 1 Map 2 - - - - 7806	0x67 (103) 1 0x2C (44)	- - - -	3044	float RW
USr.S USr.S	*Global* **Save Settings As** Save all of this controller's settings to the selected set that have a Data Type of RWES.	SEt 1 User Set 1 (101) nonE None (61) * Starting with firmware release 6, there is only one user set.	None	***Instance 1*** Map 1 Map 2 26 26	0x65 (101) 1 0x0E (14)	118	1014	uint RWE
USr.r USr.r	*Global* **Restore Settings From** Replace all of this controller's settings with another set.	FCty Factory (31) nonE None (61) SEt 1 User Set 1 (101) * Starting with firmware release 6, there is only one user set.	None	***Instance 1*** Map 1 Map 2 24 24	0x65 (101) 1 0xD (13)	117	1013	uint RWE
CoMM SEt **Communications Menu**								
bAUd bAUd	*Communications* **Baud Rate** Modbus RTU baud rate selection. **Note:** This applies if 13th digit in part number is equal to one.	9600 9,600 (188) 19.2 19,200 (189) 38.4 38,400 (190)	9,600	***Instance 1*** Map 1 Map 2 2164 3624	0x96 (150) 1 3	- - - -	17002	uint RWE

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
PAr PAr	*Communications* **Parity** Modbus RTU parity selection. **Note:** This applies if 13th digit in part number is equal to one.	nonE None (61) EuEn Even (191) odd Odd (192)	None	***Instance 1*** Map 1 Map 2 2166 3626	0x96 (150) 1 4	- - - -	17003	uint RWE
M.hL M.hL	*Communications* **Modbus Word Order** Select the word order of the two 16-bit words in the floating-point values. **Note:** This applies if 13th digit in part number is equal to one.	h iLo Word High Low (1330) Loh i Word Low High (1331)	Low High	***Instance 1*** Map 1 Map 2 2168 3628	0x96 (150) 1 5	- - - -	17043	uint RWE
C_F C_F	*Communications* **Display Units** Select which scale to use for temperature passed when using Modbus **Note:** This applies if 13th digit in part number is equal to one.	F °F (30) C °C (15)	°F	***Instance 1*** Map 1 Map 2 2170 3630	0x96 (150) 1 6	131	17050	uint RWE
MAP Map	*Communications (1 or 2)* **Data Map** If set to 1 the control will use RM legacy mapping. If set to 2 the control will use new mapping to accommodate new functions.	1 to 2	1	- - - -	- - - -	- - - -	17059	uint RWE

* These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
** R: Read, W: Write, E: EEPROM, S: User Set

RME Module • Setup Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP - Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type and Access ****
nU.S nV.S	*Communications* **Non-volatile Save** If set to Yes all values written to the control will be saved in EEPROM. **Note:** This applies if 13th digit in part number is equal to one.	YES Yes (106) no No (59)	Yes	***Instance 1*** Map 1 Map 2 2174 3634 1 to 2 8	0x96 (150) 1 to 2 8	130	17051	uint RWE
No Display	*Communications* **Protocol** Select the communications protocol.	Standard Bus (1286) Modbus RTU Word (1057)	If model number digit 13 = 1 [Modbus] If model number digit 13 = A [Standard Bus]	***Instance 1*** Map 1 Map 2 2832 3632 1 to 2 7	0x96 (150) 1 to 2 7	- - - -	17009	uint RWE
No Display	*Communications* **Modbus Address** Select the Modbus address. **Note:** This applies if 13th digit in part number is equal to one.	1 to 247	1	***Instance 1*** Map 1 Map 2 2160 3620 1 1	0x96 (150) 1 1	- - - -	17007	uint RWE
* These parameters/prompts are available in these menus with firmware revisions 6.0 and above. ** R: Read, W: Write, E: EEPROM, S: User Set								

5 Chapter 5: Factory Pages

Expansion Module Factory Page Parameters

To navigate to the Factory Page using the RUI, follow the steps below:

1. From the Home Page, press and hold both the Advance and Infinity keys for six seconds.
2. Press the Up or Down key to view available menus.
3. Press the Advance Key to enter the menu of choice.
4. If a submenu exists (more than one instance), press the Up or Down key to select and then press the Advance Key to enter.
5. Press the Up or Down key to move through available menu prompts.
6. Press the Infinity Key to move backwards through the levels: parameter to submenu, submenu to menu, menu to Home Page.
7. Press and hold the Infinity Key for two seconds to return to the Home Page.

On the following pages, top level menus are identified with a yellow background color.

Note:
Some of these menus and parameters may not appear, depending on the controller's options. See model number information in the Appendix for more information. If there is only one instance of a menu, no submenus will appear.

Note:
Some of the listed parameters may not be visible. Parameter visibility is dependent upon controller part number.

CUSt
FCty Custom Setup Menu
1 to 20
CUSt Custom Setup
PAr Parameter
Inid Instance ID

LoC
FCty Security Setting Menu
LoC Security Setting
LoC.o Operations Page
PASE Password
rLoC Read Lock
SLoC Write Security
LoC.L Locked Access Level
roLL Rolling Password
PAS.u User Password
PAS.A Administrator Password

ULoC
FCty Security Setting Menu
LoC Security Setting
CodE Public Key
PASS Password

diAG
FCty Diagnostics Menu
diAG Diagnostics
Pn Part Number
rEv Software Revision
S.bLd Software Build Number
Sn Serial Number
dAtE Date of Manufacture

CAL
FCty Calibration Menu
CAL Calibration Output (1-3, 7-9, 13-15, 19-21 process)
ELo.o Electrical Output Offset
ELo.S Electrical Output Slope

RME Module Factory Page

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type & Read/ Write **
CUSt FCty **Custom Setup Menu**								
PAr Par	*Custom Menu* **Parameter 1 to 20** Select the parameters that will appear in the Home Page. The Parameter 1 value will appear in the upper display of the Home Page. It cannot be changed with the Up and Down Keys in the Home Page. The Parameter 2 value will appear in the lower display in the Home Page. It can be changed with the Up and Down Keys, if the parameter is a writable one. Scroll through the other Home Page parameters with the Advance Key .	nonE None (61) C_F Display Units (156) USr.r Restore Settings From (227) A.Lo Low Set Point (42) Ah i High Set Point (78) A.hy Hysteresis (97) CU.St Custom (180) Ld.Cu Current (1700)	- - - -	- - - -	- - - -	- - - -	14005	uint RWES
iid iid	*Custom Setup (1 to 20)* **Instance ID** Select the instance of the parameter selected above to be displayed.	1 to 24	- - - -	- - - -	- - - -	- - - -	14003	uint RWES

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RME Module Factory Page

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type & Read/ Write **
LoC FCty **Security Setting Menu**								
LoC.o LoC.o	*Security Setting* **Operations Page** Use to change the required security level clearance required to gain access to the Operations Page.	1 to 3	2	***Instance 1*** Map 1 Map 2 6942 7722	0x67 (103) 1 2	- - - -	3002	unit RWE
PASE PAS.E	*Security Setting* **Password Enable** Turn Password Enable ON if a Password access feature is desired. This is in addition to Read Lock or Write Security..	oFF Off on On	Off	- - - -	- - - -	- - - -	- - - -	- - - -
** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module Factory Page								
Dis-play	Parameter Name Description	Range	Default	Modbus Relative Ad-dress	CIP Class Instance Attribute hex (dec)	Pro-fibus Index	Pa-ram-eter ID	Data Type & Read/ Write **
rLoC rLoC	*Security Setting* **Read Lock** Set the read security clear-ance level. The user can access the selected level and all lower levels. Applies re-gardless of Password En-able setting. Set the Read Lock clearance level. The user can have read access to the selected level and all lower levels. If the Write Security level is higher than the Read Lock, the Read Lock level takes priority.	1 to 5	5	***Instance 1*** Map 1 Map 2 6958 7738	0x67 (103) 1 0x0A (10)	- - - -	3010	uint RWE
** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module Factory Page								
Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type & Read/ Write **
SLoC SLoC	Security Setting **Write Security** Set the write security clearance level. The user can access the selected level and all lower levels. Applies regardless of Password Enable setting. Set the Write Security clearance level. The user can have write access to the selected level and all lower levels. If the Write Security level is higher than the Read Lock, the Read Lock level takes priority.	0 to 5	5	***Instance 1*** Map 1 Map 2 6960 7740	0x67 (103) 1 0x0B (11)	- - - -	3011	uint RWE
LoC.L LoC.L	Security Setting **Locked Access Level** Determines user level menu visibility when Password is enabled. See Features section under Password Security. This setting is in addition to Read Lock and Write Security. Consider using only Locked Access Level and Set Read Lock and Write Security to 5.	1 to 5	5	- - - -	- - - -	- - - -	- - - -	- - - -
** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module Factory Page								
Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type & Read/ Write **
roLL roLL	Security Setting **Rolling Password** Applies if Password Enable is ON. When power is cycled a new Public Key will be displayed.	oFF Off on On	Off	- - - -	- - - -	- - - -	- - - -	- - - -
PAS.u PAS.u	Security Setting **User Password** Applies if Password Enable is ON. Used to acquire access to menus made available through the Locked Access Level setting. Do not forget the password as it is required to change Locked Access Level, Read Lock or Write Security.	10 to 999	63	- - - -	- - - -	- - - -	- - - -	- - - -
PAS.A PAS.A	*Security Setting* **Administrator Password** Applies if Password Enable is ON. Used to acquire access to menus made available through the Locked Access Level setting. Do not forget the password as it is required to change Locked Access Level, Read Lock, Write Security and the ability to change the Passwords.	10 to 999	156	- - - -	- - - -	- - - -	- - - -	- - - -
** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module Factory Page

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type & Read/ Write **
ULoC FCty **Security Setting Menu**								
CodE CodE	*Security Setting* **Public Key** If Rolling Password is turned ON, generates a random number when power is cycled. If Rolling Password is OFF, a fixed number will be displayed. The Public Key is only required if the assigned Password is unknown. Provide the key to the OEM or technical support to gain access.	Customer Specific	0	- - - -	- - - -	- - - -	- - - -	- - - -
PASS PASS	*Security Setting* **Password** Applies if Password Enable is set to ON. Enter the 4-digit assigned password. If unknown, contact your supervisor, the OEM or technical support to gain access.	-1999 to 9999	0	- - - -	- - - -	- - - -	- - - -	- - - -
diAG FCty **Diagnostics Menu**								
Pn Pn	*Diagnostics Menu* **Part Number** Display this controller's part number.	24	- - - -	***Instance 1*** Map 1 Map 2 16 16	0x65 (101) 1 9	115	1009	string RWE

** R: Read, W: Write, E: EEPROM, S: User Set

RME Module Factory Page								
Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type & Read/ Write **
rEv rEv	Diagnostics Menu **Software Revision** Display this controller's firmware revision number.	5	- - - -	***Instance 1*** Map 1 Map 2 4 4	0x65 (101) 1 to 5 0x11 (17)	116	1003	32-bit R
S.bLd S.bLd	Diagnostics Menu **Software Build Number** Display the firmware build number.	0 to 2,147,483,647	- - - -	***Instance 1*** Map 1 Map 2 8 8	0x65 (101) 1 to 5 5	- - - -	1005	32-bit R
Sn Sn	Diagnostics Menu **Serial Number** Display the serial number.	0 to 2,147,483,647	- - - -	***Instance 1*** Map 1 Map 2 12 12	0x65 (101) 1 7	- - - -	1007	32-bit RWE
dAtE dAtE	Diagnostics Menu **Date of Manufacture** Display the date code.	0 to 2,147,483,647	- - - -	***Instance 1*** Map 1 Map 2 14 14	0x65 (101) 1 8	- - - -	1008	32-bit RWE
No Display	Diagnostics Menu **Hardware ID** Read the hardware ID.	23 or 116	23	***Instance 1*** Map 1 Map 2 0 0	0x65 (101) 1 1	- - - -	1001	32-bit R
CAL FCty **Calibration Menu**								
ELo.o ELo.o	*Calibration Menu (1-3, 7-9, 13-15, 19-21)* **Electrical Output Offset** Change this value to calibrate the low end of the output range.	-1,999.000 to 9,999.000	0.0	***Instance 1*** Map 1 Map 2 6998 7828 *Map 1 and Map 2 Offset to next instance equals +60*	0x76 (118) 1-3, 7-9, 13-15, 19-21 5	- - - -	18005	float RWES
** R: Read, W: Write, E: EEPROM, S: User Set								

RME Module Factory Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP Class Instance Attribute hex (dec)**	**Profibus Index**	**Parameter ID**	**Data Type & Read/ Write ****
ELo.S ELo.S	*Calibration Menu (1-3, 7-9, 13-15, 19-21)* **Electrical Output Slope** Adjust this value to calibrate the slope of the output value.	-1,999.000 to 9,999.000	1.0	***Instance 1*** Map 1 Map 2 7000 7830 *Map 1 and Map 2 Offset to next instance equals +60*	0x76 (118) 1-3, 7-9, 13-15, 19-21 6	- - - -	18006	float RWES
** R: Read, W: Write, E: EEPROM, S: User Set								

6 Chapter 6: Features

6 Chapter 6: Features

Saving and Restoring User Settings

Recording setup and operations parameter settings for future reference is very important. If you unintentionally change these, you will need to program the correct settings back into the controller to return the equipment to operational condition.
After you program the controller and verify proper operation, use Save Settings As USr.S (Setup Page, Global Menu) to save the settings into either of two files in a special section of memory.

Note:
Starting with firmware release 6, there is only one user set.

If the settings in the controller are altered and you want to return the controller to the saved values, use Restore Settings From USr.r (Setup Page, Global Menu) to recall the previously saved settings.
A digital input or the Function Key can also be configured to restore parameters.

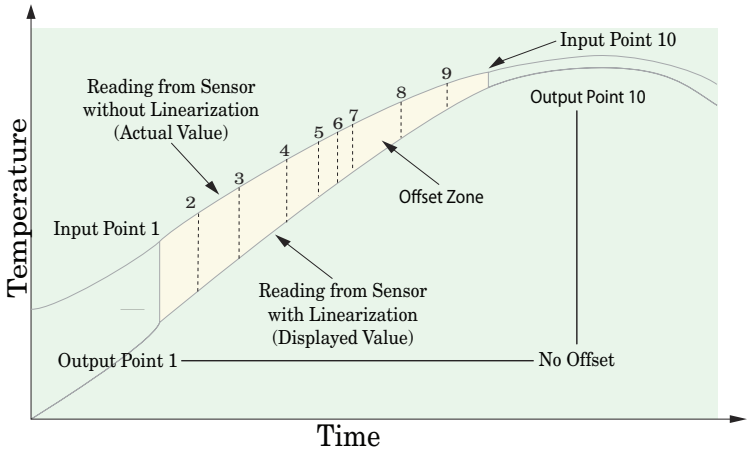
CAUTION: ⚠
If a Digital Input or Function Key is programmed for Restore Settings From, the operator may select Factory Restore and the Digital Input or Function Key may no longer be programmed for Restore Settings From.

Note:
Restoring to factory defaults will overwrite the entirety of the module memory; this would include any customized assemblies used with any of the available communications protocols.

Note:
Only perform the above procedure when you are sure that all the correct settings are programmed into the controller. Saving the settings overwrites any previously saved collection of settings. Be sure to document all the controller settings.

Inputs

10 Point Linearization



The linearization function allows a user to re-linearize a value read from an analog source. The function selections are Off, Interpolated and Stepped. When set to Off the output will match the Source A value plus offset. There are 10 data points used to compensate for differences between the source value read (input point) and the desired value (output point). Multiple data points enable compensation for non-linear differences between the sensor readings and target process values over the thermal or process system operating range. Sensor reading differences can be caused by sensor placement, tolerances, an inaccurate sensor or lead resistance.

The user specifies the unit of measurement and then each data point by entering an input point value and a corresponding output point value. Each data point must be incrementally higher than the previous point. The linearization function will interpolate data points linearly in between specified data points.

Outputs

Duplex

Certain systems require that a single process output control both heating and cooling outputs. An EZ-ZONE® RME with a process outputs can function as two separate outputs.

With a 4 to 20mA output the heating output will operate from 12 to 20mA (0 to +100 percent) and the cooling output will operate from 12 to 4mA (0 to -100 percent). In some cases this type of output is required by the device that the RME is connected to, such as a three-way valve that opens one way with a 12 to 20mA signal and opens the other way with a 4 to 12mA signal. This feature reduces the overall system cost by using a single output to act as two outputs.

Outputs 1 to 3, 7 to 9, 13 to 15 and 19 to 21 (depending on ordering options) can be ordered as process outputs. Select Power PWDr as the Output Function Fn (Setup Page, Output Menu). For this example, set the Output Type otY to milliamps mA. Range Low rLo to -100.00, Range High rHi to +100.00, Scale Low SLo to 4mA and Scale High SHi to 20.00 mA.

Variable Time Base

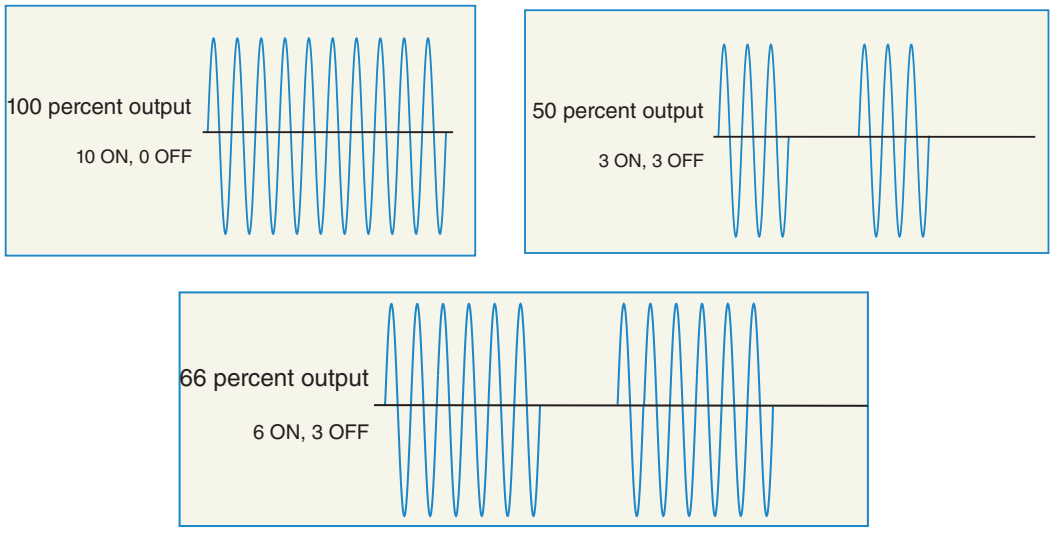
Variable time base is the preferred method for controlling a resistive load, providing a very short time base for longer heater life. Unlike phase-angle firing, variable-time-base switching does not limit the current and voltage applied to the heater.

With variable time base outputs, the PID algorithm calculates an output between 0 and 100%, but the output is distributed in groupings of three ac line cycles. For each group of three ac line cycles, the controller decides whether the power should be on or off. There is no fixed cycle time since the decision is made for each group of cycles. When used in conjunction with a zero cross (burst fire) device, such as a solid-state power controller, switching is done only at the zero cross of the ac line, which helps reduce electrical noise (RFI).

Variable time base should be used with solid-state power controllers, such as a solid-state relay (SSR) or silicon controlled rectifier (SCR) power controller. Do not use a variable time base output for controlling electromechanical relays, mercury displacement relays, inductive loads or heaters with unusual resistance characteristics.

The combination of variable time base output and a solid-state relay can inexpensively approach the effect of analog, phase-angle fired control.

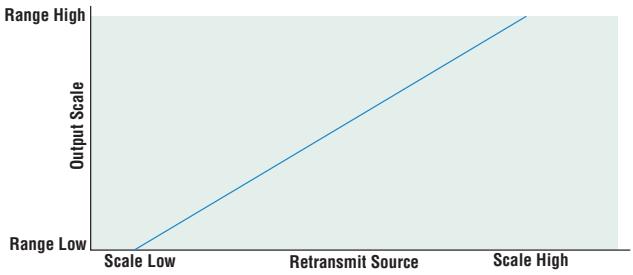
Select the AC Line Frequency ACLF (Setup Page, Global Menu), 50 or 60 Hz.



Retransmitting a Process Value or Set Point

The retransmit feature allows a process output to provide an analog signal that represents the set point or process value. The signal may serve as a remote set point for another controller or as an input for a chart recorder documenting system performance over time. In choosing the type of retransmit signal the operator must take into account the input impedance of the device to be retransmitted to and the required signal type, either voltage or milliamperes.

Typically, applications might use the retransmit option to record one of the variables with a chart recorder or to generate a set point for other controls in a multi-zone application. Outputs 1 to 3, 7 to 9, 13 to 15 and 19 to 21 can be ordered as process outputs. Assign an analog source to Output Function to accomplish retransmit of a process or set point value.



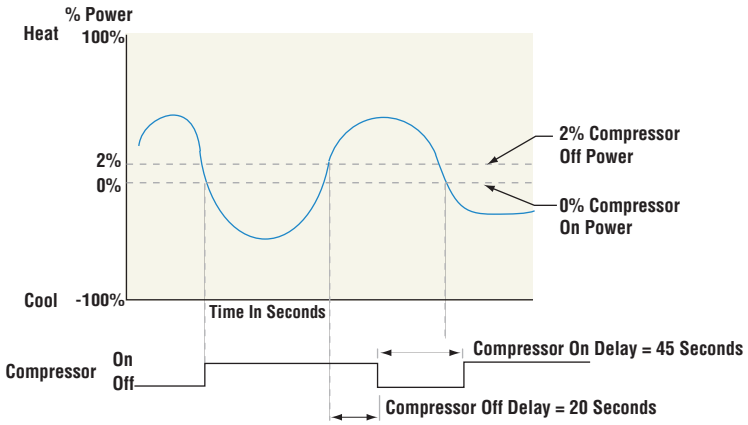
Retransmit

Note:

The active set point is not retransmitted, only the user requested closed loop set point which may not be the closed loop set point in control. Retransmitting a profiling closed loop set point is not allowed.

Compressor Control

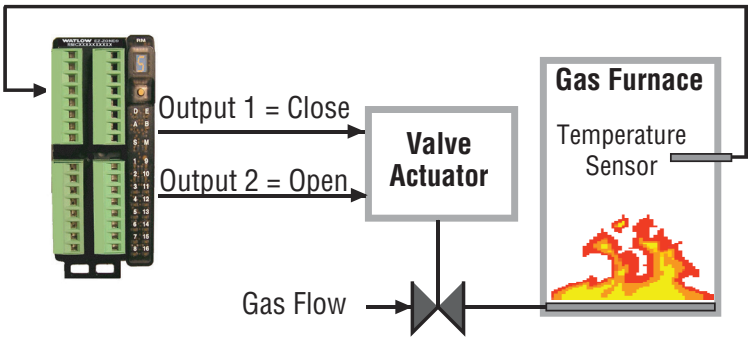
The compressor control can save wear on a compressor and prevent it from locking up from short cycling. A bypass valve operated by a control output regulates how the process is cooled, while another output switches the compressor on and off. The compressor will not turn on until the output power exceeds the Compressor On % Power for a time longer than the Compressor On Delay. The compressor will not turn off until the output power exceeds the Compressor Off % Power for a time longer than the Compressor Off Delay.



Motorized Valve Control

A motorized valve is used is to regulate the flow of fluid which in turn impacts the loop process value. A valve is opened or closed by closing contacts to drive the value in the intended direction. This feature is configured by selecting Motorized Valve as the function in the Setup Page, Special Output Function menu. Source Function A is selected for either Heat or Cool Power then entering the Valve Travel Time and Deadband.

Lastly, program the outputs which will open and close the valve. The algorithm will calculate Dead Time which is the minimum on time that the valve will travel once it is turned on in either the closed or open direction. Dead Time = Valve Dead Band / 100 * Valve Travel Time.



Alarms

Alarms are activated when the output level, process value or temperature leaves a defined range. A user can configure how and when an alarm is triggered, what action it takes and whether it turns off automatically when the alarm condition is over.
Configure alarm outputs in the Setup Page before setting alarm set points.
Alarms do not have to be assigned to an output. Alarms can be monitored and controlled through the front panel or by using software.

Process Alarms

A process alarm uses one or two absolute set points to define an alarm condition.
Select the alarm type AtY via the Setup Page, Alarm Menu.

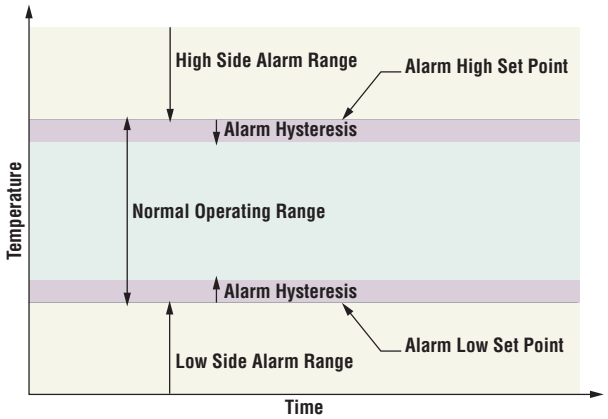
Alarm Set Points

The alarm high set point defines the process value or temperature that will trigger a high side alarm. The alarm low set point defines the temperature that will trigger a low side alarm. For deviation alarms, a negative set point represents a value below closed loop set point. A positive set point represents a value above closed loop set point. View or change alarm set points with Alarm Low ALo and Alarm High Set Points Ah1 (Operations Page, Alarm Menu).

Alarm Hysteresis

An alarm state is triggered when the process value reaches the alarm high or alarm low set point. Alarm Hysteresis defines how far the process must return into the normal operating range before the alarm can be cleared.

Alarm Hysteresis is a zone inside each alarm set point. This zone is defined by adding the hysteresis value to the alarm low set point or subtracting the hysteresis value from the alarm high set point.
View or change Alarm Hysteresis AhY via the Setup Page, Alarm Menu.



Alarm Set Points and Hysteresis

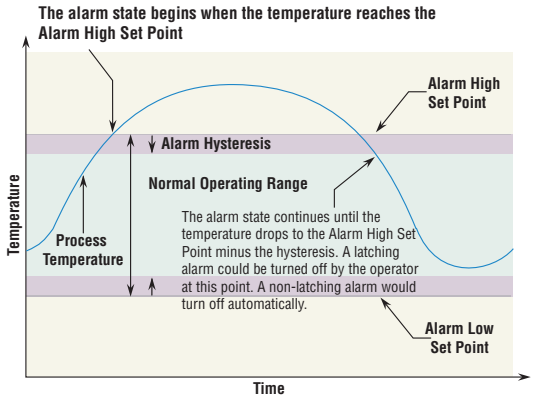
Alarm Latching

A latched alarm will remain active after the alarm condition has passed. It can only be deactivated by the user and only when the alarm condition no longer exists.

If using an RUI an active message, such as an alarm message, will cause the display to toggle between the normal settings and the active message in the upper display and AtEn in the lower display. To clear a latched alarm:

1. Push the Advance Key to display iAnr in the upper display and the message source in the lower display.
2. Use the Up or Down keys to scroll through possible responses, such as Clear CLr or Silence SiL.
3. Push the Advance or Infinity key to execute the action.

Without an RUI, a latched alarm can be reset by cycling power to the module or configuring an Action function within the control to perform a reset. Do this by setting the Action Function to alarm and trigger the Action to occur through Source Function A.



Alarm Response with Hysteresis

An alarm that is not latched (self-clearing) will deactivate automatically when the alarm condition has passed. Turn Alarm Latching ALA on or off via the Setup Page, Alarm Menu.

Alarm Silencing

If alarm silencing is on the operator can disable the alarm output while the controller is in an alarm state. The process value or temperature has to enter the normal operating range beyond the hysteresis zone to activate the alarm output function again.

If using an RUI an active message, such as an alarm message, will cause the display to toggle between the normal settings and the active message in the upper display and AtEn in the lower display. To silence an alarm:

1. Push the Advance Key to display iAnr in the upper display and the message source in the lower display.
2. Use the Up and Down keys to scroll through possible responses, such as Clear CLr or Silence SiL.
3. Push the Advance or Infinity key to execute the action.

Without an RUI, silencing an alarm can be accomplished by configuring an Action function within the control to silence the alarm. Do this by setting the Action Function to Silence and trigger the Action to occur through Source Function A. Turn Alarm Silencing AS i on or off via the Setup Page, Alarm Menu.

Alarm Blocking

Alarm blocking allows a system to warm up after it has been started up. With alarm blocking on, an alarm is not triggered when the process temperature is initially lower than the alarm low set point or higher than the alarm high set point. The process temperature has to enter the normal operating range beyond the hysteresis zone to activate the alarm function.

If the RME module has an output that is functioning as a deviation alarm, the alarm is blocked when the set point is changed, until the process value re-enters the normal operating range.

Turn Alarm Blocking AbL on or off via the Setup Page, Alarm Menu.

Programming the EZ Key/s on an RUI

If using an RUI, the EZ Key can be configured either on the Setup Page in the Action Menu or with EZ-ZONE configurator software, using a personal computer.
The following example shows how to program the EZ Key to silence alarms.

1. Go to the Setup Page from the Home Page, press both the Up ▲ and Down ▼ keys for six seconds. What appears in the upper display is dependent on installed hardware and SEt will appear in the lower display.
2. Press the Down ▼ key until Act appears in the upper display and SEt will appear in the lower display.
3. Press the Advance Key ◉ until once, Action Act will appear in the lower display and one 1 will appear in the upper display. Press the Up ▲ or Down ▼ key to select the action instance.
4. Press the Advance Key ◉ once where Function Fn appears in the lower display and nonE in the upper display.
5. Press the arrow key (up or down) until Alarm ALM7 appears in the upper display. Press the Advance Key ◉.
6. The lower display will show Function Instance F 1. Press the Up ▲ or Down ▼ key to select which alarm to silence (0 to 8). Press the Advance Key ◉.
7. The bottom display will now show Source Function A SFnA, press the Up ▲ or Down ▼ key to select the EZ Key FUn. Press the Advance Key ◉.
8. The bottom display will now show Source Instance A S 1A, press the Up ▲ or Down ▼ key to select the function key instance. Press the Advance Key ◉.
9. The bottom display will now show Source Zone A S2A, press the Up ▲ or Down ▼ key to select the zone (0 to 16) where the alarm will be silenced. Press the Advance Key ◉.
10. The bottom display will now show Level LEu, press the Up ▲ or Down ▼ key to select a high or low state to silence the alarm.
11. Press the Infinity Key ∞ once to return to the submenu, twice to return to the main menu or three times to return to the Home Page.

Using Password Security

It is sometimes desirable to apply a higher level of security when using an RUI with any of the RM modules where a limited number of menus are visible while also not providing access to others without a security password. Without the appropriate password those menus will remain inaccessible. If Password Enabled PASE in the Factory Page under the LoC Menu is set to on, an overriding Password Security will be in effect. When in effect, the only Pages that a User without a password has visibility to are defined in the Locked Access Level LoCL prompt. On the other hand, a User with a password would have visibility restricted by the Read Lockout Security rLoC. As an example, with Password Enabled and the Locked Access Level LoCL set to 1 and rLoC is set to 3, the available Pages for a User without a password would be limited to the Home and Factory Pages (locked level 1). If the User password is entered all pages would be accessible with the exception of the Setup Page as defined by level 3 access.

How to Enable Password Security

Go to the Factory Page by holding down the Infinity ∞ key and the Advance ◉ key for approximately six seconds. Once there, push the Down ▼ key one time to get to the LoC menu. Again push the Advance ◉ key until the Password Enabled PASE prompt is visible. Lastly, push either the up or down key to turn it on. Once on, 4 new prompts will appear:
1. LoCL, Locked Access Level (1 to 5) corresponding to the lockout table above.

2. roLL, Rolling Password will change the Customer Code every time power is cycled.
3. PASu, User Password which is needed for a User to acquire access to the control.
4. PASA, Administrator Password which is needed to acquire administrative access to the control.

The Administrator can either change the User and or the Administrator password or leave them in the default state. Once Password Security is enabled they will no longer be visible to anyone other than the Administrator. As can be seen in the formula that follows either the User or Administrator will need to know what those passwords are to acquire a higher level of access to the control. Back out of this menu by pushing the Infinity key. Once out of the menu, the Password Security will be enabled.

How to Acquire Access to the Module

To acquire access to any inaccessible Pages or Menus, go to the Factory Page and enter the ULoC menu. Once there follow the steps below:

Note:
If Password Security (Password Enabled PASE is On) is enabled the two prompts mentioned below in the first step will not be visible. If unknown, call the individual or company that originally setup the control.

1. Acquire either the User Password PASu or the Administrator Password PASA.
2. Push the Advance key one time where the Code CodE prompt will be visible.

Note:
   a. If the the Rolling Password is off push the Advance key one more time where the Password PASS prompt will be displayed. Proceed to either step 7a or 8a. Pushing the Up or Down arrow keys enter either the User or Administrator Password. Once entered, push and hold the Infinity key for two seconds to return to the Home Page.
   b. If the Rolling Password roLL was turned on proceed on through steps 3 - 9.
3. Assuming the Code CodE prompt (Public Key) is still visible on the face of the control simply push the Advance key to proceed to the Password PASS prompt. If not find your way back to the Factory Page as described above.
4. Execute the calculation defined below (7b or 8b) for either the User or Administrator.
5. Enter the result of the calculation in the upper display play by using the Up and Down arrow keys or use EZ-ZONE Confgurator Software.
6. Exit the Factory Page by pushing and holding the Infinity key for two seconds.

Formulas used by the User and the Administrator to calculate the Password follows:
Passwords equal:

7. User
   a. If Rolling Password roLL is Off, Password PASS equals User Password PASu.
   b. If Rolling Password roLL is On, Password PASS equals: (PASu x code) Mod 929 + 70
8. Administrator
   a. If Rolling Password roLL is Off, Password PASS equals Administrator Password PASA.
   b. If Rolling Password roLL is On, Password PASS equals: (PASA x code) Mod 997 + 1000

Differences Between a User Without Password, User With Password and Administrator

- User **without** a password is restricted by the Locked Access Level LoCL.
- A User **with** a password is restricted by the Read Lockout Security rLoC never having access to the Lock Menu LoC.

- An Administrator is restricted according to the Read Lockout Security rLoC however, the Administrator has access to the Lock Menu where the Read Lockout can be changed.

Software Configuration

To enable a user to configure the RMC module using a personal computer (PC), Watlow has provided two different programs free of charge for your use.

- EZ-ZONE Configurator (text based), originally released with the EZ-ZONE family of con trols.
- Composer (graphic based), released September 2014.

Both programs can be acquired directly from the DVD (Controller Support Tools) which shipped with the controller. Insert the DVD into your DVD drive and select and then install the preferred software. Alternatively, if you are viewing this document electronically and have a connection to the internet, http://www.watlow.com/literature/software.cfm

EZ-ZONE Configurator Software

Installing the Software

To install the software:

1. Double-click the filename " EZCv6.exe.
2. After reading the license agreement click the **I accept the terms in the License Agreement** radio button and then click on the **Next** button to proceed.
3. Once the installation is complete, click the **Finish** button.

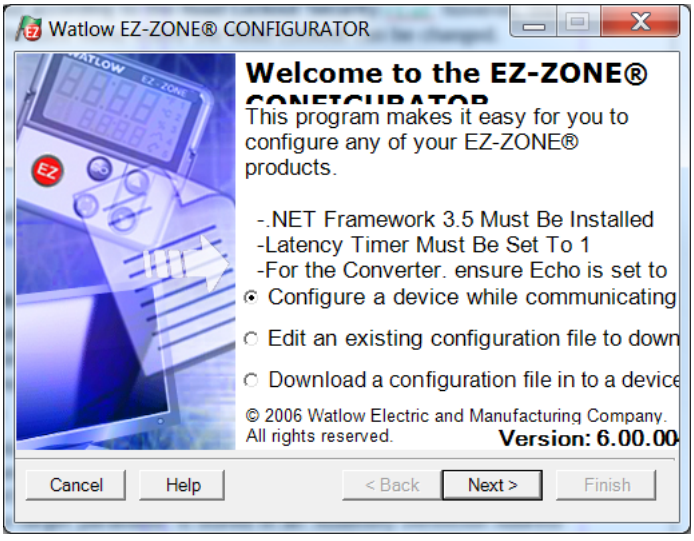
Starting EZ-ZONE Configurator software:

1. Double-click the EZ-ZONE Configurator icon on the desktop.

Or

2. On the task bar, click **Start** and type ez-zone configurator.exe in the search box and then press **Enter**.
3. Once the executable is found double-click the file to run.

The first screen that will appear is shown below.

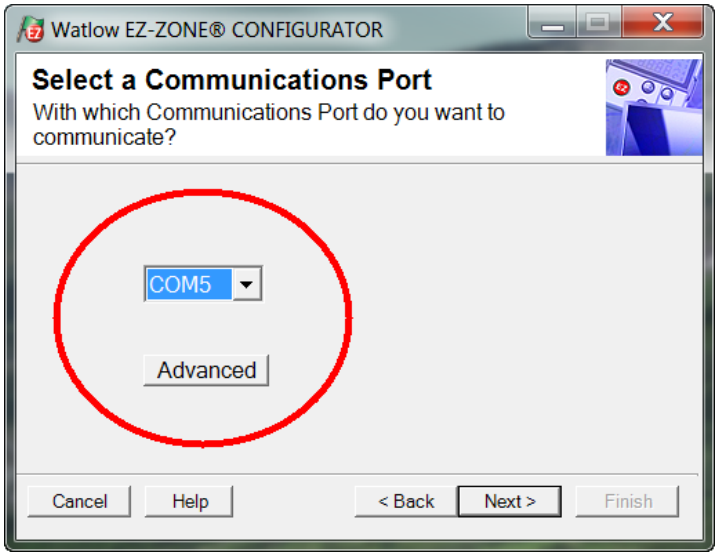


If the PC is already physically connected to the RME module click the next button to go online.

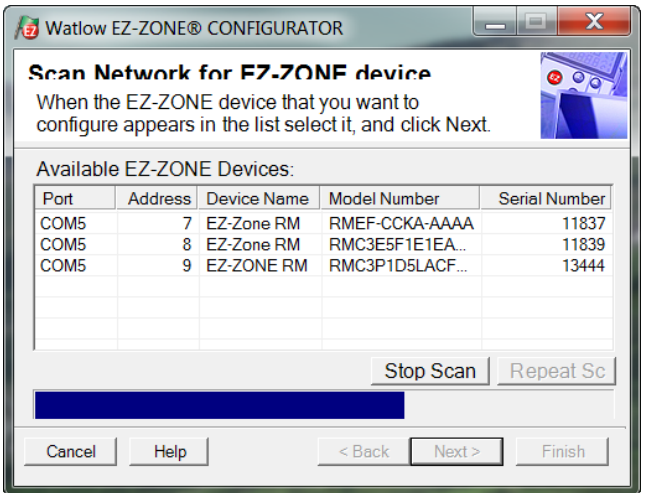
Note:

When establishing communications from PC to the RME module an interface converter will be required. The Standard Bus network uses EIA-485 as the interface. Most PCs today would require a USB to EIA-485 converter. However, some PCs may still be equipped with EIA-232 ports, therefore an EIA-232 to EIA-485 converter would be required.

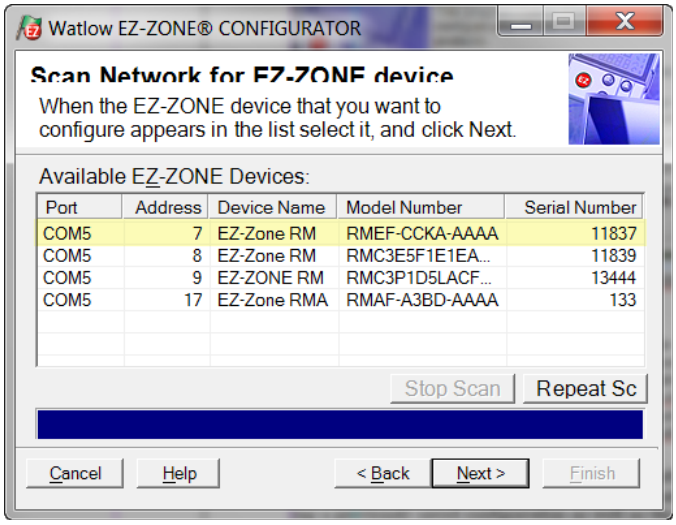
As can be seen in the above screen shot the software provides the user with the option of downloading a previously saved configuration as well as the ability to create a configuration off-line to download later. The screen shots that follow will take the user on-line. After clicking the next button above, it is necessary to define the communications port on the PC to use.



The available options allow the user to click on a drop down box to select a specific known communications port. Clicking on the Advanced button allows the user to define the number of EZ-ZONE devices to look for on the network. After clicking the Next button above, the software will then begin scanning for devices on the network as the screen shot below displays.

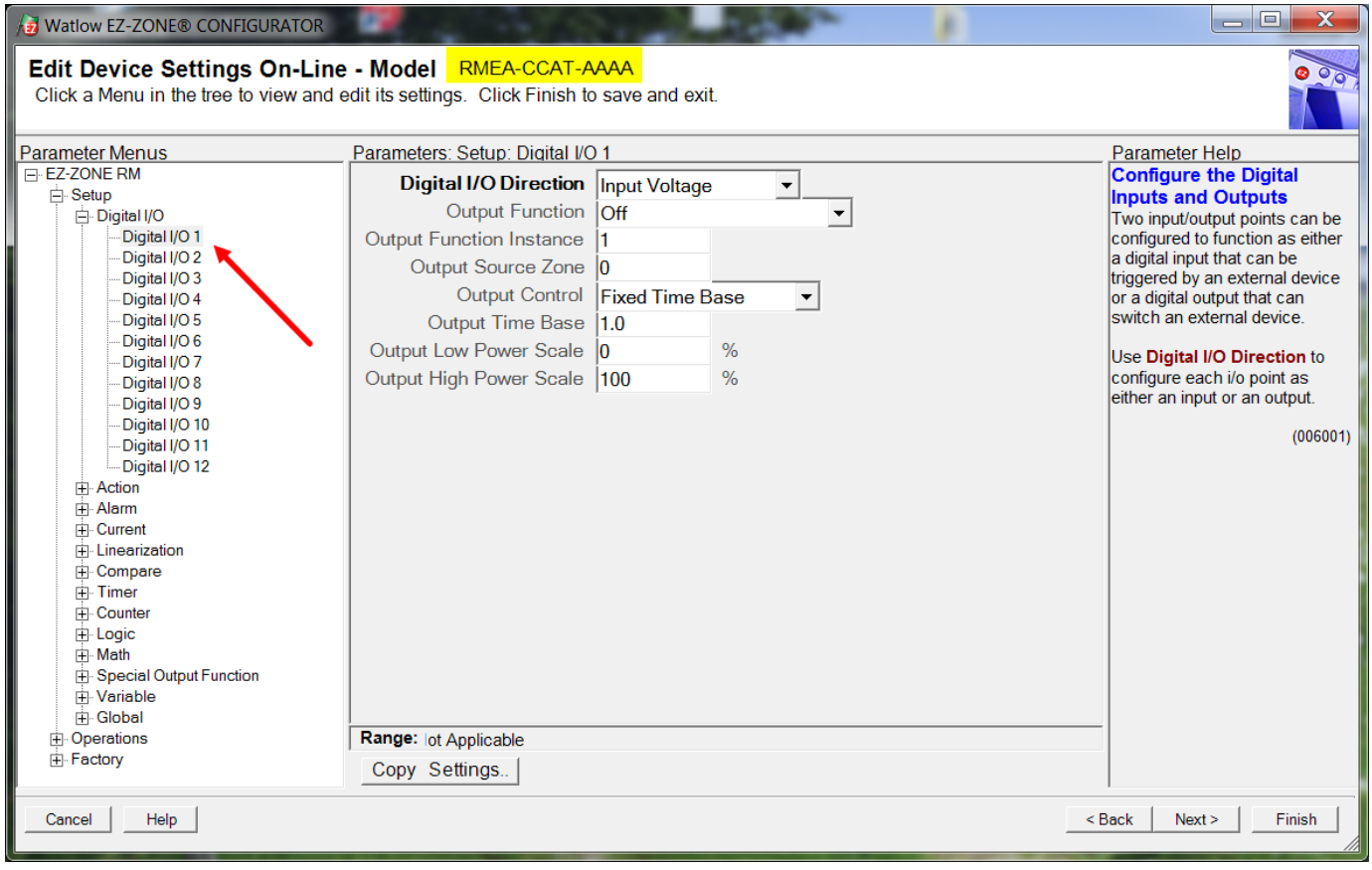


When complete the software will display all of the available devices found on the network as shown below.



Using EZ-ZONE Configurator Software

In the previous screen shot the RME is shown highlighted to bring greater clarity to the control in focus. Any EZ-ZONE device on the network will appear in this window and would be available for the purpose of configuration or monitoring. After clicking on the control of choice simply click the next button once again. The next screen appears below.



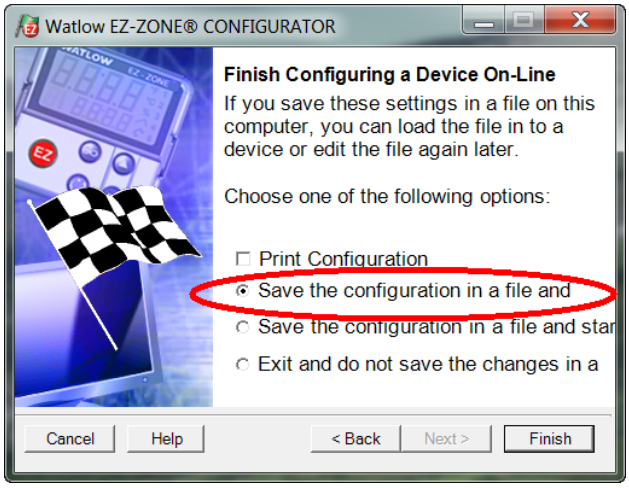
In the screen shot above notice that the device part number is clearly displayed at the top of the page (yellow highlight added for emphasis). When multiple EZ-ZONE devices are on the network it is important that the part number be noted prior to configuring so as to avoid making unwanted configuration changes to another module.

Looking closely at the left hand column (Parameter Menus) notice that it displays all of the available menus and associated parameters within this module. The menu structure as laid

out within this software follows:

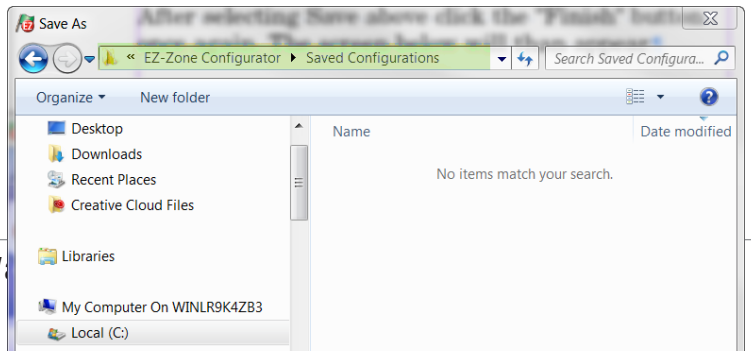
- Setup
- Operations
- Factory

Navigating from one menu to the next is easy and clearly visible. Simply slide the scroll bar up or down to display the menu and parameter of choice. As an alternative, clicking on the negative symbol next to Setup will collapse the Setup Menu where the Operations Menu will appear next and perhaps deliver more clarity for the area of focus by not displaying unwanted menus and parameters. Once the focus is brought to an individual parameter (single click of mouse) as is the case for Digital I/O 1 in the left column, all that can be setup related to that parameter will appear in the center column. The grayed out fields in the center column simply mean that this does not apply for the type of device selected. As an example, notice that when Input Voltage is selected, everything related to the ouput does not apply and is therefore grayed out. To speed up the process of configuration notice that at the bottom of the center column there is an option to copy settings. If Analog Input 1, 2 and 3 are the same type of sensor click on "Copy Settings" where a copy from/to dialog box will appear allowing for quick duplication of all settings. Notice too, that by clicking on any of those items in the center column that context sensitive help will appear for that particular item in the right hand column. Lastly, when the configuration is complete click the "Finish" button at the bottom right of the previous screen shot. The screen that follows this action can be seen below.



Although the RME module now contains the configuration (because the previous discussion focused on doing the configuration on-line) it is suggested that after the configuration process is completed that the user save this file on the PC for future use. If for some reason someone inadvertently changed a setting without understanding the impact it would be easy and perhaps faster to download a saved configuration back to the control versus trying to figure out what was changed. Of course, there is an option to exit without saving a copy to the local hard drive. After selecting Save above, click the "Finish" button once again.

The screen below will than appear.



When saving the configuration note the location where the file will be placed (Saved in) and enter the file name (File name) as well. The default path for saved files follows: \My Documents\Watlow\EZ-ZONE CONFIGURATOR\Saved Configurations The user can save the file to any folder of choice.

Function Block Descriptions

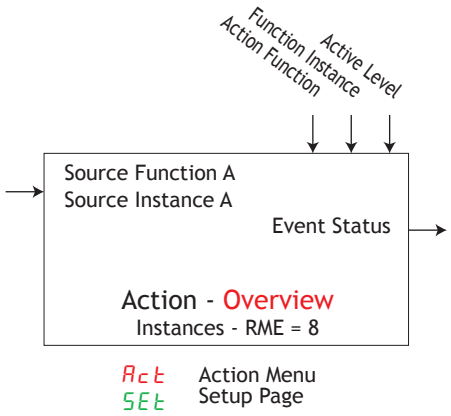
Each of the next several pages graphically shows each of the RME function blocks. Note that as you view each, you will find text that is black and text that appears gray. The gray text represents inputs that are not currently available based on the functions defined use (red text). For instance, when the defined use of the Analog Input function is set for RTD, TC Linearization will appear gray. Ranges specified are in units or degrees F, if expressed in degrees C, the range will be smaller.

Action Function

The Action Function will cause the action selected to occur with in the module where the action function resides when Source Function A = ON and Active Level = High. Based on a given input (Digital I/O, Event output, Logic function, etc..) the Action function can cause other functions to occur. To name a few, starting and stopping a profile, silencing alarms, turn control loops off and placing alarms in non-alarm state.

Note:

Action Function selection is module type and part number dependant.



	Parameter Name [Parameter ID] : Range or Choices
Fn	Action Function [10003] : None, User Set Restore, Alarm, Silence Alarms, Control Loops Off and Alarms to Non-alarm State, Force Alarm to Occur
F i	Function Instance [10004] : 0 to 25
SFnA	Source Function A [10006] : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Limit, Logic, Timer, Variable, Heater Error
S iA	Source Instance A [10002] : 1 to 250
S2A	Source Zone A [10007] : 0 to 24
LEu	Active Level [10001] : High, Low

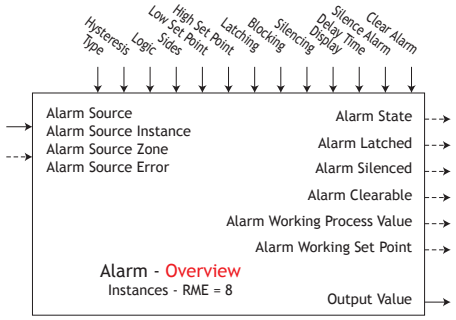
Act
Action Menu
oPEr
Operations Page

E.iS	Event Status [10005] : On, Off

Alarm Function

Alarms are activated when the output level, process value or temperature leaves a defined range. A user can configure how and when an alarm is triggered, what action it takes and whether it turns off automatically when the alarm condition is over.

Configure alarm outputs in the Setup Page before setting alarm set points. Alarms do not have to be assigned to an output. Alarms can be monitored and controlled through the front panel or by using software.



ALMN Alarm Menu
SEt Setup Page

	Parameter Name [Parameter ID] : Range or Choices
AtY	Type [9015] : Off, Process
Sr.A	Alarm Source [9017] : None, Analog Input, Current, Power, Linearization, Math, Process Value, Variable, Current Read, Wattage, Load Voltage, Load Load Resistance
.SA	Alarm Source Instance [9018] : 1 to 250
S2A	Alarm Source Zone [9025] : 0 to 24
LooP	Control Loop [9023] : 1 to 250
AhY	Hysteresis [9003] : 0.001 to 9,999.000
ALG	Logic [9005] : Close on Alarm, Open on Alarm
ASd	Sides [9004] : Both, High, Low
ALo	Low Set Point [9002] : -1,999.000 to 9,999.000
Ah.1	High Set Point [9001] : -1,999.000 to 9,999.000
LAt	Latching [9007] : Non-Latching, Latching
AbL	Blocking [9008] : Off, Startup, Set Point, Both
AS.1	Silencing [9006] : Off, On
AdSP	Display [9016] : Off, On
AdL	Delay Time [9021] : 0 to 9,999 seconds
ACLr	Clear Alarm [9026] : Ignore, Clear
AS.ir	Silence Alarm [9027] : Ignore, Silence Alarms
ASt	Alarm State [9009] : Startup, None, Blocked, Alarm Low, Alarm High, Error

ALMN Alarm Menu
oPEr Operations Page

ALo	Low Set Point [9002] : -1,999.000 to 9,999.000
Ah.1	High Set Point [9001]: -1,999.000 to 9,999.000
ACLr	Clear Alarm [9026] : Ignore, Clear
AS.ir	Silence Alarm [9027] : Ignore, Silence Alarms
ASt	Alarm State [9009] : Startup, None, Blocked, Alarm Low, Alarm High, Error

Alarm Latched [9010] : No, Yes

Alarm Silenced [9011] : No, Yes

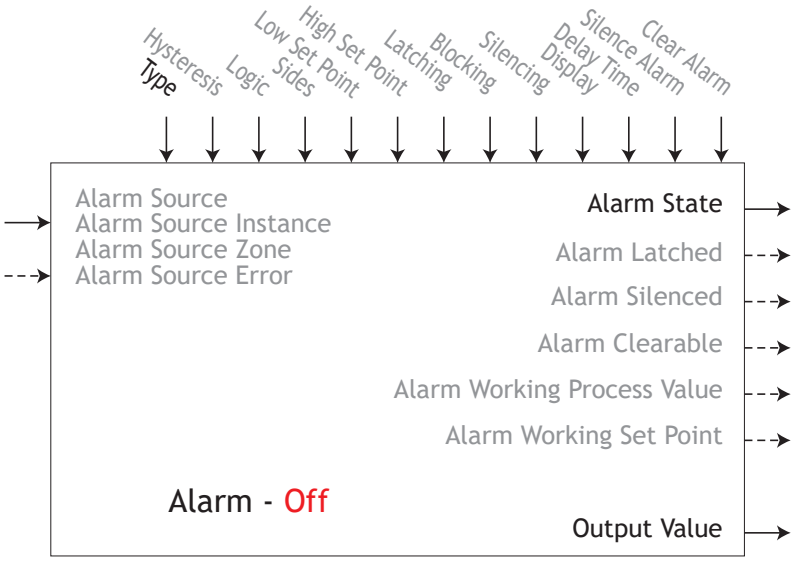
Alarm Clearable [9013] : No, Yes

Alarm Working Process Value [9019] : -1,999.000 to 9,999.000

Alarm Working Set Point [9020]: -1,999.000 to 9,999.000

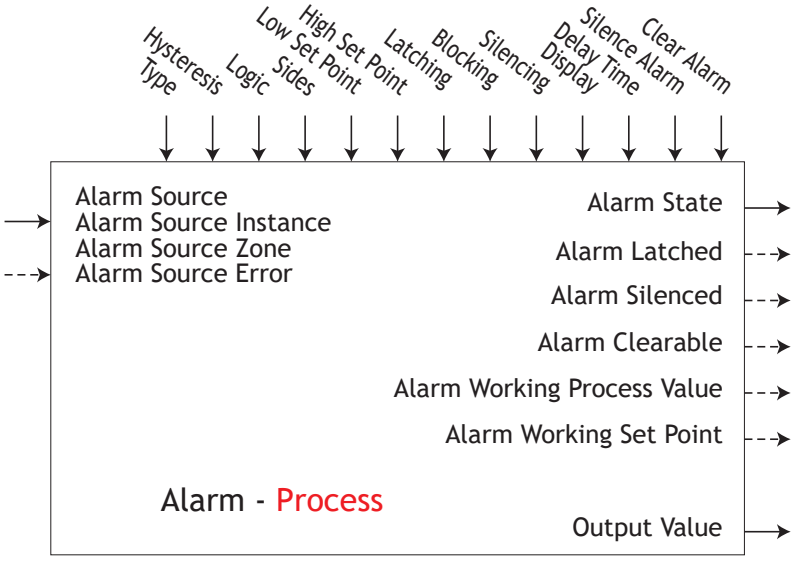
Output Value [9024] : On, Off

Alarm (cont.)



IF Type = Off THEN
Output Value = OFF
Alarm State = None
Alarm Indication = None

When function = Off THEN
Output Value = OFF
Alarm State = None
Alarm Indication = None



IF Alarm Type = Process THEN
Output Value changes state when Alarm Source exceeds Alarm Set Points.

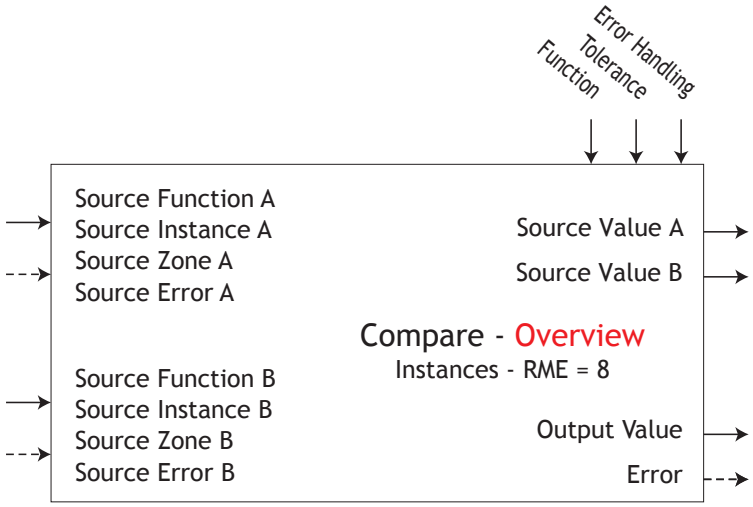
When function = Process THEN
Output Value = True when Alarm Source <= Low Set Point or >= High Set Point

Compare Function

Use the compare function to compare two analog values (A and B) for a condition such as are they equal. If the compare condition is met, the output turns on.

The tolerance is expressed in the same units as Source A Requires Source A and Source B to be without errors for function to work.

Error [28013] : None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail, Math Error, Not Sourced, Stale



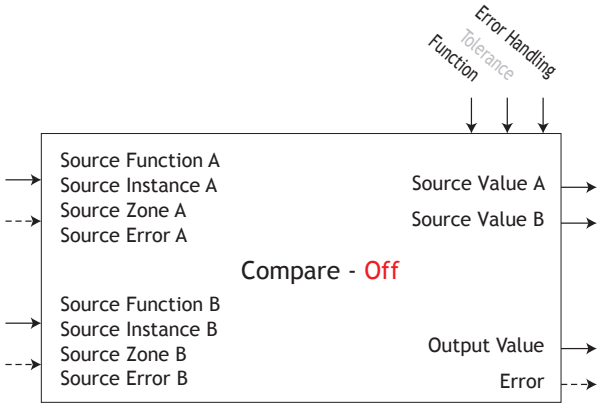
CPE Compare Menu
SEt Setup Page

	Parameter Name [Parameter ID] : Range or Choices
Fn	Function [28009] : Off, Greater Than, Less Than, Equal To, Not Equal To, Greater or Equal, Less or Equal
toL	Tolerance [28011] : 0.0 to 9,999.000 units or F
SFn.A	Source Function A [28001] : None, Analog Input, Current, Cool Power, Heat Power, Power, Linearization, Math, Process Value, Set Point Closed, Set Point Open, Variable, Wattage, Load Voltage, Load Resistance
S i.A	Source Instance A [28003] : 1 to 250
S2.A	Source Zone A [28005] : 0 to 24
SFn.b	Source Function B [28002] : None, Analog Input, Current, Cool Power, Heat Power, Power, Linearization, Math, Process Value, Set Point Closed, Set Point Open, Variable, Wattage, Load Voltage, Load Resistance
S i.b	Source Instance B [28004] : 1 to 250
S2.b	Source Zone B [28006] : 0 to 24
Er.h	Error Handling [28012] : False Bad, False Good, True Bad, True Good

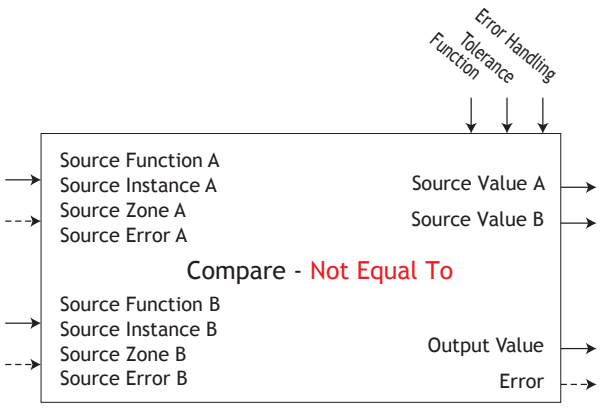
CPE Compare Menu
oPEr Operations Page

Su.A	Source Value A [28007] : -1,999.000 to 9,999.000 units or F
Su.b	Source Value B [28008] : -1,999.000 to 9,999.000 units or F
o.u	Output Value [28010] : Off, On

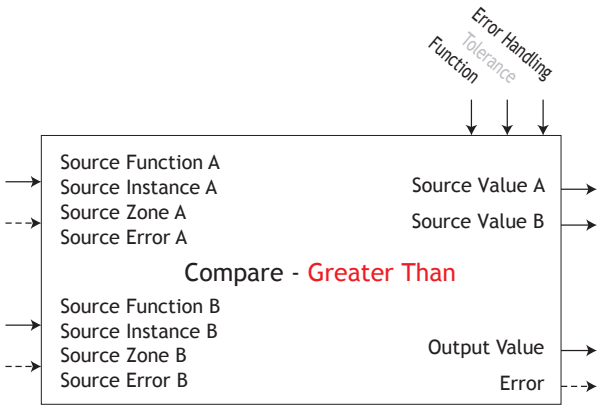
Compare (cont.)



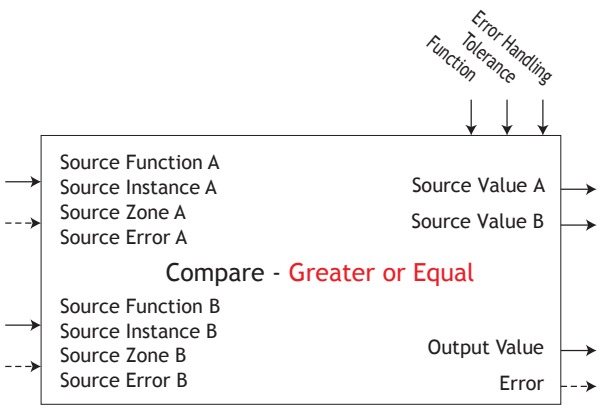
No Compare, Output Value = OFF



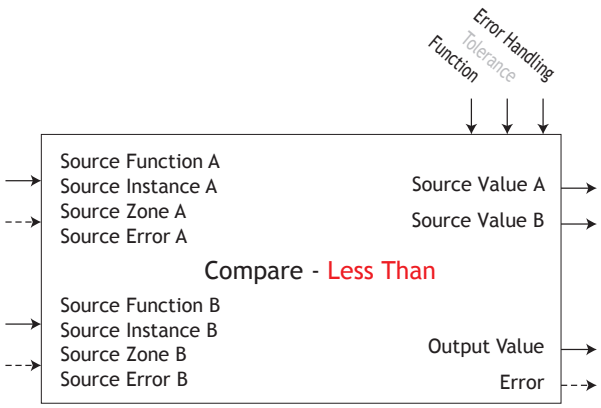
A not equal B, Output Value = ON



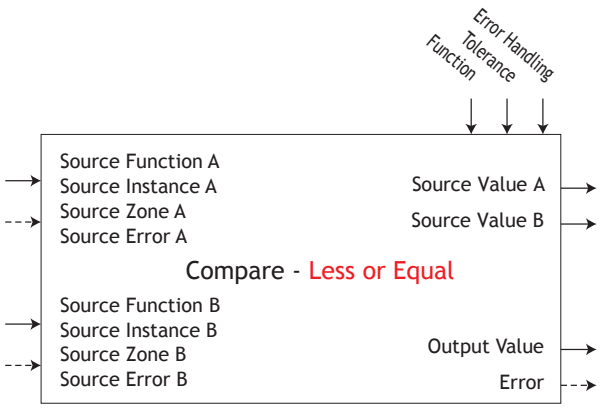
A>B, Output Value = ON



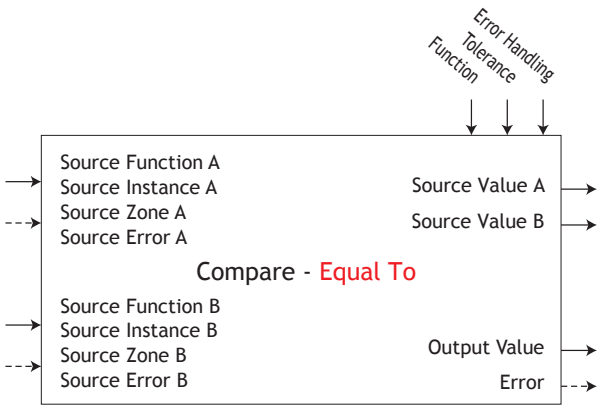
A>=B, Output Value = ON



A<B, Output Value = ON



A<=B, Output Value = ON

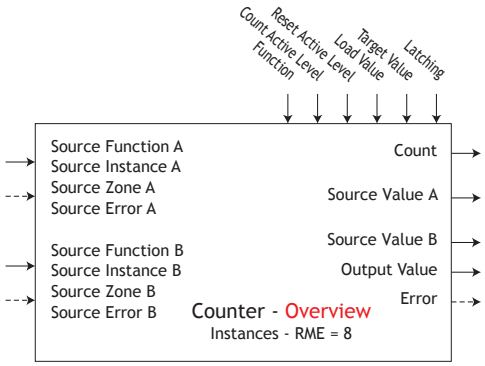


A=B, Output Value = ON

Counter Function

Counters increment up or down from a preset value. When the count is equal to the target, the output value will be active.

- Function selects whether the counter increments or decrements the count value. Decrementing 0 returns 9,999; incrementing 9,999 returns 0.
- Source Function A selects which type of function increments the Count.
- Source Instance A and Source Zone A select which source to use.
- Count Active Level selects which state increments the Count.
- Source Function B selects which type of function resets the Count to the Load Value .
- Source Instance B and Source Zone B selects which source to use.
- Reset Active Level selects which state resets the Count.
- Load Value sets the counter's initial value. Count is set to this value each time the controller is powered up and each time the counter is reset.
- Target Value sets the value at which the output turns on.
- Latching sets the behavior for the output when Count exceeds the Target Value.
- Error [30016] : None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail, Math Error, Not Sourced, Stale



CtR Counter Menu
SEt Setup Page

	Parameter Name [Parameter ID] : Range or Choices
Fn	Function [30009] : Up, Down
SFnA	Source Function A [30001] : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Logic, Timer, Variable, Heater Error
S iA	Source Instance A [30003] : 1 to 250
S2A	Source Zone A [30005] : 0 to 24
SASA	Count Active Level [30011] : High, Low, Both
SFnb	Source Function B [30002] : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Logic, Timer, Variable, Heater Error
S ib	Source Instance B [30004] : 1 to 250
S2b	Source Zone B [30006] : 0 to 24
SASb	Reset Active Level [30012] : High, Low, Both
LoAd	Load Value [30013] : 0 to 9,999
trgt	Target Value [30014] : 0 to 9,999
LAt	Latching [30017] : No, Yes

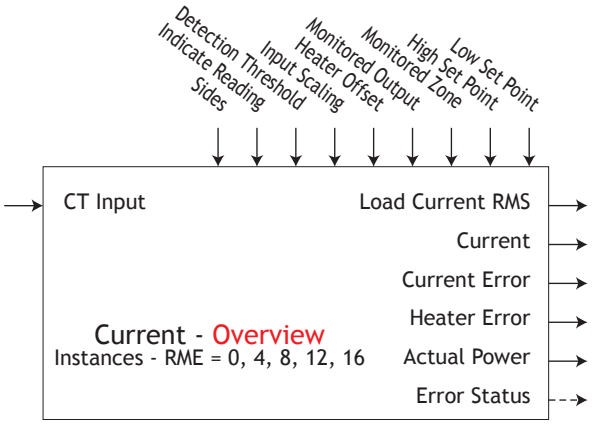
CtR Counter Menu
oPEr Operations Page

Cnt	Count [30015] : 0 to 9,999
SuA	Source Value A [30007] : Off, On
Sub	Source Value B [30008] : Off, On
ou	Output Value [30010] : Off, On

Current Function

Current sensing monitors the current that is flowing through the solid-state relay (SSR) in order to detect problems with the system.

- Use Sides to select which side of the current to monitor.
- Use Indicate Reading to display solid-state relay (SSR) failure and heater failure messages on the RUI (remote user interface).
- If Current Limit Enable is set to Yes, a short in the solid-state relay (SSR) will trigger the limit.
- Detection Threshold is for factory use only.
- Use Input Scaling to adjust scaling to match the transformer's high range, in amperes.
- Heater Offset is used to calibrate the current reading with an offset value.
- With Monitored Output and Monitored Zone, set the output on which the current will be monitored.



CUrr Current Menu
SEt Setup Page

	Parameter Name [Parameter ID] : Range or Choices
C.Sd	Sides [15005] : Off, High, Low, Both
C.Ur	Indicate Reading [15004] : No, Yes
C.dt	Dettection Threshold [15012] : 3 to 59
C.SC	Input Scaling [15022] : 0 to 9,999.000
C.oFS	Heater Offset [15011] : -1,999.000 to 9,999.000
C.S1	Monitored Output [15019] : 1 to 250
Er99	Monitored Zone [15036] : 0 to 24

CUrr Current Menu
oPEr Operations Page

C.h1	High Set Point [15008] : -1,999.000 to 9,999.000
C.Lo	Low Set Point [15009] : -1,999.000 to 9,999.000
LdCu	Load Current RMS [15007] : 0 to 9,999.000
C.Er	Current Error [15002] : None, Shorted, Open
hEr	Heater Error [15003] : None, High, Low

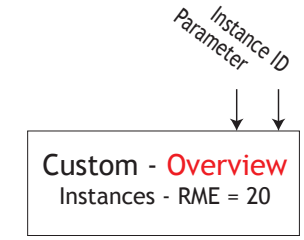
Current [15001] : 0 to 9,999.000

Actual Power [15020] : 0 to 100.0%

Error Status [15021] : None, Fail

Custom Function

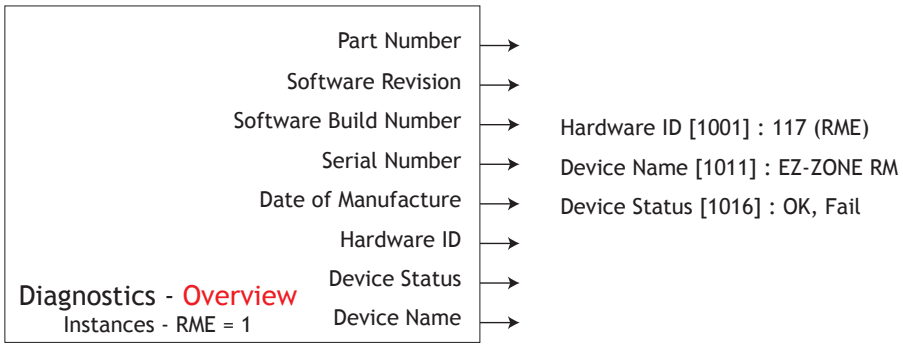
Use custom menu to set the user defined parameters to display at the Home Page of an RUI/ Gateway.



CUSt Custom Menu
FACt Factory Page

	Parameter Name [Parameter ID] : Range or Choices
PAr	Parameter [14005] : None, Display Units, User Settings Restore, Alarm Low Set Point, Alarm High Set Point, Alarm Hysteresis, Custom
iid	Instance ID [14003] : 1 to 16

Diagnostic Function



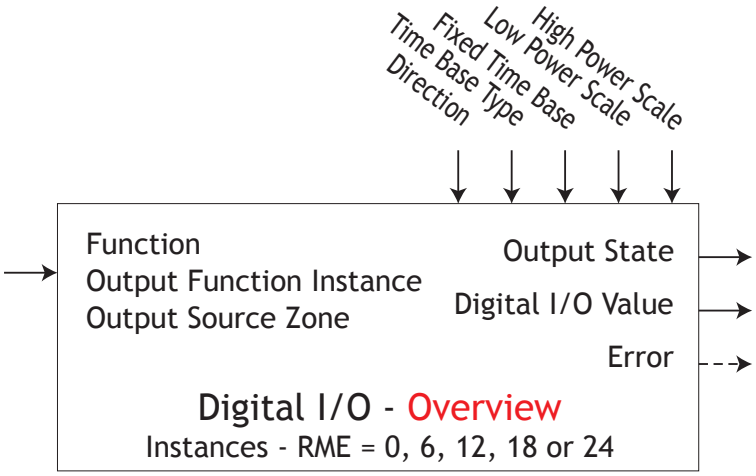
diAG Diagnostics Menu
FACt Factory Page

	Parameter Name [Parameter ID] : Range or Choices
Pn	Part Number [1009] :
rEv	Software Revision [1003] : 9.00, ...
SbLd	Software Build Number [1005] :
Sn	Serial Number [1007] : xxxxxx
dAtE	Date of Manufacture [1008] : YWW

Digital Input/Output Function

The Output Value is determined by Function connection and Direction.

- Error [6015] : None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail,Math Error, Not Sourced, Stale



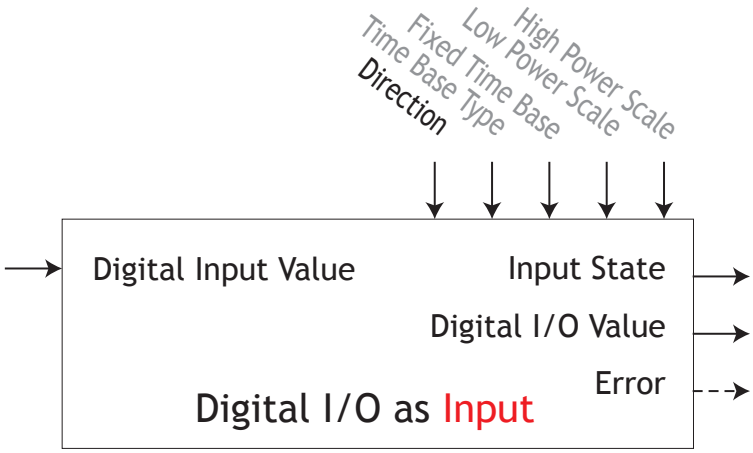
dIO Digital I/O Menu
SEt Setup Page

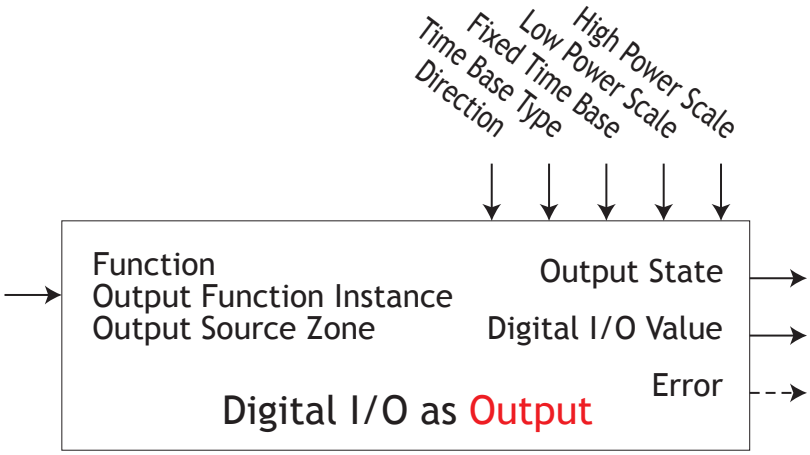
	Parameter Name [Parameter ID] : Range or Choices
dir	Direction [6001] : Output, Input Voltage, Input Dry Contact
Fn	Function [6005] : Off, Analog Input, Alarm, Cool Power, Heat Power, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Logic, Linearization, Math, Process Value, Special Function Output 1 to 4, Timer, Variable
F I	Output Function Instance [6006] : 1 to 24
S2A	Output Source Zone [6012] : 0 to 16
a.Ct	Time Base Type [6002] : Fixed Time Base, Variable Time Base
a.tb	Fixed Time Base [6003] : 0.1 to 60.0 seconds
a.Lo	Low Power Scale [6009] : 0.0 to 100.0 %
a.hi	High Power Scale [6010] : 0.0 to 100.0 %

dIO Digital I/O Menu
oPEr Operations Page

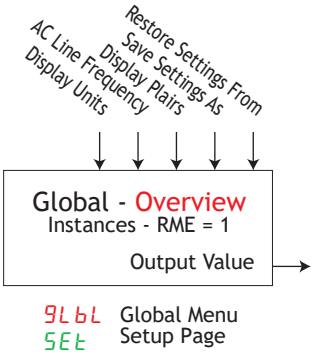
di.S	Input State [6011] : On, Off
do.S	Output State [6007] : On, Off

Digital Input/Output (cont.)





Global Function

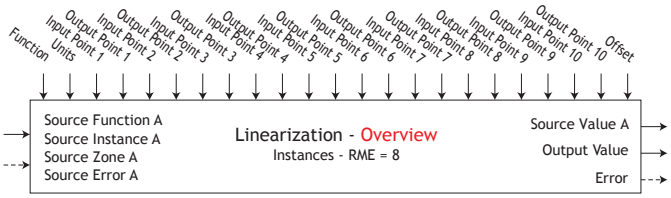


	Parameter Name [Parameter ID] : Range or Choices
C_F	Display Units [3005] : F, C
AC.LF	AC Line Frequency [1034] : 50 Hz, 60 Hz
dPr5	Display Pairs [3028] : 1 to 10
USr.S	Save Settings As [1014] : None, User Set 1
USr.r	Restore Settings From [1013] : None, User Set 1, Factory

Linearization Function

This function will take an analog Source A and re-linearize using a 10-point offset, then add Offset and produce an Output Value.

- Error [34028]: None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail, Math Error, Not Sourced, Stalee



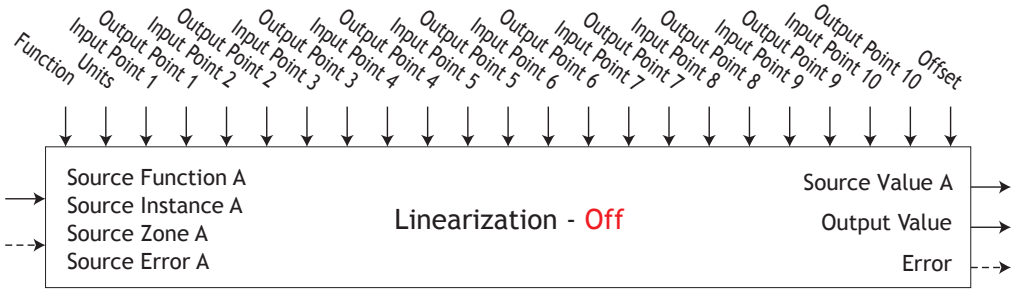
Lnr Linearization Menu
SEt Setup Page

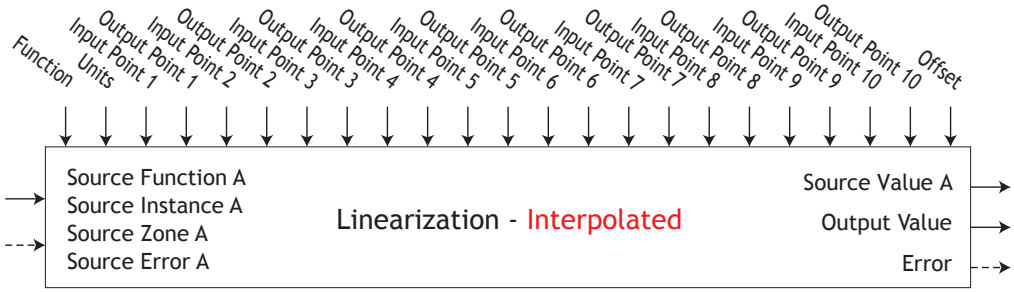
	Parameter Name [Parameter ID] : Range or Choices
Fn	Function [34005] : Off, Interpolated, Stepped
SFnA	Source Function A [34001] : None, Analog Input, Current, Cool Power, Heat Power, Power, Linearization, Math, Process Value, Set Point Closed, Set Point Open, Variable
S iA	Source Instance A [34002] : 1 to 24
S2A	Source Zone A [34003] : 0 to 16
Un it	Units [34029] : Source, None, Absolute Temperature, Relative Temperature, Power, Process, Relative Humidity
iP.1	Input Point 1 [34008] : -1,999.000 to 9,999.000
oP.1	Output Point 1 [34018] : -1,999.000 to 9,999.000
iP.2	Input Point 2 [34009] : -1,999.000 to 9,999.000
oP.2	Output Point 2 [34019] : -1,999.000 to 9,999.000
iP.3	Input Point 3 [34010] : -1,999.000 to 9,999.000
oP.3	Output Point 3 [34020] : -1,999.000 to 9,999.000
iP.4	Input Point 4 [34011] : -1,999.000 to 9,999.000
oP.4	Output Point 4 [34021] : -1,999.000 to 9,999.000
iP.5	Input Point 5 [34012] : -1,999.000 to 9,999.000
oP.5	Output Point 5 [34022] : -1,999.000 to 9,999.000
iP.6	Input Point 6 [34013] : -1,999.000 to 9,999.000
oP.6	Output Point 6 [34023] : -1,999.000 to 9,999.000
iP.7	Input Point 7 [34014] : -1,999.000 to 9,999.000
oP.7	Output Point 7 [34024] : -1,999.000 to 9,999.000
iP.8	Input Point 8 [34015] : -1,999.000 to 9,999.000
oP.8	Output Point 8 [34025] : -1,999.000 to 9,999.000
iP.9	Input Point 9 [34016] : -1,999.000 to 9,999.000
oP.9	Output Point 9 [34026] : -1,999.000 to 9,999.000
iP.10	Input Point 10 [34017] : -1,999.000 to 9,999.000
iP.10	Output Point 10 [34027] : -1,999.000 to 9,999.000

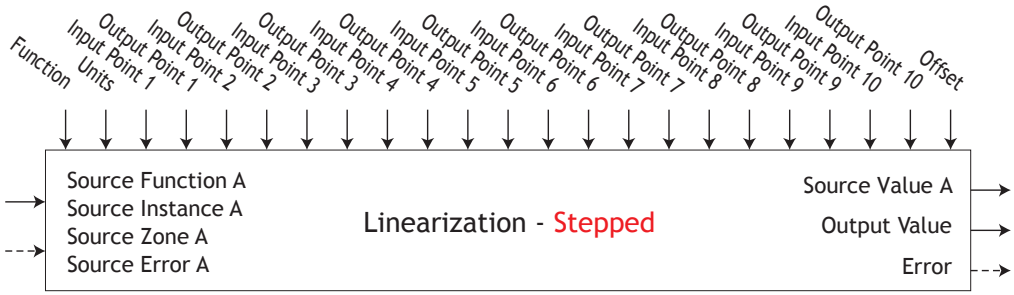
Lnr Linearization Menu
oPEr Operations Page

SuA	Source Value A [34004] : -1,999.000 to 9,999.000
oFSt	Offset [34006] : -1,999.000 to 9,999.000
ou	Output Value [34007] : -1,999.000 to 9,999.000

Linearization (cont.)

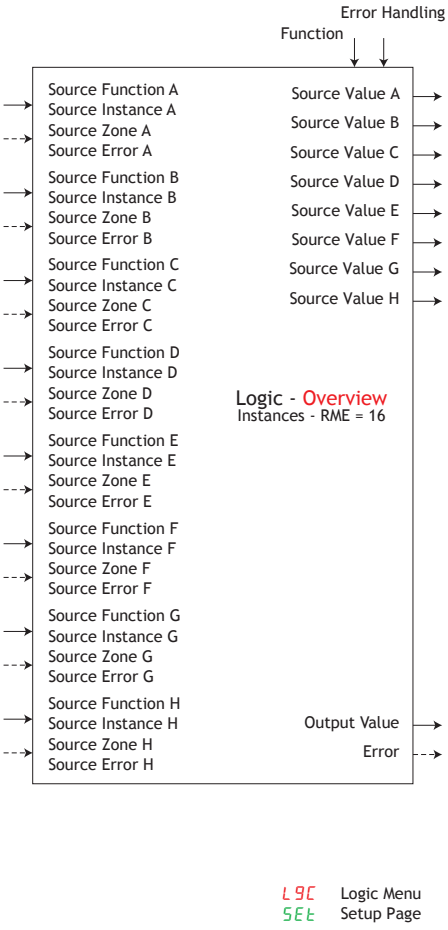






Logic Function

- Error [27036] : None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail, Math Error, Not Sourced, Stale



LGC Logic Menu
SEt Setup Page

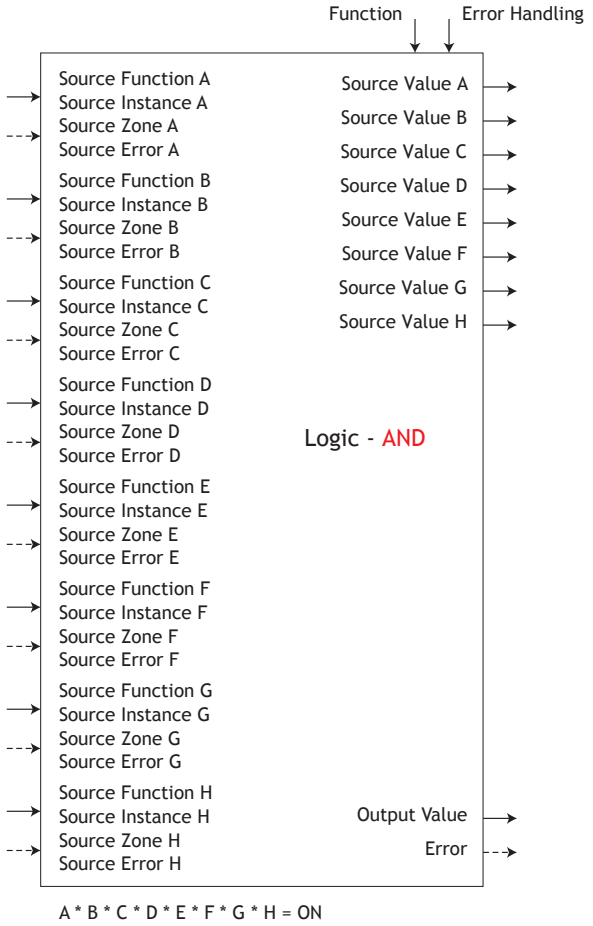
Error [27036] : None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail, Math Error, Not Sourced, Stale

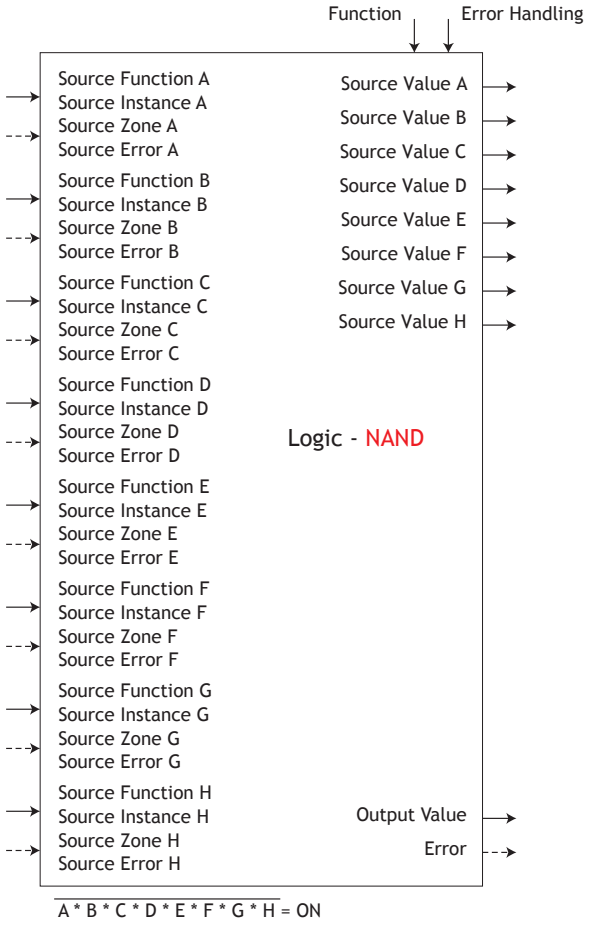
	Parameter Name [Parameter ID] : Range or Choices
Fn	Function [27033] : Off, AND, OR, Equal To, NAND, NOR, Not Equal To, Latch, RS FlipFlop
SFnA	Source Function A [27001] : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Limit, Logic, Special Function Output 1 to 4, Timer, Variable, Heater Error
S iA	Source Instance A [27009] : 1 to 250
S2A	Source Zone A [27017] : 0 to 24
SFnb	Source Function B [27002] : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Limit, Logic, Special Function Output 1 to 4, Timer, Variable, Heater Error
S ib	Source Instance B [27010] : 1 to 250
S2b	Source Zone B [27018] : 0 to 24
SFnC	Source Function C [27003] : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Limit, Logic, Special Function Output 1 to 4, Timer, Variable, Heater Error
S iC	Source Instance C [27011] : 1 to 250
S2C	Source Zone C [27019] : 0 to 24
SFnd	Source Function D [27004] : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Limit, Logic, Special Function Output 1 to 4, Timer, Variable, Heater Error
S id	Source Instance D [27012] : 1 to 250
S2d	Source Zone D [27020] : 0 to 24
SFnE	Source Function E [27005] : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Limit, Logic, Special Function Output 1 to 4, Timer, Variable, Heater Error
S iE	Source Instance E [27013] : 1 to 250
S2E	Source Zone E [27021] : 0 to 24
SFnF	Source Function F [27006] : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Limit, Logic, Special Function Output 1 to 4, Timer, Variable, Heater Error
S iF	Source Instance F [27014] : 1 to 250
S2F	Source Zone F [27022] : 0 to 24
SFnG	Source Function G [27007] : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Limit, Logic, Special Function Output 1 to 4, Timer, Variable, Heater Error
S iG	Source Instance G [27015] : 1 to 250
S2G	Source Zone G [27023] : 0 to 250
SFnh	Source Function H [27008] : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Limit, Logic, Special Function Output 1 to 4, Timer, Variable, Heater Error
S ih	Source Instance H [27016] : 1 to 250
S2h	Source Zone H [27024] : 0 to 24
Erh	Error Handling [27035] : True Good, True Bad, False Good, False Bad

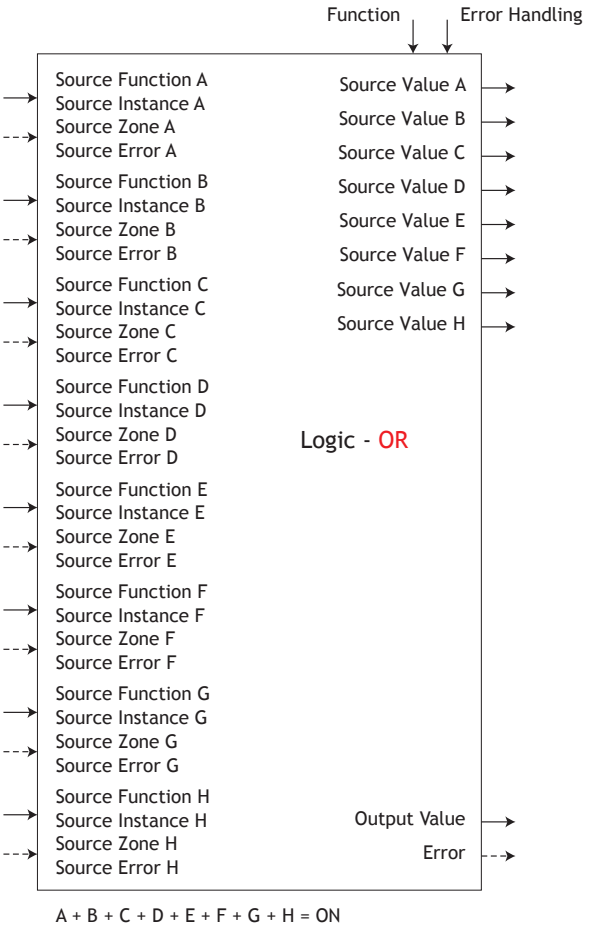
LGC Logic Menu
oPEr Operations Page

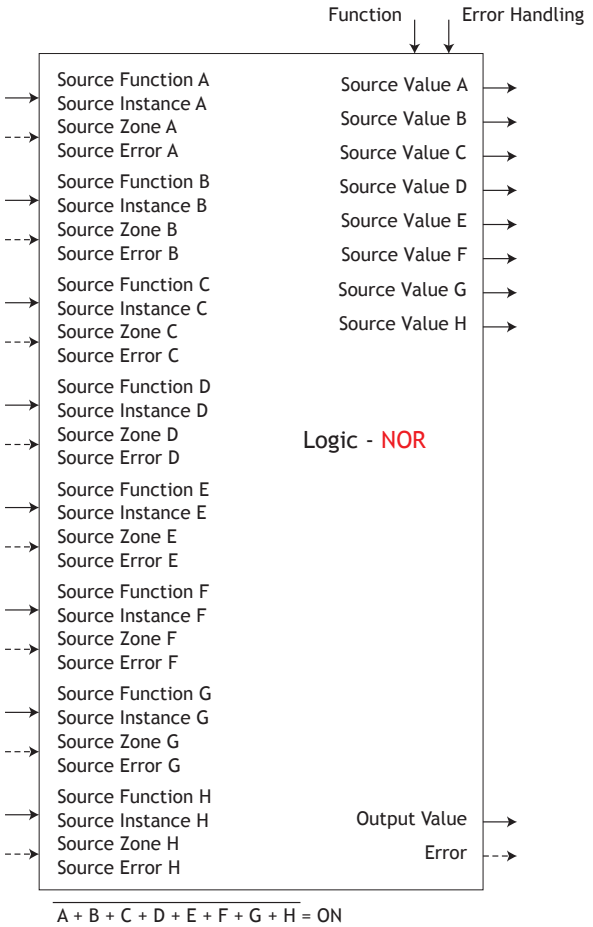
SuA	Source Value A [27025] : Off, On
Sub	Source Value B [27026] : Off, On
SuC	Source Value C [27027] : Off, On
Sud	Source Value D [27028] : Off, On
SuE	Source Value E [27029] : Off, On
SuF	Source Value F [27030] : Off, On
SuG	Source Value G [27031] : Off, On
Suh	Source Value H [27032] : Off, On
ou	Output Value [27034] : Off, On

Logic (cont.)

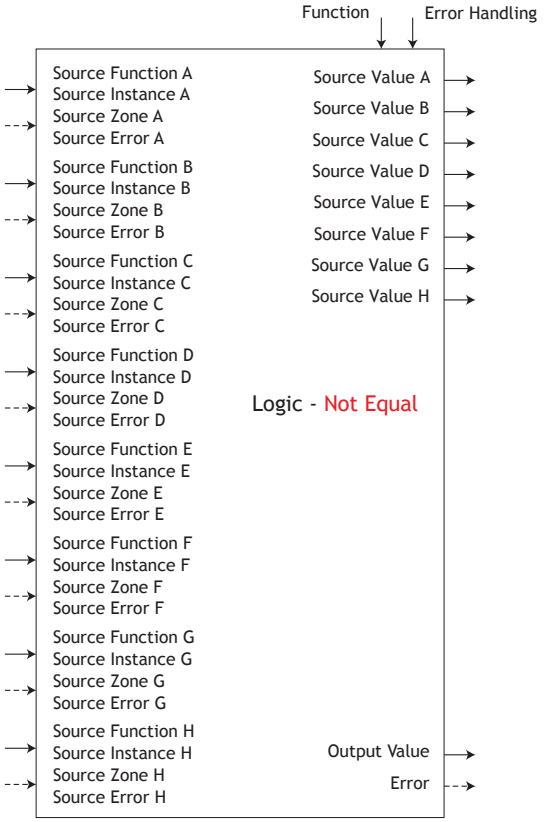

Function
Error Handling
Source Function A
Source Instance A
Source Zone A
Source Error A
Source Function B
Source Instance B
Source Zone B
Source Error B
Source Function C
Source Instance C
Source Zone C
Source Error C
Source Function D
Source Instance D
Source Zone D
Source Error D
Source Function E
Source Instance E
Source Zone E
Source Error E
Source Function F
Source Instance F
Source Zone F
Source Error F
Source Function G
Source Instance G
Source Zone G
Source Error G
Source Function H
Source Instance H
Source Zone H
Source Error H
Source Value A
Source Value B
Source Value C
Source Value D
Source Value E
Source Value F
Source Value G
Source Value H
Logic - AND
Output Value
Error
A * B * C * D * E * F * G * H = ON


Function
Error Handling
Source Function A
Source Instance A
Source Zone A
Source Error A
Source Function B
Source Instance B
Source Zone B
Source Error B
Source Function C
Source Instance C
Source Zone C
Source Error C
Source Function D
Source Instance D
Source Zone D
Source Error D
Source Function E
Source Instance E
Source Zone E
Source Error E
Source Function F
Source Instance F
Source Zone F
Source Error F
Source Function G
Source Instance G
Source Zone G
Source Error G
Source Function H
Source Instance H
Source Zone H
Source Error H
Source Value A
Source Value B
Source Value C
Source Value D
Source Value E
Source Value F
Source Value G
Source Value H
Logic - NAND
Output Value
Error
$\overline{A * B * C * D * E * F * G * H}$ = ON

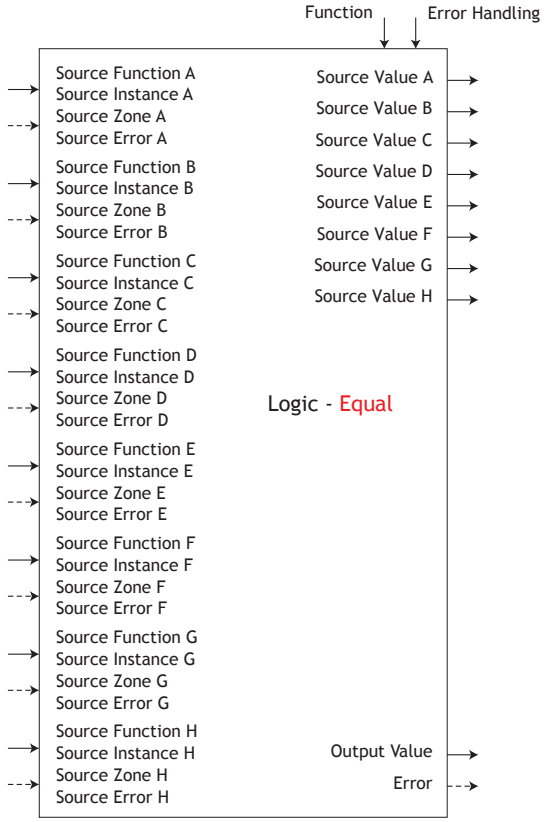

Function
Error Handling
Source Function A
Source Instance A
Source Zone A
Source Error A
Source Function B
Source Instance B
Source Zone B
Source Error B
Source Function C
Source Instance C
Source Zone C
Source Error C
Source Function D
Source Instance D
Source Zone D
Source Error D
Source Function E
Source Instance E
Source Zone E
Source Error E
Source Function F
Source Instance F
Source Zone F
Source Error F
Source Function G
Source Instance G
Source Zone G
Source Error G
Source Function H
Source Instance H
Source Zone H
Source Error H
Source Value A
Source Value B
Source Value C
Source Value D
Source Value E
Source Value F
Source Value G
Source Value H
Logic - OR
Output Value
Error
A + B + C + D + E + F + G + H = ON


Function
Error Handling
Source Function A
Source Instance A
Source Zone A
Source Error A
Source Function B
Source Instance B
Source Zone B
Source Error B
Source Function C
Source Instance C
Source Zone C
Source Error C
Source Function D
Source Instance D
Source Zone D
Source Error D
Source Function E
Source Instance E
Source Zone E
Source Error E
Source Function F
Source Instance F
Source Zone F
Source Error F
Source Function G
Source Instance G
Source Zone G
Source Error G
Source Function H
Source Instance H
Source Zone H
Source Error H
Source Value A
Source Value B
Source Value C
Source Value D
Source Value E
Source Value F
Source Value G
Source Value H
Logic - NOR
Output Value
Error
$\overline{A + B + C + D + E + F + G + H}$ = ON

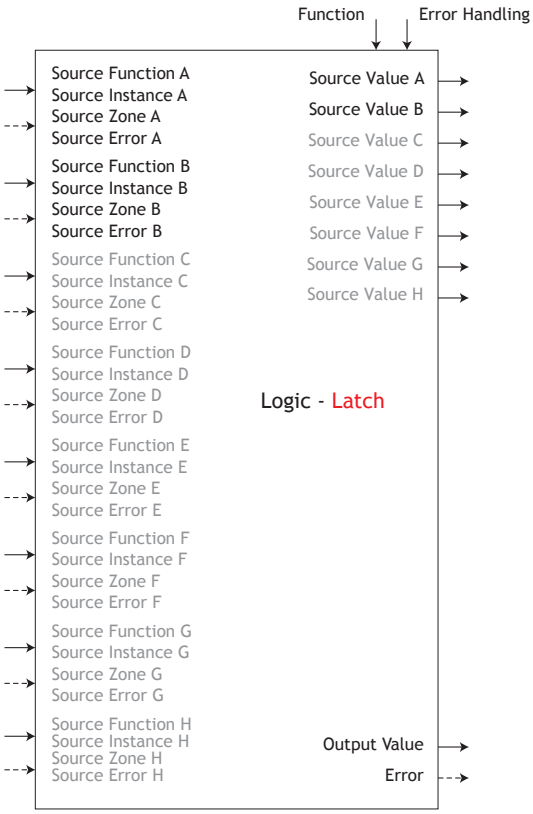
Logic (cont.)



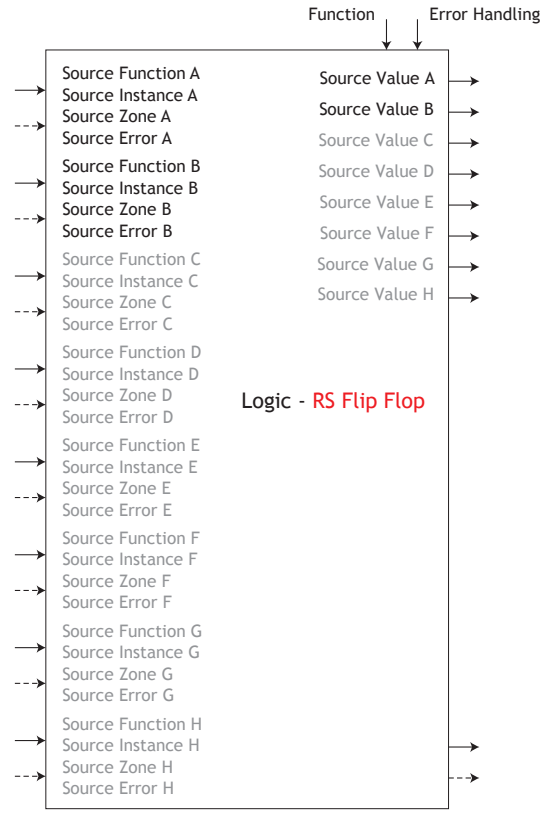
If A ≠ B ≠ C ≠ D ≠ E ≠ F ≠ G ≠ H then ON



If A = B = C = D = E = F = G = H then ON

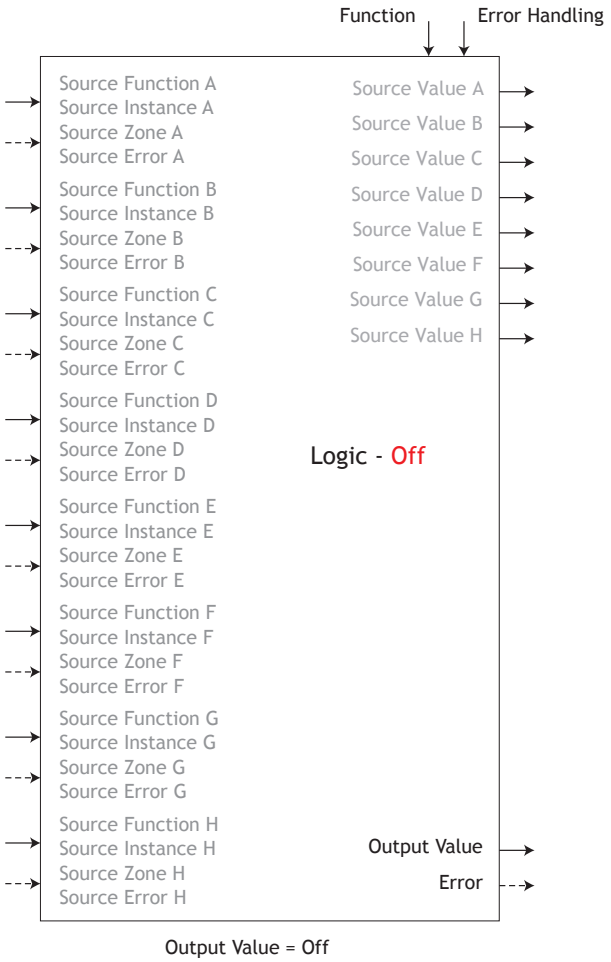


Output Value follows A, unless B = ON
Latch Output while B = ON



A Sets Output Value ON, B Resets Output Value OFF

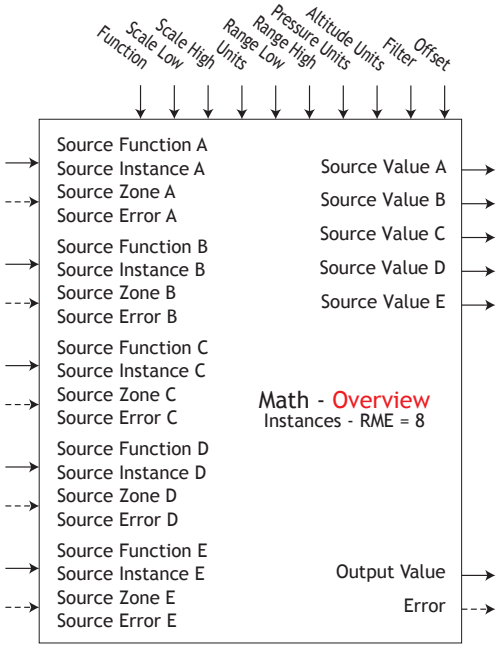
Logic (cont.)


Function
Error Handling
Source Function A
Source Instance A
Source Zone A
Source Error A
Source Function B
Source Instance B
Source Zone B
Source Error B
Source Function C
Source Instance C
Source Zone C
Source Error C
Source Function D
Source Instance D
Source Zone D
Source Error D
Source Function E
Source Instance E
Source Zone E
Source Error E
Source Function F
Source Instance F
Source Zone F
Source Error F
Source Function G
Source Instance G
Source Zone G
Source Error G
Source Function H
Source Instance H
Source Zone H
Source Error H
Source Value A
Source Value B
Source Value C
Source Value D
Source Value E
Source Value F
Source Value G
Source Value H
Logic - Off
Output Value
Error
Output Value = Off

Math Function

The Math function block accepts multiple inputs and performs a programmed math function to derive an output value with Filter and Offset values applied. It is assumed that no input error conditions apply. Some math operations must be performed in the user's units. Functions may combine multiple inputs. Those inputs may have incompatible units from a logical point of view. As a result, unless otherwise indicated, the presentation of the output value is the same as Source A. This accommodates temperatures being multiplied, divided and offset by constants and process inputs. Only inputs pointed to a source are used in the calculations.

- Error [25029]: None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail, Math Error, Not Sourced, Stale



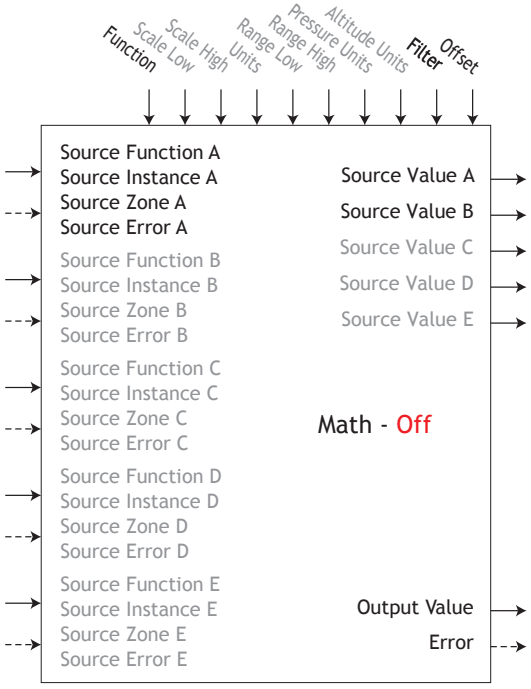
	Parameter Name [Parameter ID] : Range or Choices
Fn	Function [25021] : Off, Average, Process Scale, Deviation Scale, Switch Over, Differential, Ratio, Add, Multiply, Absolute Difference, Minimum, Maximum, Square Root, Sample and Hold, Pressure to Altitude, Dewpoint
SFnA	Source Function A [25001] : None, Analog Input, Current, Cool Power, Heat Power, Power, Linearization, Math, Process Value, Set Point Closed, Set Point Open, Variable, Wattage, Load Voltage, Load Resistance
S iA	Source Instance A [25006] : 1 to 250
S2A	Source Zone A [25011] : 0 to 24
SFnb	Source Function B [25005] : None, Analog Input, Current, Cool Power, Heat Power, Power, Linearization, Math, Process Value, Set Point Closed, Set Point Open, Variable, Wattage, Load Voltage, Load Resistance
S ib	Source Instance B [25007] : 1 to 250
S2b	Source Zone B [25012] : 0 to 24
SFnC	Source Function C [25003] : None, Analog Input, Current, Cool Power, Heat Power, Power, Linearization, Math, Process Value, Set Point Closed, Set Point Open, Variable, Wattage, Load Voltage, Load Resistance
S iC	Source Instance C [25008] : 1 to 250
S2C	Source Zone C [25013] : 0 to 24
SFnd	Source Function D [25004] : None, Analog Input, Current, Cool Power, Heat Power, Power, Linearization, Math, Process Value, Set Point Closed, Set Point Open, Variable, Wattage, Load Voltage, Load Resistance
S. id	Source Instance D [25009] : 1 to 250
S2d	Source Zone D [25014] : 0 to 24
SFnE	Source Function E [25005] : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Logic, Timer, Variable
S iE	Source Instance E [25010] : 1 to 250
S2E	Source Zone E [25015] : 0 to 24
SLo	Scale Low [25024] : -1,999.0 to 9,999.0
Sh i	Scale High [25025] : -1,999.0 to 9,999.0
Unit	Unit [25032] Source, None, Absolute Temperature, Relative Temperature, Power, Process, Relative Humidity
rLo	Range Low [25026] : -1,999.0 to 9,999.0
rh i	Range High [25027] : -1,999.0 to 9,999.0
Punt	Pressure Units [25030] : PSI, Torr, mBar, Atmosphere, Pascal
Aunt	Altitude Units [25031] : Feet, Kilofeet
F iL	Filter [25028] : 0.0 to 60.0 seconds

MATH Math Menu
SEt Setup Page

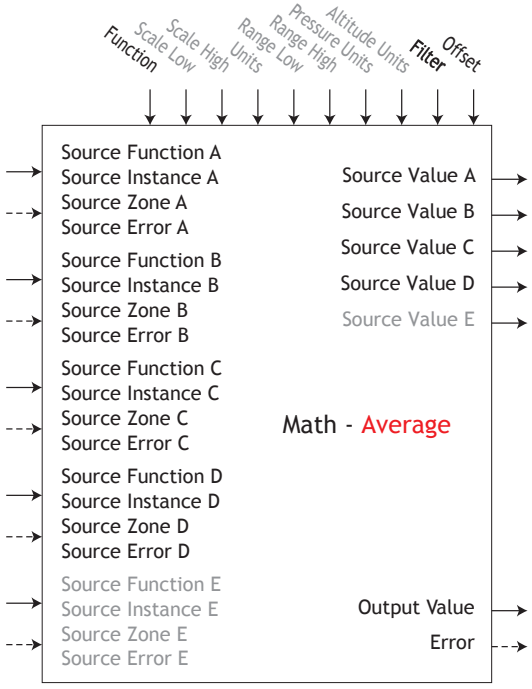
SuA	Source Value A [25016] : -1,999.000 to 9,999.000
Sub	Source Value B [25017] : -1,999.000 to 9,999.000
SuC	Source Value C [25018] : -1,999.000 to 9,999.000
Sud	Source Value D [25019] : -1,999.000 to 9,999.000
SuE	Source Value E [25020] : Off, On
ou	Output Value [25022] : -1,999.000 to 9,999.000
oFSt	Offset [25023] : -1,999.000 to 9,999.000

MATH Math Menu
oPEr Operations Page

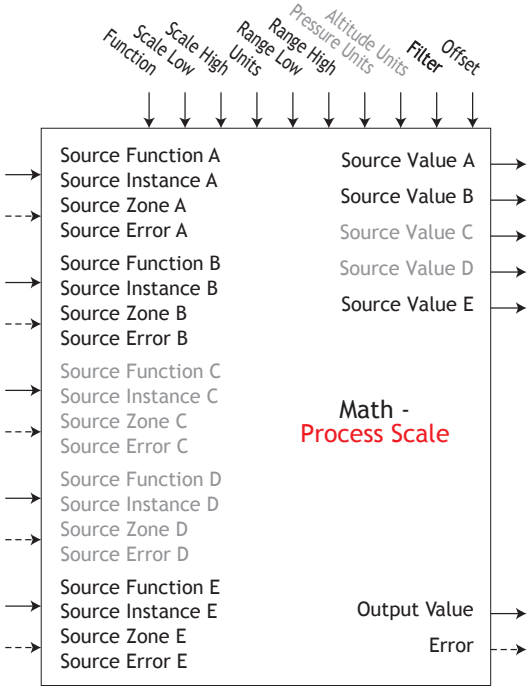
Math (cont.)



Output Value = Filter [A + Offset]
Display units follows Source A

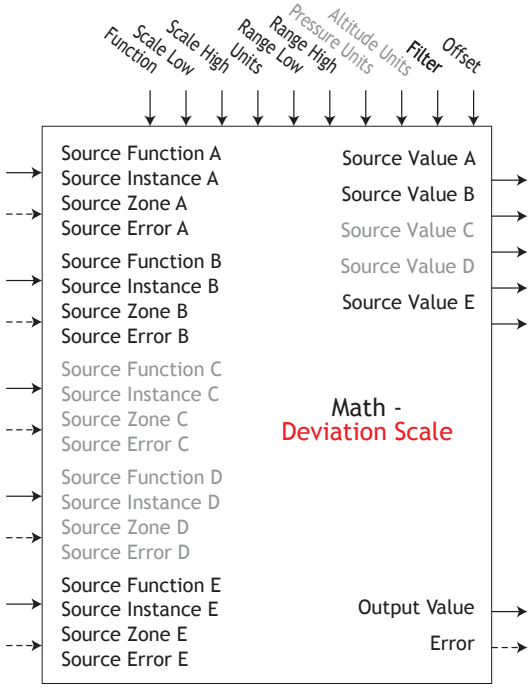


Output Value = Filter [(Average (A + B + C + D)) + Offset]
Display units follows the last source that is temperature else follow Source A



If B = OFF, Output Value = Filter [(Range High - Range Low) / (Scale High - Scale Low) * (A - Scale Low) + Range Low + Offset]
If B = ON, Output Value = Filter [B + Offset]

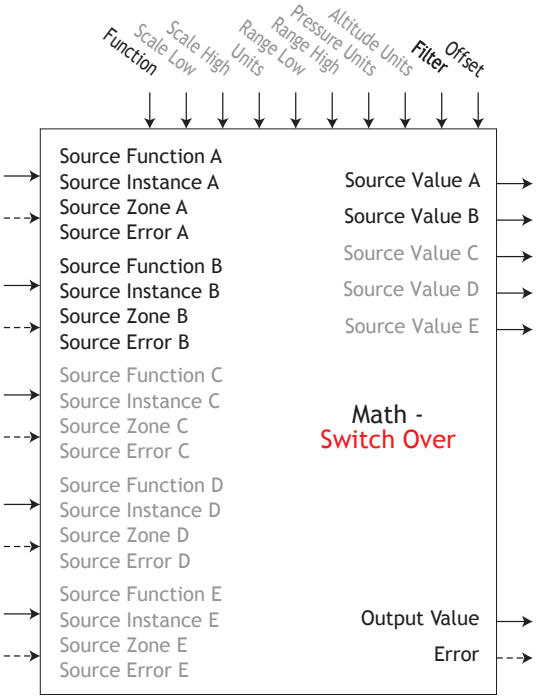
Scale Low/High and Range Low/High follows Source A display units when Units is set to Source, else follow Units setting.



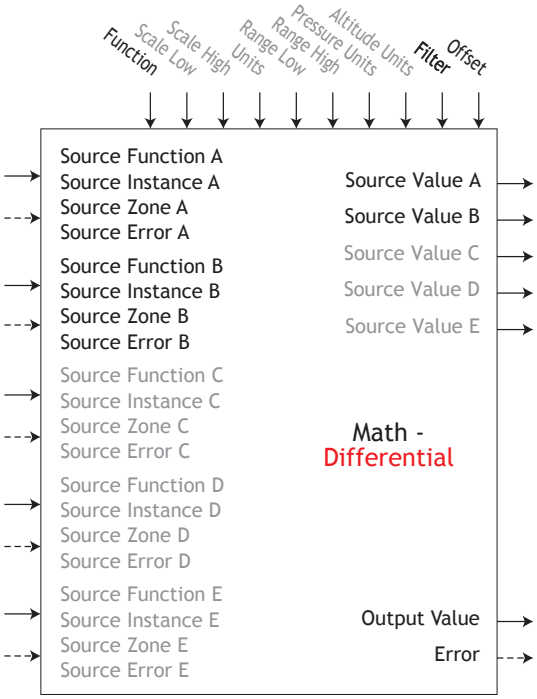
If B = OFF, Output Value = Filter [((Range High - Range Low) / (Scale High - Scale Low)) * (A - Scale Low) + Range Low + B + Offset]
If B = ON, Output Value = Filter [B + Offset]

Scale Low/High and Range Low/High follows Source A display units when Units is set to Source, else follow Units setting.

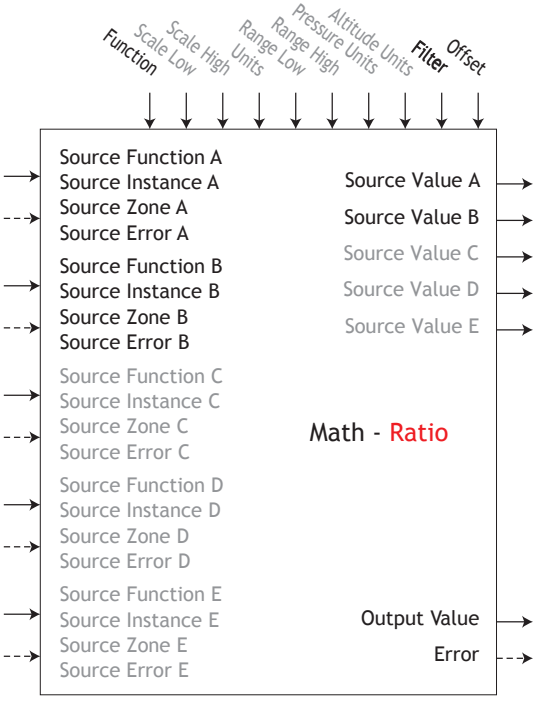
Math (cont.)



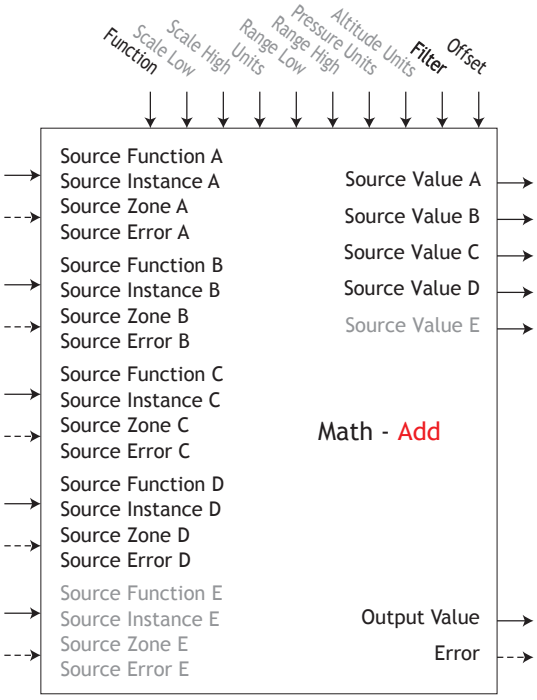
If B = OFF, Output Value = Filter [A + Offset]
If B = ON, Output Value = Filter [B + Offset]
Display units follows active source.



Output Value = Filter [(A - B) + Offset]
Display units follows Source A plus relative Source B

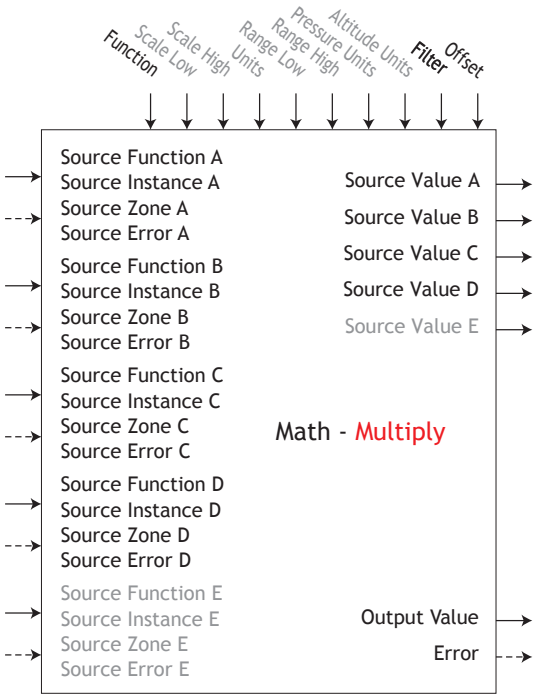


Output Value = Filter [(A / B) + Offset]
If display units of Source A = Source B, no display units on output value, else follow Source A

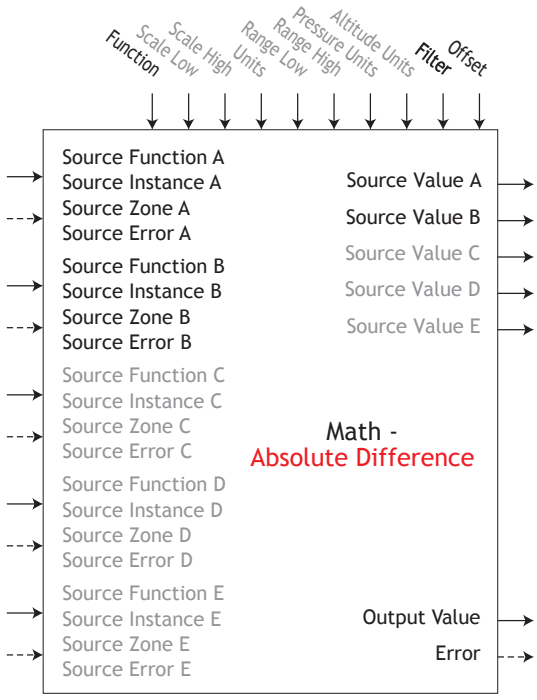


Output Value = Filter [(A + B + C + D) + Offset]
Display units follows last temperature source else follow Source A

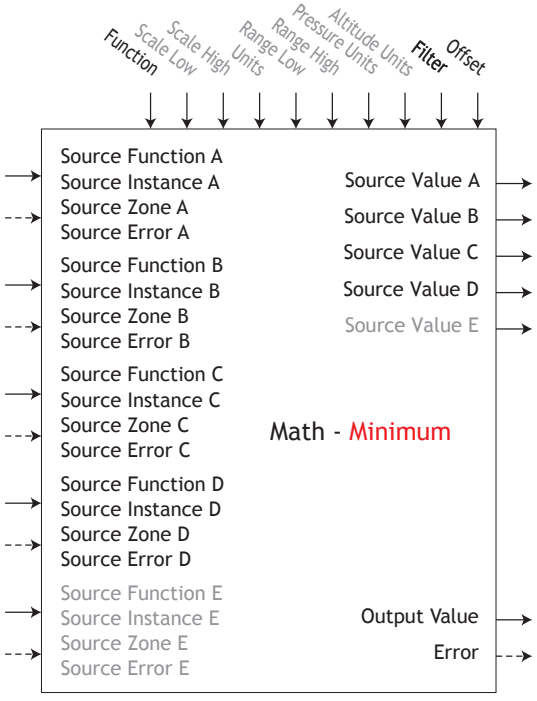
Math (cont.)



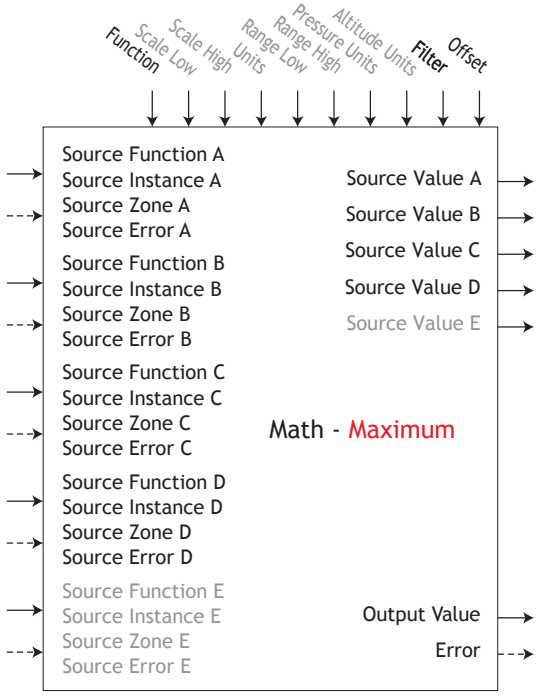
Output Value = Filter [(A * B * C * D) + Offset]
Display units follows last temperature source else follow Source A



Output Value = Filter [| A - B | + Offset]
Display units follow Source A plus relative Source B

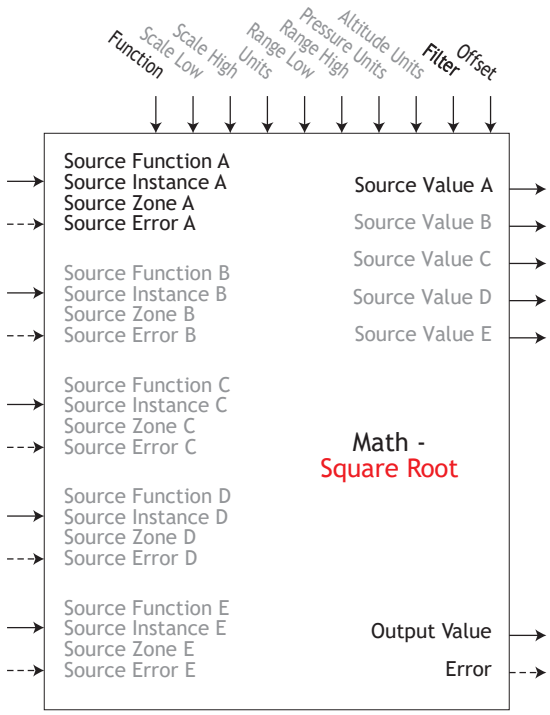


Output Value = Filter [Minimum Value (A : B : C : D) + Offset]
Display units follows Source with minimum value.

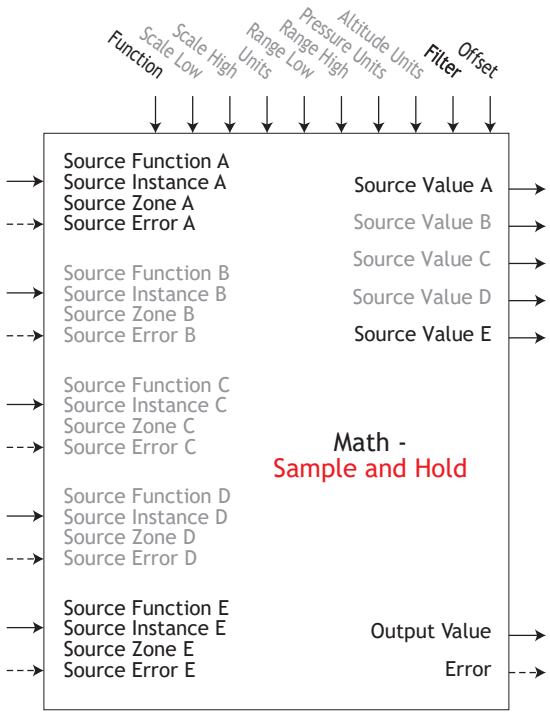


Output Value = Filter [Maximum Value (A : B : C : D) + Offset]
Display units follows Source with maximum value.

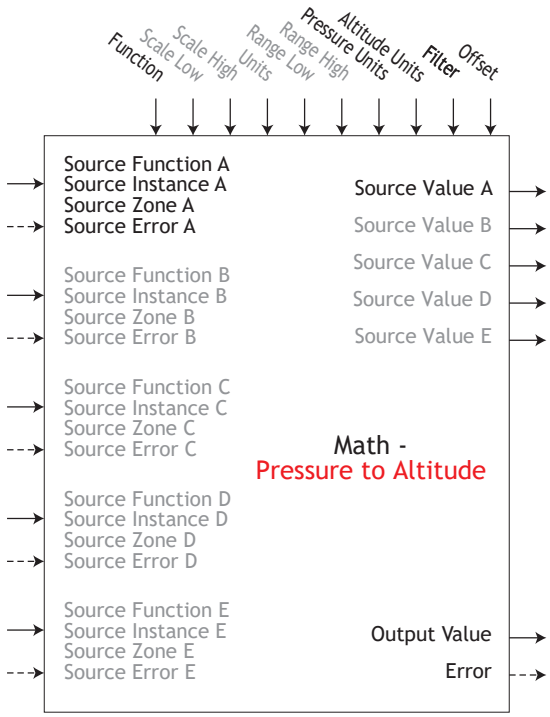
Math (cont.)



Output Value = Filter [Sqr Root A + Offset]
Display units follows Source A

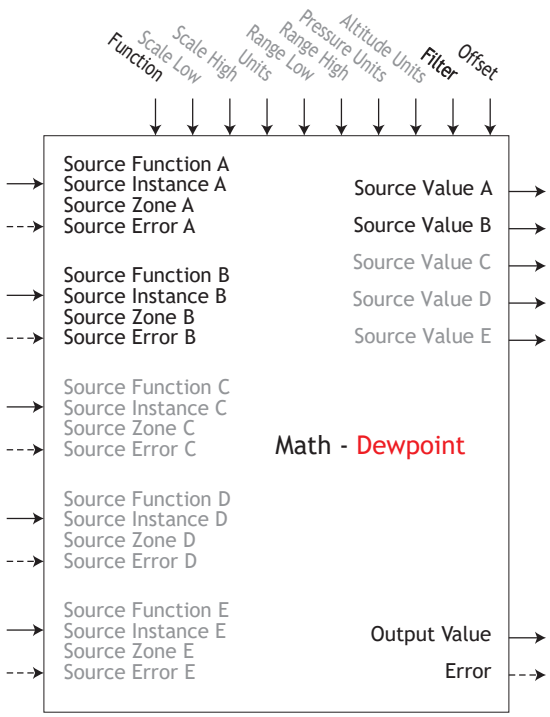


If E = OFF, Output Value = Filter [A + Offset]
If E = ON, Output Value = Filter [last value of A + Offset]
Display units follows Source A



Output Value = Filter [Convert Source A in Pressure to Altitude + Offset]

Note: Pressure Altitude calculation is based on the International Standard Atmosphere 1976. Source A is a pressure signal and needs to be in PSI units for the calculation. The calculation is accurate from sea level to 90,000 feet. It can be used beyond this range in both directions, but with loss of accuracy. The standard is based on an altitude of 0 feet (sea level) pressure of 14.6967 PSI and a temperature of 59 degrees F. Result of calculation is in feet.



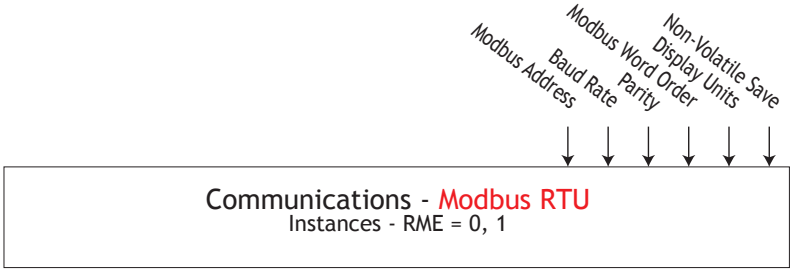
Output Value = Filter [427.26 * (CP * B / 8.8618) / (17.27- (CP * B / 8.8618)) + 32 + Offset]

Source A is used for Calculated Pressure or CP ;

Note: For dewpoint, Source A is temperature (F) and Source B is RH (%). Saturation pressure calculation is identical to that used in wet/dry bulb. Result is in degrees F.

Modbus® Function

Configure the Modbus RTU serial communication settings using these parameters.



CoMM Communications Menu
SEt Setup Page

	Parameter Name [Parameter ID] : Range or Choices
bAUd	Baud Rate [17002] : 19600, 19200, 38400
PAr	Parity [17003] : None, Even, Odd
MWhL	Modbus Word Order [17043] : Word Low High, Word High Low
C_F	Display Units [17050] : F, C
nVS	Non-Volatile Save [17051] : No, Yes

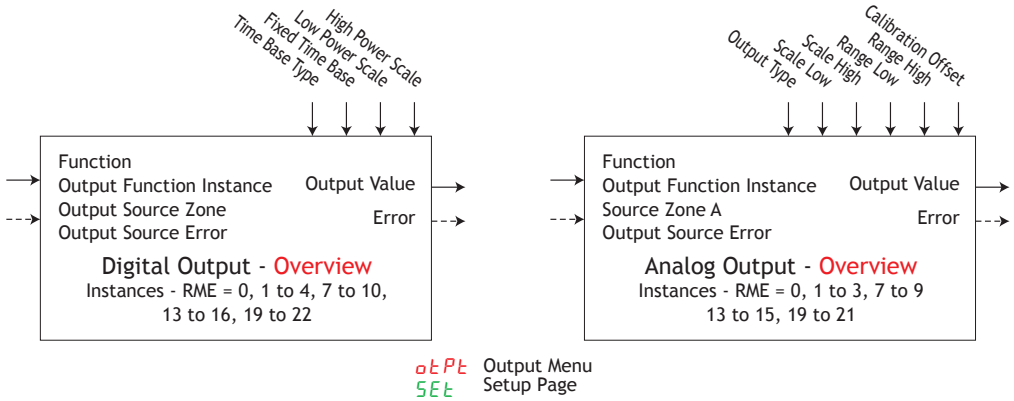
Output Function

This function configures and connects physical outputs to internal functions.

Note:

Digital Outputs not included on these sheets

- Output Value [18019] : 0 to 10.0 volts or 0 to 20.00 milliamperes
- Output Value [6011] : On, Off
- Error: None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail, Math Error, Not Sourced, Stale

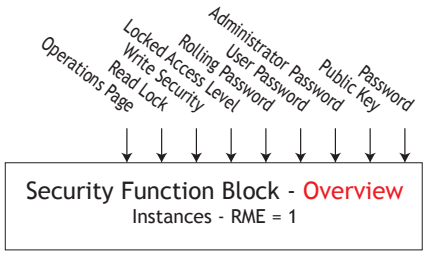


oEPt Output Menu
SEt Setup Page

	Parameter Name [Parameter ID] : Range or Choices
Fn	Function [6005] : Off, Analog Input, Alarm, Cool Power, Heat Power, Compare, Counter, Digital I/O. Profile Event Out A to H, Function Key, Logic, Linearization, Math, Process Value, Special Function Output 1 to 4, Timer, Variable, Heater Error
F1	Output Function Instance [6006] : 1 to 250
S2	Output Source Zone [6012] : 0 to 24
oCt	Time Base Type [6002] : Fixed Time Base, Variable Time Base
otb	Fixed Time Base [6003] : 0.1 to 60.0 seconds
oLo	Low Power Scale [6009] : 0 to 100 %
oh1	High Power Scale [6010] : 0 to 100 %
otY	Output Type [18001] : Volts, Milliamps
Fn	Function [18002] : Off, Analog Input, Current, Cool Power, Heat Power, Power, Linearization, Math, Process Value, Set Point Closed, Set Point Open, Special Function Output 1 to 4, Variable, Wattage, Load Voltage, Load Resistance
F1	Output Function Instance [18004] : 1 to 250
S2A	Source Zone A [18019] : 0 to 24
SLo	Scale Low [18009] : 0.0 to 20.00
Sh1	Scale High [18010] : 0.0 to 20.00
rLo	Range Low [18011] : -1,999.000 to 9,999.000
rh1	Range High [18012] : -1,999.000 to 9,999.000
oCA	Calibration Offset [18007] : -1,999.000 to 9,999.000

Security Function

If Password is enabled, the user must enter the Password to get to menus that have been blocked due to lock level settings. Rolling passwords required a new password each time the power has been cycled to the controller. It will be different for every controller. The administrator password is required to change the security settings even if the user enters their password to override the security settings.



LoC Lock Menu
FAct Factory Page

	Parameter Name [Parameter ID] : Range or Choices
LoC.o	Operations Page [3002] : 1 to 3
r.LoC	Read Lock [3010] : 1 to 5
S.LoC	Write Security [3011] : 1 to 5
LoC.L	Locked Access Level [3016] : 1 to 5
roL.L	Rolling Password [3019] : Off, On
PAS.u	User Password [3017] : 10 to 999
PAS.A	Administrator Password [3018] : 10 to 999

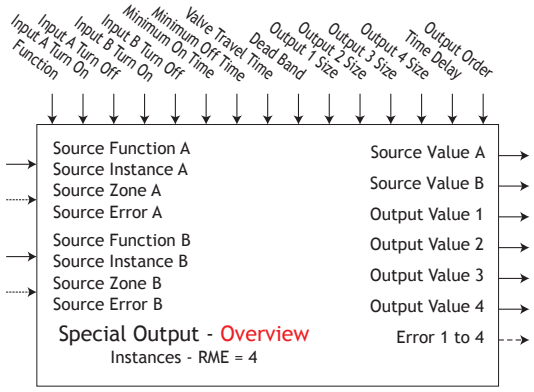
ULoC Unlock Menu
FAct Factory Page

CodE	Public Key [3020] : 0 to 9999
PASS	Password [3022] : 10 to 999

Special Output Function

This function is used to configure outputs when used with compressors, motorized valves or sequencers.

- Error 1 [35011], Error 2 [35013], Error 3 [35015], Error 4 [35017]: None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail, Math Error, Not Sourced, Stale



SoF Special Output Function Menu
SEt Setup Page

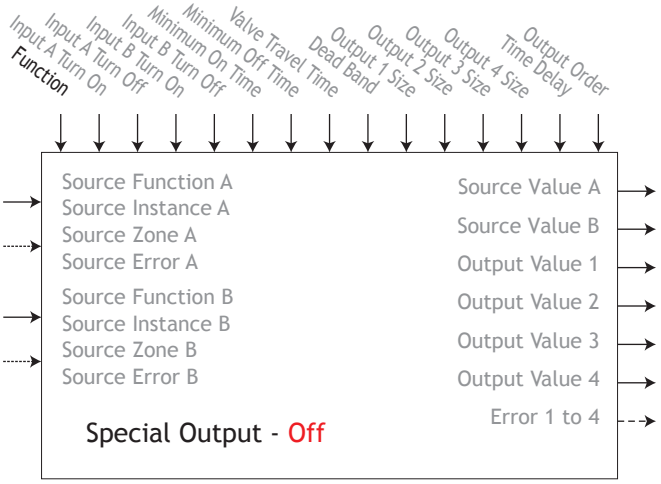
	Parameter Name [Parameter ID] : Range or Choices
Fn	Function [35009] : Off, Compressor Control, Motorized Valve, Sequencer
SFnA	Source Function A [35001] : None, Analog Input, Cool Power, Heat Power, Power, Linearization, Math, Process Value, Special Function Output 1, Variable
S iA	Source Instance A [35003] : 1 to 250
S2A	Source Zone A [35005] : 0 to 24
SFnb	Source Function B [35002] : None, Cool Power, Heat Power, Power, Linearization, Math, Variable
S ib	Source Instance B [35004] : 1 to 250
S2b	Source Zone B [35006] : 0 to 24
PonA	Input A Turn On [35018] : -100.0 to 100.0 %
PoFA	Input A Turn Off [35019] : -100.0 to 100.0 %
Ponb	Input B Turn On [35020] : -100.0 to 100.0 %
PoFb	Input B Turn Off [35021] : -100.0 to 100.0 %
ont	Minimum On Time [35022] : 0 to 9,999 seconds
oFt	Minimum Off Off Time [35023] : 0 to 9,999 seconds
tt	Valve Travel Time [35024] : 10 to 9,999 seconds
db	Dead Band [35025] : 1.0 to 100.0 %
oS1	Output 1 Size [35028] : 0 to 9,999
oS2	Output 2 Size [35029] : 0 to 9,999
oS3	Output 3 Size [35030] : 0 to 9,999
oS4	Output 4 Size [35031] : 0 to 9,999
tdL	Time Delay [35026] : 0 to 9,999 seconds
otO	Output Order [35027] : Linear, Progressive

SoF Special Output Function Menu
oPEr Operations Page

SuA	Source Value A [35007] : -1,999.000 to 9,999.000
Sub	Source Value B [35008] : -1,999.000 to 9,999.000
ou1	Output Value 1 [35010] : -1,999.000 to 9,999.000 %
ou2	Output Value 2 [35012] : -1,999.000 to 9,999.000 %
ou3	Output Value 3 [35014] : -1,999.000 to 9,999.000 %
ou4	Output Value 4 [35016] : -1,999.000 to 9,999.000 %

Special Output (cont.)

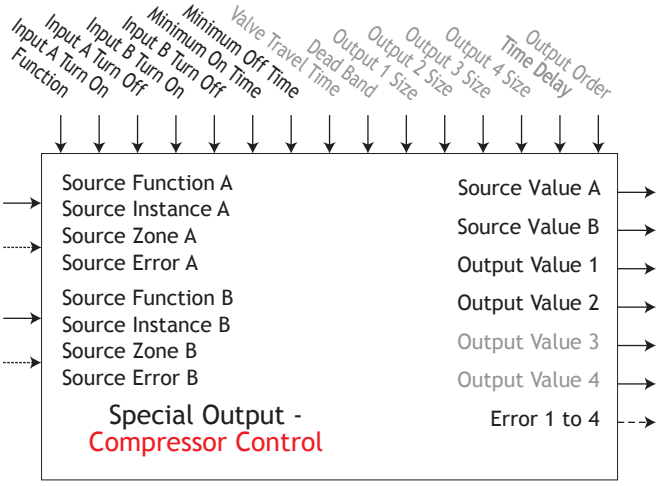
Off



Compressor Control

Compressor Control is not typically used to control an application's process value directly. Rather, these parameters are used to allow one or two control loops to use a compressor, to switch on the compressor in anticipation of its use and to control cycling of the compressor to reduce wear.

- Use Source Function A to select the type of function that will inform whether the compressor will soon be required for the first loop.
- Use Source Function B to select the type of function that will inform whether the compressor will soon be required for the second loop.
- Use Source Instance A and B and Source Zone A and B to select which source to use.
- Set Input A Turn On and Input A Turn Off to the Source A values that will switch the compressor on and off.
- Set Input B Turn On and Input B Turn Off to the Source B values that will switch the compressor on and off.
- Set Minimum On Time and Minimum Off Time to the minimum span of time, in seconds, that the compressor will be on or off.
- Set Time Delay to the maximum amount of time, in seconds, that the output to the compressor remains on while both inputs are 0%.

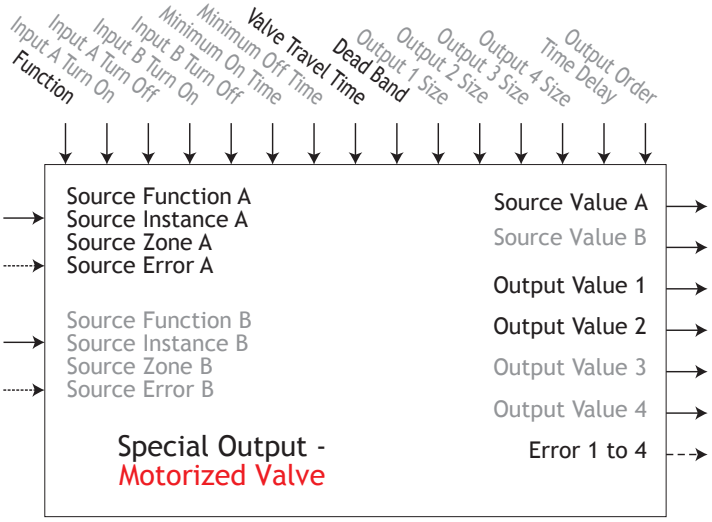


Special Output (cont.)

Motorized Valve

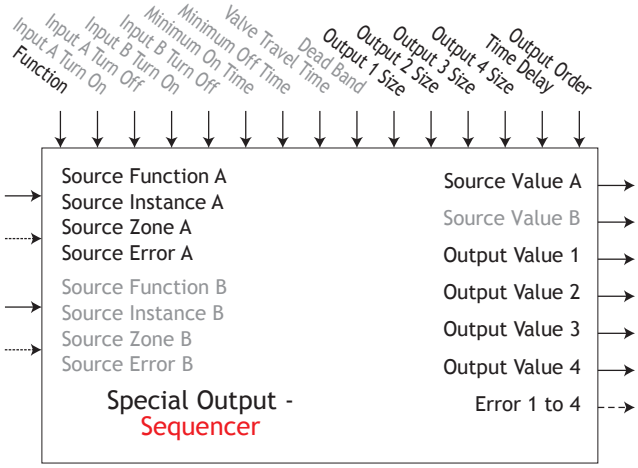
A motorized valve is used is to regulate the flow of fluid which in turn impacts the loop process value. A valve is closed via Output Value 1 or opened via Output Value 2 by closing contacts connected to these output values to drive the valve in the intended direction. This feature is configured by selecting Motorized Valve as the function in the Setup Page, Special Output Function menu.

- Source Function A is selected for either Heat or Cool Power then entering the Valve Travel Time and Deadband.
- Lastly, program the outputs which will open and close the valve. The algorithm will calculate Dead Time which is the minimum on time that the valve will travel once it is turned on in either the closed or open direction. Dead Time = Valve Dead Band / 100 * Valve Travel Time.



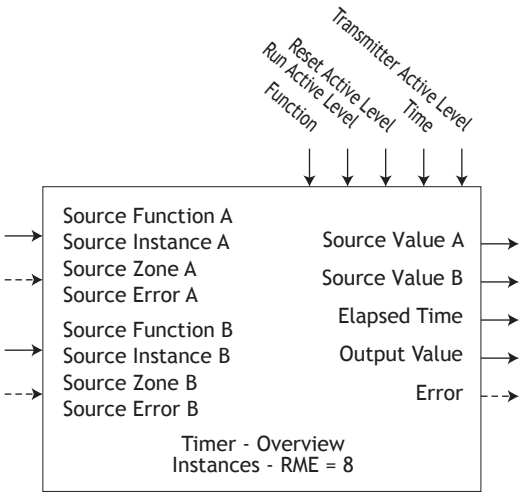
Sequencer

A sequencer takes a single input power signal and splits it up into multiple output signals. Each output represents a portion of the total output capacity. The primary output which is often referred to as the vernier output represents a larger portion of the total output capacity than any of the other outputs. The vernier output is always a proportional signal while the other outputs are ON/OFF.



Timer Function

- Error [31018] = None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail, Math Error, Not Sourced, Stale
- Running [31015] = Off, ON



tMr Timer Menu
SEt Setup Page

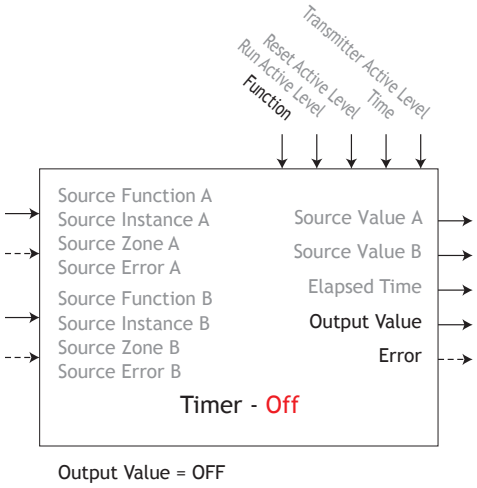
	Parameter Name [Parameter ID] : Range or Choices
Fn	Function [31009] : Off, On Pulse, Delay, One Shot, Retentive
SFnA	Source Function A [31001] : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Logic, Special Function Output 1 to 4, Timer, Variable
S iA	Source Instance A [31003] : 1 to 250
S2A	Source Zone A [31005] : 0 to 24
SASA	Run Active Level [31011] : High (rising), Low (falling)
SFnb	Source Function B [31002] : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Logic, Special Function Output 1 to 4, Timer, Variable
S ib	Source Instance B [3104] : 1 to 250
S2b	Source Zone B [31006] : 0 to 24
SASb	Reset Active Level [31012] : High (rising), Low (falling)
t i	Time [31013] : 0.0 to 9,999.0 seconds
LEu	Active Level [31014] : High, Low

tMr Timer Menu
oPEr Operations Page

SuA	Source Value A [31007] : Off, On
Sub	Source Value B [31008] : Off, On
Et	Elapsed Time [31016] : 0.0 to 9,999.0 seconds
ou	Output Value [31010] : Off, On

Timer (cont.)

Off

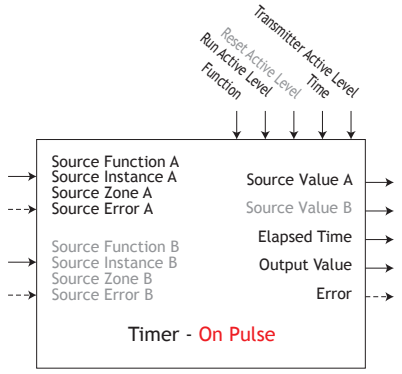


Output Value = OFF

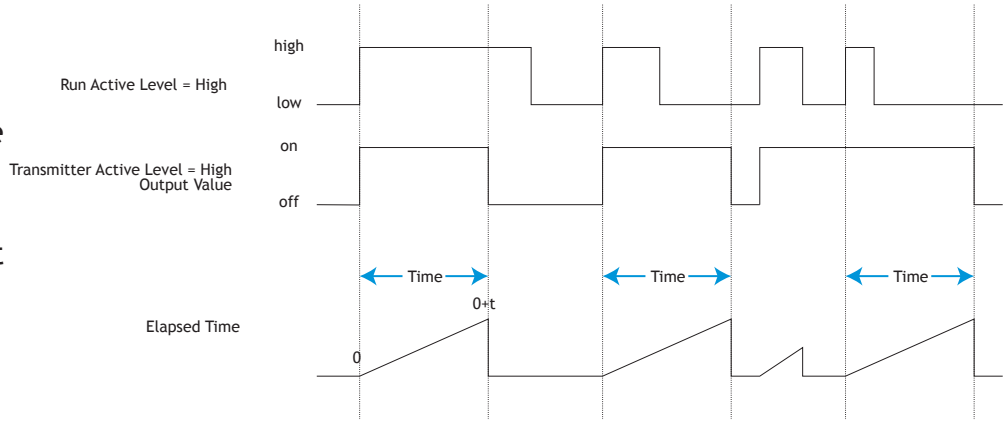
On Pulse

An On Pulse Timer is used to produce an output pulse of a constant duration. It can be used as a minimum on time for compressor control or other devices that do not want excessive cycling. Use Function to select On Pulse.

- On Pulse timers output a pulse of a set duration that is triggered or restarted by the level of Source A.
- Source Function A selects the type of source used for the input.
- Source Instance A and Source Zone A selects which source to use.
- Run Active Level sets which state makes the timer run or reset.
- Time sets the time duration of the output pulse.
- Transmitter Active Level sets which output state indicates the elapsed time is greater than or equal to the Time setting.



Timing Diagram of On Pulse with active state rising edge

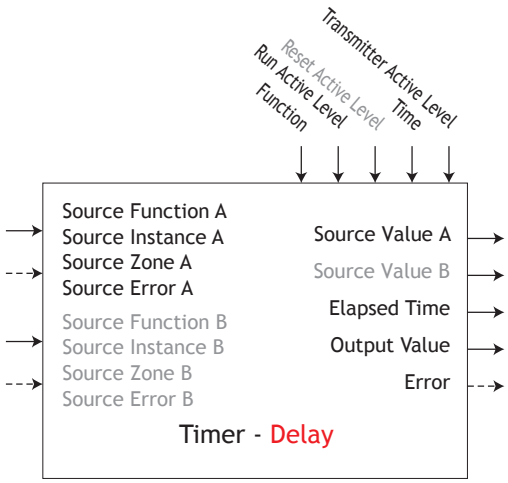


Timer (cont.)

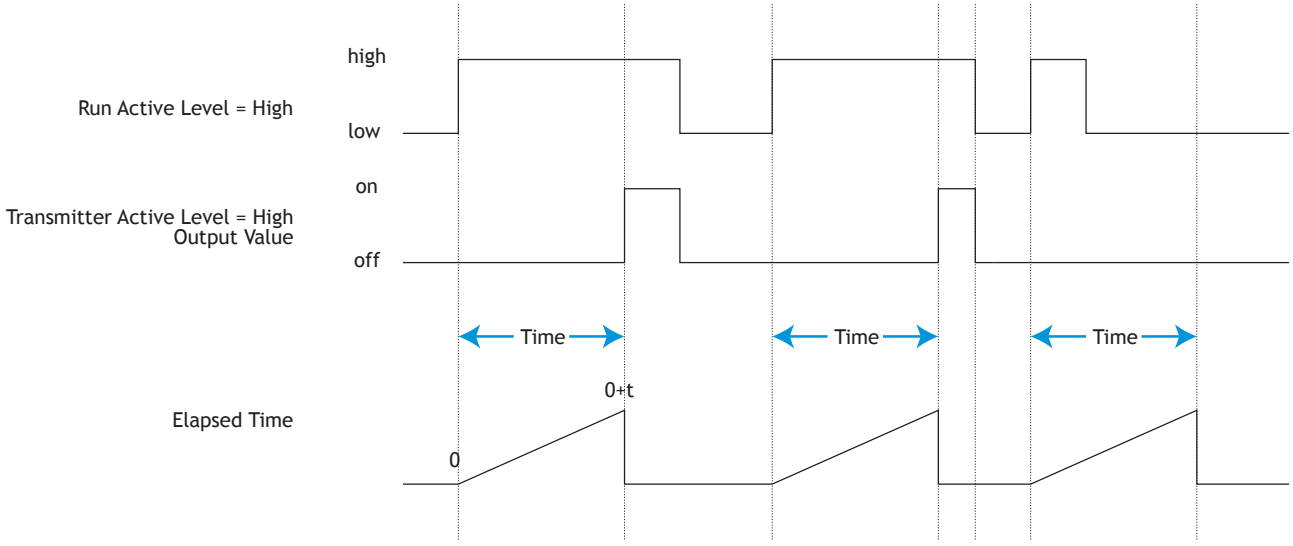
Delay

A delay timer is used to cause a delaying action. The delay can be made to happen on either the leading or trailing edge. This can be used to keep short input pulses from propagating or to have a secondary action occur at a known amount of time after the primary action; such as, turning on successive output devices.

- Use Function to select Delay.
- Delay timers will delay the response of a signal presented to Source A and then switch the output value.
- Source Function A selects the type of source used for the input.
- Source Instance A and Source Zone A selects which source to use.
- Run Active Level sets which state makes the timer run or reset.
- Overlap of run signal to time signal determines output value on time. If run signal is less than time signal, output does not activate.
- Transmitter Active Level sets which output state indicates the run time is greater than the Time setting.



Timing Diagram of Delay with active state rising edge

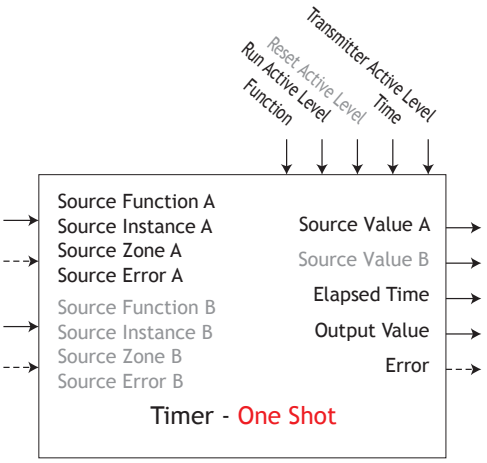


Timer (cont.)

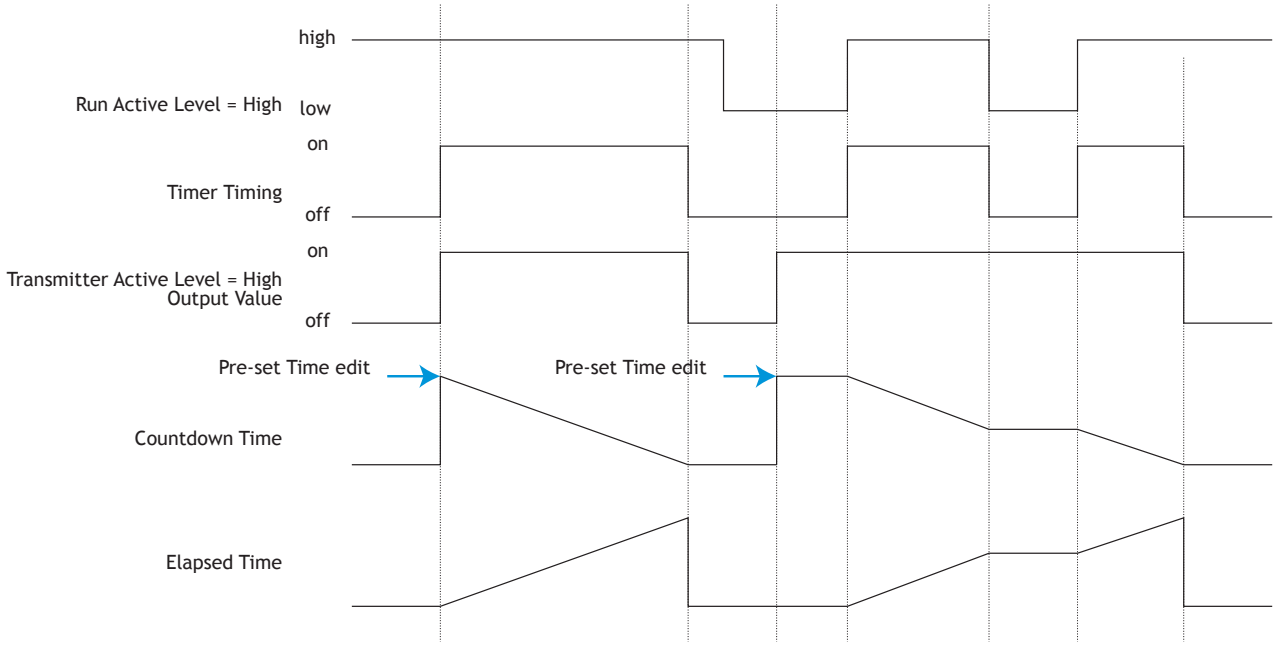
One Shot

The One Shot timer functions like a simple oven timer. The time value gets set by the user and it counts down to zero without retaining the original time (hence the name one-shot). This is intended to be used in applications where the user will manually set different times for each process.

- Use Function to select One Shot.
- One Shot timers count down while Source A is active; otherwise it holds. Preset of Time clears once time is elapsed.
- Source Function A selects the type of source used for the input.
- Source Instance A and Source Zone A selects which source to use.
- Run Active Level sets which state makes the timer count down.
- Transmitter Active Level sets which output state indicates the the timer is in countdown operation.



Timing Diagram of One Shot with active state rising edge

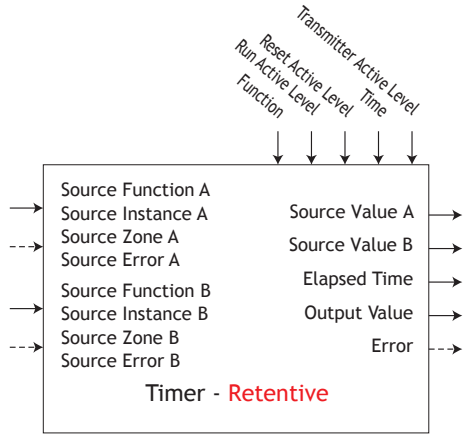


Timer (cont.)

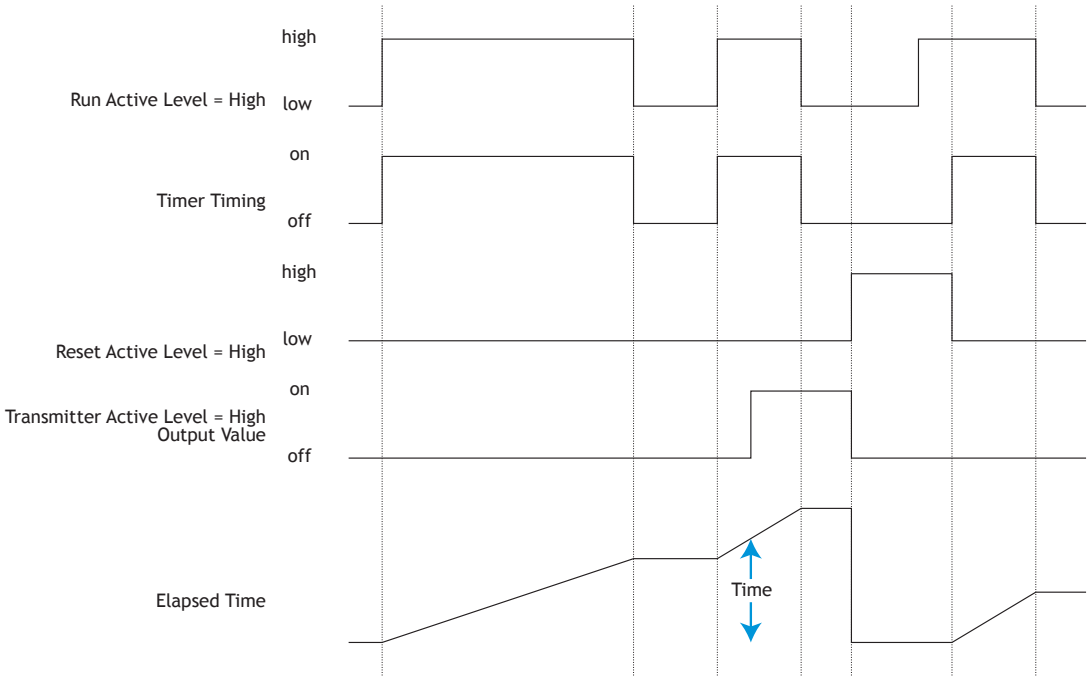
Retentive

A retentive timer is used to keep track of how much time something has been in a particular state. For example, this can be used to time how long something has been in an alarm state or how long it has been since a profile or step ran. The output can be used to trigger an event if the elapsed time has grown excessive.

- Use Function to select Retentive.
- Retentive timers count up from 0 to the Time parameter while Source A is active; otherwise it holds. It can be reset by Source B. The Elapsed time will continue to count up until the maximum value is reached and then rolls over unless a reset pulse is generated.
- Source Function A selects the type of source used for the input.
- Source Instance A and Source Zone A selects which source to use.
- Run Active Level sets which state makes the timer countdown.
- Transmitter Active Level sets which output state indicates the the timer is in countdown operation.



Timing Diagram of Retentive with all active state rising edge

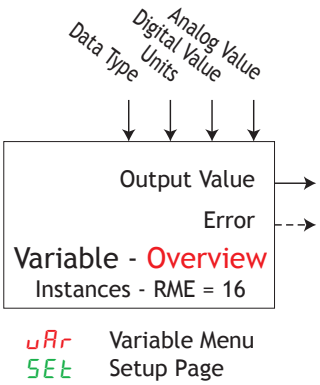


Variable Function

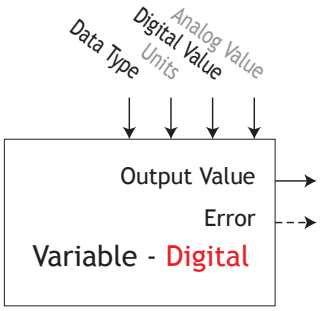
A variable function block is used to store a user supplied value and provide a source input to another function block with that value. As an example, you could use a variable function value as one input to a compare function. The other input to the compare function would determine the output value based on the user's supplied value.

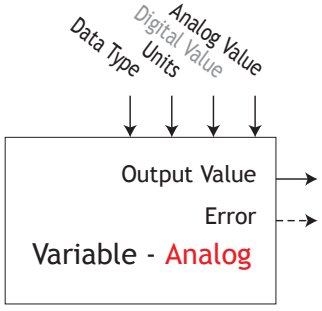
This function simply passes the stored value to its output.

- Error [2005] : None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail, Math Error, Not Sourced, Stale
- Output Value [2004] : -1,999.000 to 9,999.000 or On or Off



	Parameter Name [Parameter ID] : Range or Choices
tYPE	Data Type [2001] : Analog, Digital
Unit	Units [2007] : None, Absolute Temperature, Relative Temperature, Power, Process, Relative Humidity
d iG	Digital Value [2002] : On, Off
AnLG	Analog Value [2003] : -1,999.000 to 9,999.000





8 Chapter 8: Appendix

Troubleshooting Alarms, Errors and Module Issues

Indication	Description	Possible Cause(s)	Corrective Action
Alarm won't clear or reset	Alarm will not clear or reset with keypad or digital input	• Alarm latching is active • Alarm set to incorrect output • Alarm is set to incorrect source • Sensor input is out of alarm set point range • Alarm set point is incorrect • Alarm is set to incorrect type • Digital input function is incorrect	• Reset alarm when process is within range or disable latching • Set output to correct alarm source instance • Set alarm source to correct input instance • Correct cause of sensor input out of alarm range • Set alarm set point to correct trip point • Set alarm to correct type: process, deviation or power • Set digital input function and source instance
Alarm won't occur	Alarm will not activate output	• Alarm silencing is active • Alarm blocking is active • Alarm is set to incorrect output • Alarm is set to incorrect source • Alarm set point is incorrect • Alarm is set to incorrect type	• Disable alarm silencing, if required • Disable alarm blocking, if required • Set output to correct alarm source instance • Set alarm source to correct input instance • Set alarm set point to correct trip point • Set alarm to correct type: process, deviation or power
Alarm Error AL.E 1 AL.E2 AL.E3 AL.E4 AL.E5 AL.E6 AL.E7 AL.E8	Alarm state cannot be determined due to lack of sensor input	• Sensor improperly wired or open • Incorrect setting of sensor type • Calibration corrupt	• Correct wiring or replace sensor • Match setting to sensor used • Check calibration of controller

Troubleshooting Alarms, Errors and Module Issues (cont.)

Indication	Description	Possible Cause(s)	Corrective Action
Alarm Low AL.L 1 AL.L2 AL.L3 AL.L4 AL.L5 AL.L6 AL.L7 AL.L8	Sensor input below low alarm set point	• Temperature is less than alarm set point • Alarm is set to latching and an alarm occurred in the past • Incorrect alarm set point • Incorrect alarm source	• Check cause of under temperature • Clear latched alarm • Establish correct alarm set point • Set alarm source to proper setting
Alarm High AL.h 1 AL.h2 AL.h3 AL.h4 AL.h5 AL.h6 AL.h7 AL.h8	Sensor input above high alarm set point	• Temperature is greater than alarm set point • Alarm is set to latching and an alarm occurred in the past • Incorrect alarm set point • Incorrect alarm source	• Check cause of over temperature • Clear latched alarm • Establish correct alarm set point • Set alarm source to proper setting
No Display	No display indication or LED illumination	• Power to controller is off • Fuse open • Breaker tripped • Safety interlock switch open • Separate system limit control activated • Wiring error • Incorrect voltage to controller	• Turn on power • Replace fuse • Reset breaker • Close interlock switch • Reset limit • Correct wiring issue • Apply correct voltage, check part number

Indication	Description	Possible Cause(s)	Corrective Action
No Serial Communication	Cannot establish serial communications with the controller	• Address parameter incorrect • Incorrect protocol selected • Baud rate incorrect • Parity incorrect • Wiring error • EIA-485 converter issue • Incorrect computer or PLC communications port • Incorrect software setup • Wires routed with power cables • Termination resistor may be required	• Set unique addresses on network • Match protocol between devices • Match baud rate between devices • Match parity between devices • Correct wiring issue • Check settings or replace converter • Set correct communication port • Correct software setup to match controller • Route communications wires away from power wires • Place 120 Ω resistor across EIA-485 on last controller
Device Error 100 rEtn	Controller displays internal malfunction message at power up.	• Controller defective • Sensor input over driven	• Replace or repair controller • Check sensors for ground loops, reverse wiring or out of range values.
Heater Error hEr	Heater Error	• Current through load is above current trip set point	• Check that the load current is proper. Correct cause of overcurrent and/or ensure current trip set point is correct.
		• Current through load is below current trip set point	• Check that the load current is proper. Correct cause of undercurrent and/or ensure current trip set point is correct.

Indication	Description	Possible Cause(s)	Corrective Action
Current Error CEr	Load current incorrect.	• Shorted solid-state or mechanical relay	• Replace relay
		• Open solid-state or mechanical relay	• Replace relay
		• Current transformer load wire associated to wrong output	• Route load wire through current transformer from correct output, and go to the CS1 Source Output Instance parameter (Setup Page, Current Menu) to select the output that is driving the load.
		• Defective current transformer or controller	• Replace or repair sensor or controller
		• Noisy electrical lines	• Route wires appropriately, check for loose connections, add line filters
Remote User Interface (RUI) menus inaccessible	Unable to access SEt, oPEr or FCty menus or particular prompts in Home Page	• Security set to incorrect level	• Check LoC settings in Factory Page • Enter appropriate password in ULoC setting in Factory Page
		• Digital input set to lockout keypad	• Change state of digital input
		• Custom parameters incorrect	• Change custom parameters in Factory Page
RUI value to low uAL.L	Value to low to be displayed in 4 digit LED display <-1999	• Incorrect setup * Minimum in Global Menu allows values less than -1999.000	• Check scaling of source data
RUI value to high uAL.h	Value to high to be displayed in 4 digit LED display >9999	• Incorrect setup *Maximum in Global Menu allows values greater than 9999.000	• Check scaling of source data

RME Specifications

Line Voltage/Power

- 20.4 to 30.8V≂ (ac/dc), 50/60Hz, ±5 percent
- Power consumption: 7 W, 14VA
- Any external power supply used should comply with a class 2 or SELV rating. (Safety Extra Low Voltage)
- Data retention upon power failure via nonvolatile memory
- Compliant with Semi F47-0200, Figure R1-1 voltage sag requirem

Environment

- 0 to 149°F (-18 to 65°C) operating temperature
- -40 to 185°F (-40 to 85°C) storage temperature
- 0 to 90 percent RH, non-condensing
- RMC modules are considered to be open type equipment needing to be installed in a fire and shock protection enclosure, such as a NEMA Type 1 enclosure; unless all circuit connections are Class 2 or SELV

Agency Approvals

- UL®/EN 61010 listed; c-UL C22.2 #61010 File E185611 QUYX, QUYX7
- ANSI/ISA 12.12.01-2007 Hazardous Locations Class 1, Div. 2-Group A, B, C, D Temperature code T4 (optional) File E184390 QUZW, QUZW7
- EN 60529 IP20; RM modules
- UL® 50, Type 4X Indoor use, EN 60529 IP66; 1/16 DIN RUI, NEMA 4X
- RoHS by design, W.E.E.E.
- CE

Serial Communications

- The RME module ships with isolated standard bus protocol for configuration and communication connection to all other EZ-ZONE products, Modbus RTU is optional.

Maximum RM System Configuration

- Maximum system capacity is 16 (up to 152 loops) with one RM Access (RMA) module.

Mounting

- DIN-rail specification EN50022, 35 x 7.5 mm (1.38 x 0.30 in.)
- Can be DIN-rail mounted or chassis mounted with customer-supplied fasteners

Dimensions		Weight
155.0 mm (6.10 in)	116.08 mm (4.57 in)	Controller: 453.59 g (16 oz.)

RME Specifications (cont.)

Wiring Termination—Touch-Safe Terminals

- Right angle and front screw type terminal blocks (slots A, B, D, E)
  - Input, power and controller output terminals, touch-safe removable 12 to 30 AWG
  - Wire strip length 7.6 mm (0.30 in.)
  - Torque 0.56 Nm (5.0 lb.-in.) right angle, 0.5 Nm (4.51 lb-in) front terminal block
- Ring lug terminal block
  - Wire strip length 7.6 mm (0.30 in.)
  - Torque 1.13 Nm (10.0 lb.-in.)
- Use solid or stranded copper conductors only

Connector	Dimension "A" (mm/in.)
Standard	148 (5.80)
Straight	155 (6.10)
Ring Terminal	166 (6.50)

Digital Input

- **DC voltage**
  - Max. input 36V @ 3mA
  - Min. high state 3V at 0.25mA
  - Max. low state 2V
- **Dry contact**
  - Min. open resistance 10KΩ
  - Max. closed resistance 50Ω
  - Max. short circuit 13mA
- Digital input update rate 10Hz

Output Hardware

- Digital outputs
  - Update rate 10Hz
  - Switched DC
    - » Output voltage 20V⎓ (dc) or 12V⎓ (dc), user selectable
    - » Max. supply current source 40mA at 20V⎓ (dc) and 80mA at 12V⎓ (dc)
  - Open Collector
    - » Switched voltage max.: 32V⎓ (dc)
    - » Max. switched current per output: 1.5A
    - » Max. switched current for all 6 outputs combined: 8A

Dual Solid-State Relays

- Form A, 10A max. each SSRs combined at 24V~ (ac) min., 264V~ (ac) max., opto-isolated, without contact suppression
  - Max. resistive load 10A per output at 240V~ (ac)
  - Max. 20A per card at 122°F (50°C), max.
  - Max. 12A per card at 149°F (65°C), max.

RME Specifications (cont.)

Quad Mechanical Relay Outputs

- Form A, 5A each, 24 to 240V~ (ac) or 30V⎓ (dc) max., resistive load, 100,000 cycles at rated load.
  - Requires a min. load of 20mA at 24V
  - 125 VA pilot duty at 120/240 V~ (ac) or 25 VA at 24 V~ (ac)

Universal Process/Retransmit Outputs

- Universal process/retransmit, Output range selectable:
  - 0 to 10V ⎓(dc) into a min. 4,000Ω load
  - 0 to 20mA into max. 400Ω load

Resolution

- dc ranges: 0.2mV nominal resolution
- mA ranges: 4 µA nominal resolution

Calibration Accuracy

- dc ranges: ±15 mV
- mA ranges: ±30 µA

Temperature Stability

- 100 ppm FSR/°C

4 Solid-State Relays

- Form A, 24V~ (ac) min., 264V~ (ac) max., opto-isolated, without contact suppression
- Resistive load 2A per output at 20 to 264V~ (ac)
- 50 VA pilot duty at 120/240 V~ (ac)

Programmable Application Blocks

Actions (events) 8 total

Alarms 8 total

Compare 8 total

- Off, greater than, less than, equal, not equal, greater than or equal, less than or equal

Counters 8 total

- Counts up or down loads, predetermined value on load signal. Output is active when count value equals predetermined target value

Logic 16 total

- Off, and, nand, or, nor, equal, not equal, Latch

Linearization 8 total

- Interpolated or stepped relationship

Math 8 total

- Off, average, process scale, deviation scale, differential (subtraction), ratio (divide), add, multiply, absolute difference, min., max., square root, sample and hold

Special Output Function 4 total

- *Compressor* turns on-off compressor for one or two loops (cool and dehumidify with single compressor)
- *Motorized Valve* turns on-off motor open/closed outputs to cause valve to represent desired power level
- *Sequencer* turns on-off up to four outputs to distribute a single power across all outputs with linear and progressive load wearing

RME Specifications (cont.)

Timers 8 total

- *On Pulse* produces output of fixed time on active edge of timer run signal
- *Delay* output is a delayed start of timer run, off at same time
- *One Shot* oven timer
- *Retentive* measures timer run signal, output on when accumulated time exceeds target

Programmable Application Blocks (cont.)

Variable 16 total

- User value for digital or analog variable

Optional Accessories

Remote User Interface (RUI)

- 1/16 DIN
- Dual 4 digit, 7-segment LED displays
- Keys: Advance, infinity, up, down keys, plus an EZ-KEY programmable function key
- Typical display update rate 1Hz

Available Power Supplies

- AC/DC Power supply converter 90-264V~ (ac) to 24V⎓ (dc) volts.
- P/N 0847-0299-0000: 31 W
- P/N 0847-0300-0000: 60 W
- P/N 0847-0301-0000: 91 W

EZ-ZONE RME Product Documentation

- User Manual, printed hard copy, P/N 0600-0073-0000
- Watlow Support Tools CD, P/N 0601-0001-0000

RME Ordering Information

Expansion module requires a Class 2 or SELV power supply 20.4 to 30.8 V ≂ (ac / dc), communication port for configuration with EZ-ZONE Configurator software.

Code Number

①② EZ-ZONE Rail Mount	③ Expansion Module	④ Connector Style/ Custom Product		⑤ Slot A	⑥ Slot B	⑦ Slot D	⑧ Slot E		⑨ Future Options	⑩ Enhanced Options	⑪⑫ Additional Options
RM	E		-					-	A		

④ Connector Style/Custom product

A	=	Right angle screw connector (standard)
F	=	Front screw connector
R	=	Ring lug connector (If ordered, then slots B and E must be = A)
S	=	Custom

⑤ Slot A

A	=	None
C	=	6 Digital I/O
J	=	4 Mechanical relay 5A, Form A
F	=	3 Universal Process/Retransmit outputs
L	=	4 SSR's at 2 amps each
K	=	2 SSRs, Form A, 10A max. each (If ordered, then slots B must be = A)
T	=	Quad current transformer inputs

⑥ Slot B

A	=	None
C	=	6 Digital I/O
F	=	3 Universal Process/Retransmit outputs
L	=	4 SSR's at 2 amps each
J	=	4 Mechanical relay 5A, Form A
T	=	Quad current transformer inputs

⑦ Slot D

A	=	None
J	=	4 Mechanical relay 5A, Form A
C	=	6 Digital I/O
F	=	3 Universal Process/Retransmit outputs
L	=	4 SSR's at 2 amps each
K	=	2 SSRs, Form A, 10A max. each (If ordered, then slot E must be = A)
T	=	Quad current transformer inputs

⑧ Slot E

A	=	None
C	=	6 Digital I/O
F	=	3 Universal Process/Retransmit outputs
L	=	4 SSR's at 2 amps each
T	=	Quad current transformer inputs

⑨ Future Options

A	=	Standard

⑩ Enhanced Options

A	=	Standard Bus
1	=	Standard Bus and Modbus® RTU 485

⑪⑫ Additional Options

Firmware, Overlays, Parameter Settings

AA	=	Standard
AB	=	Replacement connectors hardware only, for the entered model number
12	=	Class 1, Div. 2 (not available with integrated limit controller or mechanical relay options)
XX	=	Custom

Declaration of Conformity

EZ Zone Series RM

CE

WATLOW Electric Manufacturing Company ISO 9001 since 1996.
1241 Bundy Blvd.
Winona, MN 55987 USA

Declares that the following Series RM (Rail Mount) products:

Model Numbers:	**RM** followed by additional letters or numbers describing use of up to four module options of various inputs and outputs or communications.
Classification:	Temperature control, Installation Category II, Pollution degree 2
Voltage and Frequency:	SELV 24 to 28 V≂ ac 50/60 Hz or dc
Power Consumption:	RMA models 4 Watts, any other RM model 7 Watts
Environmental Rating:	IP20

Meet the essential requirements of the following European Union Directives by using the relevant standards show below to indicate compliance.

2004/108/EC Electromagnetic Compatibility Directive

EN 61326-1	**2013**	**Electrical equipment for measurement, control and laboratory use – EMC requirements, Industrial Immunity, Class A Emissions (*Not for use in a Class B environment without additional filtering).***
EN 61000-4-2	2009	Electrostatic Discharge Immunity
EN 61000-4-3	2010	Radiated Field Immunity
EN 61000-4-4	2012	Electrical Fast-Transient / Burst Immunity
EN 61000-4-5	2006	Surge Immunity (Reviewed to IEC 61000-4-5 2014)
EN 61000-4-6	2014	Conducted Immunity
EN 61000-4-11	2004	Voltage Dips, Short Interruptions and Voltage Variations Immunity
EN 61000-3-2	2009	Harmonic Current Emissions (Reviewed to IEC 61000-3-2 2014)
EN 61000-3-3[1]	2013	Voltage Fluctuations and Flicker
SEMI F47	2000	Specification for Semiconductor Sag Immunity Figure R1-1

[1]NOTE: To comply with flicker requirements cycle time may need to be up to 160 seconds if load current is at 15A, or the maximum source impedance needs to be < 0.13Ω. Control power input of RM models comply with 61000-3-3 requirements.

2006/95/EC Low-Voltage Directive

EN 61010-1	**2011**	**Safety Requirements of electrical equipment for measurement, control and laboratory use. Part 1: General requirements**

Compliant with 2011/65/EU RoHS Directive

Per 2012/19/EU W.E.E.E Directive *Please Recycle Properly*

Joe Millanes
Name of Authorized Representative

Director of Operations
Title of Authorized Representative

Signature of Authorized Representative

Winona, Minnesota, USA
Place of Issue

September 2014
Date of Issue

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Your Authorized Watlow Distributor

TOTAL CUSTOMER SATISFACTION
3 Year Warranty