EZ-ZONE® RME (Expansion) Module
User's Guide
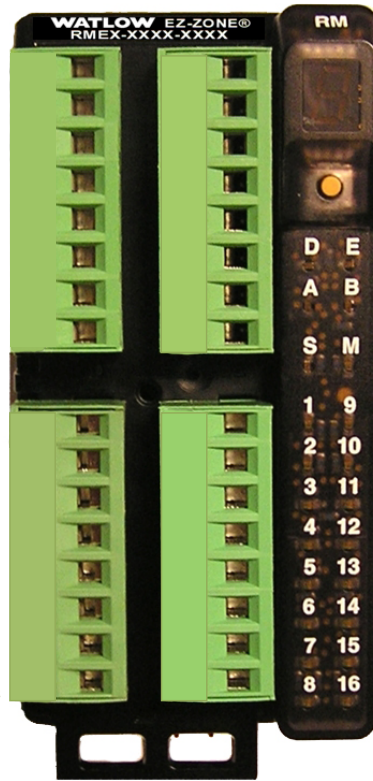
WATLOW EZ-ZONE®
RMEX-XXXX-XXXX

Expansion Module

WATLOW

TOTAL
CUSTOMER
SATISFACTION
3 Year Warranty

ISO 9001
Registered Company
Winona, Minnesota USA

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 symbol)	ESD Sensitive product, use proper grounding and handling techniques when installing or servicing product.
▣	Unit protected by double/reinforced insulation for shock hazard prevention.
(crossed-out wheelie bin)	Do not throw in trash, use proper recycling techniques or consult manufacturer for proper disposal.
(recycle 7 PC)	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.
(UL Listed Process Control Equipment)	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
(UL Listed Proc. Cont. Eq. for Hazardous Locations)	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.

TC Table of Contents

TC

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-1113	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. Printed versions of all user documents can also be purchased here as well.

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
- Provides a wide range of *protocol choices including Modbus® RTU, EtherNet/IP™, Modbus® TCP, DeviceNet™ and Profibus DP
* When used with the optional RMA or Remote User Interface/Gateway

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 configuration or 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
   - 4 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.

* Output is driven from another RM PID controller module
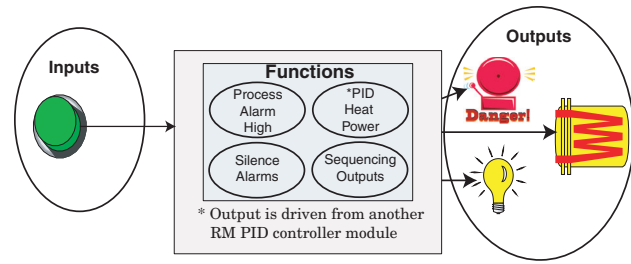
What is an Instance?

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 16) 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. The steps below, walk through this configuration:

Setup Page (Digital I/O Menu)
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.

Setup Page (Action Menu)
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.
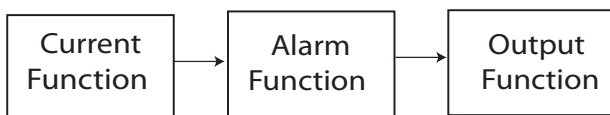
In the example above one can see the Current function on the left which is connected to a real-world input device (CT) where on the far right the internal output of the Alarm function is tied to the input of the Output function where a real-world output device is then driven such as a siren or a flashing 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.
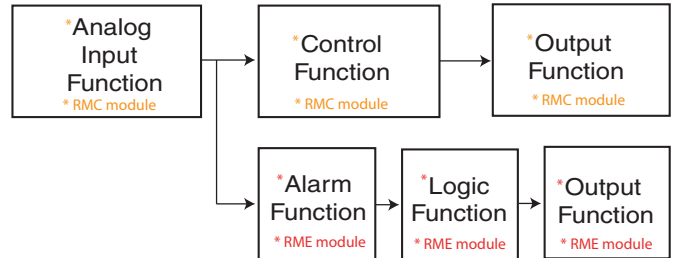
Outputs

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.

RM Control — Slot C

RM Expansion — Slot C

Power Supply

PC EZ-ZONE Configurator

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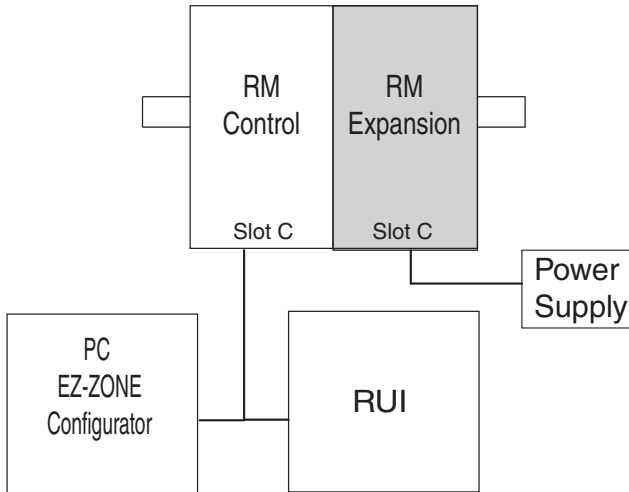
The PC running EZ-ZONE Configurator software and the RUI can be used to configure and then monitor both modules.

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 Control — Slot C

RM Expansion — Slot C

RM Access — Slot C / Slot E

Power Supply

PLC
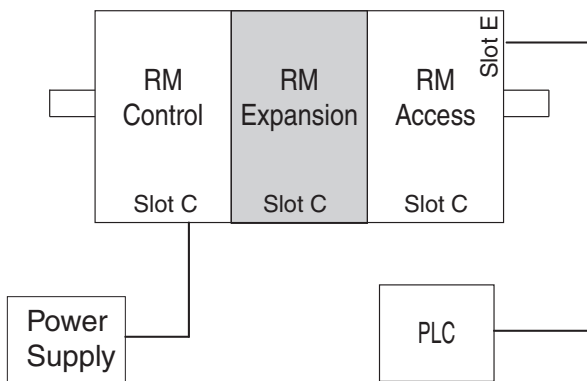
RM System Connected to an Operator Interface Terminal (OIT) through an RUI/Gateway
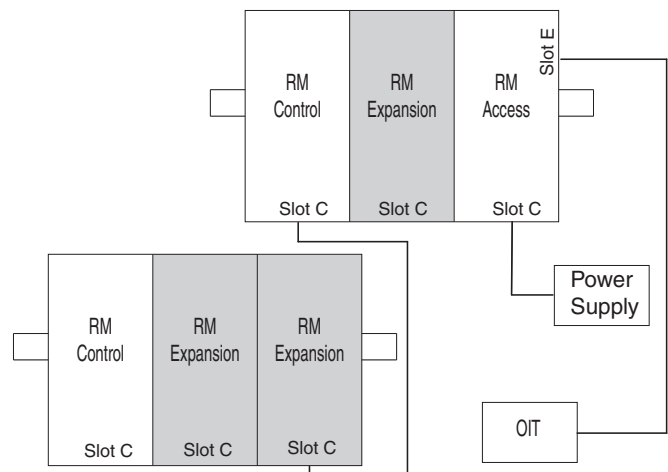
In this configuration the HMI can be running any of a number of protocols communicating to the RM system through Watlow's RUI/Gateway. Available protocols for the RUI/Gateway follow:

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

RM Control — Slot C

RM Expansion — Slot C

Power Supply

RUI/Gateway

OIT
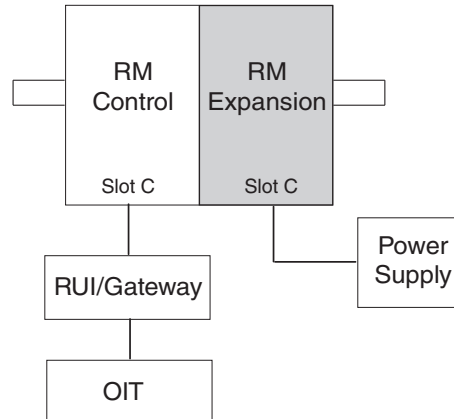
RM System Connected to a Split Rail with OIT

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).

RM Control — Slot C

RM Expansion — Slot C

RM Access — Slot C / Slot E

Power Supply

RM Control — Slot C

RM Expansion — Slot C

RM Expansion — Slot C

OIT

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
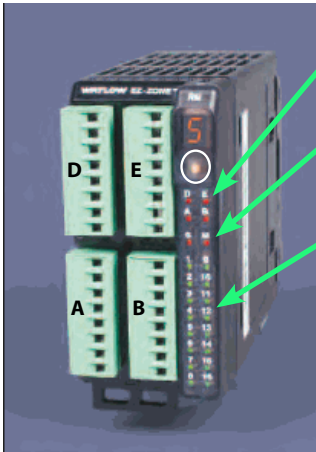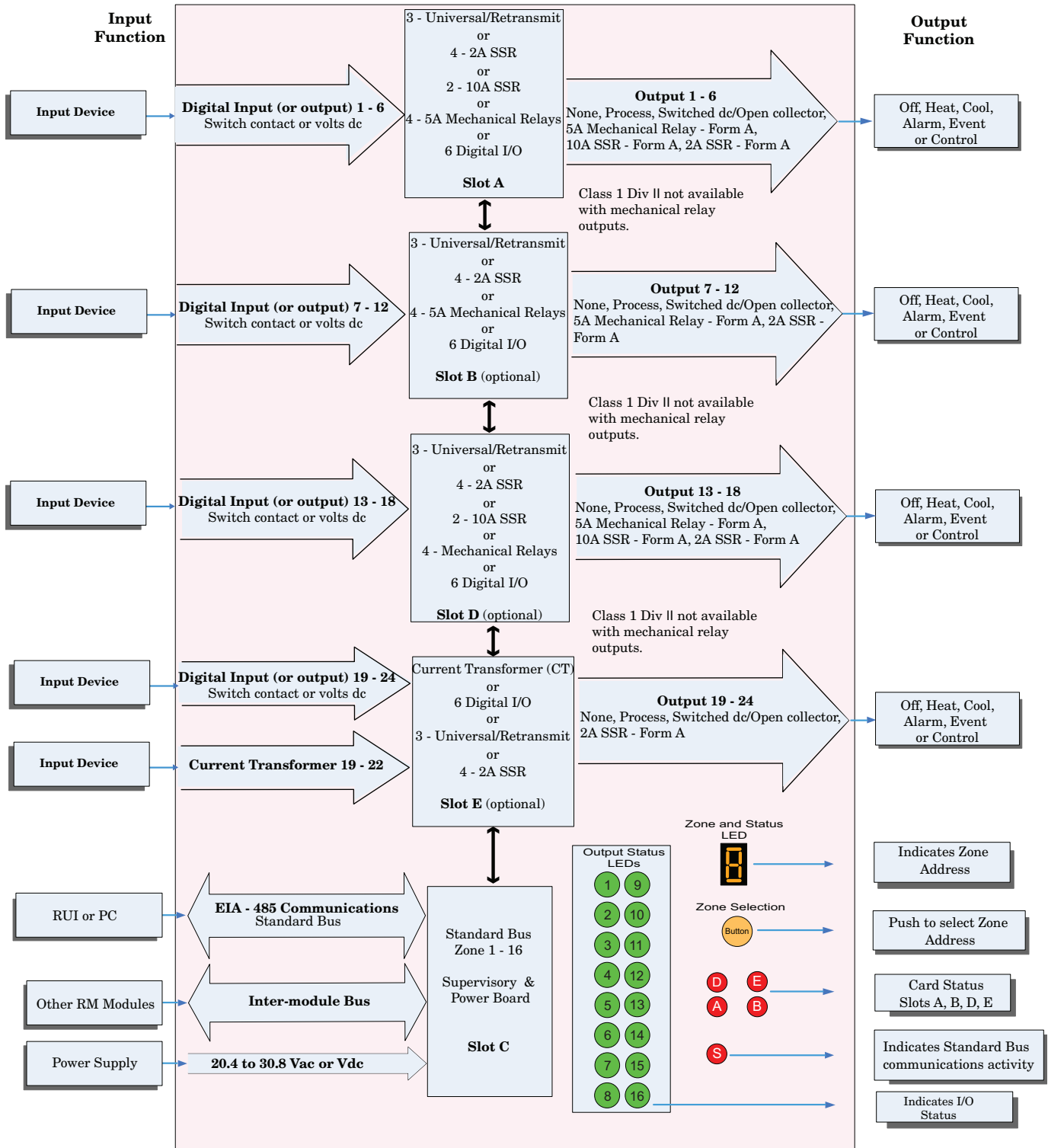
Module Status (Slot A, B, D, or E)

Protocol (Standard Bus - red

Module outputs 1 through 16, all may or may not be used depending on module type

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

Input Function

Output Function

Input Device → **Digital Input (or output) 1 - 6** Switch contact or volts dc →

3 - Universal/Retransmit
or
4 - 2A SSR
or
2 - 10A SSR
or
4 - 5A Mechanical Relays
or
6 Digital I/O

Slot A

→ **Output 1 - 6** None, Process, Switched dc/Open collector, 5A Mechanical Relay - Form A, 10A SSR - Form A, 2A SSR - Form A → Off, Heat, Cool, Alarm, Event or Control

Class 1 Div II not available with mechanical relay outputs.

Input Device → **Digital Input (or output) 7 - 12** Switch contact or volts dc →

3 - Universal/Retransmit
or
4 - 2A SSR
or
4 - 5A Mechanical Relays
or
6 Digital I/O

Slot B (optional)

→ **Output 7 - 12** None, Process, Switched dc/Open collector, 5A Mechanical Relay - Form A, 2A SSR - Form A → Off, Heat, Cool, Alarm, Event or Control

Class 1 Div II not available with mechanical relay outputs.

Input Device → **Digital Input (or output) 13 - 18** Switch contact or volts dc →

3 - Universal/Retransmit
or
4 - 2A SSR
or
2 - 10A SSR
or
4 - Mechanical Relays
or
6 Digital I/O

Slot D (optional)

→ **Output 13 - 18** None, Process, Switched dc/Open collector, 5A Mechanical Relay - Form A, 10A SSR - Form A, 2A SSR - Form A → Off, Heat, Cool, Alarm, Event or Control

Class 1 Div II not available with mechanical relay outputs.

Input Device → **Digital Input (or output) 19 - 24** Switch contact or volts dc →

Input Device → **Current Transformer 19 - 22** →

Current Transformer (CT)
or
6 Digital I/O
or
3 - Universal/Retransmit
or
4 - 2A SSR

Slot E (optional)

→ **Output 19 - 24** None, Process, Switched dc/Open collector, 2A SSR - Form A → Off, Heat, Cool, Alarm, Event or Control

RUI or PC ↔ **EIA - 485 Communications** Standard Bus ↔

Other RM Modules ↔ **Inter-module Bus** ↔

Power Supply → **20.4 to 30.8 Vac or Vdc** →

Standard Bus Zone 1 - 16

Supervisory & Power Board

Slot C

Output Status LEDs
1 9
2 10
3 11
4 12
5 13
6 14
7 15
8 16

Zone and Status LED
→ Indicates Zone Address

Zone Selection
Button → Push to select Zone Address

D E
A B
→ Card Status Slots A, B, D, E

S → Indicates Standard Bus communications activity
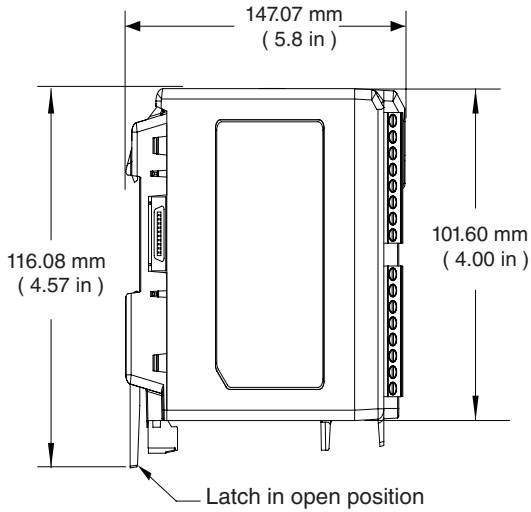
→ Indicates I/O Status
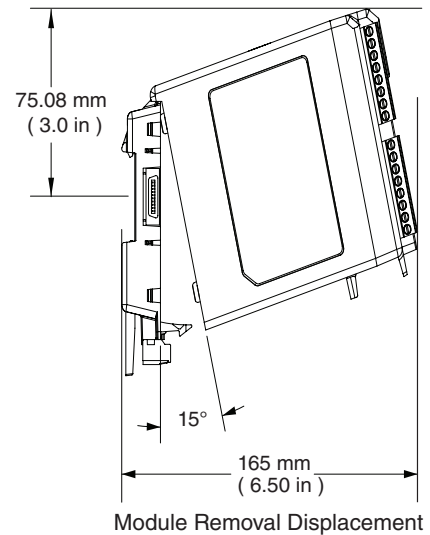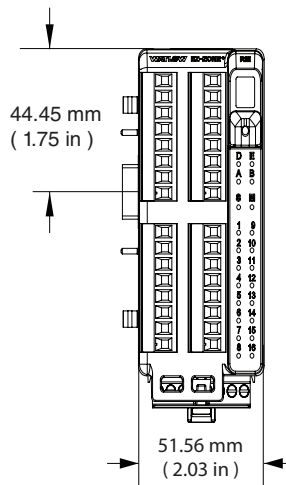
2 Chapter 2: Install and Wire

Dimensions

As can be seen below the dimensions of the RME modules will change slightly based on the type of connector used.
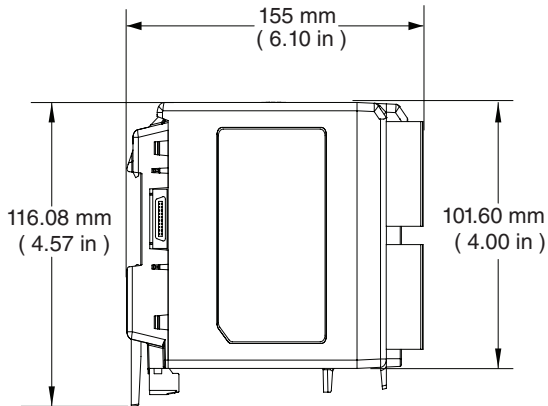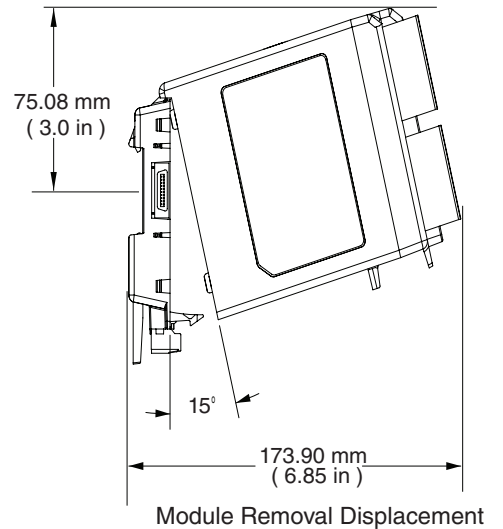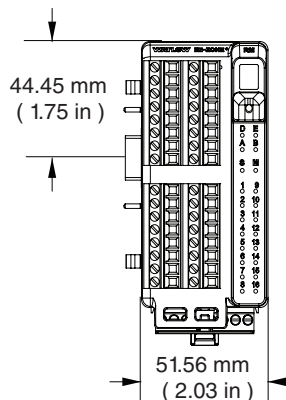
Module Removal Clearance

147.07 mm
(5.8 in)

116.08 mm
(4.57 in)

101.60 mm
(4.00 in)

Latch in open position

Standard Connectors

44.45 mm
(1.75 in)

51.56 mm
(2.03 in)

75.08 mm
(3.0 in)

15°

165 mm
(6.50 in)

Module Removal Displacement

Module Removal Clearance

155 mm
(6.10 in)

116.08 mm
(4.57 in)

101.60 mm
(4.00 in)

Straight Connectors

44.45 mm
(1.75 in)

51.56 mm
(2.03 in)

75.08 mm
(3.0 in)

15°

173.90 mm
(6.85 in)

Module Removal Displacement

Dimensions

Module Removal Clearance

164.9 mm
(6.5 in)

116.08 mm
(4.57 in)

101.60 mm
(4.00 in)

Ring Terminal Connectors

44.45 mm
(1.75 in)

51.56 mm
(2.03 in)

80.54 mm
(3.17 in)

15°

184.58 mm
(7.27 in)

Module Removal Displacement

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

58.67 mm
(2.31 in)

32.77 mm
(1.29 in)

51.56 mm
(2.03 in)

17.53 mm
(0.69 in)

60.45 mm
(2.38 in)

35.81 mm
(1.41 in)

16.76 mm
(0.66 in)

35.05 mm
(1.38 in)

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
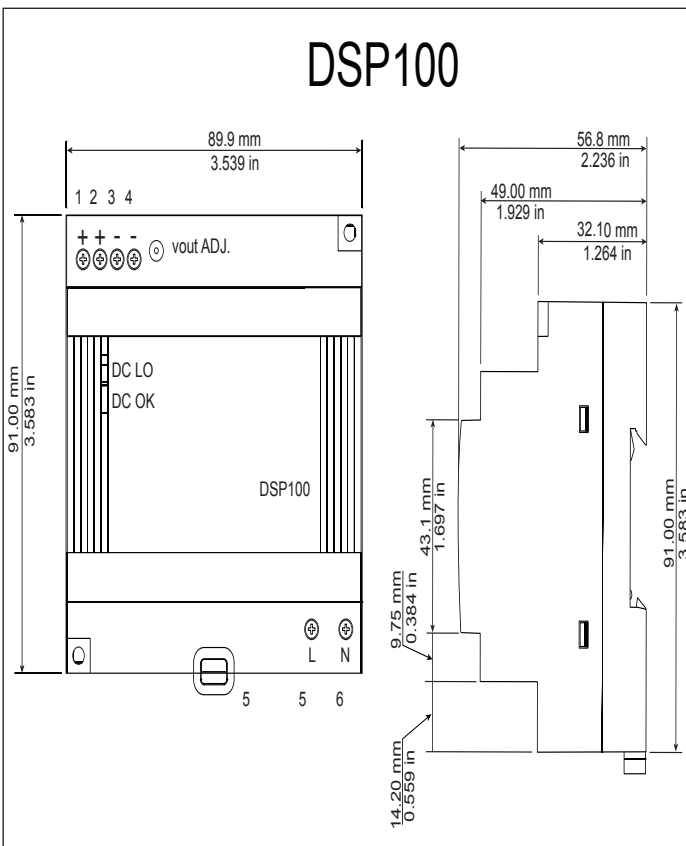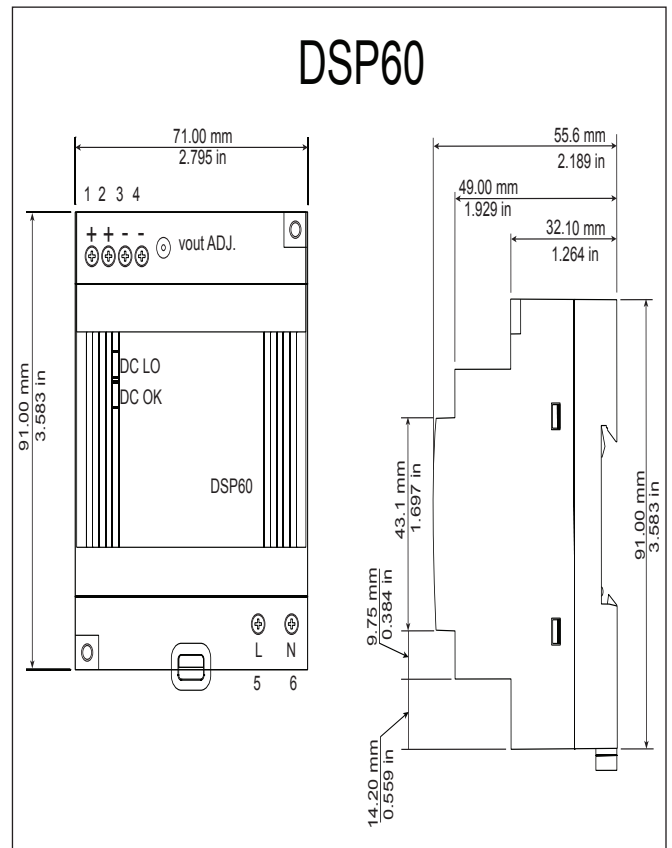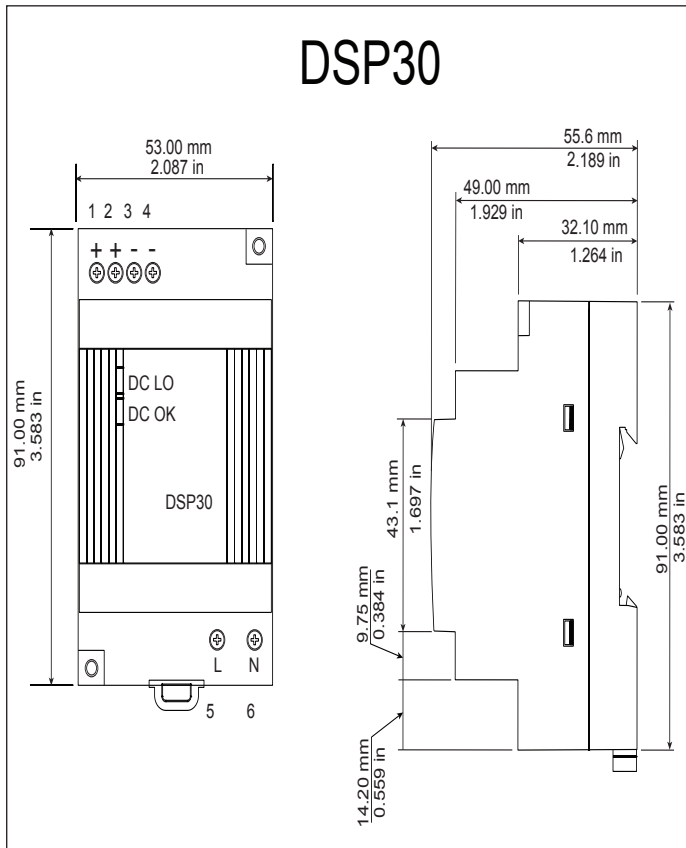
DSP30

DSP60

DSP100

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 Certifications	- - - -	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).
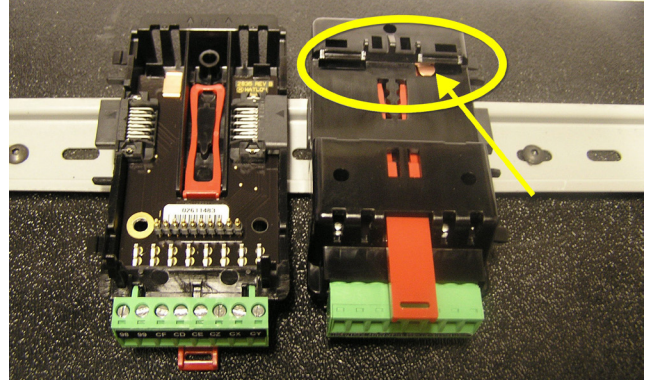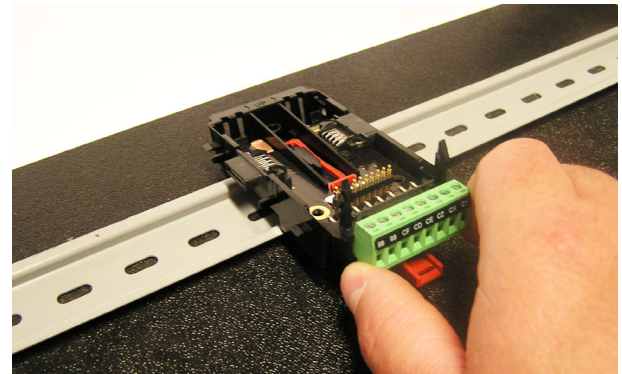
Installing the Modular Backplane Connector

Step 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)

Step 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).

Step 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).

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. The recommended method of multi-module attachment is to first attach individual modules to the rail separately and second to laterally slide the modules together until they touch. (Refer to steps 1&2 above). 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, (Refer to step 3 above).
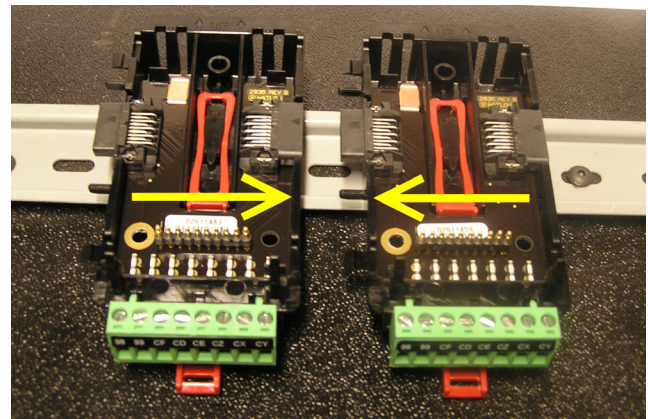
Module Installation

In the picture to the right notice that the arrow is pointing at the top lip of the module (on side). When installing the module simply slide this lip over the top of the Modular Backplane Connector and then push down on the rear of the module where it will seat on the two posts just above the green connector.
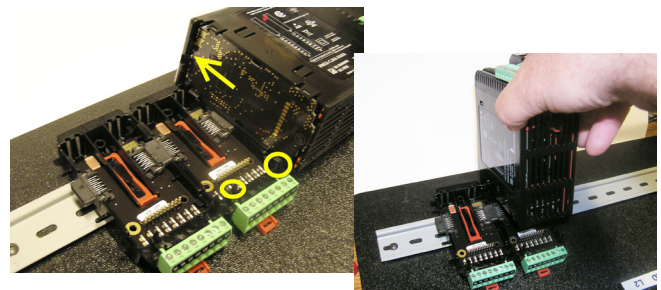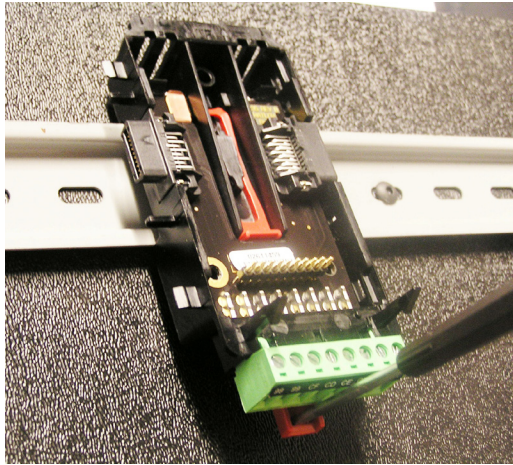
Module Removal

To remove a module from the Modular Backplane Connector find the red tab protruding from the bottom of the module and pull back on it as shown to the right. While pulling back on the red tab the two mounting posts will release the module where the module can then be lifted up and out of the Modular Backplane Connector.
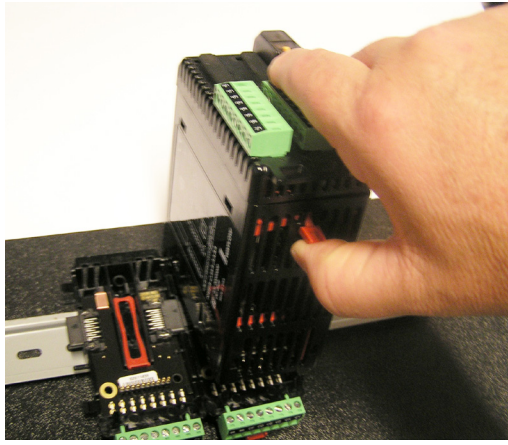
Removal of the Modular Backplane Connector

A module can be removed from the Modular Backplane Connector by inserting a screw driver into the red locking tab just behind the green connector and applying downward pressure on the tab by lifting the screwdriver upwards. When released, the tab will move downward and the connector can then be lifted up off of the DIN rail.
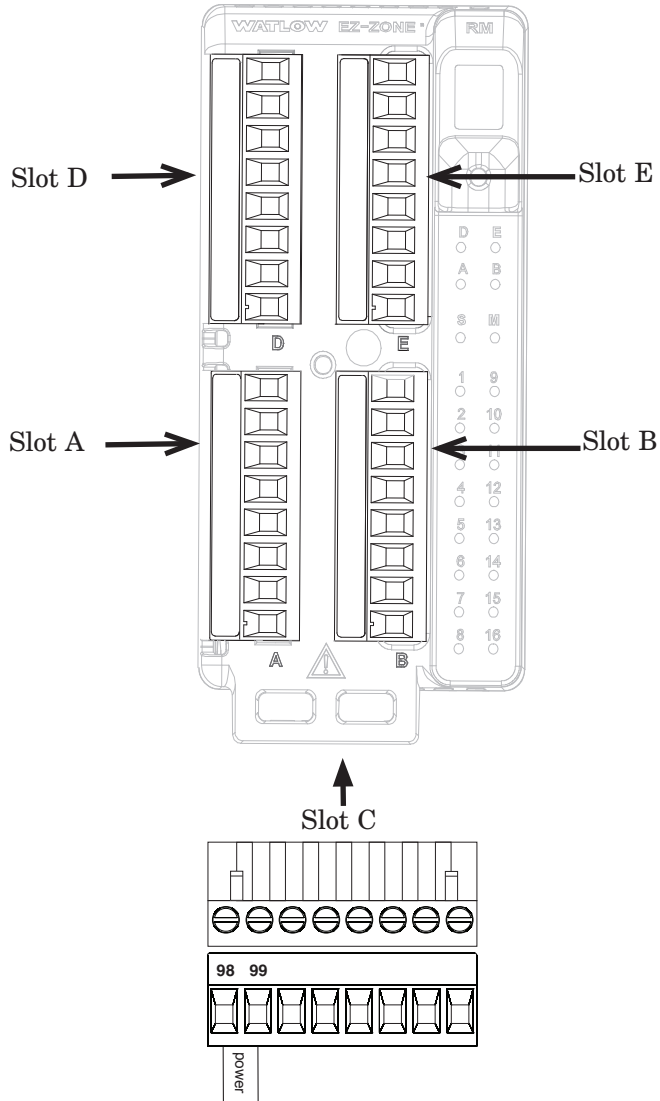
Wiring

				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
D1	D7	D13	D19	dc+ input	Part # Digits 5, 6, 7, 8
D2	D8	D14	D20	dc+ input	
D3	D9	D15	D21	dc+ input	Slot A: RME _ - [C] _ _ _ - _ _ _ _
D4	D10	D16	D22	dc+ input	Slot B: RME _ - _ [C] _ _ - _ _ _ _
D5	D11	D17	D23	dc+ input	Slot D: RME _ - _ _ [C] _ - _ _ _ _
D6	D12	D18	D24	dc+ input	Slot E: RME _ - _ _ _ [C] - _ _ _ _
Z1	Z7	Z13	Z19	Internal Supply	
				Current Transformer Inputs	
- - -	- - -	- - -	13 - 16		
- - -	- - -	- - -	T13	mA ac	Quad Current Transformers
- - -	- - -	- - -	S13	mA ac	Part # Digit 8
- - -	- - -	- - -	T14	mA ac	
- - -	- - -	- - -	S14	mA ac	Slot E: RME _ - _ _ _ [T] - _ _ _ _
- - -	- - -	- - -	T15	mA ac	
- - -	- - -	- - -	S15	mA ac	
- - -	- - -	- - -	T16	mA ac	
- - -	- - -	- - -	S16	mA ac	
Outputs				**Digital Outputs**	
1 - 6	7 - 12	13 - 18	19 - 24		
B1	B7	B13	B19	common	Digital Inputs
D1	D7	D13	D19	open collector/ switched dc	Part # Digits 5, 6, 7, 8
D2	D8	D14	D20	open collector/ switched dc	
D3	D9	D15	D21	open collector/ switched dc	Slot A: RME _ - [C] _ _ _ - _ _ _ _
D4	D10	D16	D22	open collector/ switched dc	Slot B: RME _ - _ [C] _ _ - _ _ _ _
D5	D11	D17	D23	open collector/ switched dc	Slot D: RME _ - _ _ [C] _ - _ _ _ _
D6	D12	D18	D24	open collector/ switched dc	Slot E: RME _ - _ _ _ [C] - _ _ _ _
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
K1	K7	K13	K19	common	Part # Digits 5, 6, 7, 8
L2	L8	L14	L20	normally open	
- - -	- - -	- - -	- - -	*not used*	Slot A: RME _ - [L] _ _ _ - _ _ _ _
- - -	- - -	- - -	- - -	*not used*	Slot B: RME _ - _ [L] _ _ - _ _ _ _
L3	L9	L15	L21	normally open	Slot D: RME _ - _ _ [L] _ - _ _ _ _
K3	K9	K15	K21	common	Slot E: RME _ - _ _ _ [L] - _ _ _ _
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
H1	H7	H13	H19	voltage + or current +	Part # Digits 5, 6, 7, 8
- - -	- - -	- - -	- - -	*not used*	
F2	F8	F14	F20	voltage or current -	Slot A: RME _ - [F] _ _ _ - _ _ _ _
H2	H8	H14	H20	voltage + or current +	Slot B: RME _ - _ [F] _ _ - _ _ _ _
- - -	- - -	- - -	- - -	*not used*	Slot D: RME _ - _ _ [F] _ - _ _ _ _
F3	F9	F15	F21	voltage or current -	Slot E: RME _ - _ _ _ [F] - _ _ _ _
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	- - -	L13	- - -	normally open	10A SSR Outputs
L1	- - -	L13	- - -	normally open	Part # Digits 5, 7
K1	- - -	K13	- - -	common	Slot A: RME _ - [K] _ _ _ - _ _ _ _
K1	- - -	K13	- - -	common	Slot B: Not available
L2	- - -	L14	- - -	normally open	Slot D: RME _ - _ _ [K] _ - _ _ _ _
L2	- - -	L14	- - -	normally open	Slot E: Not available
K2	- - -	K14	- - -	common	
K2	- - -	K14	- - -	common	
				4, 5A Form A Mechanical Relay Outputs	
1 - 4	7 - 10	13 - 16	- - -		
L1	L7	L13	- - -	normally open	5A Mechanical Relay Outputs
K1	K7	K13	- - -	common	Part # Digits 5, 6, 7
L2	L8	L14	- - -	normally open	Slot A: RME _ - [J] _ _ _ - _ _ _ _
K2	K8	K14	- - -	common	Slot B: RME _ - _ [J] _ _ - _ _ _ _
L3	L9	L15	- - -	normally open	Slot D: RME _ - _ _ [J] _ - _ _ _ _
K3	K9	K15	- - -	common	Slot E: Not available
L4	L10	L16	- - -	normally open	
K4	K10	K16	- - -	common	

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
CZ CX CY	Inter-module Bus Inter-module Bus Inter-module Bus	Inter-module Bus

All Modules - Front View - Standard Connector

Slot D

Slot E

Slot A

Slot B

Slot C

98 99

power

RME System Isolation Blocks

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

Expansion Module Wiring (RMEx-xxxx-xxxx)

Low Power
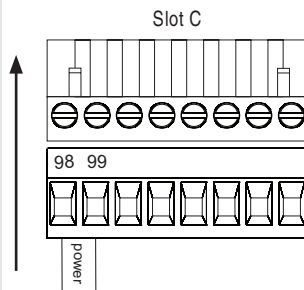
RME - All Model Numbers

Slot C

98 99

power

- 20.4 to 30.8 V ~ (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 SELV power source required to meet UL compliance standards

Communications

Slot C

CF CD CE CZ CX CY

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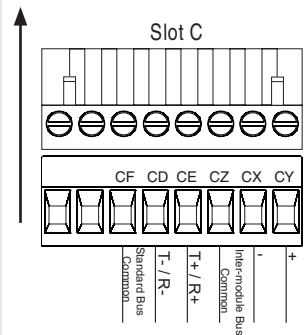
- CF, CD, CE - Standard Bus EIA485 Communications
- CZ, CX, CY - Inter-module Bus EIA485 Communications
- Do not route network wires with power wires. Connect network wires in daisy-chain fashion when connecting multiple devices in a network

Quad Current Transformer Inputs 13, 14, 15 and 16

RME Part # Digit 8 is T

Slot E

T13
S13
T14
S14
T15
S15
T16
S16
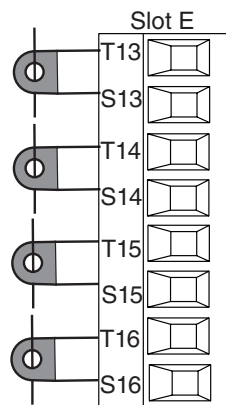
- Input range is 0 to 50 mA (ac).
- Current transformer part number: 16-0246
- 100 Ω input impedance
- Response time: 1 second maximum
- Accuracy +/-1 mA typical

Note:
Maximum wire size termination and torque rating:
- 0.0507 to 3.30 mm^2 (30 to 12 AWG) single-wire termination or two 1.31 mm^2 (16 AWG)
- 0.8 Nm (7.0 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

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 per slot

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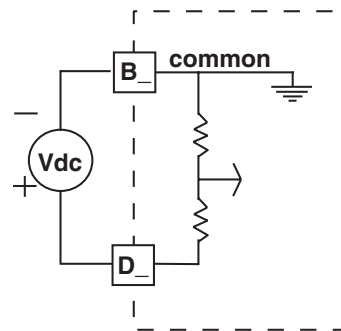
Dry Contact
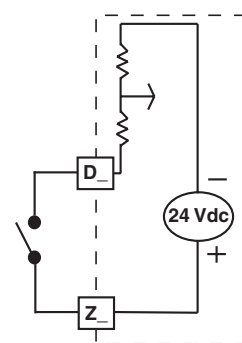
Digital Outputs 1 to 24
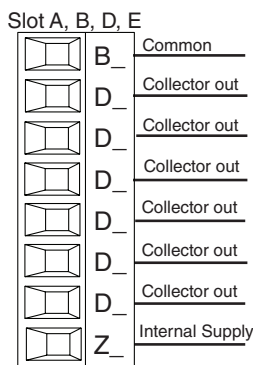
RME Part # Digit 5, 6, 7, 8 is C

- 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)
- Total sink current for all outputs not to exceed 8A
- Do not connect outputs in parallel
- *Safety Extra Low Voltage
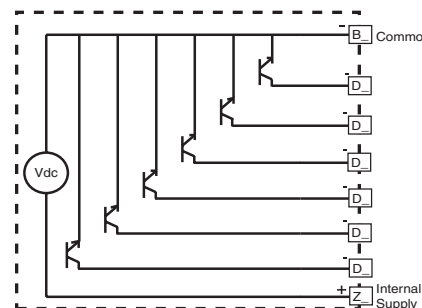
- Six user configurable Digital Outputs per slot

Digital Output (1 to 24) Wiring Example - Switched DC to DIN-A-MITE®

Digital Output (1 to 24) Wiring Example - Open Collector
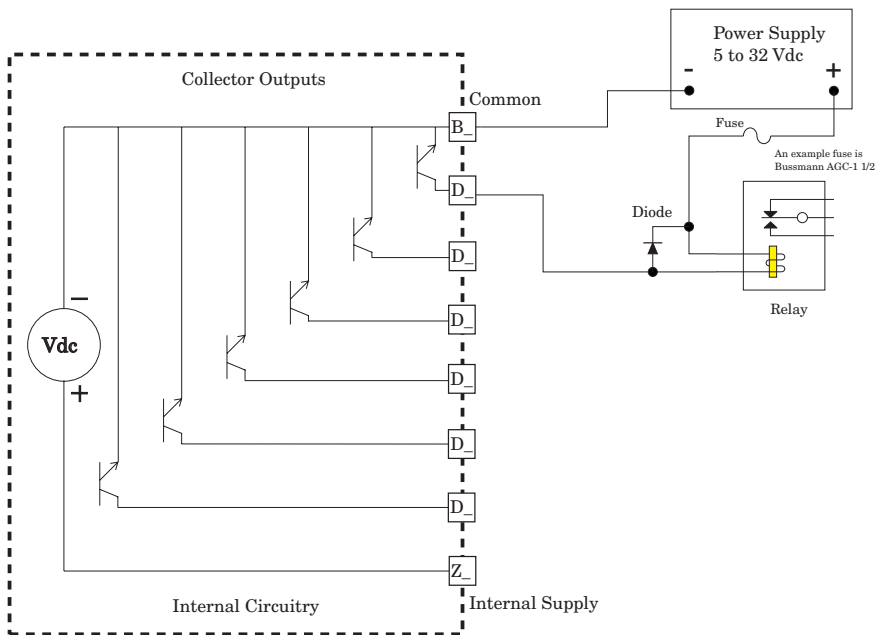
Quad Mechanical Relays, Form A Outputs 1-4, 7-10, 13-16

RME Part # Digit 5, 6, or 7 is J
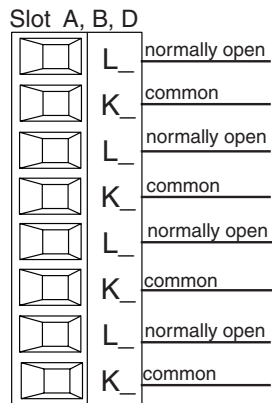
- 5 A at 240V (ac) or 30V (dc) maximum resistive load
- 20 mA at 24V minimum load
- 125VA pilot duty at 120/240V (ac), 25 VA at 24V (ac)
- 100,000 cycles at rated load
- output does not supply power
- For use with ac or dc
- Not available in slot E
- See Quencharc note.

Note:

Maximum wire size termination and torque rating:
- 0.0507 to 3.30 mm^2 (30 to 12 AWG) single-wire termination or two 1.31 mm^2 (16 AWG)
- 0.8 Nm (7.0 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

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.
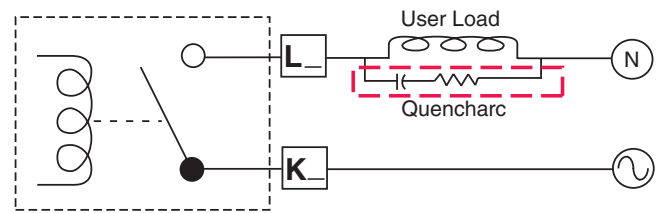
Dual 10A SSR Outputs 1-4

RME Part # Digit 5 or 7 is K

Slot A

L1	normally open
L1	normally open
K1	common
K1	common
L2	normally open
L2	normally open
K2	common
K2	common

- Maximum resistive load 10 A per output @ 240V (ac)
- Maximum 20 A per slot @ 50 °C
- Maximum 12 A per slot @ 65 °C
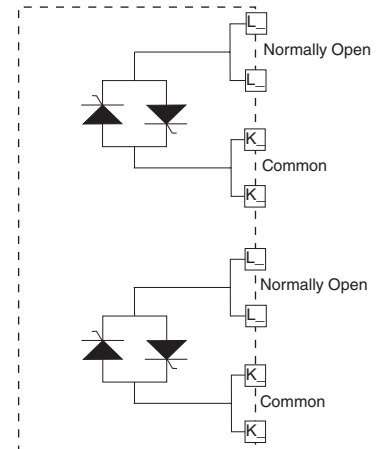
Slot D

L13	normally open
L13	normally open
K13	common
K13	common
L14	normally open
L14	normally open
K14	common
K14	common

Total Output Amps Per Slot

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

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

Slot D, E
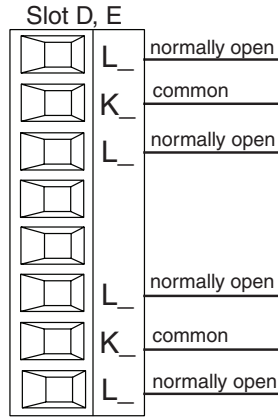
- 2 A at 20 to 264V~ (ac) maximum resistive load
- 50 VA 120/240V~ (ac) pilot duty
- Optical isolation, without contact suppression
- maximum off state leakage of 105 microamperes
- Output does not supply power.
- Do not use on dc loads.
- N.O., COM, N.O wiring (shared common) between each set of outputs.
- 100,000 cycle endurance tested resistive and pilot duty.
- See Quencharc note.
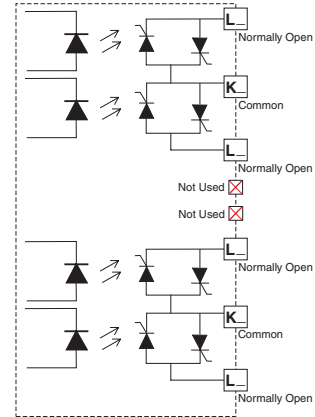
Quad 2 Amp SSR Derating Curve
All Outputs 100% Duty Cycle
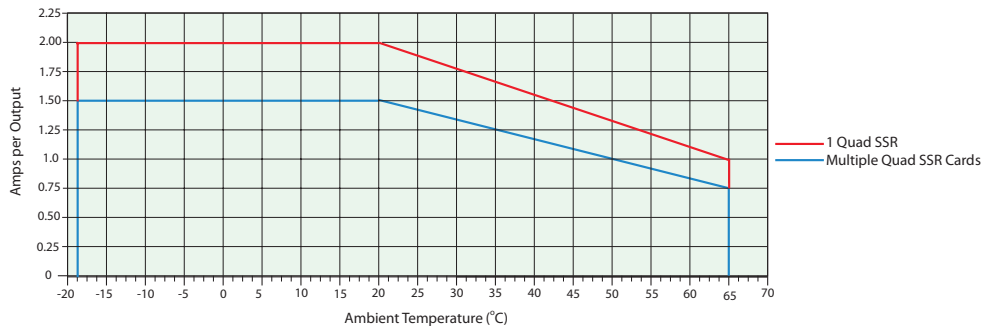
Note:

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.

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

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

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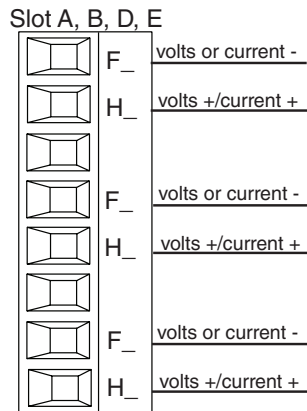
- 0 to 20 mA into 400Ω maximum load
- 0 to 10V⎓ (dc) into 4 kΩ minimum load
- Outputs are scalable
- Output supplies power
- Each output can be independently set for voltage or current.
- Output may be used as retransmit or control.

Note:

Maximum wire size termination and torque rating:
- 0.0507 to 3.30 mm^2 (30 to 12 AWG) single-wire termination or two 1.31 mm^2 (16 AWG)
- 0.8 Nm (7.0 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:

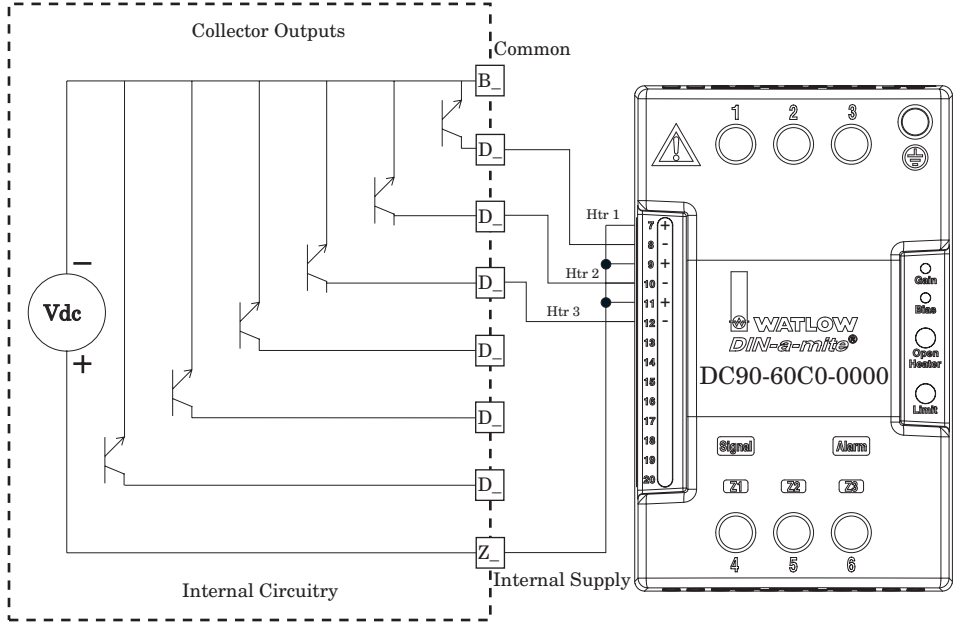Maintain electrical isolation between digital input-outputs, switched dc/open collector outputs and process outputs to prevent ground loops.

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

Standard Bus EIA-485 Communications

Slot C

98 99 CF CD CE CZ CX CY

common | T-/R- | T+/R+

- 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

EZ-ZONE® RM
to B&B Converter
Model ULINX™ 485USBTB-2W
USB to RS-485 Adapter
using Standard Bus

USB Port

Use twisted pair wires such as Cat 5 cabling. Do not route with power carrying conductors.

98 99 CF CD CE CZ CX CY

PC Software Protocol - Standard Bus
EZ-Configurator

Data format
38,400 baud
8 data bits
no parity
1 start bit
1 stop bit

GND | Data - | Data +

ULINX™
Model 485TB-2W
BaB electronics
A(-)
B(-)
A(+)
B(+)
GND

0847-0326-0000

Slot C

98 99 CF CD CE CZ CX CY

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

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)
- 0.8 Nm (7.0 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

occur.

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 ZE-ZONE Configurator software and the control.

To modify Latency Timer settings follow the steps below:

1. Navigate to Device Manager.

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.
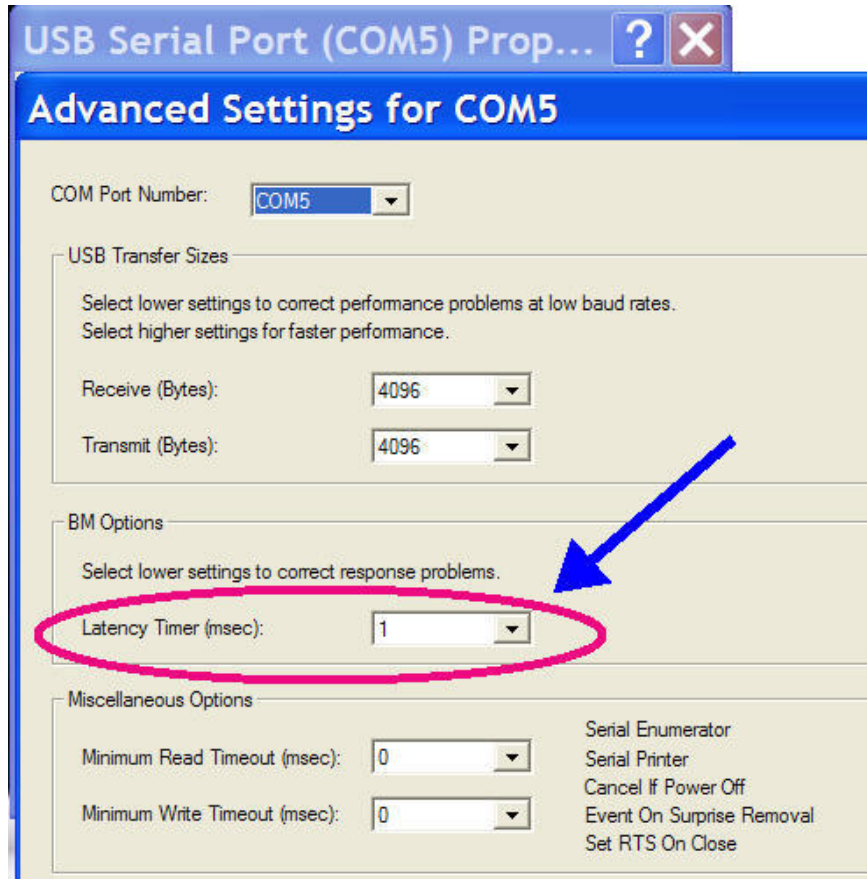
Connecting and Wiring the Modules

RM System Connections

Components of a RM system can be installed as stand-alone modules or can be interconnected on the DIN rail as shown below. When modules are connected together, power and communications are shared between modules over the modular backplane interconnection. Therefore, bringing the necessary power and communications wiring to any one 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 shown below on the DIN rail can use it.

Modular backplane interconnect
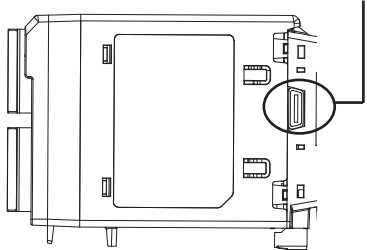
Notice in the split rail system diagram that a single power supply is being used across both DIN rails. One notable consideration when designing the hardware layout would be the available power supplied and the loading affect of all of the modules used. Watlow provides three options for power supplies 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
2. RMEx-xxxx-xxxx @ 7 watts
3. RMAx-xxxx-xxxx @ 4 watts

So, in the split rail system diagram, the maximum current draw on the supply would be 38 Watts.

- 2 RMC modules consumes 14W
- 2 RME modules consumes 14W
- 1 RMA module consumes 4W
- 1 Remote User Interface consumes 6W

With this power requirement the second or third power supply could 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 per-

taining to the split rail system diagram shown below. 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 can now be seen, 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.
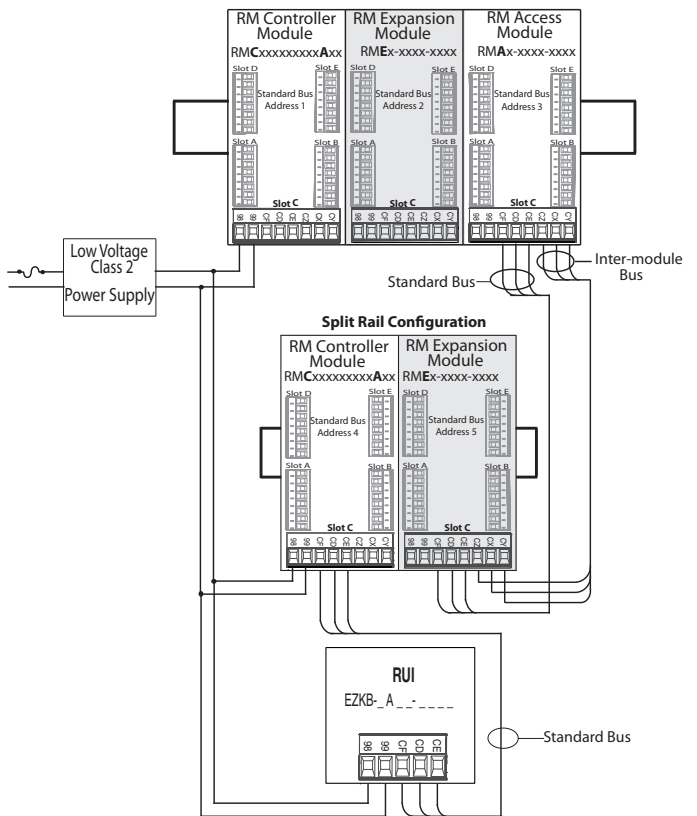
Note:
Module is not provided with a disconnect, use of an external disconnect is required. It should be located in close proximity to the module and be labeled as the disconnect for the module.

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

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 on a network.

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.
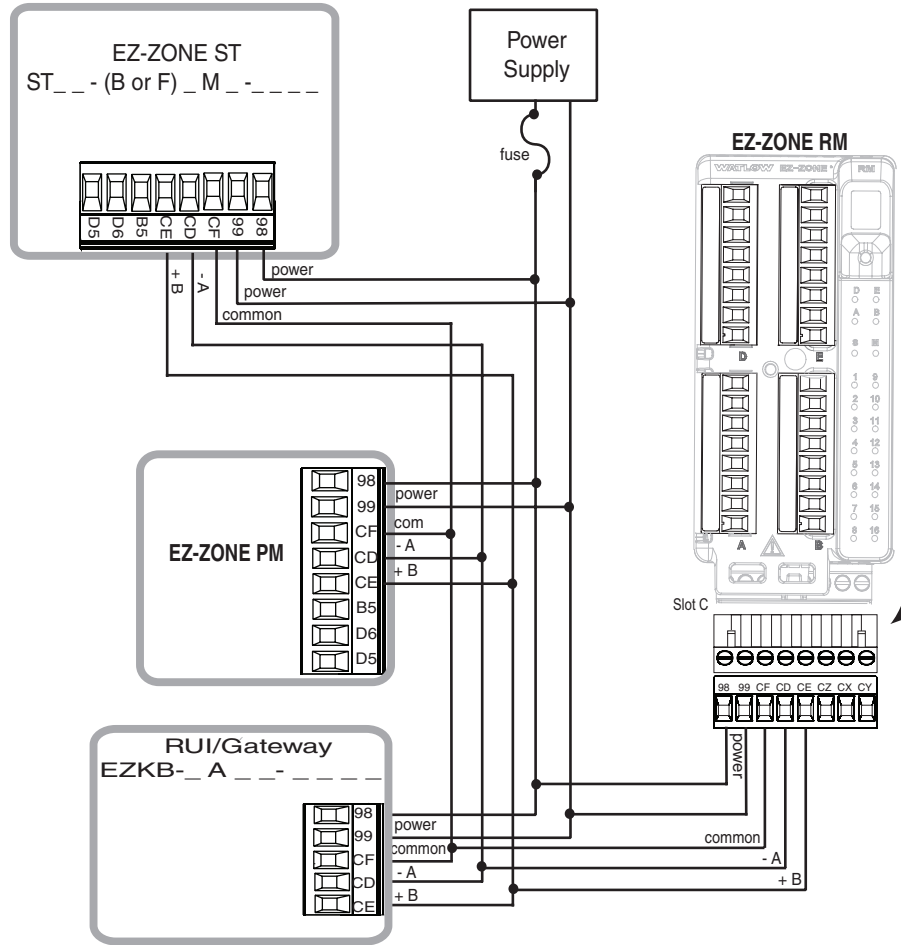
Conventions Used in the Menu Pages

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 and Factory) and their associated menus have identical headers defined below:
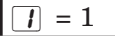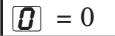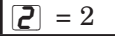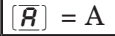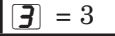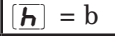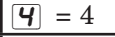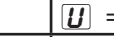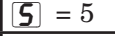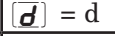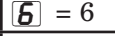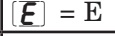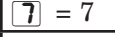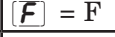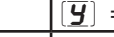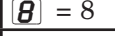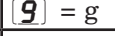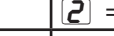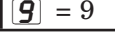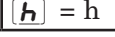
Note:

The communications protocols and associated addressing mentioned below and found in the menus are available only when another module equipped with the protocol is used in conjunction with the RME. The RME module by itself has Watlow's Standard Bus only.

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.
CIP (Common Industrial Protocol)	Identifies unique parameters using either the DeviceNet or EtherNet/IP protocol (further explanation below).
Profibus Index	Identifies unique parameters using Profibus DP protocol (further explanation below).
Parameter ID	Identifies unique parameters used with other software such as, LabVIEW.
Data Type 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) User **S**et (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	= 0	= i	= r
= 2	= A	= J	= S
= 3	= b	= K	= t
= 4	, = c	= L	= u
= 5	= d	= M	= v
= 6	= E	= n	= W
= 7	= F	= o	= y
= 8	= g	= P	= Z
= 9	= h	= q	

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 401469 and send that value to the control.

Communication Protocols

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

- Modbus RTU 232/485

- EtherNet/IP, Modbus TCP

- DeviceNet

- Profibus DP

To learn more about the RMA or RUI modules click on the link below. Once there simply type in RM in the Keyword field.

http://www.watlow.com/literature/manuals.cfm

3

Chapter 3: Operations Pages

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. [R_i] will appear in the upper display 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)**
　　　[$do.5$] **Output State**
　　　[$d_i.5$] **Input State**

[$R[t$]
[$oPEr$] **Action Menu**
　[1]
　　[$R[t$] **Action (1 to 8)**
　　　[$E_i.5$] **Event Status**

[RLM]
[$oPEr$] **Alarm Menu**
　[1]
　　[RLM] **Alarm (1 to 8)**
　　　[$R.Lo$] **Low Set Point**
　　　[$R.h_i$] **High Set Point**
　　　[$R.[Lr$] **Clear Request**
　　　[$R.5_ir$] **Silence Request**
　　　[$R.5t$] **State**

[$[Urr$]
[$oPEr$] **Current Menu**
　[1]
　　[$[Urr$] **Current (1 to 4)**
　　　[$C.h_i$] **High Set Point**
　　　[$C.Lo$] **Low Set Point**
　　　[$[U.r$] **RMS Read**
　　　[$C.Er$] **Error**
　　　[$h.Er$] **Heater Error**

[Lnr]
[$oPEr$] **Linearization Menu**
　[1]
　　[Lnr] **Linearization (1 to 8)**
　　　[$5u.R$] **Source Value A**
　　　[$oF5t$] **Offset**
　　　[$o.u$] **Output Value**

[$[PE$]
[$oPEr$] **Compare Menu**
　[1]
　　[$[PE$] **Compare (1 to 8)**
　　　[$5u.R$] **Source Value A**
　　　[$5u.b$] **Source Value B**
　　　[$o.u$] **Output Value**

[tMr]
[$oPEr$] **Timer Menu**
　[1]
　　[tMr] **Timer (1 to 8)**
　　　[$5u.R$] **Source Value A**
　　　[$5u.b$] **Source Value B**
　　　[$E.t$] **Elapsed Time**
　　　[$o.u$] **Output Value**

[$[tr$]
[$oPEr$] **Counter Menu**
　[1]
　　[$[tr$] **Counter (1 to 8)**
　　　[$[nt$] **Count**
　　　[$5u.R$] **Source Value A**
　　　[$5u.b$] **Source Value B**
　　　[$o.u$] **Output Value**

[$L9[$]
[$oPEr$] **Logic Menu**
　[1]
　　[$L9[$] **Logic (1 to 8)**
　　　[$5u.R$] **Source Value A**
　　　[$5u.b$] **Source Value B**
　　　[$5u.[$] **Source Value C**
　　　[$5u.d$] **Source Value D**
　　　[$5u.E$] **Source Value E**
　　　[$5u.F$] **Source Value F**
　　　[$5u.9$] **Source Value G**
　　　[$5u.h$] **Source Value H**
　　　[$o.u$] **Output Value**

[MRt]
[$oPEr$] **Math Menu**
　[1]
　　[MRt] **Math (1 to 8)**
　　　[$5u.R$] **Source Value A**
　　　[$5u.b$] **Source Value B**
　　　[$5u.[$] **Source Value C**
　　　[$5u.d$] **Source Value D**
　　　[$5u.E$] **Source Value E**
　　　[$o.u$] **Output Value**
　　　[$oF5t$] **Offset**

[$5oF$]
[$oPEr$] **Special Output Function Menu**
　[1]
　　[$5oF$] **Special Output Function (1 to 4)**
　　　[$5u.R$] **Source Value A**
　　　[$5u.b$] **Source Value B**
　　　[$ou.1$] **Output Value 1**
　　　[$ou.2$] **Output Value 2**
　　　[$ou.3$] **Output Value 3**
　　　[$ou.4$] **Output Value 4**

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type & Read/Write
`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)	- - - -	372 [off 30]	0x6A (106) 1 to 18 (24) 7	28	6007	uint R
`d iS` [di.S]	*Digital Input (1 to 24)* **Input State** View this event input state.	`oFF` Off (62) `on` On (63)	- - - -	380 [off 30]	0x6A (106) 1 to 18 (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)	- - - -	388 [offset 30]	0x6A (106) 1 to 18 (24) 0x0F (15)	- - - -	6015	uint R
`ACt` `oPEr` **Action Menu**								
`E iS` [Ei.S]	*Action (1 to 8)* **Event Status** View this input state.	`oFF` Off (62) `on` On (63)	- - - -	1288 [off 20]	0x6E (110) 1 to 8 5	74	10005	uint R
`ALr7` `oPEr` **Alarm Menu**								
`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.	-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	1442 [off 60]	0x6D (109) 1 to 8 2	0	9002	float RWES
`A.h i` [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	1440 [off 60]	0x6D (109) 1 to 8 1	1	9001	float RWES
`A.CLr` [A.CLr]	*Alarm (1 to 8)* **Alarm Clear Request** Write to this register to clear an alarm	0	None	1464 [offset 60]	0x6D (109) 1 to 8 0xD (13)	14	9013	uint W
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								R: Read W: Write E: EE-PROM S: User Set

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param- eter ID	Data Type & Read/ Write
[A.Sir] [A.Sir]	*Alarm (1 to 4)* **Alarm Silence Request** Write to this register to silence an alarm	0	None	1466 [offset 60]	0x6D (109) 1 to 8 0xE (14)	15	9014	uint W
[A.St] [A.St]	*Alarm (1 to 8)* **Alarm State** View state of alarm	Startup (88) None (61) Blocked (12) Alarm low (8) Alarm high (7) Error (28)	None	1456 [offset 60]	0x6D (109) 1 to 8 9	- - - -	9009	uint R
No Dis-play	*Alarm (1 to 4)* **Alarm Clearable** Read to determine if alarm can be cleared.	no No (59) YES Yes (106)	None	1462 [offset 60]	0x6D (109) 1 to 8 0xC (12)	- - - -	9012	uint R
No Dis-play	*Alarm (1 to 8)* **Silenced** Read to see if alarm is ac-tive but has been silenced by Alarm Silence Request.	Yes (106) No (59)	- - - -	1460 [offset 60]	0x6D (109) 1 to 4 0x0B (11)	- - - -	9011	uint R
No Dis-play	*Alarm (1 to 8)* **Latched** Read to see if alarm is currently latched.	Yes (106) No (59)	- - - -	1458 [offset 60]	0x6D (109) 1 to 4 0x0A (10)	- - - -	9010	uint R
[CUrr] [oPEr] **Current Menu**			**Note: To use the current sensing feature, Time Base (Setup Page, Output Menu) must be set to 0.7 seconds or more.**					
[C.hi] [C.hi]	*Current (1 to 4)* **High Set Point** Set the current value that will trigger a high heater error state.	-1,999.000 to 9,999.000	50.0	1094 [offset 50]	0x73 (115) 1 to 4 8	- - - -	15008	float RWES
[C.Lo] [C.Lo]	*Current (1 to 4)* **Low Set Point** Set the current value that will trigger a low heater error state.	-1,999.000 to 9,999.000	0.0	1096 [offset 50]	0x73 (115) 1 to 4 9	- - - -	15009	float RWES
[CU.r] [CU.r]	*Sensed Current (1 to 4)* **Read** View the most recent cur-rent value monitored by the current transformer.	-1,999.000 to 9,999.000	- - - -	1080 [offset 50]	0x73 (115) 1 to 4 1	- - - -	15001	float R
[C.Er] [C.Er]	*Current (1 to 4)* **Error** View the cause of the most recent load fault.	nonE None (61) Shrt Shorted (127) oPEn Open (65)	- - - -	1082 [offset 50]	0x73 (115) 1 to 4 2	- - - -	15002	uint R
[h.Er] [h.Er]	*Current (1 to 4)* **Heater Error** View the cause of the most recent load fault monitored by the current transformer.	nonE None (61) hiGh High (37) LoLU Low (53)	- - - -	1084 [offset 50]	0x73 (115) 1 to 4 3	- - - -	15003	uint R

Note:
    Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces.
Note:
    If there is only one instance of a menu, no submenus will appear.
** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.
								R: Read
								W: Write
								E: EE-PROM
								S: User Set

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param- eter ID	Data Type & Read/ Write
No Dis- play	*Current (1 to 4)* **Actual Power** Power delivered to output monitored by CT.	0.0 to 100.0%	- - - -	1118 [offset 50]	0x73 (115) 1 to 4 0x14 (20)	- - - -	15020	float R
No Dis- play	*Current (1 to 4)* **Error Status** View the cause of the most recent load fault	None (61) Fail (32)	- - - -	1120 [offset 50]	0x73 (115) 1 to 4 21	- - - -	15021	uint R
[Lnr] [oPEr] **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	- - - -	5546 [off 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	5550 [off 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	- - - -	5552 [off 70]	0x86 (134) 1 to 8 7	- - - -	34007	float R
No Dis- play	*Linearization (1 to 8)* **Error** Read reported cause for linearization error.	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)	- - - -	5594 [offset 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	- - - -	3992 [off 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	- - - -	3994 [off 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)	- - - -	3998 [off 40]	0x80 (128) 1 to 8 0xA (10)	- - - -	28010	uint R
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								R: Read W: Write E: EE- PROM S: User Set

RME Module • Operations Page								
Display	**Parameter Name Description**	**Range**	**Default**	**Modbus Relative Address**	**CIP Class Instance Attribute hex (dec)**	**Profibus Index**	**Param- eter ID**	**Data Type & Read/ Write**
No Dis- play	*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)	- - - -	4004 [offset 40]	0x80 (128) 1 to 8 0x0D (13)	- - - -	28013	uint R
`ṫṁr` `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)	- - - -	4952 [off 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)	- - - -	4954 [off 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.	0.0 to 30,000.000 seconds	- - - -	4970 [off 50]	0x83 (131) 1 to 8 0x10 (16)	- - - -	31016	float R
`o.v` [o.v]	*Timer (1 to 8)* **Output Value** View the value of this function's output.	`oFF` Off (62) `on` On (63)	- - - -	4958 [off 50]	0x83 (131) 1 to 8 0xA (10)	- - - -	31010	uint R
No Dis- play	*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)	- - - -	4974 [offset 50]	0x83 (131) 1 to 8 0x12 (18)	- - - -	31018	uint R
`Ctr` `oPEr` **Counter Menu**								
`Cnt` [Cnt]	*Counter (1 to 8)* **Count** View the function's total count.	0 to 9,999	- - - -	4488 [off 40]	0x82 (130) 1 to 8 0xF (15)	143	30015	uint R
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read W: Write E: EE- PROM S: User Set**

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
⌐Su.A⌐ [Su.A]	*Counter (1 to 8)* **Source Value A** View the value of Source A.	⌐oFF⌐ Off (62) ⌐on⌐ On (63)	- - - -	4472 [off 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)	- - - -	4474 [off 40]	0x82 (130) 1 to 8 8	- - - -	30008	uint R
⌐o.v⌐ [o.v]	*Counter (1 to 8)* **Output Value** View the value of this function's output.	⌐oFF⌐ Off (62) ⌐on⌐ On (63)	- - - -	4478 [off 40]	0x82 (130) 1 to 8 0xA (10)	- - - -	30010	uint R
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)	- - - -	4490 [offset 40]	0x82 (130) 1 to 8 0x10 (16)	- - - -	30016	uint R
⌐LgC⌐ ⌐oPEr⌐ **Logic Menu**								
⌐Su.A⌐ [Su.A]	*Logic (1 to 8)* **Source Value A** View the value of Source A.	⌐oFF⌐ Off (62) ⌐on⌐ On (63)	- - - -	3068 [off 80]	0x7F (127) 1 to 8 0x19 (25)	- - - -	27025	uint R
⌐Su.b⌐ [Su.b]	*Logic (1 to 8)* **Source Value B** View the value of Source B.	⌐oFF⌐ Off (62) ⌐on⌐ On (63)	- - - -	3070 [off 80]	0x7F (127) 1 to 8 0x1A (26)	- - - -	27026	uint R
⌐Su.C⌐ [Su.C]	*Logic (1 to 8)* **Source Value C** View the value of Source C.	⌐oFF⌐ Off (62) ⌐on⌐ On (63)	- - - -	3072 [off 80]	0x7F (127) 1 to 8 0x1B (27)	- - - -	27027	uint R
⌐Su.d⌐ [Su.d]	*Logic (1 to 8)* **Source Value D** View the value of Source D.	⌐oFF⌐ Off (62) ⌐on⌐ On (63)	- - - -	3074 [off 80]	0x7F (127) 1 to 8 0x1C (28)	- - - -	27028	uint R
⌐Su.E⌐ [Su.E]	*Logic (1 to 8)* **Source Value E** View the value of Source E.	⌐oFF⌐ Off (62) ⌐on⌐ On (63)	- - - -	3076 [off 80]	0x7F (127) 1 to 8 0x1D (29)	- - - -	27029	uint R
⌐Su.F⌐ [Su.F]	*Logic (1 to 8)* **Source Value F** View the value of Source F.	⌐oFF⌐ Off (62) ⌐on⌐ On (63)	- - - -	3078 [off 80]	0x7F (127) 1 to 8 0x1E (30)	- - - -	27030	uint R

Note:
Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces.

Note:
If there is only one instance of a menu, no submenus will appear.

** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.

R: Read
W: Write
E: EE-PROM
S: User Set

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param- eter ID	Data Type & Read/ Write
[Su.g] ⬚ Su.9	*Logic (1 to 8)* **Source Value G** View the value of Source G.	⬚ oFF Off (62) ⬚ on On (63)	- - - -	3080 [off 80]	0x7F (127) 1 to 8 0x1F (31)	- - - -	27031	uint R
[Su.h] ⬚ Su.h	*Logic (1 to 8)* **Source Value H** View the value of Source H.	⬚ oFF Off (62) ⬚ on On (63)	- - - -	3082 [off 80]	0x7F (127) 1 to 8 0x20 (32)	- - - -	27032	uint R
[o.v] ⬚ o.u	*Logic (1 to 8)* **Output Value** View the value of this function's output.	⬚ oFF Off (62) ⬚ on On (63)	- - - -	3086 [off 80]	0x7F (127) 1 to 8 0x22 (34)	- - - -	27034	uint R
No Dis- play	*Logic (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)	- - - -	3090 [offset 80]	0x7F (127) 1 to 4 0x24 (36)	- - - -	27036	uint R
⬚ ƈɑ̄Ƈƅ ⬚ 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	- - - -	2210 [off 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	- - - -	2212 [off 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	- - - -	2214 [off 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	- - - -	2216 [off 70]	0x7D (125) 1 to 8 0x13 (19)	- - - -	25019	float R
[Su.E] ⬚ Su.E	*Math (1 to 8)* **Source Value E** View the value of Source E.	⬚ oFF Off (62) ⬚ on On (63)	- - - -	2218 [off 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	2224 [off 70]	0x7D (125) 1 to 8 0x17 (23)	- - - -	25023	float RWES

Note:
Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces.

Note:
If there is only one instance of a menu, no submenus will appear.

** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.

R: Read
W: Write
E: EE-PROM
S: User Set

		RME Module • Operations Page							
Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param- eter ID	Data Type & Read/ Write
⎡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	- - - -	2222 [off 70]	0x7D (125) 1 to 8 0x16 (22)	- - - -	25022	float R
No Dis- play	*Math (1 to 8)* **Error** Read reported cause for math 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)	- - - -	2236 [offset 70]	0x7D (125) 1 to 8 0x1D (29)	- - - -	25029	uint R
⎡5oF⎤ ⎡oPEr⎤ **Special Output Function Menu**								
⎡5u.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	- - - -	6632 [off 80]	0x87 (135) 1 to 4 7	- - - -	35007	float R
⎡5u.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	- - - -	6634 [off 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	- - - -	6638 [off 80]	0x87 (135) 1 to 4 0xA (10)	- - - -	35010	float R
No Dis- play	*Special Output Function (1 to 4)* **Error 1** Read reported cause for output error.	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)	- - - -	6640 [offset 80]	0x87 (135) 1 to 4 0x0B (11)	- - - -	35011	uint R
⎡o.u 2⎤ [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	- - - -	6642 [off 80]	0x87 (135) 1 to 4 0xC (12)	- - - -	35012	float R
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								R: Read W: Write E: EE- PROM S: User Set

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/ Write
No Dis-play	*Special Output Function (1 to 4)* **Error 2** Read reported cause for output error.	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)	- - - -	6644 [offset 80]	0x87 (135) 1 to 4 0x0D (13)	- - - -	35013	uint R
⌐o.u 3⌐ [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	- - - -	6646 [off 80]	0x87 (135) 1 to 4 0xE (14)	- - - -	35014	float R
No Dis-play	*Special Output Function (1 to 4)* **Error 3** Read reported cause for output error.	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)	- - - -	6648 [offset 80]	0x87 (135) 1 to 4 0x0F (15)	- - - -	35015	uint R
⌐o.u 4⌐ [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	- - - -	6650 [off 80]	0x87 (135) 1 to 4 0x10 (16)	- - - -	35016	float R
No Dis-play	*Special Output Function (1 to 4)* **Error 4** Read reported cause for output error.	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)	- - - -	6652 [offset 80]	0x87 (135) 1 to 4 0x11 (17)	- - - -	35017	uint R

Note:
Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces.

Note:
If there is only one instance of a menu, no submenus will appear.

** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.

R: Read
W: Write
E: EE-PROM
S: User Set

4 Chapter 4: Setup Pages

Setup Page Parameters

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

1. From the Home Page, press both the Up ⬤ and Down ⬤ keys for six seconds. `A i` will appear in the upper display 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)**
    `d ir` **Direction**
    `Fn` **Function**
    `F i` **Function Instance**
    `S2A` **Source Zone A**
    `o.Ct` **Control**
    `o.tb` **Time Base**
    `o.Lo` **Low Power Scale**
    `o.h i` **High Power Scale**

`ACt`
`SEt` **Action Menu**
  `1`
  `ACt` **Action (1 to 8)**
    `Fn` **Function**
    `F i` **Function Instance**
    `SFnA` **Source Function A**
    `S iA` **Source Instance A**
    `S2A` **Source Zone A**
    `LEu` **Active Level**

`otPt`
`SEt` **Output Menu**
  `1`
  `otPt` **Output (1 to 24)**
    `Fn` **Function**
    `F i` **Function Instance**
    `S2A` **Source Zone A**
    `o.Ct` **Control**
    `o.tb` **Time Base**
    `o.Lo` **Low Power Scale**
    `o.h i` **High Power Scale**

`otPt` **Output 1-3, 7-9, 13-15, 19-21 process**
  `o.tY` **Type**
  `Fn` **Function**
  `F i` **Function Instance**
  `S2A` **Source Zone A**
  `S.Lo` **Scale Low**
  `S.h i` **Scale High**
  `r.Lo` **Range Low**
  `r.h i` **Range High**
  `o.CA` **Calibration Offset**

`ALM`
`SEt` **Alarm Menu**
  `1`
  `ALM` **Alarm (1 to 8)**
    `A.tY` **Type**
    `Sr.A` **Source**
    `iS.A` **Source Instance**
    `S2A` **Source Zone**
    `A.hY` **Hysteresis**
    `A.Lg` **Logic**
    `A.Sd` **Sides**
    `A.Lo` **Low Set Point ***
    `A.h i` **High Set Point ***
    `A.LA` **Latching**
    `A.bL` **Blocking**
    `A.S i` **Silencing**
    `A.dSP` **Display**
    `A.dL` **Delay Time**
    `A.CLr` **Clear Request ***
    `A.S ir` **Silence Request ***
    `A.St` **State ***

`Curr`
`SEt` **Current Menu**
  `1`
  `Curr` **Current 1 to 4**
    `C.Sd` **Sides**
    `C.Ur` **Read Enable**
    `C.dt` **Detection Threshold**
    `C.SC` **Input Current Scaling**
    `C.oFS` **Heater Current Offset**
    `C.S i` **Output Source Instance**

`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**
    `Un it` **Units**
    `iP.1` **Input Point 1**
    `oP.1` **Output Point 1**
    `iP.2` **Input Point 2**
    `oP.2` **Output Point 2**
    `iP.3` **Input Point 3**
    `oP.3` **Output Point 3**
    `iP.4` **Input Point 4**
    `oP.4` **Output Point 4**
    `iP.5` **Input Point 5**
    `oP.5` **Output Point 5**
    `iP.6` **Input Point 6**
    `oP.6` **Output Point 6**
    `iP.7` **Input Point 7**
    `oP.7` **Output Point 7**
    `iP.8` **Input Point 8**

`oP.8`	Output Point 8
`iP.9`	Input Point 9
`oP.9`	Output Point 9
`iP.10`	Input Point 10
`oP.10`	Output Point 10

`CPE`
`SEt` **Compare Menu**
` 1 `
`CPE` **Compare (1 to 8)**
`Fn`	**Function**
`toL`	**Tolerance**
`SFn.A`	**Source Function A**
`Si.A`	**Source Instance A**
`SZ.A`	**Source Zone A**
`SFn.b`	**Source Function B**
`Si.b`	**Source Instance B**
`SZ.b`	**Source Zone B**
`Er.h`	**Error Handling**

`tMr`
`SEt` **Timer Menu**
` 1 `
`tMr` **Timer (1 to 8)**
`Fn`	**Function**
`SFn.A`	**Source Function A**
`Si.A`	**Source Instance A**
`SZ.A`	**Source Zone A**
`SAS.A`	**Source Active State A**
`SFn.b`	**Source Function B**
`Si.b`	**Source Instance B**
`SZ.b`	**Source Zone B**
`SAS.b`	**Source Active State B**
`ti`	**Time**
`LEu`	**Active Level**

`Ctr`
`SEt` **Counter Menu**
` 1 `
`Ctr` **Counter (1 to 8)**
`Fn`	**Function**
`SFn.A`	**Source Function A**
`Si.A`	**Source Instance A**
`SZ.A`	**Source Zone A**
`SAS.A`	**Source Active State A**
`SFn.b`	**Source Function B**
`Si.b`	**Source Instance B**
`SZ.b`	**Source Zone B**
`SAS.b`	**Source Active State B**
`LoAd`	**Load Value**
`trgt`	**Target Value**
`LAt`	**Latching**

`LgC`
`SEt` **Logic Menu**
` 1 `
`LgC` **Logic (1 to 8)**
`Fn`	**Function**
`SFn.A`	**Source Function A**
`Si.A`	**Source Instance A**
`SZ.A`	**Source Zone A**
`SFn.b`	**Source Function B**
`Si.b`	**Source Instance B**
`SZ.b`	**Source Zone B**
`SFn.C`	**Source Function C**
`Si.C`	**Source Instance C**
`SZ.C`	**Source Zone C**
`SFn.d`	**Source Function D**
`Si.d`	**Source Instance D**
`SZ.d`	**Source Zone D**
`SFn.E`	**Source Function E**
`Si.E`	**Source Instance E**
`SZ.E`	**Source Zone E**
`SFn.F`	**Source Function F**
`Si.F`	**Source Instance F**
`SZ.F`	**Source Zone F**
`SFn.g`	**Source Function G**
`Si.g`	**Source Instance G**
`SZ.g`	**Source Zone G**
`SFn.H`	**Source Function H**
`Si.H`	**Source Instance H**
`SZ.H`	**Source Zone H**
`Er.h`	**Error Handling**

`MAt`
`SEt` **Math Menu**
` 1 `
`MAt` **Math (1 to 8)**
`Fn`	**Function**
`SFn.A`	**Source Function A**
`Si.A`	**Source Instance A**
`SZ.A`	**Source Zone A**
`SFn.b`	**Source Function B**
`Si.b`	**Source Instance B**
`SZ.b`	**Source Zone B**
`SFn.C`	**Source Function C**
`Si.C`	**Source Instance C**
`SZ.C`	**Source Zone C**
`SFn.d`	**Source Function D**
`Si.d`	**Source Instance D**
`SZ.d`	**Source Zone D**
`SFn.E`	**Source Function E**
`Si.E`	**Source Instance E**
`SZ.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**
`SFn.A`	**Source Function A**
`Si.A`	**Source Instance A**
`SZ.A`	**Source Zone A**
`SFn.b`	**Source Function B**
`Si.b`	**Source Instance B**
`SZ.b`	**Source Zone B**
`Pon.A`	**Power On Level 1**
`PoF.A`	**Power Off Level 1**
`Pon.b`	**Power On Level 2**
`PoF.b`	**Power Off Level 2**
`on.t`	**On Time**
`oF.t`	**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.o`	**Output Order**

`uAr`
`SEt` **Variable Menu**
` 1 `
`uAr` **Variable (1 to 8)**
`tYPE`	**Data Type**
`Unit`	**Units**
`dig`	**Digital**
`AnLg`	**Analog**

`gLbL`
`SEt` **Global Menu**
`C_F`	**Display Units**
`AC.LF`	**AC Line Frequency**
`dPrS`	**Display Pairs**
`USr.S`	**User Settings Save**
`USr.r`	**User Settings Restore**

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/ Write
`d io` `SEE` **Digital Input / Output Menu**								
`d ir` [dir]	*Digital Input / Output (1 to 24)* **Direction** Set this function to operate as an input or output.	`OEPE` Output (68) `in` Input Voltage (193) `iCon` Input Dry Contact (44)	Output	360 [offset 30]	0x6A (106) 1 to (24) 1	82	6001	uint RWES
`Fn` [Fn]	*Digital Output (1 to 24)* **Function** Select what function will drive this output.	`oFF` Off (62) `A i` Analog Input (142) `ALM` Alarm (6) `C.Pr` Cool Power, Control Loop (161) `h.Pr` Heat Power, Control Loop (160) `CPE` Compare (230) `CEr` Counter (231) `d io` Digital I/O (1142) `EnE.A` Profile Event Out A (233) `EnE.b` Profile Event Out B (234) `EnE.C` Profile Event Out C (235) `EnE.d` Profile Event Out D (236) `EnE.E` Profile Event Out E (247) `EnE.F` Profile Event Out F (248) `EnE.9` Profile Event Out G (249) `EnE.h` Profile Event Out H (250) `FUn` Function Key (1001) `L9C` Logic (239) `Lnr` Linearization (238) `MAE` 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) `EMr` Timer (244) `uAr` Variable (245)		368 [offset 30]	0x6A (106) 1 to (24) 5	83	6005	uint RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read** **W: Write** **E: EEPROM** **S: User Set**

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
[Fi] 𝐹ɪ	*Digital Output (1 to 24)* **Function Instance** Set the instance of the function selected above.	1 to 24	1	370 [offset 30]	0x6A (106) 1 to (24) 6	84	6006	uint RWES
[SZ] 52	*Digital Output (1 to 24)* **Source Zone** Set the zone of the function selected above.	0 to 16	0	382 [offset 30]	0x6A (106) 1 to (24) 0xC (12)	- - - -	6012	uint RWES
[o.Ct] o.Ct	*Digital Output (1 to 24)* **Control** 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	362 [offset 30]	0x6A (106) 1 to (24) 2	85	6002	uint RWES
[o.tb] o.tb	*Digital Output (1 to 24)* **Time Base** Set the time base for fixed-time-base control.	[0.1 for Fast and Bi-Di-rectional outputs, 5.0 for Slow outputs] to 60		364 [offset 30]	0x6A (106) 1 to (24) 3	86	6003	float RWES
[o.Lo] o.Lo	*Digital Output (1 to 24)* **Low Power Scale** The power output will nev-er be less than the value specified and will represent the value at which output scaling begins.	0.0 to 100.0	0.0	376 [offset 30]	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	378 [offset 30]	0x6A (106) 1 to (24) 0xA (10)	88	6010	float RWES
ACt SEt **Action Menu**								
[Fn] 𝐹n	*Action (1 to 8)* **Function** Set the action that will be triggered by this function.	𝑛𝑜𝑛𝐸 None (61) 𝑈𝑆𝑟.𝑟 User Settings Re-store (227) 𝐴𝐿𝑃𝑛 Alarm (6) 𝑆ɪ𝐿 Silence Alarms (108) 𝐴𝑜𝐹 Control Loops Off and Alarms to Non-alarm State (220) 𝐹.𝐴𝐿 Force Alarm to Oc-cur (218)	None	1284 [offset 20]	0x6E (110) 1 to 8 3	138	10003	uint RWES
[Fi] 𝐹ɪ	*Action (1 to 8)* **Function Instance** Set the instance of the function selected above.	0 to 24	0	1286 [offset 20]	0x6E (110) 1 to 8 4	139	10004	uint RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								R: Read W: Write E: EEPROM S: User Set

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
5Fn.R [SFn.A]	*Action (1 to 8)* **Source Function A** Set the event or function that will trigger the action.	**nonE** None (61) **RLM** Alarm (6) **CPE** Compare (230) **Ctr** Counter (231) **d.io** Digital I/O (1142) **Ent.R** 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) **tMr** Timer (244) **uАr** Variable (245)	None	1290 [offset 20]	0x6E (110) 1 to 8 6	- - - -	10006	uint RWES
S.iR [Si.A]	*Action (1 to 8)* **Source Instance A** Set the instance of the function selected above.	1 to 250	1	1282 [offset 20]	0x6E (110) 1 to 8 2	- - - -	10002	uint RWES
52.R [SZ.A]	*Action (1 to 8)* **Source Zone A** Set the zone of the function selected above.	0 to 16	0	1292 [offset 20]	0x6E (110) 1 to 8 7	- - - -	10007	uint RWES
LEu [LEv]	*Action (1 to 8)* **Active Level** Set the action that will be considered a true state.	**LoLJ** Low (53) **h.9h** High (37)	High	1280 [offset 20]	0x6E (110) 1 to 8 1	137	10001	uint RWES

Note:
Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces.

Note:
If there is only one instance of a menu, no submenus will appear.

** 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							
Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write

`otPt` `SEt` **Output Menu**								
`Fn` [Fn]	*Output Digital (1 to 4, 7 to 10, 13 to 16, 19 to 22)* **Function** Select what function will drive this output.	`oFF` Off (62) `A i` Analog Input (142) `ALM` Alarm (6) `C.Pr` Cool Power, Control Loop (161) `h.Pr` Heat Power, Control Loop (160) `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) `Lnr` Linearization (238) `MAt` 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)	- - - -	368 [offset 30]	0x6A (106) 1 to (24) 5	- - - -	6005	uint RWES
`Fi` [Fi]	*Output Digital (1 to 4, 7 to 10, 13 to 16, 19 to 22)* **Function Instance** Set the instance of the function selected above.	1 to 24	1	370 [offset 30]	0x6A (106) 1 to (24) 6	- - - -	6006	uint RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.							**R: Read** **W: Write** **E: EEPROM** **S: User Set**

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/ Write
`52` [SZ]	*Output Digital (1 to 4, 7 to 10, 13 to 16, 19 to 22)* **Source Zone** Set the instance of the function selected above.	0 to 16	0	382 [offset 30]	0x6A (106) 1 to (24) 0x0C (12)	- - - -	6012	uint RWES
`o.Ct` [o.Ct]	*Output Digital (1 to 4, 7 to 10, 13 to 16, 19 to 22)* **Control** 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	362 [offset 30]	0x6A (106) 1 to (24) 2	- - - -	6002	uint RWES
`o.tb` [o.tb]	*Output Digital (1 to 4, 7 to 10, 13 to 16, 19 to 22)* **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)		364 [offset 30]	0x6A (106) 1 to (24) 3	- - - -	6003	float RWES
`o.Lo` [o.Lo]	*Output Digital (1 to 4, 7 to 10, 13 to 16, 19 to 22)* **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%	376 [offset 30]	0x6A (106) 1 to (24) 9	- - - -	6009	float RWES
`o.hi` [o.hi]	*Output Digital (1 to 4, 7 to 10, 13 to 16, 19 to 22)* **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%	378 [offset 30]	0x6A (106) 1 to (24) 0x0A (10)	- - - -	6010	float RWES
`o.tY` [o.ty]	*Output Process (1 to 3, 7 to 9, 13 to 15, 19 to 21)* **Type *** Select whether the process output will operate in volts or milliamps.	`uoLt` Volts (104) `MA` Milliamps (112)	Volts	6990 [offset 60]	0x76 (118) 1-3, 7-9, 13-15, 19-21 1	- - - -	18001	uint RWES

Note:
Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces.

Note:
If there is only one instance of a menu, no submenus will appear.

** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.

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

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
`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, Control Loop (161) `h.Pr` Heat Power, Control Loop (160) `PUJr` Power, Control Loop (73) `Lnr` Linearization (238) `MAtE` Math (240) `Pu` Process Value (241) `SP.C` Set Point Closed, Control Loop (242) `SP.o` Set Point Open, Control Loop (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)	Off	6992 [offset 60]	0x76 (118) 1-3, 7-9, 13-15, 19-21 2	- - - -	18002	uint RWES
`F i` [Fi]	*Output Process (1 to 3, 7 to 9, 13 to 15, 19 to 21)* **Function Instance ** ** Set the instance of the function selected above.	1 to 16	1	6996 [offset 60]	0x76 (118) 1-3, 7-9, 13-15, 19-21 4	- - - -	18004	uint RWES
`S2.A` [ZS.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 16	0	7026 [offset 60]	0x76 (118) 1-3, 7-9, 13-15, 19-21 0x13 (19)	- - - -	18019	uint RWES
`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 range low value.	-100.0 to 100.0	0.00	7006 [offset 60]	0x76 (118) 1-3, 7-9, 13-15, 19-21 9	- - - -	18009	float RWES

Note:
Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces.

Note:
If there is only one instance of a menu, no submenus will appear.

** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.

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

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
5.h ꞏ [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 100% PID power output or range high value.	-100.0 to 100.0	10.00	7008 [offset 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	7010 [offset 60]	0x76 (118) 1-3, 7-9, 13-15, 19-21 0xB (11)	- - - -	18011	float RWES
r.h ꞏ [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	100F or units 38C	7012 [offset 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	7002 [offset 60]	0x76 (118) 1-3, 7-9, 13-15, 19-21 7	- - - -	18007	float RWES
ALꞏꞏ **SEt** **Alarm Menu**								
A.t Y [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	1468 [offset 60]	0x6D (109) 1 to 8 0x0F (15)	2	9015	uint RWES
5Fn.A [SFn.A]	*Alarm (1 to 8)* **Source** Select what will trigger this alarm.	**nonE** None (61) **A ꞏ** Analog Input (142) **CUrr** Current (22) **PLJr** Power, Control Loop (73) **Lnr** Linearization (238) **ꞏꞏAt** Math (240) **Pu** Process Value (241) **uAr** Variable (245) **Cuꞏr** Current Read (179)		1472 [offset 60]	0x6D (109) 1 to 8 0x11 (17)	3	9017	uint RWES
5 ꞏ.A [Si.A]	*Alarm (1 to 8)* **Source Instance** Set the instance of the function selected above.	1 or 250	1	1474 [offset 60]	0x6D (109) 1 to 8 0x12 (18)	4	9018	uint RWES

Note:
Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces.

Note:
If there is only one instance of a menu, no submenus will appear.

** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.

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

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/ Write
⌐5Z.A⌐ [SZ.A]	*Alarm (1 to 8)* **Source Zone** Set the zone of the function selected above.	0 or 16	0	1488 [offset 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	1444 [offset 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.	⌐AL.C⌐ Close On Alarm (17) ⌐AL.o⌐ Open On Alarm (66)	Close On Alarm	1448 [offset 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) ⌐LoLw⌐ Low (53)	Both	1446 [offset 60]	0x6D (109) 1 to 8 4	8	9004	uint RWES
⌐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.	-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	1442 [offset 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	1440 [offset 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	1452 [offset 60]	0x6D (109) 1 to 8 7	9	9007	uint RWES
⌐A.bL⌐ [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	1454 [offset 60]	0x6D (109) 1 to 8 8	10	9008	uint RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read W: Write E: EEPROM S: User Set**

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
[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	1450 [offset 60]	0x6D (109) 1 to 8 6	11	9006	uint RWES
[A.dSP]	*Alarm (1 to 8)* **Display** Display an alarm message when an alarm is active.	`oFF` Off (62) `on` On (63)	On	1470 [offset 60]	0x6D (109) 1 to 8 0x10 (16)	12	9016	uint RWES
[A.dL]	*Alarm (1 to 8)* **Delay** 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	1480 [offset 60]	0x6D (109) 1 to 8 0x15 (21)	13	9021	uint RWES
[A.CLr]	*Alarm (1 to 8)* **Alarm Clear Request **** Write to this register to clear an alarm	0	- - - -	1490 [offset 60]	0x6D (109) 1 to 8 0xD (13)	14	9013	uint W
[A.Sir]	*Alarm (1 to 8)* **Alarm Silence Request **** Write to this register to silence an alarm	0	- - - -	1492 [offset 60]	0x6D (109) 1 to 8 0xE (14)	15	9014	uint W
[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)	- - - -	1456 [offset 60]	0x6D (109) 1 to 8 9	- - - -	9009	uint R
`CUrr` `SEt` **Current Menu**								
[C.Sd]	*Current (1 to 4)* **Sides** Use Current Sides to select which side of the current to monitor.	`oFF` Off (62) `h igh` High (37) `LoUJ` Low (53) `both` Both (13)	off	1088 [offset 50]	0x73 (115) 1 to 4 5	145	15005	uint RWES
[C.Ur]	*Current (1 to 4)* **Read Enable** Use Current Read Enable to display solid-state relay (SSR) failure and heater failure messages on the RUI (remote user interface).	`no` No (59) `YES` Yes (106)	no	1086 [offset 50]	0x73 (115) 1 to 4 4	146	15004	uint RWES
[C.dt]	*Current (1 to 4)* **Detection Threshold** Current Detection Threshold is for factory use only.	3 to 59	9	1102 [offset 50]	0x73 (115) 1 to 4 0xC (12)	147	15012	uint RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read** **W: Write** **E: EEPROM** **S: User Set**

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
`C.SC` [C.SC]	*Current (1 to 4)* **Scaling** Use Input Current Scaling to adjust scaling to match the transformer's high range, in amperes.	0 to 9,999.000	50.0	1122 [offset 50]	0x73 (115) 1 to 4 0x16 (22)	148	15022	float RWES
`C.oFS` [C.oFS]	*Current (1 to 4)* **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	1100 [offset 50]	0x73 (115) 1 to 4 0xB (11)	149	15011	float RWES
`C.Si` [C.Si]	*Current (1 to 4)* **Output Source Instance** With Current Output Source Instance, set the output on which the current will be monitored.	1 to 250	1	1116 [offset 50]	0x73 (115) 1 to 4 0x13 (19)	150	15019	uint RWES
`SZ` [SZ]	*Current (1 to 4)* **Source Zone** Set the zone of the function selected above.	0 to 16	0	- - - -	- - - -	- - - -	15036	uint RWES

<table>
<tr><td colspan="9">`Lor` `SEt`
 Linearization Menu</td></tr>
</table>

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
`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	5548 [offset 70]	0x86 (134) 1 to 8 5	155	34005	uint RWES
`SZ.A` [SZ.A]	*Linearization (1 to 16)* **Source Zone A** Set the zone of the function selected above.	0 or 16	0	5544 [offset 70]	0x86 (134) 1 to 8 3	- - - -	34003	uint RWES
`Unit` [Unit]	*Linearization (1 to 8)* **Units** Set the units of Source A.	`Src` Source (1539) `nonE` None (61) `A.tP` Absolute Temperature (1540) `r.tP` Relative Temperature (1541) `PWr` Power (73) `Pro` Process (75) `rh` Relative Humidty (1538)	Source	5596 [offset 70]	0x86 (134) 1 to 8 0x1D (29)	- - - -	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	5554 [offset 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	5574 [offset 70]	0x86 (134) 1 to 8 0x12 (18)	158	34018	float RWES

Note:
Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces.

Note:
If there is only one instance of a menu, no submenus will appear.

** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.

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

					CIP Class Instance Attribute hex (dec)			Data Type & Read/Write
Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address		Profibus Index	Param-eter ID	

<table>

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
[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	5556 [offset 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	5576 [offset 70]	0x86 (134) 1 to 8 0x13 (19)	160	34019	float RWES
[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	5558 [offset 70]	0x86 (134) 1 to 8 0x0A (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	5578 [offset 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	5560 [offset 70]	0x86 (134) 1 to 8 0x0B (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	5580 [offset 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	5562 [offset 70]	0x86 (134) 1 to 8 0x0C (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	5582 [offset 70]	0x86 (134) 1 to 8 0x16 (22)	166	34022	float RWES
[ip.6] [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	5564 [offset 70]	0x86 (134) 1 to 8 0x0D (13)	167	34013	float RWES
[oP.6] [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	5584 [offset 70]	0x86 (134) 1 to 8 0x17 (23)	168	34023	float RWES
[ip.7] [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	5566 [offset 70]	0x86 (134) 1 to 8 0x0E (14)	169	34014	float RWES
[oP.7] [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	5586 [offset 70]	0x86 (134) 1 to 8 0x18 (24)	170	34024	float RWES

</table>

RME Module • Setup Page

Note:
Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces.

Note:
If there is only one instance of a menu, no submenus will appear.

** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.

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

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
`iP.8` [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	5568 [offset 70]	0x86 (134) 1 to 8 0x0F (15)	171	34015	float RWES
`oP.8` [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	5588 [offset 70]	0x86 (134) 1 to 8 0x19 (25)	172	34025	float RWES
`iP.9` [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	5570 [offset 70]	0x86 (134) 1 to 8 0x10 (16)	173	34016	float RWES
`oP.9` [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	5590 [offset 70]	0x86 (134) 1 to 8 0x1A (26)	174	34026	float RWES
`iP.10` [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	5572 [offset 70]	0x86 (134) 1 to 8 0x11 (17)	175	34017	float RWES
`oP.10` [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	5592 [offset 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) `9t` Greater Than (1435) `L.t` Less Than (1436) `E` Equal To (1437) `nE` Not Equal To (1438) `9oE` Greater or Equal (1439) `LoE` Less or Equal (1440)	Off	3996 [offset 40]	0x80 (128) 1 to 8 9	229	28009	Uint RWES
`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	4000 [offset 40]	0x80 (128) 1 to 8 0x0B (11)	230	28011	float RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read** **W: Write** **E: EEPROM** **S: User Set**

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/ Write
`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) `A i` Analog Input (142) `CUrr` Current (22) `C.Pr` Cool Power, Control Loop (161) `h.Pr` Heat Power, Control Loop (160) `PLJr` Power, Control Loop (73) `Lnr` Linearization (238) `MAt` Math (240) `Pu` Process Value (241) `SP.C` Set Point Closed, Control Loop (242) `SP.o` Set Point Open, Control Loop (243) `uAr` Variable (245)	None	3980 [offset 40]	0x80 (128) 1 to 8 1	- - - -	28001	uint RWES
`S i.A` [Si.A]	*Compare (1 to 8)* **Source Instance A** Set the instance of the function selected above.	1 to 250	1	3984 [offset 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 16	0	3988 [offset 40]	0x80 (128) 1 to 8 5	- - - -	28005	uint RWES
`SFn.b` [SFn.b]	*Compare (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, Control Loop (161) `h.Pr` Heat Power, Control Loop (160) `PLJr` Power, Control Loop (73) `Lnr` Linearization (238) `MAt` Math (240) `Pu` Process Value (241) `SP.C` Set Point Closed, Control Loop (242) `SP.o` Set Point Open, Control Loop (243) `uAr` Variable (245)	None	3982 [offset 40]	0x80 (128) 1 to 8 2	- - - -	28002	uint RWES
`S i.b` [Si.b]	*Compare (1 to 8)* **Source Instance B** Set the instance of the function selected above.	1 to 250	1	3986 [offset 40]	0x80 (128) 1 to 8 4	- - - -	28004	uint RWES
`SZ.b` [SZ.b]	*Compare (1 to 8)* **Zone Source B** Set the zone of the function selected above.	0 to 16	0	3990 [offset 40]	0x80 (128) 1 to 8 6	- - - -	28006	uint RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read** **W: Write** **E: EEPROM** **S: User Set**

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type & Read/ Write
`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.9` True Good (1476) `t.b` True Bad (1477) `F.9` False Good (1478) `F.b` False Bad (1479)	False Bad	4002 [offset 40]	0x80 (128) 1 to 8 0x0C (12)	- - - -	28012	uint RWES

`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	4956 [offset 50]	0x83 (131) 1 to 8 9	223	31009	uint RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read** **W: Write** **E: EEPROM** **S: User Set**

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/ Write
[SFn.A] *SFn.A*	*Timer (1 to 8)* **Source Function A** Set the type of function that will be used for this source which is the timer run signal.	*nonE* None (61) *ALM* Alarm (6) *C.Pr* Cool Power, Control Loop (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) *uAr* Variable (245)	None	4940 [offset 50]	0x83 (131) 1 to 8 1	- - - -	31001	uint RWES
[Si.A] *Si.A*	*Timer (1 to 8)* **Source Instance A** Set the instance of the function selected above.	1 to 250	1	4944 [offset 50]	0x83 (131) 1 to 8 3	- - - -	31003	uint RWES
[SZ.A] *SZ.A*	*Timer (1 to 8)* **Source Zone A** Set the zone of the function selected above.	0 to 16	0	4948 [offset 50]	0x83 (131) 1 to 8 5	- - - -	31005	uint RWES
[SAS.A] *SAS.A*	*Timer (1 to 8)* **State Active Source A** Set what state will be read as on.	*h.9h* High (37) *LoLJ* Low (53)	High	4960 [offset 50]	0x83 (131) 1 to 8 0x0B (11)	- - - -	31011	uint RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read** **W: Write** **E: EEPROM** **S: User Set**

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/ Write
5Fn.b [SFn.b]	*Timer (1 to 8)* **Source Function B** Set the type of function that will be used to reset a retentive timer which is the timer reset signal.	**nonE** None (61) **ALM** Alarm (6) **C.Pr** Cool Power, Control Loop (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) **uAr** Variable (245)	None	4942 [offset 50]	0x83 (131) 1 to 8 2	- - - -	31002	uint RWES
5.ib [Si.b]	*Timer (1 to 8)* **Source Instance B** Set the instance of the function selected above.	1 to 250	1	4946 [offset 50]	0x83 (131) 1 to 8 4	- - - -	31004	uint RWES
52.b [SZ.b]	*Timer (1 to 8)* **Source Zone B** Set the zone of the function selected above.	0 to 16	0	4950 [offset 50]	0x83 (131) 1 to 8 6	- - - -	31006	uint RWES
5A5.b [SAS.b]	*Timer (1 to 8)* **State Active Source B** Set what state will be read as on.	**h.9h** High (37) **LoLJ** Low (53)	High	4962 [offset 50]	0x83 (131) 1 to 8 0x0C (12)	- - - -	31012	uint RWES
t.i [ti]	*Timer (1 to 8)* **Time** Set the time span that will be measured.	0 to 9,999.000	1.0	4964 [offset 50]	0x83 (131) 1 to 8 0x0D (13)	224	31013	float RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read** **W: Write** **E: EEPROM** **S: User Set**

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
`LEu` [LEv]	*Timer (1 to 8)* **Active Level** Set which output state will indicate on.	`h ,9h` High (37) `LoLJ` Low (53)	High	4966 [offset 50]	0x83 (131) 1 to 8 0x0E (14)	- - - -	31014	uint RWES

`Ctr`
`SEt`
Counter Menu								

`Fn` [dir]	*Counter (1 to 8)* **Function** Set whether the counter increments or decrements the count value. Decre-menting 0 returns 9,999. Incrementing 9,999 returns 0.	`UP` Up (1456) `dn` Down (1457)	Up	4476 [offset 40]	0x82 (130) 1 to 4 9	- - - -	30009	uint RWES
`SFn,A` [SFn.A]	*Counter (1 to 8)* **Source Function A** Set the type of function that will be used for this source which is the counter clock signal.	`nonE` None (61) `ALM` Alarm (6) `C,Pr` Cool Power, Control Loop (161) `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) `tMr` Timer (244) `uAr` Variable (245)	None	4460 [offset 40]	0x82 (130) 1 to 4 1	- - - -	30001	uint RWES
`S ,A` [Si.A]	*Counter (1 to 8)* **Source Instance A** Set the instance of the function selected above.	1 to 250	1	4464 [offset 40]	0x82 (130) 1 to 8 3	- - - -	30003	uint RWES
`S2,A` [SZ.A]	*Counter (1 to 8)* **Source Zone A** Set the zone of the function selected above.	0 to 16	0	4468 [offset 40]	0x82 (130) 1 to 4 5	- - - -	30005	uint RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read** **W: Write** **E: EEPROM** **S: User Set**

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
[SAS.A]	*Counter (1 to 8)* **State Active Source A** Set what output state will indicate on.	`both` Both (130 `high` High (37) `LoLJ` Low (53)	High	4480 [offset 40]	0x82 (130) 1 to 4 0xB (11)	- - - -	30011	uint RWES
[SFn.b]	*Counter (1 to 8)* **Source Function B** Set the type of function that will be used for this source which is the counter load signal.	`nonE` None (61) `ALM` Alarm (6) `C.Pr` Cool Power, Control Loop (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) `tMr` Timer (244) `uAr` Variable (245)	None	4462 [offset 40]	0x82 (130) 1 to 4 2	- - - -	30002	uint RWES
[Si.b]	*Counter (1 to 8)* **Source Instance B** Set the instance of the function selected above.	1 to 250	1	4466 [offset 40]	0x82 (130) 1 to 8 4	- - - -	30004	uint RWES
[SZ.b]	*Counter (1 to 8)* **Source Zone B** Set the zone of the function selected above.	0 to 16	0	4470 [offset 40]	0x82 (130) 1 to 4 6	- - - -	30006	uint RWES
[SAS.b]	*Counter (1 to 8)* **State Active Source B** Set what output state will indicate on.	`high` High (37) `LoLJ` Low (53)	High	4482 [offset 40]	0x82 (130) 1 to 4 0x0C (12)	- - - -	30012	uint RWES
[LoAd]	*Counter (1 to 8)* **Load Value** Set the counter's initial value.	0 to 9,999	0	4484 [offset 40]	0x82 (130) 1 to 4 0x0D (13)	215	30013	uint RWES

Note:
Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces.

Note:
If there is only one instance of a menu, no submenus will appear.

** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.

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

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/ Write
`trgt` [trgt]	*Counter (1 to 8)* **Target Value** Set the value that will turn the output value on.	0 to 9,999	9,999	4486 [offset 40]	0x82 (130) 1 to 4 0x0E (14)	216	30014	uint RWES
`LAt` [LAt]	*Counter (1 to 8)* **Latching** Output latched.	No (59) Yes (106)	No	4492 [offset 40]	0x82 (130) 1 to 8 0x11 (17)	218	30017	uint RWES

`LgC`
`SEt`
Logic Menu								

`Fn` [Fn]	*Logic (1 to 8)* **Function** Set the operator that will be used to compare the sources.	`oFF` Off (62) `And` And (1426) `or` Or (1442) `E` Equal To (1437) `nAnd` Nand (1427) `nor` Nor (1443) `nE` Not Equal To (1438) `LAt` Latch (1444) `rSFF` RS Flip-Flop (1693)	Off	3084 [offset 80]	0x7F (127) 1 to 8 0x21 (33)	235	27033	uint RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								R: Read W: Write E: EEPROM S: User Set

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/ Write
[SFn.A] [SFn.A]	*Logic (1 to 8)* **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) [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) [uAr] Variable (245)	None	3020 [offset 80]	0x7F (127) 1 to 8 1	- - - -	27001	uint RWES
[Si.A]	*Logic (1 to 8)* **Source Instance A** Set the instance of the function selected above.	1 to 250	1	3036 [offset 80]	0x7F (127) 1 to 8 9	- - - -	27009	uint RWES
[SZ.A]	*Logic (1 to 8)* **Source Zone A** Set the zone of the function selected above.	0 to 16	0	3052 [offset 80]	0x7F (127) 1 to 8 0x11 (17)	- - - -	27017	uint RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read W: Write E: EEPROM S: User Set**

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
`SFn.b` [SFn.b]	*Logic (1 to 8)* **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) `uAr` Variable (245)	None	3022 [offset 80]	0x7F (127) 1 to 8 2	- - - -	27002	uint RWES
`S.ib` [Si.b]	*Logic (1 to 8)* **Source Instance B** Set the instance of the function selected above.	1 to 250	1	3038 [offset 80]	0x7F (127) 1 to 8 0x0A (10)	- - - -	27010	uint RWES
`SZ.b` [SZ.b]	*Logic (1 to 8)* **Source Zone B** Set the zone of the function selected above.	0 to 16	0	3054 [offset 80]	0x7F (127) 1 to 8 0x12 (18)	- - - -	27018	uint RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read W: Write E: EEPROM S: User Set**

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/ Write
[SFn.C] `SFn.C`	*Logic (1 to 8)* **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) `tMr` Timer (244) `uAr` Variable (245)	None	3024 [offset 80]	0x7F (127) 1 to 8 3	- - - -	27003	uint RWES
[Si.C] `Si.C`	*Logic (1 to 8)* **Source Instance C** Set the instance of the function selected above.	1 to 250	1	3040 [offset 80]	v7F (127) 1 to 8 0x0B (11)	- - - -	27011	uint RWES
[SZ.C] `SZ.C`	*Logic (1 to 8)* **Source Zone C** Set the zone of the function selected above.	0 to 16	0	3056 [offset 80]	0x7F (127) 1 to 8 0x13 (19)	- - - -	27019	uint RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read W: Write E: EEPROM S: User Set**

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
5Fn.d [SFn.d]	*Logic (1 to 8)* **Source 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) **uAr** Variable (245)	None	3026 [offset 80]	0x7F (127) 1 to 8 4	- - - -	27004	uint RWES
5 i.d [Si.d]	*Logic (1 to 8)* **Source Instance D** Set the instance of the function selected above.	1 to 250	1	3042 [offset 80]	0x7F (127) 1 to 8 0x0C (12)	- - - -	27012	uint RWES
52.d [SZ.d]	*Logic (1 to 8)* **Source Zone D** Set the zone of the function selected above.	0 to 16	0	3058 [offset 80]	0x7F (127) 1 to 8 0x14 (20)	- - - -	27020	uint RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read W: Write E: EEPROM S: User Set**

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
5Fn.E] [SFn.E]	*Logic (1 to 8)* **Source E Function** 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) EntA 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) L 9C 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) uAr Variable (245)	None	3028 [offset 80]	0x7F (127) 1 to 8 5	- - - -	27005	uint RWES
5 i.E] [Si.E]	*Logic (1 to 8)* **Source Instance E** Set the instance of the function selected above.	1 to 250	1	3044 [offset 80]	0x7F (127) 1 to 8 0x0D (13)	- - - -	27013	uint RWES
5Z.E] [SZ.E]	*Logic (1 to 8)* **Source Zone E** Set the zone of the function selected above.	0 to 16	0	3060 [offset 80]	0x7F (127) 1 to 8 0x15 (21)	- - - -	27021	uint RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read W: Write E: EEPROM S: User Set**

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
[SFn.F] [SFn.F]	*Logic (1 to 8)* **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) [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) [uAr] Variable (245)	None	3030 [offset 80]	0x7F (127) 1 to 8 6	- - - -	27006	uint RWES
[Si.F] [Si.F]	*Logic (1 to 8)* **Source Instance F** Set the instance of the function selected above.	1 to 250	1	3046 [offset 80]	0x7F (127) 1 to 8 0x0E (14)	- - - -	27014	uint RWES
[SZ.F] [SZ.F]	*Logic (1 to 8)* **Source Zone F** Set the zone of the function selected above.	0 to 16	0	3062 [offset 80]	0x7F (127) 1 to 8 0x16 (22)	- - - -	27022	uint RWES

Note:
Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces.

Note:
If there is only one instance of a menu, no submenus will appear.

** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.

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

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/ Write
[SFn.g] [SFn.g]	*Logic (1 to 8)* **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) [EntA] 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) [uAr] Variable (245)	None	3032 [offset 80]	0x7F (127) 1 to 8 7	- - - -	27007	uint RWES
[S i.g] [Si.g]	*Logic (1 to 8)* **Source Instance G** Set the instance of the function selected above.	1 to 250	1	3048 [offset 80]	0x7F (127) 1 to 8 0x0F (15)	- - - -	27015	uint RWES
[SZ.g] [SZ.g]	*Logic (1 to 8)* **Source Zone G** Set the zone of the function selected above.	0 to 16	0	3064 [offset 80]	0x7F (127) 1 to 8 0x17 (23)	- - - -	27023	uint RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read W: Write E: EEPROM S: User Set**

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/ Write
[SFn.h] [SFn.h]	*Logic (1 to 8)* **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.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) [uAr] Variable (245)	None	3034 [offset 80]	0x7F (127) 1 to 8 8	- - - -	27008	uint RWES
[S.ih] [Si.h]	*Logic (1 to 8)* **Source Instance H** Set the instance of the function selected above.	1 to 250	1	3050 [offset 80]	0x7F (127) 1 to 8 0x10 (16)	- - - -	27016	uint RWES
[SZ.h] [SZ.h]	*Logic (1 to 8)* **Source Zone H** Set the zone of the function selected above.	0 to 16	0	3066 [offset 80]	0x7F (127) 1 to 8 0x18 (24)	- - - -	27024	uint RWES
[Er.h] [Er.h]	*Logic (1 to 8)* **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	3088 [offset 80]	0x7F (127) 1 to 8 0x23 (35)	- - - -	27035	uint RWES

Note:
 Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces.

Note:
 If there is only one instance of a menu, no submenus will appear.

** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.

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

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Parameter ID	Data Type & Read/ Write
⟦M̄Āt⟧ ⟦SEt⟧ **Math Menu**								
⟦Fn⟧ [Fn]	*Math (1 to 8)* **Function** Set the operator that will be applied to the sources.	⟦oFF⟧ Off (62) ⟦Āu9⟧ Average (1367) ⟦P.SC⟧ Process Scale (1371) ⟦d.SC⟧ Deviation Scale (1372) ⟦d.FF⟧ Differential (1373) ⟦rĀt.⟧ Ratio (1374) ⟦Ādd⟧ Add (1375) ⟦M̄UL⟧ Multiply (1376) ⟦Ā.d.F⟧ Absolute Difference (1377) ⟦M̄.in⟧ Minimum (1378) ⟦M̄ĀH⟧ Maximum (1379) ⟦root⟧ Square Root (1380) ⟦hoLd⟧ Sample and Hold (1381) ⟦ĀLt⟧ Altitude (1649) ⟦dEŪ⟧ Dewpoint (1650)	Off	2220 [offset 70]	0x7D (125) 1 0x15 (21)	128	25021	uint RWES
⟦SFn.Ā⟧ [SFn.A]	*Math (1 to 8)* **Source Function A** Set the type of function that will be used for this source.	⟦nonE⟧ None (61) ⟦Ā.i⟧ Analog Input (142) ⟦CUrr⟧ Current (22) ⟦C.Pr⟧ Cool Power, Control Loop (161) ⟦h.Pr⟧ Heat Power, Control Loop (160) ⟦PŪr⟧ Power, Control Loop (73) ⟦Lnr⟧ Linearization (238) ⟦M̄Āt⟧ Math (240) ⟦Pu⟧ Process Value (241) ⟦SP.C⟧ Set Point Closed, Control Loop (242) ⟦SP.o⟧ Set Point Open, Control Loop (243) ⟦uĀr⟧ Variable (245)		2180 [offset 70]	0x7D (125) 1 to 8 1	- - - -	25001	uint RWES
⟦S.i.Ā⟧ [Si.A]	*Math (1 to 8)* **Source Instance A** Set the instance of the function selected above.	1 to 250	1	2190 [offset 70]	0x7D (125) 1 to 8 6	- - - -	25006	uint RWES
⟦SZ.Ā⟧ [SZ.A]	*Math (1 to 8)* **Source Zone A** Set the zone of the function selected above.	0 to 16	0	2200 [offset 70]	0x7D (125) 1 to 8 0x0B (11)	- - - -	25011	uint RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read W: Write E: EEPROM S: User Set**

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
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, Control Loop (161) **h.Pr** Heat Power, Control Loop (160) **PLJr** Power, Control Loop (73) **Lnr** Linearization (238) **MAt** Math (240) **Pu** Process Value (241) **SP.C** Set Point Closed, Control Loop (242) **SP.o** Set Point Open, Control Loop (243) **uAr** Variable (245)	None	2182 [offset 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	2192 [offset 70]	0x7D (125) 1 to 8 7	- - - -	25007	uint RWES
S2.b [SZ.b]	*Math (1 to 8)* **Source Zone B** Set the zone of the function selected above.	0 to 16	0	2202 [offset 70]	0x7D (125) 1 to 8 0x0C (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) **A i** Analog Input (142) **CUrr** Current (22) **C.Pr** Cool Power, Control Loop (161) **h.Pr** Heat Power, Control Loop (160) **PLJr** Power, Control Loop (73) **Lnr** Linearization (238) **MAt** Math (240) **Pu** Process Value (241) **SP.C** Set Point Closed, Control Loop (242) **SP.o** Set Point Open, Control Loop (243) **uAr** Variable (245)	None	2184 [offset 70]	0x7D (125) 1 to 8 3	- - - -	25003	uint RWES
S i.C [Si.C]	*Math (1 to 8)* **Source Instance C** Set the instance of the function selected above.	1 to 250	1	2194 [offset 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 16	0	2204 [offset 70]	0x7D (125) 1 to 8 0x0D (13)	- - - -	25013	uint RWES

Note:
 Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces.

Note:
 If there is only one instance of a menu, no submenus will appear.

** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.

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

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/ Write
[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, Control Loop (161) [h.Pr] Heat Power, Control Loop (160) [PwJr] Power, Control Loop (73) [Lnr] Linearization (238) [MAt] Math (240) [Pu] Process Value (241) [SP.C] Set Point Closed, Control Loop (242) [SP.o] Set Point Open, Control Loop (243) [uAr] Variable (245)		2186 [offset 70]	0x7D (125) 1 to 8 4	- - - -	25004	uint RWES
[S i.d] [iS.d]	*Math (1 to 8)* **Source Instance D** Set the instance of the function selected above.	1 to 250	1	2196 [offset 70]	0x7D (125) 1 to 8 9	- - - -	25009	uint RWES
[SZ.d] [SZ.d]	*Math (1 to 8)* **Source Zone D** Set the zone of the function selected above.	0 to 16	0	2206 [offset 70]	0x7D (125) 1 to (16) 0x0E (14)	- - - -	25014	uint RWES
[SFn.E] [Sr.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) [L9C] Logic (239) [tMr] Timer (244) [uAr] Variable (245))	None	2188 [offset 70]	0x7D (125) 1 to 8 5	- - - -	25005	uint RWES

Note:

Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces.

Note:

If there is only one instance of a menu, no submenus will appear.

** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.

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

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/ Write
[¯5¯,E¯] [Si.E]	*Math (1 to 8)* **Source Instance E** Set the instance of the function selected above.	1 to 250	1	2198 [offset 70]	0x7D (125) 1 to 8 0x0A (10)	- - - -	25010	uint RWES
[¯52.E¯] [SZ.E]	*Math (1 to 8)* **Source Zone E** Set the zone of the function selected above.	0 to 16	0	2208 [offset 70]	0x7D (125) 1 to 8 0x0F (15)	- - - -	25015	uint RWES
[¯5.Lo¯] [S.Lo]	*Math (1 to 8)* **Scale Low** If Math function is set to Process or Deviation Scale, this will scale Source A low value to Range Low setting.	-1,999.000 to 9,999.000	0.0	2226 [offset 70]	0x7D (125) 1 to 8 0x18 (24)	129	25024	float RWES
[¯5.h¯,] [S.hi]	*Math (1 to 8)* **Scale High** If Math function is set to Process or Deviation Scale, this will scale Source A high value to Range High setting.	-1,999.000 to 9,999.000	1.0	2228 [offset 70]	0x7D (125) 1 to 8 0x19 (25)	130	25025	float RWES
[Un¯,t] [Unit]	*Math (1 to 8)* **Units** Set output units.	[¯5rc¯] Source (1539) [nonE] None (61) [¯A.tP¯] Absolute Tempera-ture (1540) [¯r.tP¯] Relative Tempera-ture (1541) [P Jr] Power (73) [¯Pro¯] Process (75) [¯ rh] Relative Humidty (1538)	Source	2242 [offset 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 or Deviation Scale, this will output Source A Scale Low value to Range Low setting.	-1,999.000 to 9,999.000	0.0	2230 [offset 70]	0x7D (125) 1 to 8 0x1A (26)	131	25026	float RWES
[¯r.h¯,] [r.hi]	*Math (1 to 8)* **Range High** If Math function is set to Process or Deviation Scale, this will output Source A Scale High value to Range High setting.	-1,999.000 to 9,999.000	1.0	2232 [offset 70]	0x7D (125) 1 to 8 0x1B (27)	132	25027	float RWES
[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.	[¯P5¯,] Pressure Units (1671) [PASc] Pascal (1674) [AtM] Atmosphere (1675) [Mbr] mbar (1672) [torr] Torr (1673)	Pressure Units	2238 [offset 70]	0x7D (125) 1 to 8 0x1E (30)	- - - -	25030	uuint RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								R: Read W: Write E: EEPROM S: User Set

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
[A.unt] *R.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	2240 [offset 70]	0x7D (125) 1 to 8 0x1F (31)	- - - -	25031	uuint RWES
[FiL] *F iL*	*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	2234 [offset 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) *SEC* Sequencer (1507) *uAC* Motorized Valve (1508) *CoC* Compressor Control (1506)	Off	6636 [offset 80]	0x87 (135) 1 to 4 9	181	35009	uint RWES
[SFn.A] *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) *A i* Analog Input (142) *C.Pr* Cool Power, Control Loop (161) *h.Pr* Heat Power, Control Loop (160) *PLJr* Power, Control Loop (73) *Lnr* Linearization (238) *MAt* Math (240) *Pu* Process Value (241) *SoF.1* Special Function Output 1 (1532) *uAr* Variable (245)	None	6620 [offset 80]	0x87 (135) 1 to 4 1	182	35001	uint RWES
[Si.A] *S i.A*	*Special Output (1 to 4)* **Source Instance A** Set the instance of the function selected above.	1 to 250	1	6624 [offset 80]	0x87 (135) 1 to 4 3	183	35003	uint RWES
[SZ.A] *SZ.A*	*Special Output (1 to 4)* **Source Zone A** Set the zone of the function selected above.	0 to 16	0	6628 [offset 80]	0x87 (135) 1 to 4 5	- - - -	35005	uint RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read W: Write E: EEPROM S: User Set**

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
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, Control Loop (161) **h.Pr** Heat Power, Control Loop (160) **PLJr** Power, Control Loop (73) **Lnr** Linearization (238) **MAt** Math (240) **uAr** Variable (245)	None	6622 [offset 80]	0x87 (135) 1 to 4 2	184	35002	uint RWES
Si.b [Si.B]	*Special Output (1 to 4)* **Source Instance B** Set the instance of the function selected above.	1 to 250	1	6626 [offset 80]	0x87 (135) 1 to 4 4	185	35004	uint RWES
SZ.b [SZ.B]	*Special Output (1 to 4)* **Source Zone B** Set the zone of the function selected above.	0 to 16	0	6630 [offset 80]	0x87 (135) 1 to 4 6	- - - -	35006	uint RWES
Pon.A [Pon.A]	*Special Output (1 to 4)* **Power On Level 1** 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.	-100.00 to 100.00%	0	6654 [offset 80]	0x87 (135) 1 to 4 0x12 (18)	186	35018	float RWES
PoF.A [PoF.A]	*Special Output (1 to 4)* **Power Off Level 1**	-100.00 to 100.00%	5	6656 [offset 80]	0x87 (135) 1 to 4 0x13 (19)	187	35019	float RWES
Pon.b [Pon.b]	*Special Output (1 to 4)* **Power On Level 2** 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.	-100.00 to 100.00%	0	6658 [offset 80]	0x87 (135) 1 to 4 0x14 (20)	188	35020	float RWES
PoF.b [PoF.b]	*Special Output (1 to 4)* **Power Off Level 2**	-100.00 to 100.00%	5	6660 [offset 80]	0x87 (135) 1 to 4 0x15 (21)	189	35021	float RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read W: Write E: EEPROM S: User Set**

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
on.t [on.t]	*Special Output (1 to 4)* **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	6662 [offset 80]	0x87 (135) 1 to 4 0x16 (22)	190	35022	uint RWES
oF.t [oF.t]	*Special Output (1 to 4)* **Off Time**	0 to 9,999 seconds	20	6664 [offset 80]	0x87 (135) 1 to 4 0x17 (23)	191	35023	uint RWES
t.t [t.t]	*Special Output (1 to 8)* **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	6666 [offset 80]	0x87 (135) 1 to 4 0x18 (24)	192	35024	uint RWES
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	6668 [offset 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	6674 [offset 80]	0x87 (135) 1 to 4 0x1C (28)	- - - -	35028	float RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read** **W: Write** **E: EEPROM** **S: User Set**

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
`o.S2` [o.S2]	*Special Output (1 to 8)* **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	6676 [offset 80]	0x87 (135) 1 to 4 0x1D (29)	- - - -	35029	float RWES
`o.S3` [o.S3]	*Special Output (1 to 8)* **Output 3 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	6678 [offset 80]	0x87 (135) 1 to 4 0x1E (30)	- - - -	35030	float RWES
`o.S4` [o.S4]	*Special Output (1 to 8)* **Output 4 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	6680 [offset 80]	0x87 (135) 1 to 4 0x1F (31)	- - - -	35031	float RWES
`t.dL` [t.dL]	*Special Output (1 to 8)* **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	6670 [offset 80]	0x87 (135) 1 to 4 0x1A (26)	- - - -	35026	uint RWES
`ot.o` [ot.o]	*Special Output (1 to 8)* **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	6672 [offset 80]	0x87 (135) 1 to 4 0x1B (27)	- - - -	35027	uint RWES
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces. **Note:** If there is only one instance of a menu, no submenus will appear. ** These parameters/prompts are available in these menus with firmware revisions 6.0 and above.								**R: Read W: Write E: EEPROM S: User Set**

Dis-play	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
⌐uⱯr⌐ **⌐SEt⌐** **Variable Menu**								
⌐tYPE⌐ [tyPE]	*Variable 1 to 8* **Data Type** Set the variable's data type.	**⌐ⱯnL9⌐** Analog (1215) **⌐d ┌9⌐** Digital (1220)	Analog	6380 [offset 20]	0x66 (102) 1 to 8 1	210	2001	uint RWES
⌐Un ┌t⌐ [Unit]	*Variable 1 to 8* **Units** Set the variable's units. **Note:** Units are always in degrees F when used for temperature	**⌐nonE⌐** None (61) **⌐┌.tP⌐** Relative Temperature (1541) **⌐Ɐ.tP⌐** Absolute Temperature (1540) **⌐┌h⌐** Relative Humidity (1538) **⌐PⱯⱯr⌐** Power (73) **⌐P┌o⌐** Process (75)	Absolute Temperature	6392 [offset 20]	0x66 (102) 1 to 8 7	- - - -	2007	uint RWES
⌐d ┌9⌐ [Dig]	*Variable 1 to 8* **Digital** Set the variable's value.	**⌐oFF⌐** Off (62) **⌐on⌐** On (63)	Off	6382 [offset 20]	0x66 (102) 1 to 8 2	211	2002	uint RWES
⌐ⱯnL9⌐ [AnLg]	*Variable 1 to 8* **Analog** Set the variable's value.	-1,999.000 to 9,999.000	0.0	6384 [offset 20]	0x66 (102) 1 to 8 3	212	2003	float RWES
⌐9LbL⌐ **⌐SEt⌐** **Global Menu**								
⌐C_F⌐ [C_F]	*Global* **Display Units** Select which scale to use for temperature.	**⌐F⌐** °F (30) **⌐C⌐** °C (15)	°F	6948	0x67 (103) 1 5	110	3005	uuint RWES
⌐ⱯCLF⌐ [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	366	0x6A (106) 1 4	- - - -	6004	uint RWES
⌐dP┌S⌐ [dPrS]	*Global* **Display Pairs** Defines the number of Display Pairs.	1 to 10	1	- - - -	0x67 (103) 1 0x1C (28)	- - - -	3028	uuint RWES
⌐USⱯS⌐ [USr.S]	*Global* **User Settings Save** 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)	None	26	0x65 (101) 1 0x0E (14)	118	1014	uuint RWE
⌐USⱯr⌐ [USr.r]	*Global* **User Settings Restore** Replace all of this controller's settings with another set.	**⌐FCtY⌐** Factory (31) **⌐nonE⌐** None (61) **⌐SEt 1⌐** User Set 1 (101)	None	24	0x65 (101) 1 0x0D (13)	117	1013	uuint RWE

Note:
Some values will be rounded off to fit in the four-character display. Full values can be read with other interfaces.

Note:
If there is only one instance of a menu, no submenus will appear.

** 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

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]
    [CUSt] Custom Setup (1 to 20)
        [PAr] Parameter
        [ id] Instance ID

[LoC]
[FCty] Security Setting Menu
    [LoC] Security Setting
        [LoC.o] Operations Page
        [PAS.E] Password Enable
        [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

[d iAg]
[FCty] Diagnostics Menu
    [d iAg] Diagnostics
        [Pn] Part Number
        [rEu] Software Revision
        [S.bLd] Software Build Number
        [Sn] Serial Number
        [dAtE] Date of Manufacture
```

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/Write
[CUSt] [FCtY] **Custom Setup Menu**								
[PAr] [Par]	*Custom Menu* **Parameter 1 to 20** If optional RUI is acquired 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] User Restore Set (227) [AL o] Alarm Low Set Point (42) [Ah i] Alarm High Set Point (78) [Ah Y] Alarm Hysteresis (97) [CUSt] Custom (180)	1 = None 2 = Display Units 3 = Alarm Low Set Point 4 = Alarm High Set Point 5 to 20 = None	- - - -	- - - -	- - - -	14005	uint RWES
[i id] [[iid]	*Custom Setup (1 to 20)* **Instance ID** Select the instance of the parameter selected above to be displayed.	1 to 16		- - - -	- - - -	- - - -	14003	int RWES
[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	6942	0x67 (103) 1 2	- - - -	3002	unit RWE
[PAS.E] [LoC.P]	*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	- - - -	- - - -	- - - -	- - - -	- - - -
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with another interface. If there is only one instance of a menu, no submenus will appear.								R: Read W: Write E: EE-PROM S: User Set

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param-eter ID	Data Type & Read/ Write
[rLoC] [rLoC]	*Security Setting* **Read Lock** 　Set the read security clearance level. The user can access the se-lected level and all lower levels. Applies regardless 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	6958	0x67 (103) 1 0x0A (10)	- - - -	3010	uint RWE
[SLoC] [SLoC]	*Security Setting* **Write Security** 　Set the write security clearance level. The user can access the se-lected 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 se-lected 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	6960	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 en-abled. 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	- - - -	- - - -	- - - -	- - - -	- - - -
[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 Ac-cess Level, Read Lock or Write Security.	10 to 999	63	- - - -	- - - -	- - - -	- - - -	- - - -
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with another interface. **If there is only one instance of a menu, no submenus will appear.**								R: Read W: Write E: EE-PROM S: User Set

Display	Parameter Name Description	Range	Default	Modbus Relative Address	CIP Class Instance Attribute hex (dec)	Profibus Index	Param- eter ID	Data Type & Read/ Write
[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	- - - -	- - - -	- - - -	- - - -	- - - -
[ULoC] [FCtY] **Security Setting Menu**								
[CodE] [CodE]	*Security Setting* **Public Key** If Rolling Password turned on, generates a random number when power is cycled. If Rolling Password is off, fixed number will be displayed.	Customer Specific	0	- - - -	- - - -	- - - -	- - - -	- - - -
[PASS] [PASS]	*Security Setting* **Password** Number returned from calculation found in Features section under Password Security.	-1999 to 9999	0	- - - -	- - - -	- - - -	- - - -	- - - -
[d iAg] [FCtY] **Diagnostics Menu**								
[Pn] [Pn]	*Diagnostics Menu* **Part Number** Display this controller's part number.	24	- - - -	- - - -	0x65 (101) 1 9	115	1009	int RWE
[rEu] [rEu]	*Diagnostics Menu* **Software Revision** Display this controller's firmware revision number.	5	- - - -	4	0x65 (101) 1 to 5 0x11 (17)	116	1003	int R
[S.bLd] [S.bLd]	*Diagnostics Menu* **Software Build Number** Display the firmware build number.	0 to 2,147,483,647	- - - -	8	0x65 (101) 1 to 5 5	- - - -	1005	float R
[Sn] [Sn]	*Diagnostics Menu* **Serial Number** Display the serial number.	0 to 2,147,483,647	- - - -	12	0x65 (101) 1 7	- - - -	1007	float RWE
[dAtE] [dAtE]	*Diagnostics Menu* **Date of Manufacture** Display the date code. Date code format is YYWW, where YY is last two digits of the year, and WW is the week of the year.	0 to 2,147,483,647	- - - -	14	0x65 (101) 1 8	- - - -	1008	float RWE
No Display	*Diagnostics Menu* **Hardware ID** Read the hardware ID.	24 or 117	24	0	0x65 (101) 1 1	- - - -	1001	signed 32-bit R
Note: Some values will be rounded off to fit in the four-character display. Full values can be read with another interface. **If there is only one instance of a menu, no submenus will appear.**								R: Read W: Write E: EE-PROM S: User Set

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 User Settings Save $\boxed{U5r.5}$ (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 User Settings Restore $\boxed{U5r.r}$ (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 User Setting Restore, the operator may select Factory Restore and the Digital Input or Function Key may no longer be programmed for User Setting Restore.

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

Ten 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 nonlinear 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.
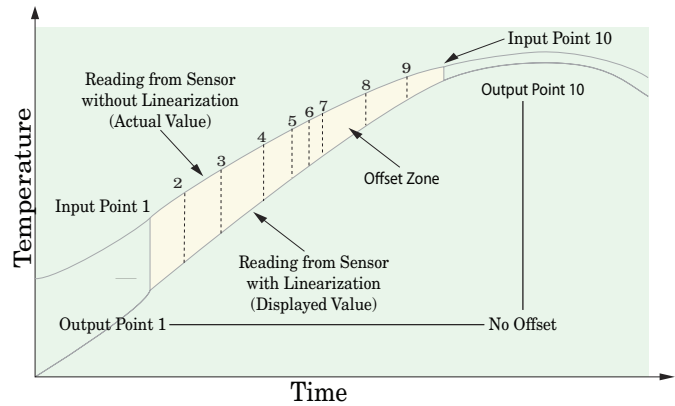
Outputs

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 $\boxed{AC.LF}$ (Setup Page, Global Menu), 50 or 60 Hz.

100 percent output
10 ON, 0 OFF

50 percent output

3 ON, 3 OFF

66 percent output

6 ON, 3 OFF
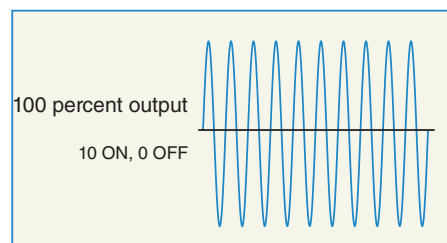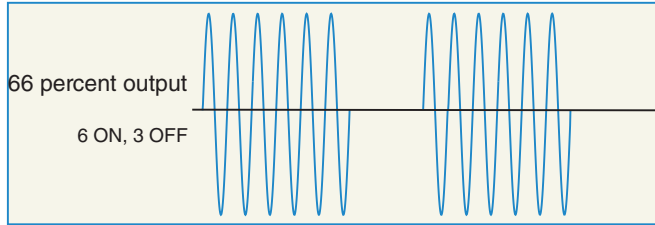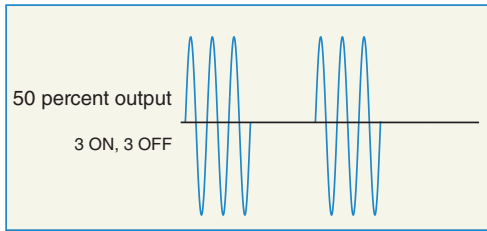
Retransmitting a Process Value or Set Point

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.

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.

Retransmit
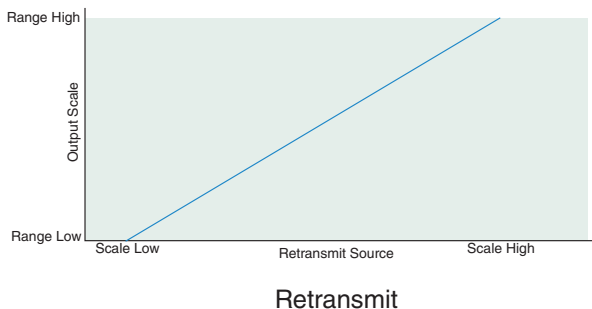
Compressor Control

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.
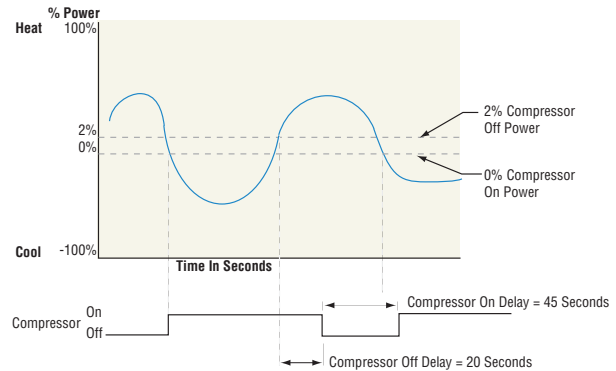
Motorized Valve Control

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.
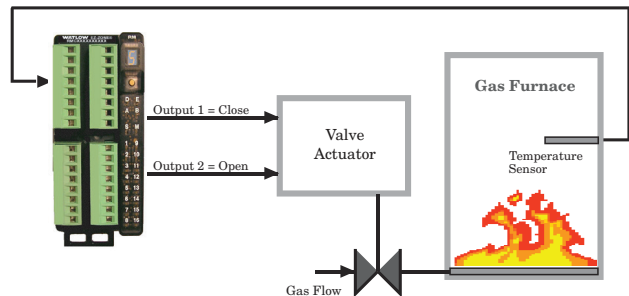
Alarms

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 $\boxed{A.t\,Y}$ 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 $\boxed{A.L\,o}$ and Alarm High Set Points $\boxed{A.h\,i}$ (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 $\boxed{A.h\,Y}$ via the Setup Page, Alarm Menu.
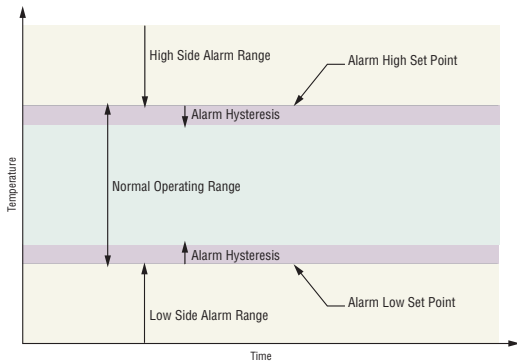
Alarm Set Points and Hysteresis

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 $\boxed{A.t\,t\,n}$ in the lower display. To clear a latched alarm:

1. Push the Advance Key ◉ to display $\boxed{i.9\,n\,r}$ 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 $\boxed{C\,L\,r}$ or Silence $\boxed{S\,i\,L}$.

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.

An alarm that is not latched (self-clearing) will deactivate automatically when the alarm condition has passed. Turn Alarm Latching $\boxed{A.L\,A}$ on or off via the Setup Page, Alarm Menu.
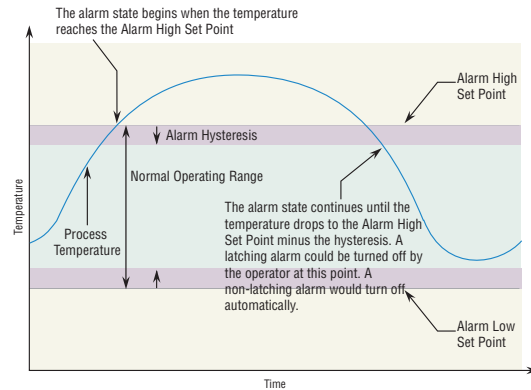
Alarm Response with Hysteresis

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 $\boxed{A.t\,t\,n}$ in the lower display. To silence an alarm:

1. Push the Advance Key ◉ to display $\boxed{i.9\,n\,r}$ 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 $\boxed{C\,L\,r}$ or Silence $\boxed{S\,i\,L}$.

3. Push the Advance ◉ or Infinity ∞ key to execute the action.

Without an RUI, silencing aa 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 $\boxed{A.S\,i}$ 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 [A.bL] on or off via the Setup Page, Alarm Menu.

Programming the EZ Key/s

If using an RUI the EZ Key can be configured either in the Setup Menu or with EZ-ZONE configurator software, using a personal computer.

The following examples show how to program the EZ Key to start and stop a profile.

1. To go to the Setup Page from the Home Page, press both the Up ⬆ and Down ⬇ keys for six seconds. [A i] will appear in the upper display and [SEt] will appear in the lower display.
2. Press the Up Key ⬆ until [Fun] appears in the upper display and [SEt] will appear in the lower display.
3. Press the Advance Key ⊚ until Digital Input Level [LEv] appears in the lower display. Use an arrow key to specify the state of the key (high or low) when the controller is powered up. Functions will toggle with each press of the EZ Key, such as Profile Start/Stop.
4. Press the Advance Key ⊚. The lower display will show Digital Function [Fn]. Press the Up ⬆ or Down ⬇ key to scroll through the functions that can be assigned to the EZ Key
   When Profile Start/Stop [P.StS] appears in the upper display and [Fn] appears in the lower display, press the Advance Key ⊚ once to select that function and move to the Function Instance [F i] parameter.
5. Press the Up ⬆ or Down ⬇ key to scroll to the profile that you want the EZ Key to control.
6. The instance tells the controller which of the numbered functions should be acted upon. For profiles, there are 25 instances. 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 Lockout to Hide Pages and Menus

If unintentional changes to parameter settings might raise safety concerns or lead to downtime, your can use the lockout feature to make them more secure.

These settings will affect any access using Standard Bus, including the RUI. This does not affect field protocol access.

Each of the menus in the Factory Page and each of the pages, except the Factory Page, has a security level assigned to it. You can change the read and write access to these menus and pages by using the parameters in the Lockout Menu (Factory Page).

Lockout Menu

There are five parameters in the Lockout Menu (Factory Page):
- Lock Operations Page [LoC.o] sets the security level for the Operations Page. (default: 2)

Note:
The Home and Setup Page lockout levels are fixed and cannot be changed.

- Lock Profiling Page [LoC.P] sets the security level for the Profiling Page. (default: 3)
- Password Security Enable [PAS.E] will turn on or off the Password security feature. (default: off)
- Read Lockout Security [rLoC] determines which pages can be accessed. The user can access the selected level and all lower levels. (default: 5)
- Set Lockout Security [SLoC] determines which parameters within accessible pages can be written to. The user can write to the selected level and all lower levels. (default: 5)

The table that follows represents the various levels of lockout for the Set Lockout Security prompt and the Read Lockout Security prompt. The Set Lockout has 6 levels (0-5) of security where the Read Lockout has 5 (1-5). Therefore, level "0" applies to Set Lockout only. "Y" equates to yes (can write/read) where "N" equates to no (cannot write/read). The colored cells simply differentiate one level from the next.

Lockout Security [SLoC] & [rLoC]						
Lockout Level	0	1	2	3	4	5
Home Page	Y	Y	Y	Y	Y	Y
Operations Page	N	N	Y	Y	Y	Y
Setup Page	N	N	N	N	Y	Y
Profile Page	N	N	N	Y	Y	Y
Factory Page						
Custom Menu	N	N	N	N	N	Y
Diagnostic Menu	N	Y	Y	Y	Y	Y
Calibration Menu	N	N	N	N	N	Y
Lockout Menu						
[LoC.O]	N	Y	Y	Y	Y	Y
[LoC.P]	N	Y	Y	Y	Y	Y
[PAS.E]	N	Y	Y	Y	Y	Y
[rLoC]	Y	Y	Y	Y	Y	Y
[SLoC]	Y	Y	Y	Y	Y	Y

The following examples show how the Lockout Menu parameters may be used in applications:

1. You can lock out access to the Operations Page but allow an operator access to the Profile Menu, by changing the default Profile Page and Operations Page security levels. Change Lock Operations Page [`LoC.o`] to 3. If Set Lockout Security [`SLoC`] is set to 2 or higher and the Read Lockout Security [`rLoC`] is set to 2, the Home Pages can be accessed, and all writable parameters can be written to. Pages with security levels greater than 2 will be locked out (inaccessible).

2. If Set Lockout Security [`SLoC`] is set to 0 and Read Lockout Security [`rLoC`] is set to 5, all pages will be accessible, however, changes will not be allowed on any pages or menus, with one exception: Set Lockout Security [`SLoC`] can be changed to a higher level.

3. The operator wants to read all the menus and not allow any parameters to be changed.

   In the Factory Page, Lockout Menu, set Read Lockout Security [`rLoC`] to 5 and Set Lockout Security [`SLoC`] to 0.

4. The operator wants to read and write to the Home Page, and lock all other pages and menus.

   In the Factory Page, Lockout Menu, set Read Lockout Security [`rLoC`] to 2 and Set Lockout Security [`SLoC`] to 2.

   In the Factory Page, Lockout Menu, set Lock Operations Page [`LoC.O`] to 3.

5. The operator wants to read the Operations Page, Setup Page, Profiling Page, Diagnostics Menu, Lock Menu, Calibration Menu and Custom Menus. The operator also wants to read and write to the Home Page.

   In the Factory Page, Lockout Menu, set Read Lockout Security [`rLoC`] to 1 and Set Lockout Security [`SLoC`] to 5.

   In the Factory Page, Lockout Menu, set Lock Operations Page [`LoC.O`] to 2.

Using Password Security

It is sometimes desirable to apply a higher level of security to the control where a limited number of menus are visible and not providing access to others without a security password. Without the appropriate password those menus will remain inaccessible. If Password Enabled [`PAS.E`] 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 [`LoC.L`] 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 [`LoC.L`] 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 [`PAS.E`] prompt is visible. Lastly, push either the up or down key to turn it on. Once on, 4 new prompts will appear:

1. [`LoC.L`], 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. [`PAS.u`], User Password which is needed for a User to acquire access to the control.
4. [`PAS.A`], 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 Control

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 [`PAS.E`] 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 set-up the control.

1. Acquire either the User Password [`PAS.u`] or the Administrator Password [`PAS.A`].

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 [$PAS.u$].

   b. If Rolling Password [$roLL$] is On, Password [$PASS$] equals:
   ([$PAS.u$] x code) Mod 929 + 70

8. **Administrator**
   a. If Rolling Password [$roLL$] is Off, Password [$PASS$] equals Administrator Password [$PAS.A$].

   b. If Rolling Password [$roLL$] is On, Password [$PASS$] equals:
   ([$PAS.A$] 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 [$LoC.L$].

- 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

Using EZ-ZONE® Configurator Software

To enable a user to configure the RME module using a personal computer (PC), Watlow has provided free software for your use. If you have not yet obtained a copy of this software insert the CD (Controller Support Tools) into your CD drive and install the software. Alternatively, if you are viewing this document electronically and have a connection to the internet simply click on the link below and download the software from the Watlow web site free of charge.

http://www.watlow.com/products/software/zone_config.cfm

   Once the software is installed double click on the EZ-ZONE Configurator icon placed on your desktop during the installation process. If you cannot find the icon follow the steps below to run the software:

1. Move your mouse to the "Start" button
2. Place the mouse over "All Programs"
3. Navigate to the "Watlow" folder and then the subfolder "EZ-ZONE Configurator"
4. Click on EZ-ZONE Configurator to run.

The first screen that will appear is shown below.
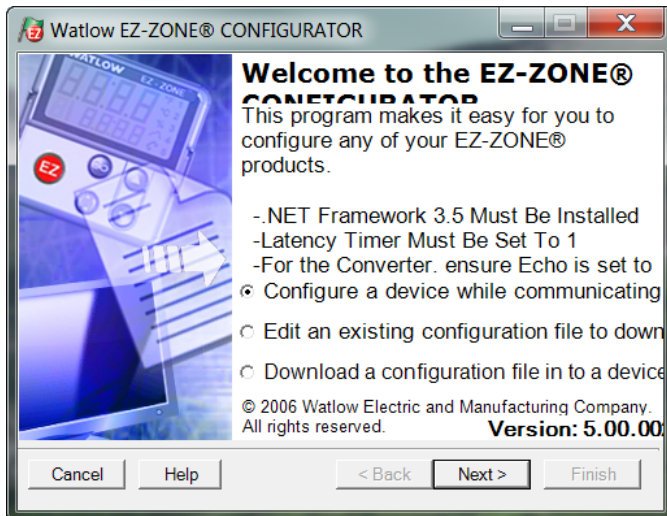
If the PC is already physically connected to the RME module click the next button to go on-line.

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
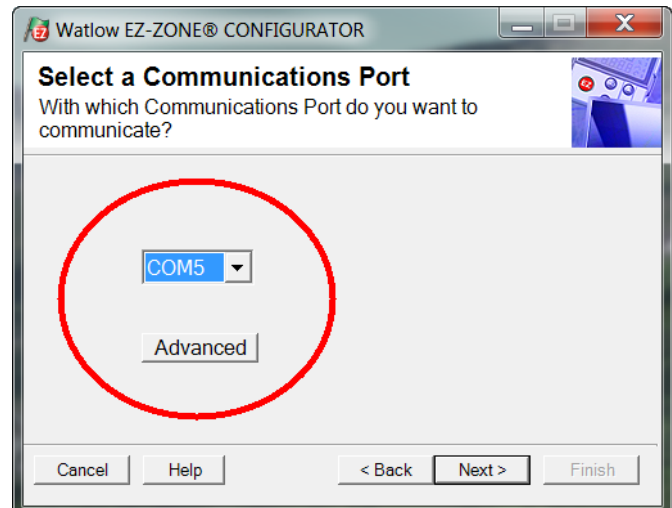
The available options allow the user to select "Try them all" or to use a specific known communications port. After installation of your converter if you are not sure which communications port was allocated select "Try them all" and then click next. The screen to follow shows that the software is scanning for devices on the network and that progress is being made.
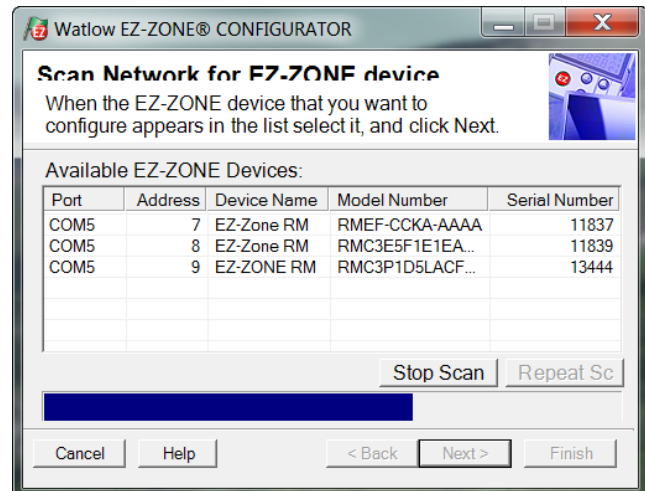
When complete the software will display all of the available devices found on the network as shown below.
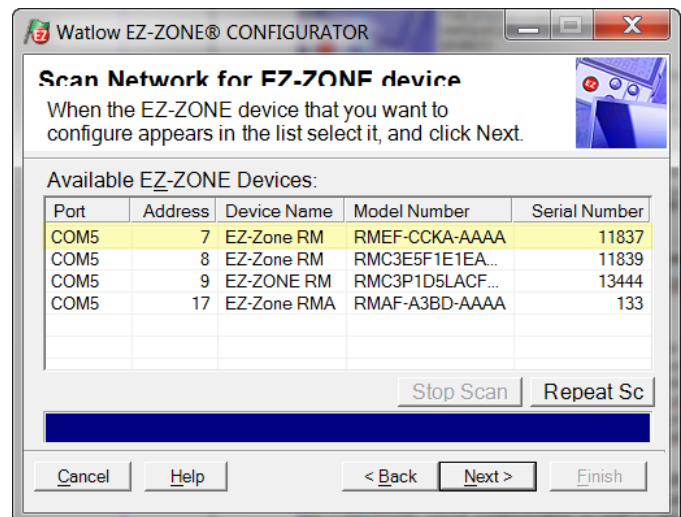
In the previous screen shot the RME is shown highlighted to bring greater clarity to the control in focus. Any EZ-ZONE device on the network will appear in this window and would be available for the purpose of configuration or monitoring. After clicking on the control of choice simply click the next button once again. The next screen appears below.

as an input, output parameters do not apply and are 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 all Digital I/O is to be set up the same click on "Copy Settings" where a copy from to copy to dialog box will appear allowing for quick duplication of all settings. Notice
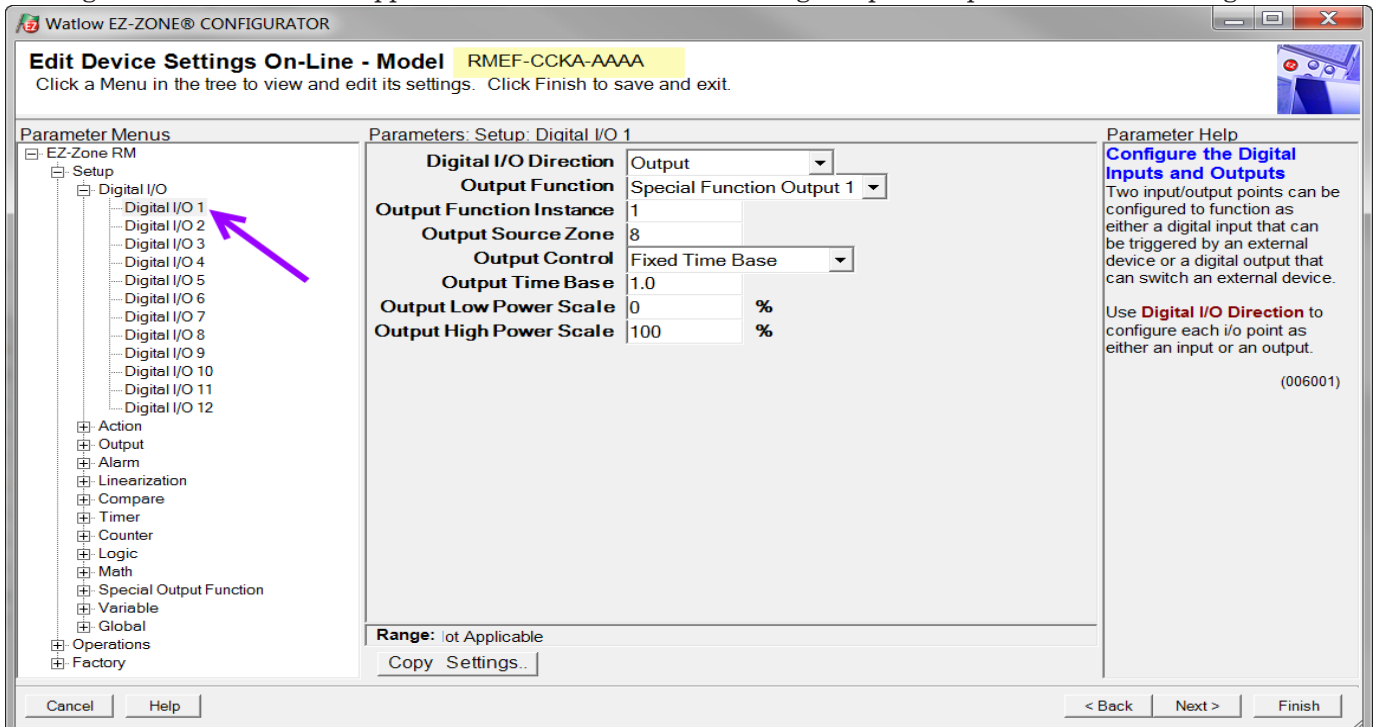
In the screen shot above notice that the device part number is clearly displayed at the top of the page (green highlight added for emphasis). When multiple EZ-ZONE devices are on the network it is important that the part number be noted prior to configuring so as to avoid making unwanted configuration changes to another control.

Looking closely at the left hand column (Parameter Menus) notice that it displays all of the available menus and associated parameters within the RME. 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. 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 sensor selected. As an example, notice that when Digital I/O 1 is configured

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.
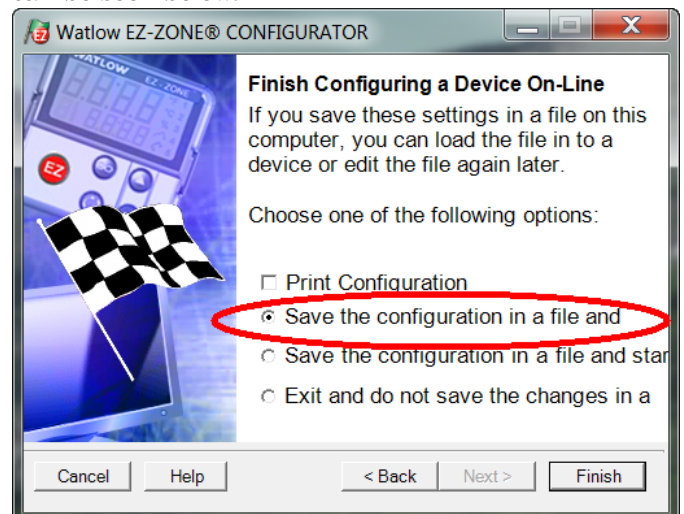
Although the RME module now contains the configuration (because the previous discussion focused on doing the configuration on-line) it is suggested that after the configuration process is completed that the user save this file on the PC for future use. If for some reason someone inadvertently changed a set-

ting 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.
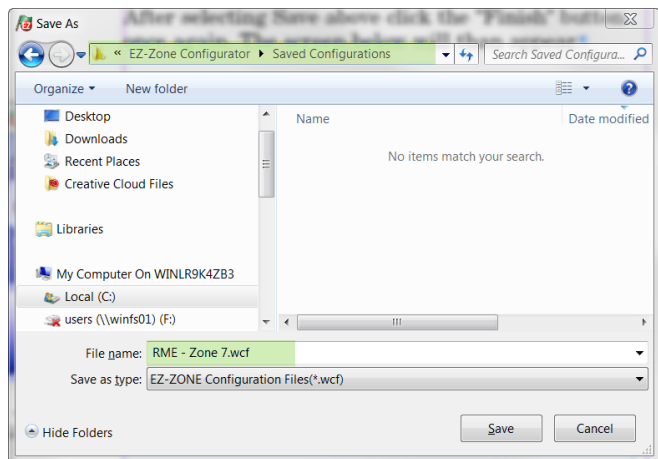
When saving the configuration note the location where the file will be placed (Saved in) and enter the file name (File name) as well. The default path for saved files follows:

\My Documents\Watlow\EZ-ZONE CONFIGURA-TOR\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 Alarm function is set to Off, all parameters 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 when Source Function A = ON and Active Level = High. The active level specifies when the action occurs. A digital value that is high causes the action function when Active Level = High. A digital value that is low causes the action function when Active Level = Low. 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:

Note: Action Function selection is module type and part number dependant.

[ACt] Action Menu
[SEt] Setup Page
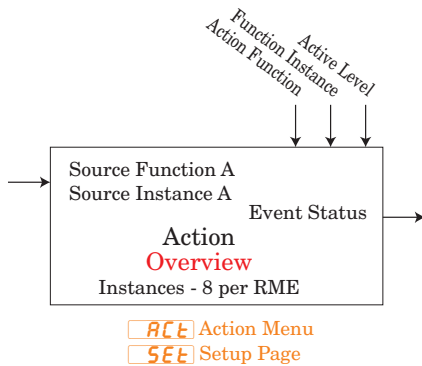
[Fn] Action Function : None, User Set Restore, Alarm, Silence Alarms, Control Loops Off and Alarms to Non-alarm State, Force Alarm to Occur

[Fi] Function Instance : 0 to 8

[SFnA] Source Function A : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Limit, Logic, Timer, Variable

[SiA] Source Instance A : 1 to 250

[SZA] Source Zone A : 0 to 16

[LEu] Active Level : High, Low

[ACt] Action Menu
[oPEr] Operation Page

[E.iS] Event Status : On, Off

Alarm Function

The Alarm function will cause the output to change states when Alarm Source exceeds Alarm Set Points.
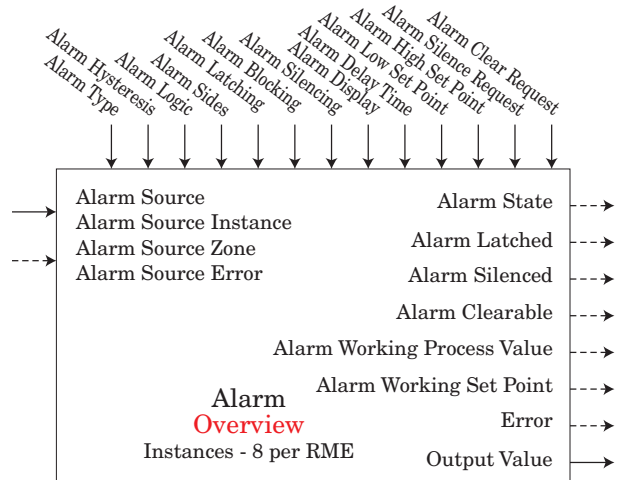
[ALM] Alarm Menu
[SEt] Setup Page

[Aty] Alarm Type : Off, Process

[SrA] Alarm Source : Analog Input, Current, Power, Linearization, Math, Process Value, Variable

[iSA] Alarm Source Instance : 1 to 250

[SZA] Alarm Source Zone : 0 to 16

[Ahy] Alarm Hysteresis : 0.001 to 9,999.000

[ALg] Alarm Logic : Close on Alarm, Open on Alarm

[ASd] Alarm Sides : Both, High, Low

[ALo] Alarm Low Set Point : -1,999.000 to 9,999.000

[Ahi] Alarm High Set Point : -1,999.000 to 9,999.000

[ALA] Alarm Latching : Non-Latching, Latching

[AbL] Alarm Blocking : Off, Startup, Set Point, Both

[ASi] Alarm Silencing : Off, On

[AdSP] Alarm Display : Off, On

[Adl] Alarm Delay Time : 0 to 9,999 seconds

[ALM] Alarm Menu
[oPEr] Operation Page

[ALo] Alarm Low Set Point : -1,999.000 to 9,999.000

[Ahi] Alarm High Set Point : -1,999.000 to 9,999.000

Alarm Clear Request : Ignore, Clear

Alarm Silence Request : Ignore, Silence

Alarm State : Startup, None, Blocked, Alarm Low, Alarm High, Error

Alarm Latched : No, Yes

Alarm Silenced : No, Yes

Alarm Clearable : No, Yes

Alarm Working Process Value : -1,999.000 to 9,999.000

Alarm Working Set Point : -1,999.000 to 9,999.000

Error : None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, Fail, Not Sourced

Output Value : On, Off
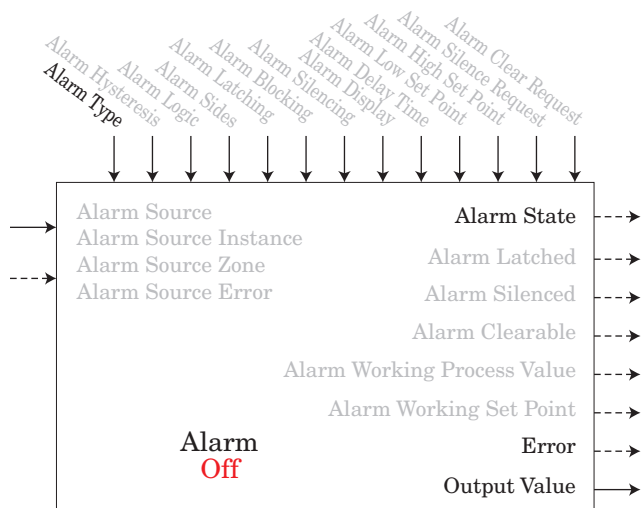
IF Type = Off THEN Output Value = OFF Alarm
State = None and Alarm Indication = None
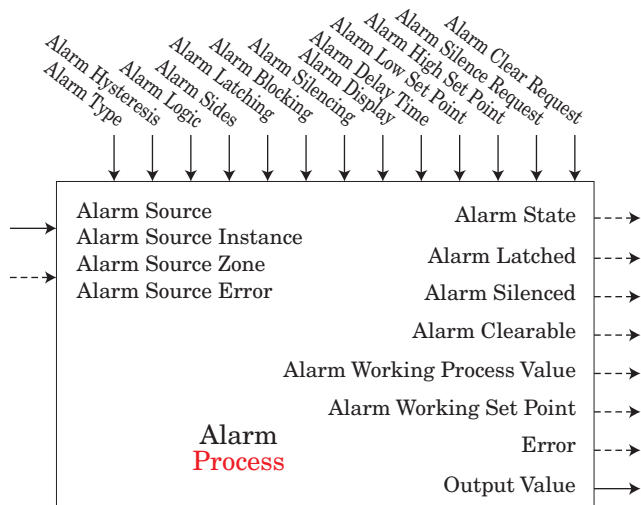
IF Type = Process THEN Alarm Variable = Process
Value

Compare Function

Use this function to compare Source A to Source B and then drive the output based on the comparison. For the function to work properly, Source A and Source B must be without errors.

An error, when read, can indicate any of the following: None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail, Math Error, Not Sourced, Stale

Tolerance is expressed in the same units as Source A.
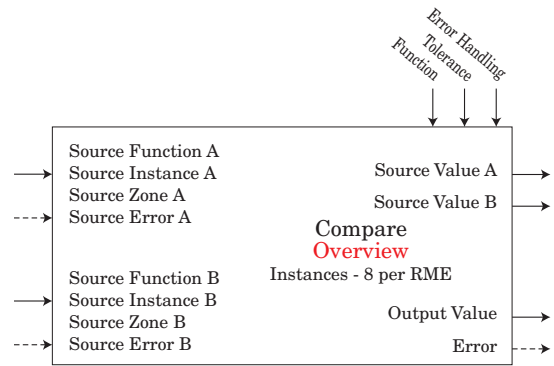
[CPE] Compare Menu
[SEt] Setup Page

[Fn] Function : Off, Greater Than, Less Than, Equal To, Not Equal To, Greater or Equal , Less or Equal

[tol] Tolerance : 0.0 to 9,999.000 units or F

[SFn.A] Source Function A : None, Analog Input, Current, Cool Power, Heat Power, Power, Linearization, Math, Process Value, Set Point Closed, Set Point Open, Variable

[S i.A] Source Instance A : 1 to 250

[S2.A] Source Zone A : 0 to 16

[SFn.b] Source Function B : None, Analog Input, Current, Cool Power, Heat Power, Power, Linearization, Math, Process Value, Set Point Closed, Set Point Open, Variable

[S i.b] Source Instance B : 1 to 250

[S2.b] Source Zone B : 0 to 16

[Er.h] Error Handling : False Bad, False Good, True Bad, True Good

[CPE] Compare Menu
[oPEr] Operation Page

[Su.A] Source Value A : -1,999.000 to 9,999.000 units or F

[Su.b] Source Value B : -1,999.000 to 9,999.000 units or F

[o.u] Output Value : Off, On
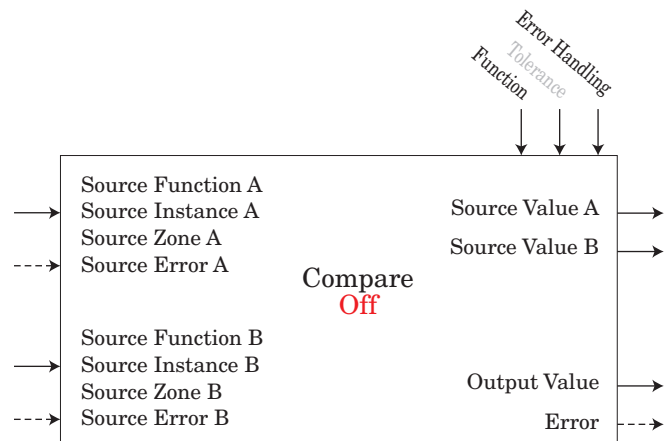
No Compare, Output Value = OFF

Compare
Greater Than

Error Handling / Tolerance / Function

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 Value A
Source Value B

Output Value
Error

A>B, Output Value = ON

Compare
Not Equal To

Error Handling / Tolerance / Function

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 Value A
Source Value B

Output Value
Error

A not equal B, Output Value = ON

Compare
Less Than

Error Handling / Tolerance / Function

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 Value A
Source Value B

Output Value
Error

A<B, Output Value = ON

Compare
Greater or Equal

Error Handling / Tolerance / Function

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 Value A
Source Value B

Output Value
Error

A>=B, Output Value = ON

Compare
Equal To

Error Handling / Tolerance / Function

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 Value A
Source Value B

Output Value
Error

A=B, Output Value = ON

Compare
Less or Equal

Error Handling / Tolerance / Function

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 Value A
Source Value B

Output Value
Error

A<=B, Output Value = ON

Counter Function

Function counts up or down from Load Value and produces Output Value = On when Count = Target Value.

Note:

Count value clears on power loss.

Load Value restored on power up.

Counter Operation:

Whenever a prescribed clock transition occurs without an error on source B the count will be equal to the Load Value.

If Function is an Up Counter:

Whenever a prescribed clock transition occurs without an error on Source A the count will increment by +1. If the count is equal to 9,999 when the transition occurs count will be 1 after transition.

If Function is a Down Counter:

Whenever a prescribed clock transition occurs without an error on Source A the count will decrement by -1. If the count is equal to 0 when the transition occurs the count will be 9,999 after transition.

An error, when read, can indicate any of the following: None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail, Math Error, Not Sourced, Stale
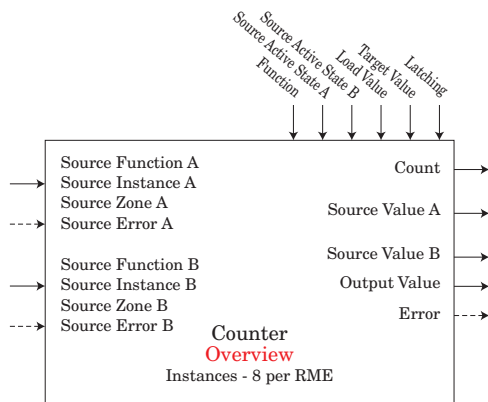
`[Ctr]` Counter Menu
`[SEt]` Setup Page

`[Fn]` Function : Up, Down

`[SFnA]` Source Function A (Clock) : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Logic, Timer, Variable

`[Si.A]` Source Instance A : 1 to 250

`[SZ.A]` Source Zone A : 0 to 16

`[SAS.A]` Source Active State A (Active State Clock) : High (rising), Low (falling), Both (rising & falling)

`[SFn.b]` Source Function B (Load) : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Logic, Timer, Variable

`[Si.b]` Source Instance B : 1 to 250

`[SZ.b]` Source Zone B : 0 to 16

`[SAS.b]` Source Active State B (Active State Load) : High, Low

`[LoAd]` Load Value : 0 to 9,999

`[trGt]` Target Value : 0 to 9,999

`[LAt]` Latching : No, Yes

`[Ctr]` Counter Menu
`[SEt]` Operation Page

`[Cnt]` Count : 0 to 9,999

`[Su.A]` Source Value A : Off, On

`[Su.b]` Source Value B : Off, On

`[o.u]` Output Value : Off, On

Custom Function

Custom
Overview
Instances - 20 per RME
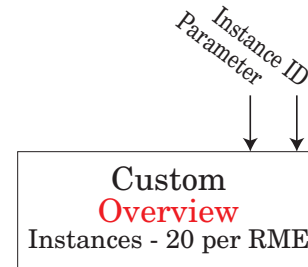
`[CUSt]` Custom Menu
`[FAct]` Factory Page

`[PAr]` Parameter : None, Display Units, User Settings Restore, Alarm Low Set Point, Alarm High Set Point, Alarm Hysteresis, Custom

`[i.id]` Instance ID : 1 to 24

Diagnostic Function

This function allows the user to view module specific information that may be useful when troubleshooting.

Diagnostics
Overview
Instances - 1 per RME
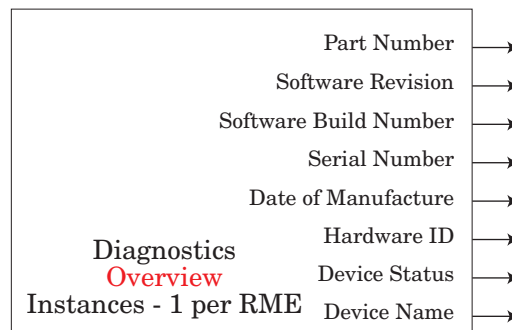
`[d.iA9]` Diagnostics Menu
`[FAct]` Factory Page

`[Pn]` Part Number: scrolls on display

`[rEu]` Software Revision: 1.00, ...

`[S.bLd]` Software Build Number : 0, 1, 2, ...

`[Sn]` Serial Number : xxxxxx

`[dAtE]` Date of Manufacture : YWW format

Hardware ID : 24 or 117 (RME)

Device Status : OK, Fail

Device Name : EZ-ZONE RM

Digital Input/Output Function

Note:

Input value is passed to any specified digital input source when programmed as input by that function block.

Output value determine by Function Block driving this output.

Digital I/O Value : On, Off

An error, when read, can indicate any of the following: None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail, Math Error, Not Sourced, Stale
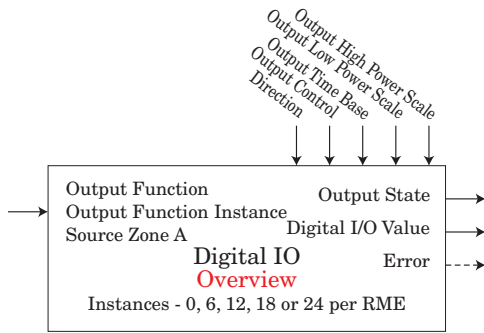
[`d io`] Digital I/O Menu
[`SEt`] Setup Page

[`d ir`] Direction : Output, Input Contact, Input Voltage

[`Fn`] Output Function : 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 : 1 to 250

[`S2A`] Source Zone A : 0 to 16

[`o.Ct`] Output Control : Fixed Time Base, Variable Time Base

[`o.tb`] Output Time Base : 0.1 to 60.0 seconds

[`o.Lo`] Output Low Power Scale : 0.0 to 100.0 %

[`o.h i`] Output High Power Scale : 0.0 to 100.0 %

[`d io`] Digital I/O Menu
[`SEt`] Operation Page

[`d iS`] Input State : On, Off

[`do.S`] Output State : On, Off

Digital IO as Input

Digital IO as Output
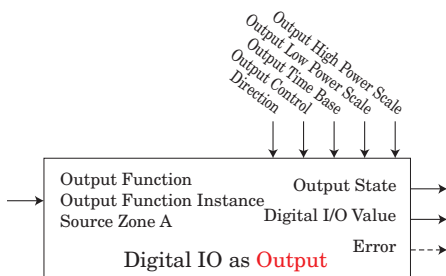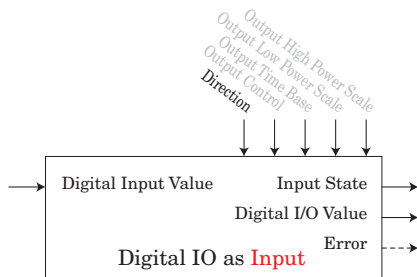
Global Function

This function allows the user to change display units as well as save and restore user settings.
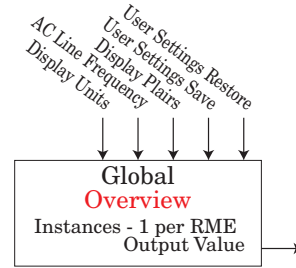
[`9L bL`] Global Menu
[`SEt`] Setup Page

[`C_F`] Display Units : F, C

[`AC.LF`] AC Line Frequency : 50 Hz, 60 Hz

[`d.PrS`] Display Pairs : 1 to 10

[`USr.S`] User Settings Save : None, User Set 1, User Set 2

[`USr.r`] User Settings Restore : None, User Set 1, User Set 2, 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.

An error, when read, can indicate any of the following: None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail, Math Error, Not Sourced, Stale
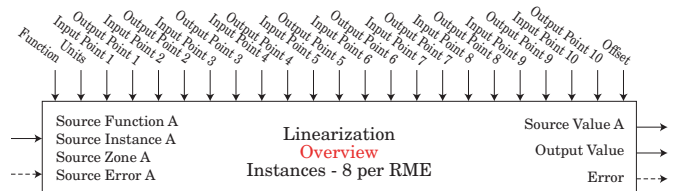
[`Lnr`] Linearization
[`SEt`] Setup Page

[`Fn`] Function : Off, Interpolated, Stepped

[`SFnA`] Source Function A : 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 : 1 to 250

[`S2A`] Source Zone A : 0 to 16

[`Un it`] Units : Source, None, Absolute Temperature, Relative Temperature, Power, Process, Relative Humidity

[`iP.1`] Input Point 1 : -1,999.000 to 9,999.000

[`oP.1`] Output Point 1 : -1,999.000 to 9,999.000

[`iP.2`] Input Point 2 : -1,999.000 to 9,999.000

[`oP.2`] Output Point 2 : -1,999.000 to 9,999.000

[`iP.3`] Input Point 3 : -1,999.000 to 9,999.000

[`oP.3`] Output Point 3 : -1,999.000 to 9,999.000

[`iP.4`] Input Point 4 : -1,999.000 to 9,999.000

[`oP.4`] Output Point 4 : -1,999.000 to 9,999.000

[`iP.5`] Input Point 5 : -1,999.000 to 9,999.000

[`oP.5`] Output Point 5 : -1,999.000 to 9,999.000

[`iP.6`] Input Point 6 : -1,999.000 to 9,999.000

[`oP.6`] Output Point 6 : -1,999.000 to 9,999.000

[`iP.7`] Input Point 7 : -1,999.000 to 9,999.000

[`oP.7`] Output Point 7 : -1,999.000 to 9,999.000

[`iP.8`] Input Point 8 : -1,999.000 to 9,999.000

[`oP.8`] Output Point 8 : -1,999.000 to 9,999.000

[`iP.9`] Input Point 9 : -1,999.000 to 9,999.000

[`oP.9`] Output Point 9 : -1,999.000 to 9,999.000

[`iP.10`] Input Point 10 : -1,999.000 to 9,999.000

[`oP.10`] Output Point 10 : -1,999.000 to 9,999.000

☐ S̄u̱R̄ Source Value A : -1,999.000 to 9,999.000

☐ o̱FSE̱ Offset : -1,999.000 to 9,999.000

☐ o̱u̱ Output Value : -1,999.000 to 9,999.000

Source Function A
Source Instance A
Source Zone A
Source Error A
Linearization *Off*
Source Value A
Output Value
Error

Source Function A
Source Instance A
Source Zone A
Source Error A
Linearization *Interpolated*
Source Value A
Output Value
Error

The output will scale smoothly between input points

Source Function A
Source Instance A
Source Zone A
Source Error A
Linearization *Stepped*
Source Value A
Output Value
Error

When the input reaches the next input point, the output switches to the corresponding output point.

Logic Function

This function allows the user to perform a logical operation on up to 8 inputs and then drive its output based on the operation.

An error, when read, can indicate any of the following: None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail, Math Error, Not Sourced, Stale

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

Logic *Overview*
Instances - 8 per RME

Source Value A
Source Value B
Source Value C
Source Value D
Source Value E
Source Value F
Source Value G
Source Value H

Output Value
Error

☐ F̱ṉ Function : Off, AND, OR, Equal To, NAND, NOR, Not Equal To, Latch, RS Flip Flop

☐ S̱FṉR̄ Source Function A : 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

☐ S̱ i̱R̄ Source Instance A : 1 to 250

☐ S̱2̱R̄ Source Zone A : 0 to 16

☐ S̱Fṉḇ Source Function B : 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

☐ S̱ i̱ḇ Source Instance B : 1 to 250

☐ S̱2̱ḇ Source Zone B : 0 to 16

☐ S̱FṉC̄ Source Function C : 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

☐ S̱ i̱C̄ Source Instance C : 1 to 250

☐ S̱2̱C̄ Source Zone C : 0 to 16

☐ S̱Fṉḏ Source Function D : 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

☐ S̱ i̱ḏ Source Instance D : 1 to 250

☐ S̱2̱ḏ Source Zone D : 0 to 16

☐ S̱FṉE̱ Source Function E : 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

☐ S̱ i̱E̱ Source Instance E : 1 to 250

☐ S̱2̱E̱ Source Zone E : 0 to 16

☐ S̱FṉF̱ Source Function F : 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

☐ S̱ i̱F̱ Source Instance F : 1 to 250

☐ S̱2̱F̱ Source Zone F : 0 to 16

☐ S̱Fṉ9̱ Source Function G : 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

☐ S̱ i̱9̱ Source Instance G : 1 to 250

☐ S̱2̱9̱ Source Zone G : 0 to 16

☐ S̱Fṉẖ Source Function H : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Limit, Logic, Special Function Out 1 to 4, Timer, Variable

☐ S̱ i̱ẖ Source Instance H : 1 to 250

☐ S̱2̱ẖ Source Zone H : 0 to 16

☐ E̱ṟẖ Error Handling : True Good, True Bad, False Good, False Bad

☐ S̱u̱R̄ Source Value A : Off, On

☐ S̱u̱ḇ Source Value B : Off, On

☐ S̱u̱C̄ Source Value C : Off, On

☐ S̱u̱ḏ Source Value D : Off, On

☐ S̱u̱E̱ Source Value E : Off, On

☐ S̱u̱F̱ Source Value F : Off, On

☐ S̱u̱9̱ Source Value G : Off, On

☐ S̱u̱ẖ Source Value H : Off, On

☐ o̱u̱ Output Value : Off, On

	Function	Error Handling	
Source Function A			Source Value A →
Source Instance A			Source Value B →
Source Zone A			
Source Error A ---→			Source Value C →
Source Function B			Source Value D →
Source Instance B			
Source Zone B			Source Value E →
Source Error B ---→			Source Value F →
Source Function C			Source Value G →
Source Instance C			
Source Zone C			Source Value H →
Source Error C ---→			

Logic AND

A * B * C * D * E * F * G * H = ON

Logic OR

A + B + C + D + E + F + G + H = ON

Logic NAND

$\overline{A * B * C * D * E * F * G * H}$ = ON

Logic NOR

$\overline{A + B + C + D + E + F + G + H}$ = ON

Logic — Not Equal (top-left)

Function   Error Handling

Inputs	Outputs
Source Function A	Source Value A
Source Instance A	Source Value B
Source Zone A	Source Value C
Source Error A	Source Value D
Source Function B	Source Value E
Source Instance B	Source Value F
Source Zone B	Source Value G
Source Error B	Source Value H
Source Function C	
Source Instance C	
Source Zone C	
Source Error C	
Source Function D	
Source Instance D	**Logic**
Source Zone D	**Not Equal**
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	Output Value
Source Zone H	Error
Source Error H	

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

Logic — Latch (top-right)

Function   Error Handling

Inputs	Outputs
Source Function A	Source Value A
Source Instance A	Source Value B
Source Zone A	Source Value C
Source Error A	Source Value D
Source Function B	Source Value E
Source Instance B	Source Value F
Source Zone B	Source Value G
Source Error B	Source Value H
Source Function C	
Source Instance C	
Source Zone C	
Source Error C	
Source Function D	
Source Instance D	**Logic**
Source Zone D	**Latch**
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	Output Value
Source Zone H	Error
Source Error H	

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

Logic — Equal (bottom-left)

Function   Error Handling

Inputs	Outputs
Source Function A	Source Value A
Source Instance A	Source Value B
Source Zone A	Source Value C
Source Error A	Source Value D
Source Function B	Source Value E
Source Instance B	Source Value F
Source Zone B	Source Value G
Source Error B	Source Value H
Source Function C	
Source Instance C	
Source Zone C	
Source Error C	
Source Function D	
Source Instance D	**Logic**
Source Zone D	**Equal**
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	Output Value
Source Zone H	Error
Source Error H	

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

Logic — RS Flip Flop (bottom-right)

Function   Error Handling

Inputs	Outputs
Source Function A	Source Value A
Source Instance A	Source Value B
Source Zone A	Source Value C
Source Error A	Source Value D
Source Function B	Source Value E
Source Instance B	Source Value F
Source Zone B	Source Value G
Source Error B	Source Value H
Source Function C	
Source Instance C	
Source Zone C	
Source Error C	
Source Function D	
Source Instance D	**Logic**
Source Zone D	**RS Flip Flop**
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	Output Value
Source Zone H	Error
Source Error H	

⎍ A Sets Output Value ON,   ⎍ B Resets 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.

An error, when read, can indicate any of the following: None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail, Math Error, Not Sourced, Stale

Top-left diagram

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
RS Flip Flop

Output Value
Error

⌐ A Sets Output Value ON, ⌐ B Resets Output Value OFF

Bottom-left diagram

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 diagram

Function | Scale Low | Scale High | Range Low | Range High | Pressure Units | Altitude Units | Filter | Offset

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 Value A
Source Value B
Source Value C
Source Value D
Source Value E

Math
Overview
Instances - 8 per RME

Output Value
Error

`Fn` Function : 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 : None, Analog Input, Current, Cool Power, Heat Power, Power, Linearization, Math, Process Value, Set Point Closed, Set Point Open, Variable

`SiA` Source Instance A : 1 to 250

`SZA` Source Zone A : 0 to 16

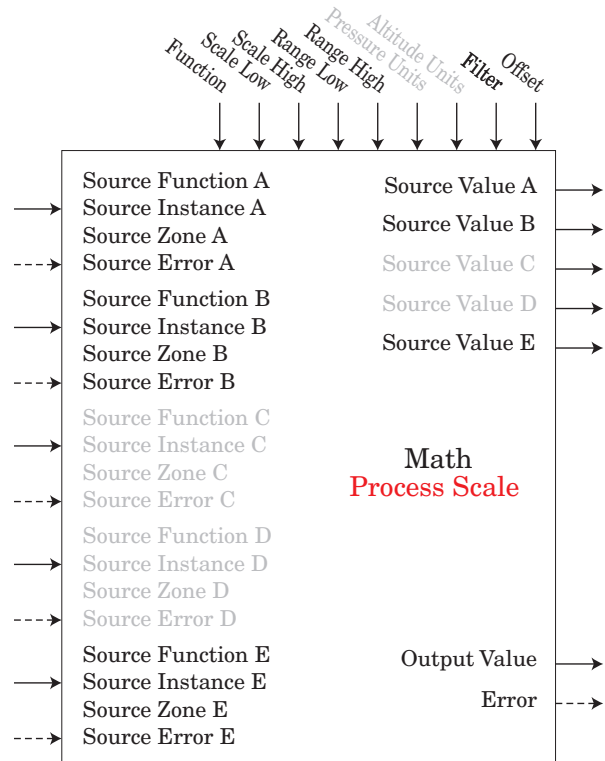`SFnb` Source Function B : None, Analog Input, Current, Cool Power, Heat Power, Power, Linearization, Math, Process Value, Set Point Closed, Set Point Open, Variable

`Sib` Source Instance B : 1 to 250

`SZb` Source Zone B : 0 to 16

`SFnC` Source Function C : None, Analog Input, Current, Cool Power, Heat Power, Power, Linearization, Math, Process Value, Set Point Closed, Set Point Open, Variable

`SiC` Source Instance C : 1 to 250

`SZC` Source Zone C : 0 to 16

`SFnd` Source Function D : None, Analog Input, Current, Cool Power, Heat Power, Power, Linearization, Math, Process Value, Set Point Closed, Set Point Open, Variable

`Sid` Source Instance D : 1 to 250

`SZd` Source Zone D : 0 to 16

`SFnE` Source Function E : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Logic, Timer, Variable

`SiE` Source Instance E : 1 to 250

`SZE` Source Zone E : 0 to 16

`SLo` Scale Low : -1,999.0 to 9,999.0

`Shi` Scale High : -1,999.0 to 9,999.0

`rLo` Range Low : -1,999.0 to 9,999.0

`rhi` Range High : -1,999.0 to 9,999.0

`Punt` Pressure Units : PSI, Torr, mBar, Atmosphere, Pascal

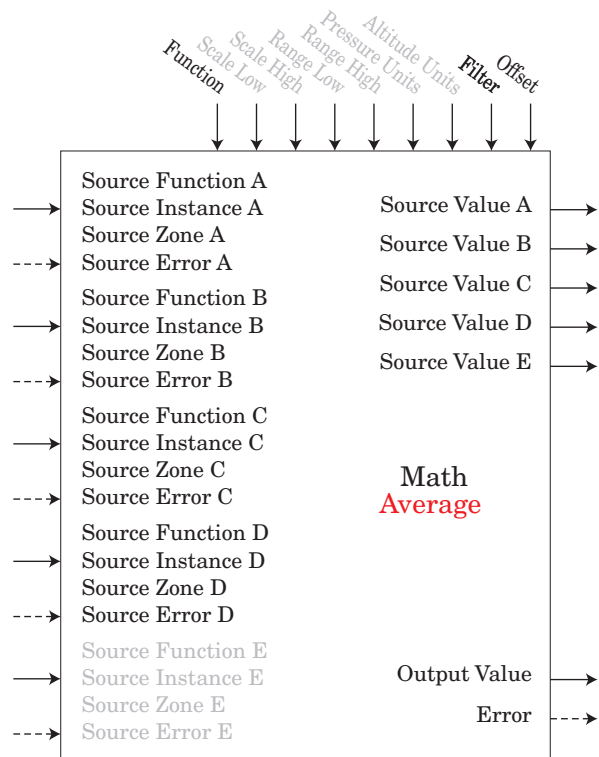`Aunt` Altitude Units : Feet, Kilofeet

`Fil` Filter : 0.0 to 60.0 seconds

`SuA` Source Value A : -1,999.000 to 9,999.000

`Sub` Source Value B : -1,999.000 to 9,999.000

`SuC` Source Value C : -1,999.000 to 9,999.000

`Sud` Source Value D : -1,999.000 to 9,999.000

`SuE` Source Value E : Off, On

`ou` Output Value : -1,999.000 to 9,999.000

`oFSt` Offset : -1,999.000 to 9,999.000

Function | Scale Low | Scale High | Range Low | Range High | Pressure Units | Altitude Units | Filter | Offset

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 Value A
Source Value B
Source Value C
Source Value D
Source Value E

Math
Off

Output Value
Error

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

Function | Scale Low | Scale High | Range Low | Range High | Pressure Units | Altitude Units | Filter | Offset

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 Value A
Source Value B
Source Value C
Source Value D
Source Value E

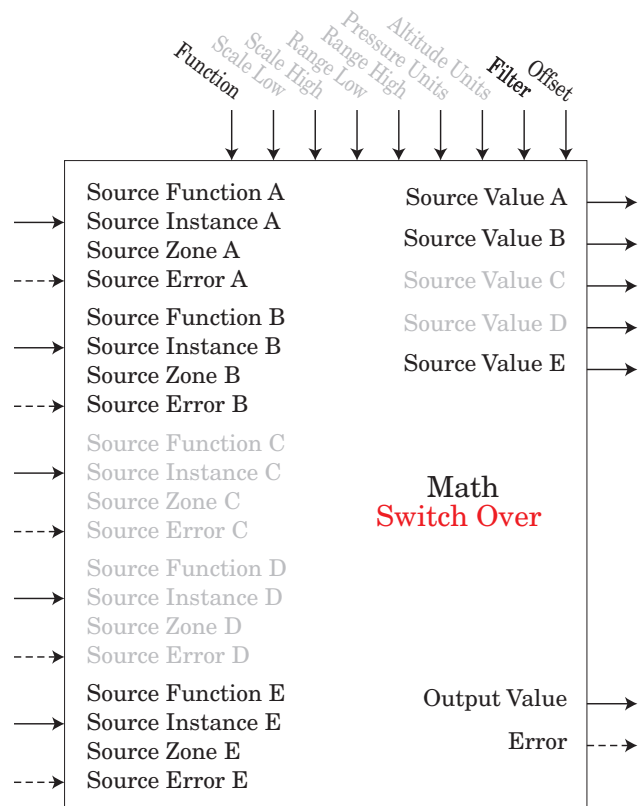Math
Process Scale

Output Value
Error

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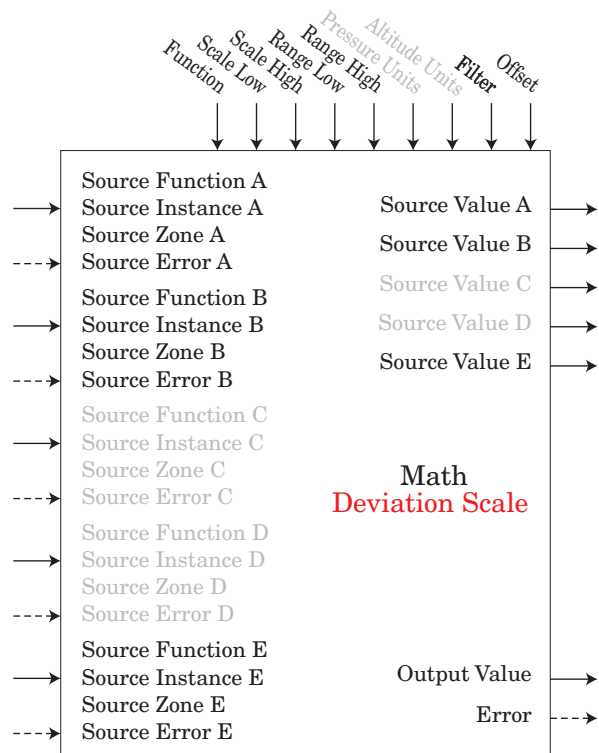If B = ON, Output Value = Filter [B + Offset]

Scale Low/High and Range Low/High follows Source A display units.

Math
Average

Inputs (top): Function, Scale Low, Scale High, Range Low, Range High, Pressure Units, Altitude Units, Filter, Offset

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 Value A
Source Value B
Source Value C
Source Value D
Source Value E

Output Value
Error

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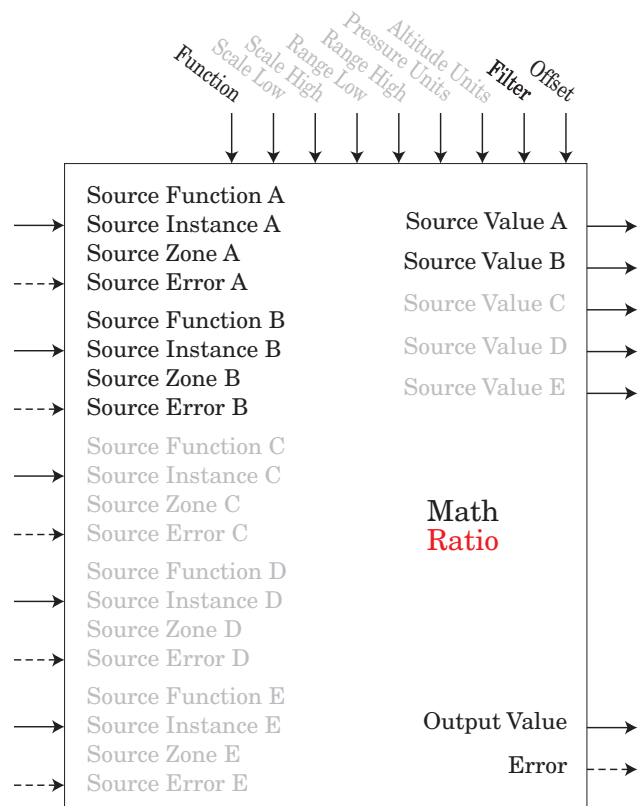Display units follows the last source that is temperature else follow Source A

Math
Switch Over

Inputs (top): Function, Scale Low, Scale High, Range Low, Range High, Pressure Units, Altitude Units, Filter, Offset

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 Value A
Source Value B
Source Value C
Source Value D
Source Value E

Output Value
Error

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

Math
Deviation Scale

Inputs (top): Function, Scale Low, Scale High, Range Low, Range High, Pressure Units, Altitude Units, Filter, Offset

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 Value A
Source Value B
Source Value C
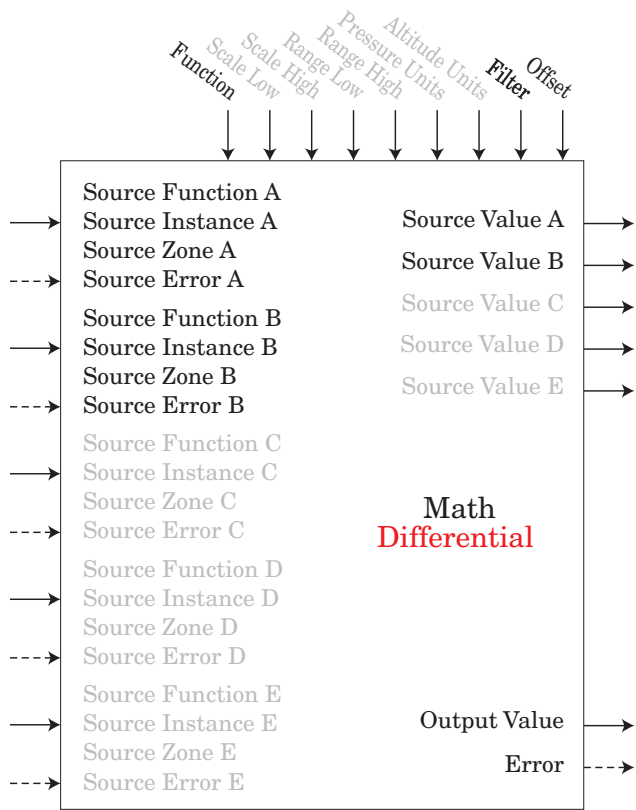Source Value D
Source Value E

Output Value
Error

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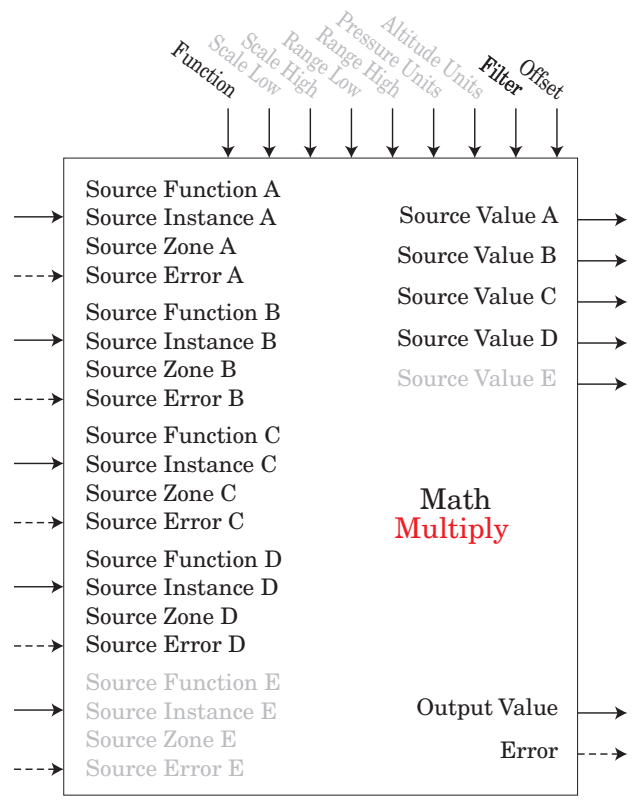If E = ON, Output Value = Filter [B + Offset]

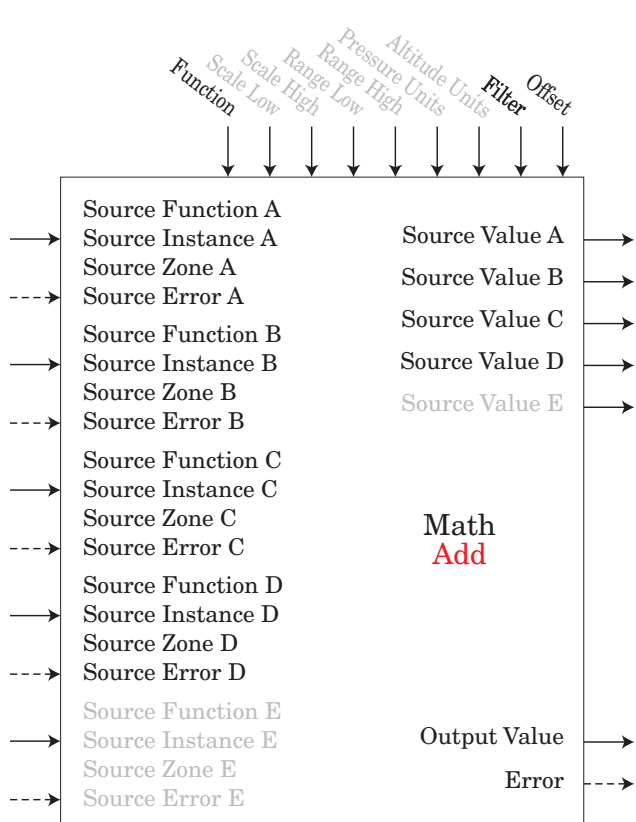Scale Low/High and Range Low/High follows Source A display units.

Math
Ratio

Inputs (top): Function, Scale Low, Scale High, Range Low, Range High, Pressure Units, Altitude Units, Filter, Offset

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 Value A
Source Value B
Source Value C
Source Value D
Source Value E

Output Value
Error

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

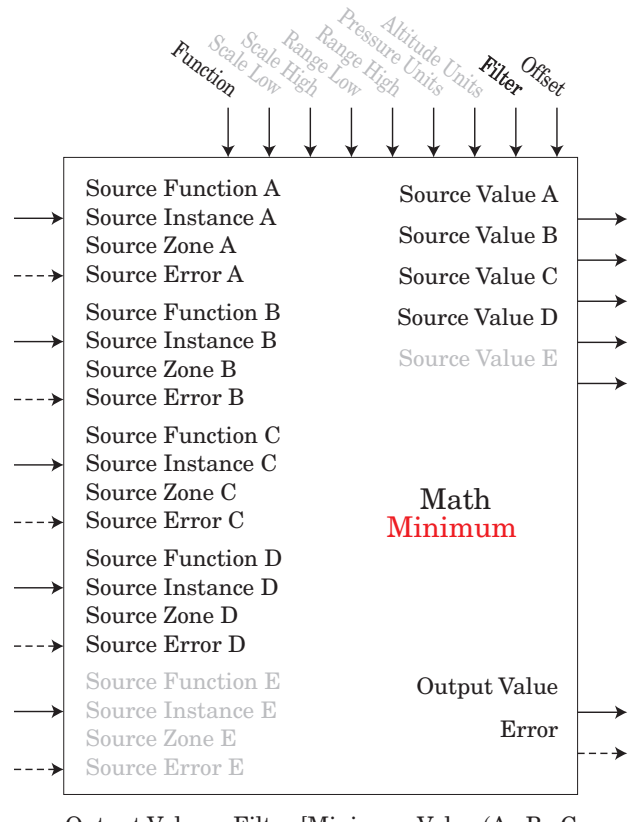**Top inputs (both top diagrams):** Function, Scale Low, Scale High, Range Low, Range High, Pressure Units, Altitude Units, Filter, Offset

Top-left block: Math Differential

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 Value A
Source Value B
Source Value C
Source Value D
Source Value E

Output Value
Error

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

Top-right block: Math Multiply

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 Value A
Source Value B
Source Value C
Source Value D
Source Value E

Output Value
Error

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

Bottom-left block: Math Add

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 Value A
Source Value B
Source Value C
Source Value D
Source Value E

Output Value
Error

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

Bottom-right block: Math Minimum

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 Value A
Source Value B
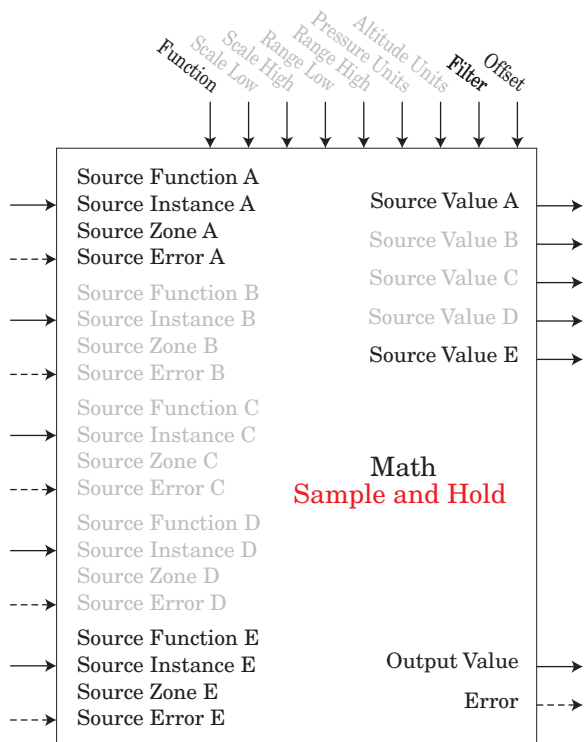Source Value C
Source Value D
Source Value E

Output Value
Error

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

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 Value A
Source Value B
Source Value C
Source Value D
Source Value E

Math
Absolute Difference

Output Value
Error

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

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 Value A
Source Value B
Source Value C
Source Value D
Source Value E

Math
Square Root

Output Value
Error

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

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 Value A
Source Value B
Source Value C
Source Value D
Source Value E

Math
Maximum

Output Value
Error

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

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 Value A
Source Value B
Source Value C
Source Value D
Source Value E

Math
Pressure to Altitude

Output Value
Error

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 Function

This function configures and connects physical outputs to internal functions.

Note:

Digital Outputs not included on these sheets

An error, when read, can indicate any of the following: None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail, Math Error, Not Sourced, Stale
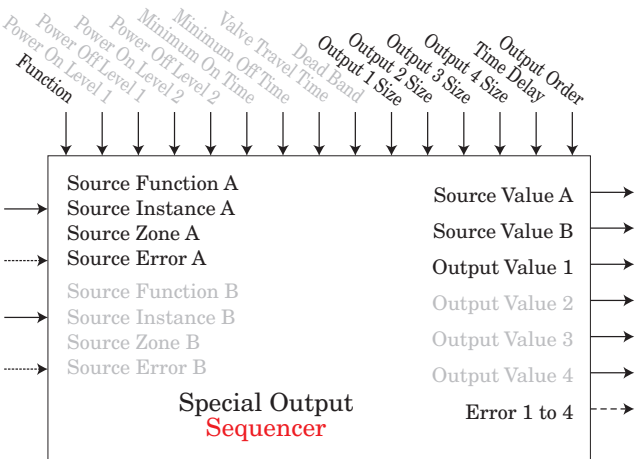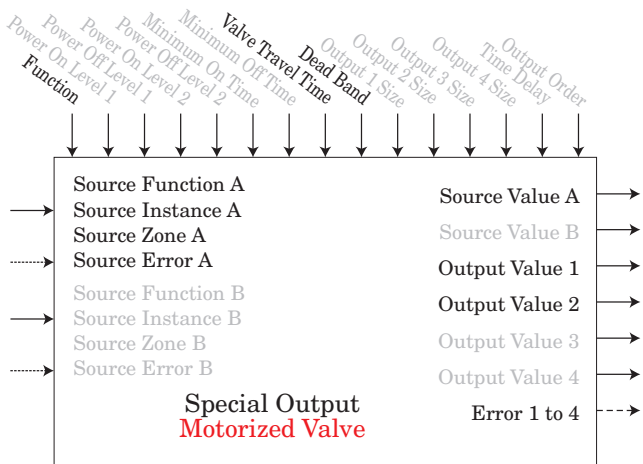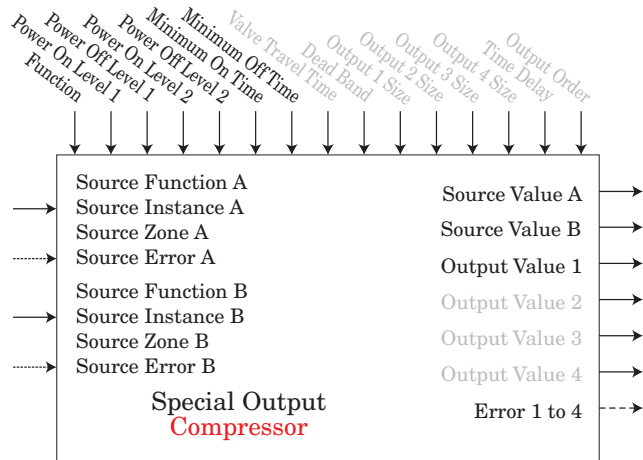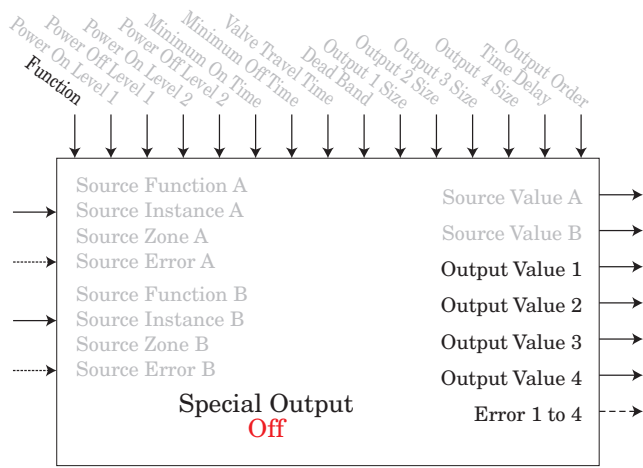

Sample and Hold math block

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

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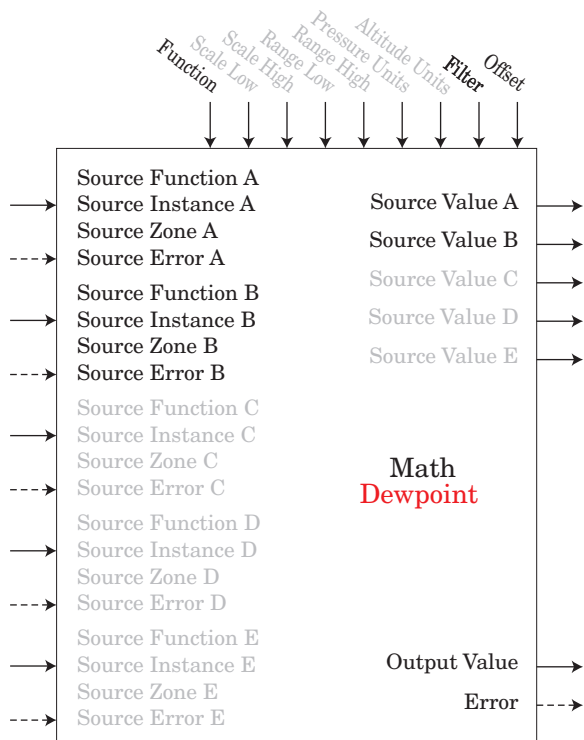
Output Value = Filter [427.26 * (CP * B / 8.8618) / (17.27- (CP * B / 8.8618)) + 32 + Offset]

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.

Output Overview
Instances - 0 to 22 per RME
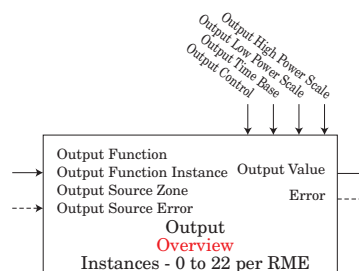
oEPE Output Menu
SEE Setup Page

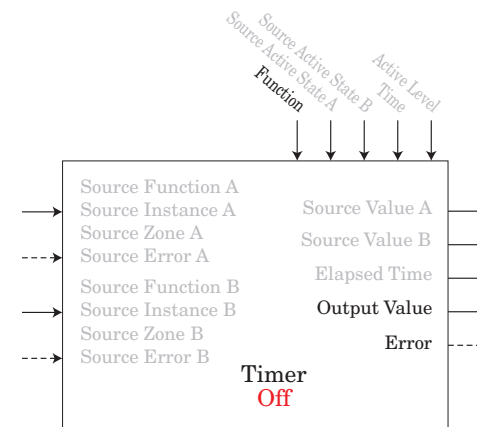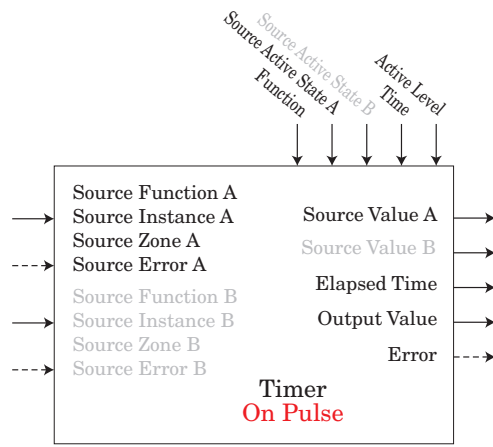| Code	Description
Fn	Output Function : Off, Analog Input, Alarm, Cool Power, Heat Power, Compare, Counter, Digital I/O. Profile Event Out A to H, Function Key, Logic, Linearization, Math, Process Value, Special Function Output 1 to 4, Timer, Variable
Fi	Output Function Instance : 1 to 250
S2	Output Source Zone : 0 to 16
oCE	Output Control : Fixed Time Base, Variable Time Base
oEb	Output Time Base : 0.1 to 60.0 seconds
oLo	Output Low Power Scale : 0 to 100 %
ohi	Output High Power Scale : 0 to 100 %
oEY	Output Type: Volts or Milliamps
Fn	Output Function : Off, Analog Input, Current, Cool Power, Heat Power, Control Loop Power, Linearization, Math, Process Value, Set Point Closed, Set Point Open, Special Function Outputs 1 to 4, Variable
Fi	Output Function Instance : 1 to 250
S2	Output Source Zone : 0 to 16
SLo	Scale Low: -100.0 to 100.0
Shi	Scale High: -100.0 to 100.0
rLo	Range Low: -1,999.000 to 9,999.000°F
rhi	Range High: -1,999.000 to 9,999.000°F
oCA	Calibration Offset
ou	Output Value : On, Off

Output Off

Output Digital

Watlow EZ-ZONE® RME Module • 104 • Chapter 6 Features
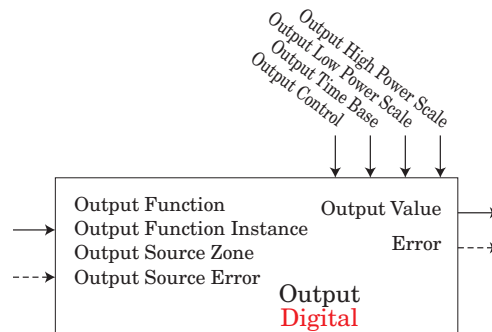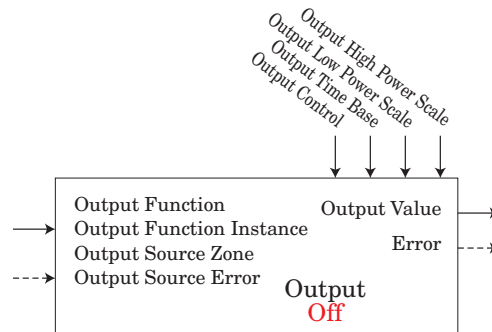
Security Function

Note:
Set on a Zone by Zone basis. This is independent of the RUI Security Setting.

If the Password is enabled, the user must enter the Password to get to menus that have been blocked due to lock level settings. Rolling passwords require 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.

Security Function Block
Overview
Instances - 1 per RME
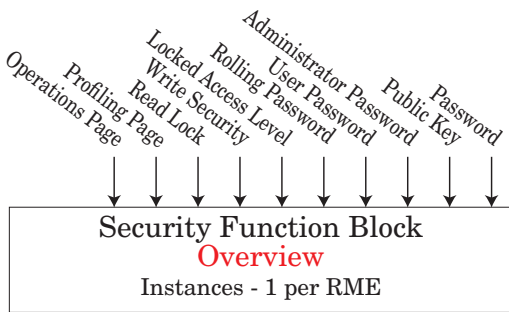
⌐LoC⌐ Lock Menu
⌐FAct⌐ Factory Page

⌐LoCo⌐ Operations Page : 1 to 3
⌐LoC.P⌐ Profiling Page : 1 to 3
⌐PAS.E⌐ Password Enable : Off, On
⌐r.LoC⌐ Read Lock : 1 to 5
⌐S.LoC⌐ Write Security: 1 to 5
⌐LoC.L⌐ Locked Access Level : 1 to 5
⌐roL.L⌐ Rolling Password : Off, On
⌐PAS.u⌐ User Password : 10 to 999
⌐PAS.A⌐ Administrator Password : 10 to 999

⌐ULoC⌐ Unlock Menu
⌐FAct⌐ Factory Page

⌐CodE⌐ Public Key : xxx
⌐PASS⌐ Password : xxx

Special Output Function

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

An error (1 - 4), when read, can indicate any of the following: None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail, Math Error, Not Sourced, Stale

Special Output
Overview
Instances - 4 per RME
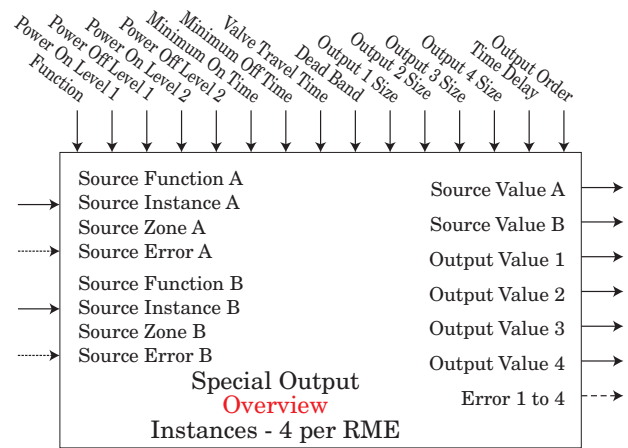
⌐SoF⌐ Special Output Function Menu
⌐SEt⌐ Setup Page

⌐Fn⌐ Function : Off, Compressor, Motorized Valve, Sequencer
⌐SFn.A⌐ Source Function A : None, Analog Input, Cool Power, Heat Power, Power, Linearization, Math, Process Value, Special Function Output 1, Variable
⌐Si.A⌐ Source Instance A : 1 to 250
⌐S2.A⌐ Source Zone A : 0 to 16
⌐SFn.b⌐ Source Function B : None, Cool Power, Heat Power, Power, Linearization, Math, Variable
⌐Si.b⌐ Source Instance B : 1 to 250
⌐S2.b⌐ Source Zone B : 0 to 16
⌐Pon.A⌐ Power On Level 1 : -100.0 to 100.0 %
⌐PoF.A⌐ Power Off Level 1 : -100.0 to 100.0 %
⌐Pon.b⌐ Power On Level 2 : -100.0 to 100.0 %
⌐PoF.b⌐ Power Off Level 2 : -100.0 to 100.0 %
⌐on.t⌐ Minimum On Time : 0 to 9,999 seconds
⌐oF.t⌐ Minimum Off Time : 0 to 9,999 seconds
⌐t.t⌐ Valve Travel Time : 10 to 9,999 seconds
⌐db⌐ Dead Band : 1.0 to 100.0 %
⌐o.S1⌐ Output 1 Size : 0 to 9,999
⌐o.S2⌐ Output 2 Size : 0 to 9,999
⌐o.S3⌐ Output 3 Size : 0 to 9,999
⌐o.S4⌐ Output 4 Size : 0 to 9,999
⌐t.dL⌐ Time Delay : 0 to 9,999 seconds
⌐ot.o⌐ Output Order : Linear, Progressive

⌐SoF⌐ Special Output Function Menu
⌐oPEr⌐ Operation Page

⌐Su.A⌐ Source Value A : -1,999.000 to 9,999.000
⌐Su.b⌐ Source Value B : -1,999.000 to 9,999.000
⌐o.u1⌐ Output Value 1 : -1,999.000 to 9,999.000 %
⌐o.u2⌐ Output Value 2 : -1,999.000 to 9,999.000 %
⌐o.u3⌐ Output Value 3 : -1,999.000 to 9,999.000 %
⌐o.u4⌐ Output Value 4 : -1,999.000 to 9,999.000 %

Special Output — Off

Inputs (top): Function, Power On Level 1, Power Off Level 1, Power On Level 2, Power Off Level 2, Minimum On Time, Minimum Off Time, Valve Travel Time, Dead Band, Output 1 Size, Output 2 Size, Output 3 Size, Output 4 Size, Time Delay, Output Order

Source Function A
Source Instance A
Source Zone A
Source Error A

Source Function B
Source Instance B
Source Zone B
Source Error B

Outputs: Source Value A, Source Value B, Output Value 1, Output Value 2, Output Value 3, Output Value 4, Error 1 to 4

Special Output — Compressor

Source Function A
Source Instance A
Source Zone A
Source Error A

Source Function B
Source Instance B
Source Zone B
Source Error B

Outputs: Source Value A, Source Value B, Output Value 1, Output Value 2, Output Value 3, Output Value 4, Error 1 to 4

Special Output — Motorized Valve

Source Function A
Source Instance A
Source Zone A
Source Error A

Source Function B
Source Instance B
Source Zone B
Source Error B

Outputs: Source Value A, Source Value B, Output Value 1, Output Value 2, Output Value 3, Output Value 4, Error 1 to 4

Special Output — Sequencer

Source Function A
Source Instance A
Source Zone A
Source Error A

Source Function B
Source Instance B
Source Zone B
Source Error B

Outputs: Source Value A, Source Value B, Output Value 1, Output Value 2, Output Value 3, Output Value 4, Error 1 to 4

Timer Function

An error, when read, can indicate any of the following: None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail, Math Error, Not Sourced, Stale

Timer — Overview

Inputs (top): Function, Source Active State A, Source Active State B, Active Level Time

Source Function A
Source Instance A
Source Zone A
Source Error A

Source Function B
Source Instance B
Source Zone B
Source Error B

Outputs: Source Value A, Source Value B, Elapsed Time, Output Value, Error

Instances - 8 per RME
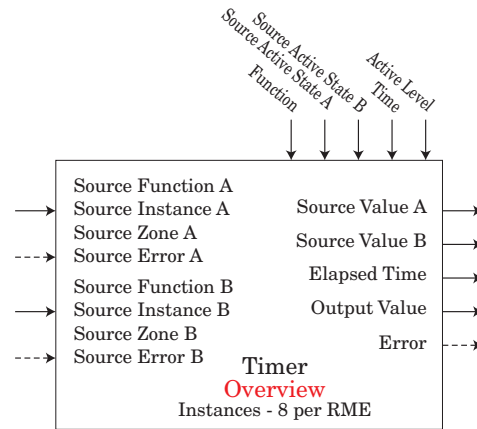
tMr Timer Menu
SEt Setup Page

Fn Function : Off, On Pulse, Delay, One Shot, Retentive

SFn.A Source Function A (Timer Run) : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Logic, Special Function Output 1 to 4, Timer, Variable

Si.A Source Instance A : 1 to 250

SZ.A Source Zone A : 0 to 16

SAS.A Source Active State A (Timer Run): High (rising), Low (falling)

SFn.b Source Function B (Timer Reset) : None, Alarm, Compare, Counter, Digital I/O, Profile Event Out A to H, Function Key, Logic, Special Function Output 1 to 4, Timer, Variable

Si.b Source Instance B : 1 to 250

SZ.b Source Zone B : 0 to 16

SAS.b Source Active State B (Timer Reset): High (rising), Low (falling)

ti Time : 0 to 9,999 seconds

LEu Active Level : High, Low

tMr Timer Menu
oPEr Operation Page

Su.A Source Value A : Off, On

Su.b Source Value B : Off, On

E.t Elapsed Time : 0.0 to 9,999.000 seconds

o.u Output Value : Off, On

Timer — Off

Source Function A
Source Instance A
Source Zone A
Source Error A

Source Function B
Source Instance B
Source Zone B
Source Error B

Outputs: Source Value A, Source Value B, Elapsed Time, Output Value, Error

Output Value = OFF

Timer
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.

Timing Diagram of On Pulse with active state rising edge

Source A (Run) `Sr.A`
Source Active State A `SASA` : High
Source Value A `uSA`

Active Level `LEu`   `High`
Output Value `o.u`

Active Level `LEu` : Low
Output Value `o.u`

Elapsed Time `E.t`

Time `ti`
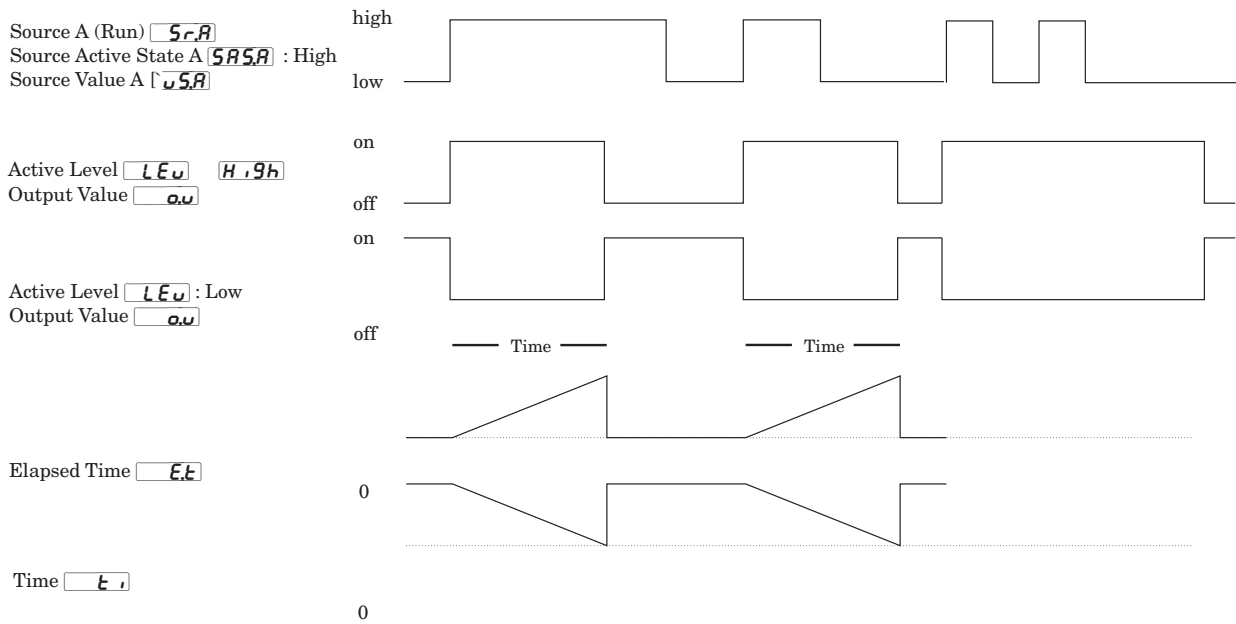
Timing Diagram of On Pulse with active state falling edge

Source A (Run) `Sr.A`
Source Active State A `SASA` : Low
Source Value A `uSA`

Active Level `LEu`   `High`
Output Value `o.u`

Active Level `LEu` : Low
Output Value `o.u`
Elapsed Time `E.t`

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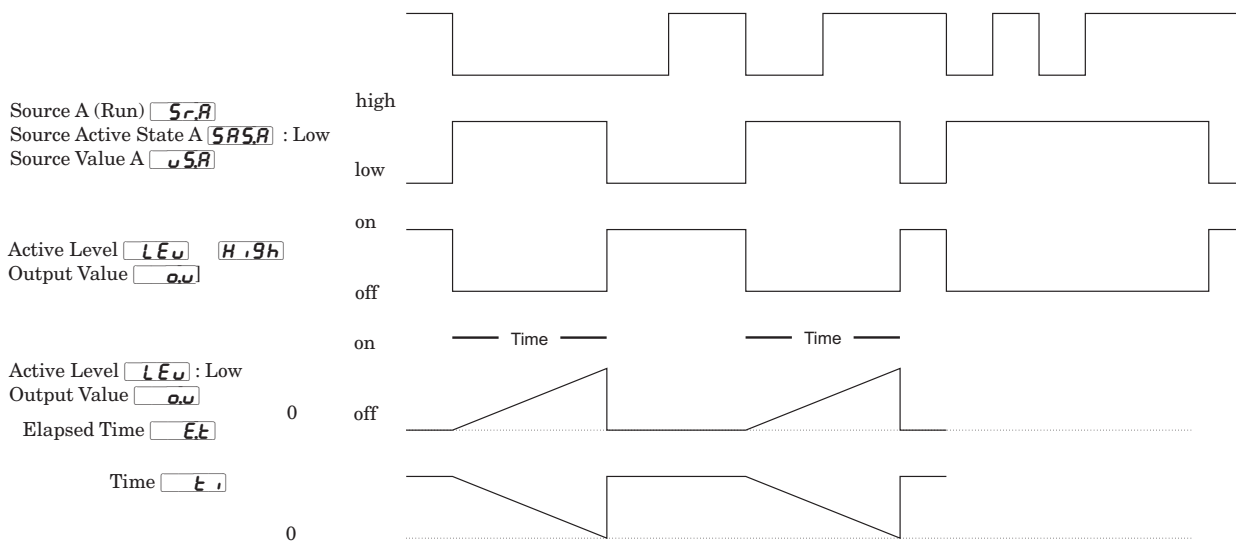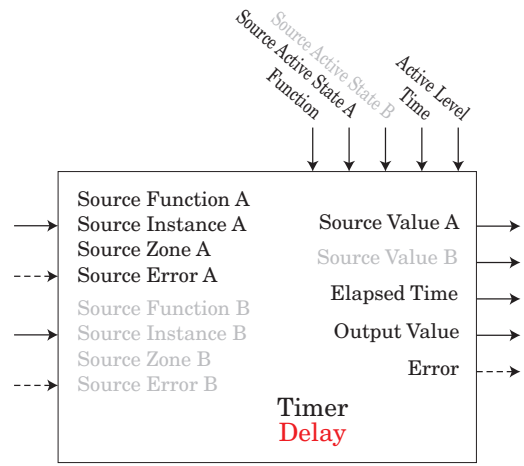
A delay timer is used to cause a delaying action. The delay can be made to happen on either the leading or trailing edge. This can be used to keep short input pulses from propagating or to have a secondary action occur at a known amount of time after the primary action; such as, turning on successive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

Source A
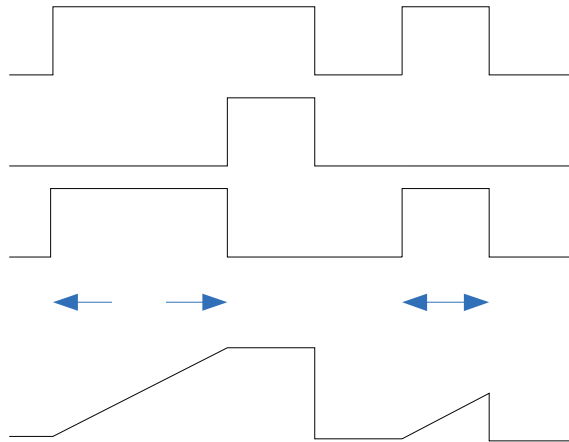
Source A
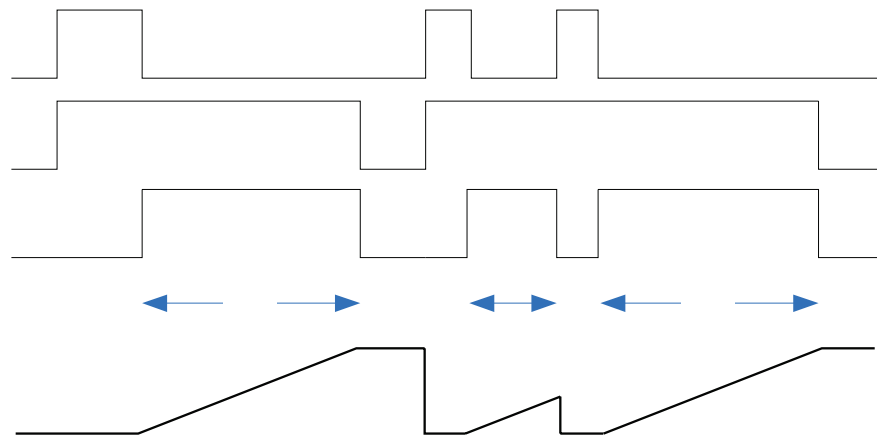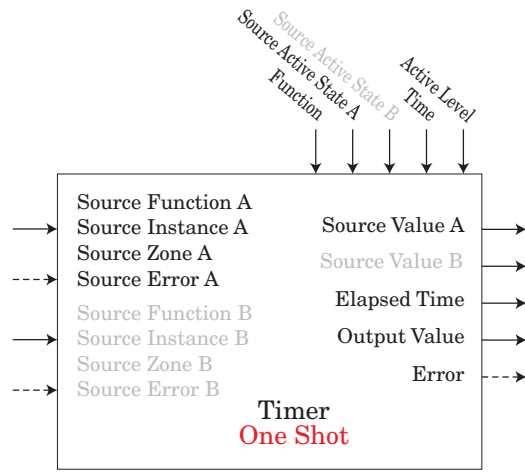
The One Shot timer functions like a simple oven timer. The time value gets set by the user and it counts down to zero without retaining the original time (hence the name one-shot). This is intended to be used in applications where the user will manually set different times for each process.
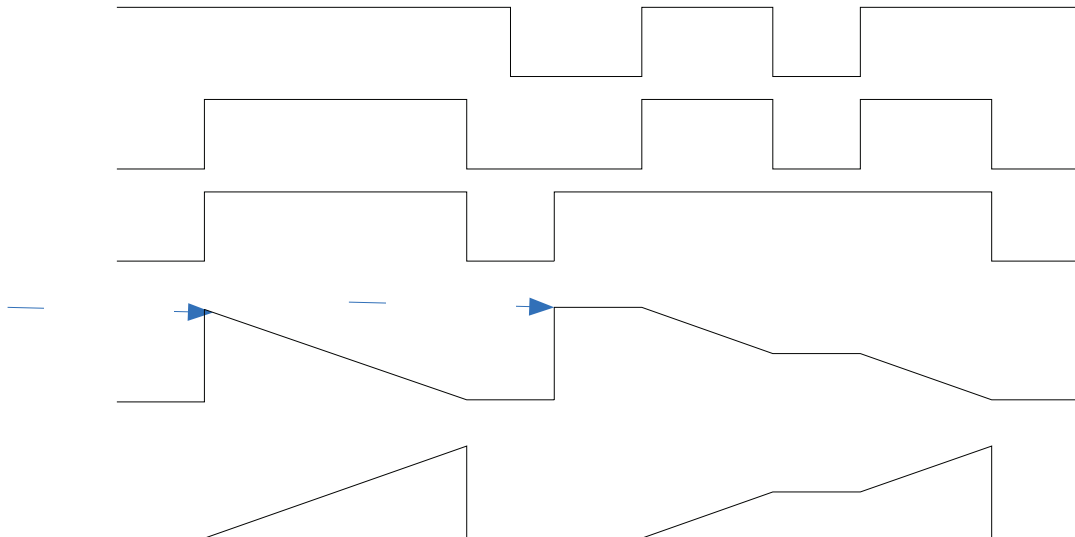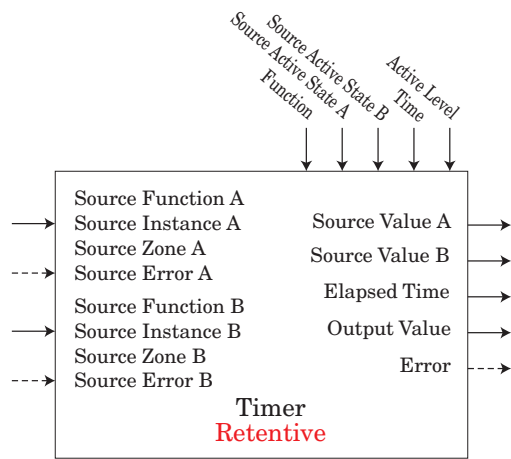
A retentive timer is used to keep track of how much time something has been in a particular state. This can be used to time how long something has been in an alarm state for example or how long it has been since a profile or step ran. The output can be used to trigger an event if the elapsed time has grown excessive.
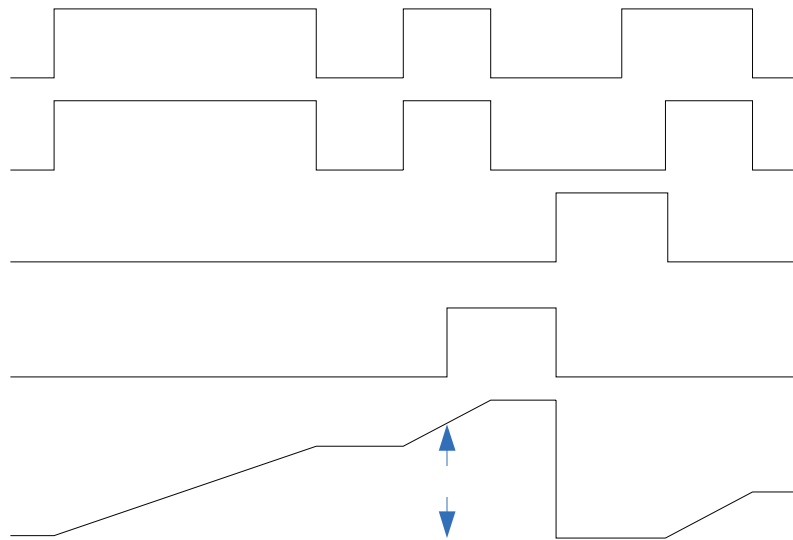
Variable Function

This function simply passes the stored value to its output.

An error, when read, can indicate any of the following: None, Open, Shorted, Measurement Error, Bad Cal Data, Ambient Error, RTD Error, Fail, Math Error, Not Sourced, Stale

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.

Variable
Overview
Instances - 8 per RME
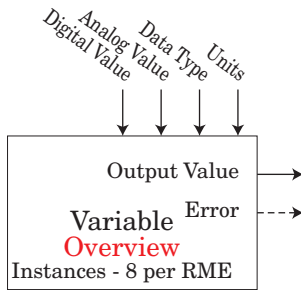
⌐uАr⌐ Variable Menu
⌐SEt⌐ Setup Page

⌐tУPE⌐ Data Type : Analog, Digital

⌐d.g⌐ Digital Value : On, Off

⌐АnLg⌐ Analog Value : -1,999.000 to 9,999.000

⌐Un.t⌐ Units : None, Absolute Temperature, Relative Temperature, Power, Process, Relative Humidity

⌐o.u⌐ Output Value : -1,999.000 to 9,999.000 or On, Off

Variable
Digital

Variable
Analog
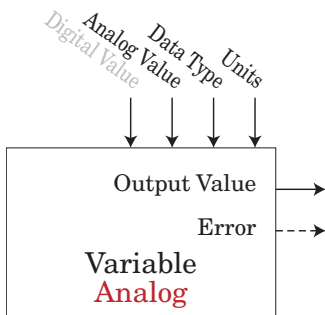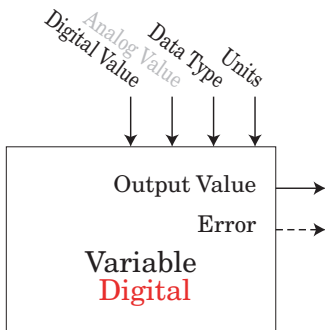
Chapter 7: Appendix

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.E1` `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

Alarm Low
`AL.L1` `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.h1` `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 `h.Er`	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.
Current Error `C.Er`	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 `C.S i` 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`, `FCtY` or `ProF` 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	• 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	• 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. (See specific module specification listing for maximum VA power consumption)
- Data retention upon power failure via nonvolatile memory
- Compliant with Semi F47-0200, Figure R1-1 voltage sag requirements

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
- Rail Mount 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 (Saftey Extra Low Voltage)

Agency Certifications
- 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 the isolated Standard Bus protocol for configuration and communication connection to all other EZ-ZONE products

Maximum System Configuration
- One access module plus up to 16 additional RM modules (any combination), with up to 152 control loops

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.)

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 re movable 12 to 30 AWG
  - Wire strip length 7.6 mm (0.30 in.)
  - Torque 0.8Nm (7.0 lb.-in.) right angle, 0.5Nm (4.51 lb-in) front terminal block
- Ring lug terminal block
  - Wire strip length 7.6 mm (0.30 in.)
  - Torque 1.13Nm (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
- Update rate 10Hz
- DC voltage
  - Max. input 36V at 3mA
  - Min. high state 3V at 0.25mA
  - Max. low state 2V

Dry Contact
- Update rate 10Hz
- Min. open resistance 100KΩ
- Max. closed resistance 50Ω

Output Hardware
Digital Output
- 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
- Dual SSR board option, Form A, 10A max. each SSRs combined @ 24V~ (ac) min., 264V~ (ac) max., opto-isolated, without contact suppression
  - Maximum resistive load 10 A per output @ 240V (ac)
  - Maximum 20 A per card @ 50 °C
  - Maximum 12 A per card @ 65 °C

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

Process/Retransmit Outputs, Range Selectable
- 0 to 10V ═(dc) into a min. 4KΩ load
  - 0 to 20mA into max. 400Ω load
  Resolution
  - dc ranges: 0.2mV nominal
  - mA ranges: 0.4µA nominal
  Calibration Accuracy
  - dc ranges: ±15 mV
  - mA ranges: ±30 µA
  Temperature Stability
  - 100 ppm FSR/°C

Quad Solid-State Relays
- 2 A at 20 to 264V~ (ac) maximum resistive load
- 50 VA 120/240V~ (ac) pilot duty

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 8 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, minimum, maximum, square root, sample and hold

Special Output Function 8 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

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

Variable 8 total

User value for digital or analog variable

Optional Accessories

Remote User Interface

Basic RUI

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

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 RM Product Documentation

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

EZ-ZONE Rail-Mount Expansion Module 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	⑨⑩ Future Options	⑪⑫ Additional Options
RM	**E**		-				-	**AA**	

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)

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

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)

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

⑨⑩ Future Options

AA = Standard

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

Index

X

Y

Z

Declaration of Conformity

EZ Zone Series RM

$C\epsilon$

WATLOW
1241 Bundy Blvd.
Winona, MN 55987 USA

an ISO 9001 approved facility since 1996.

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	**2006**	**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	2008	Electrostatic Discharge Immunity
EN 61000-4-3	2010	Radiated Field Immunity
EN 61000-4-4	2011	Electrical Fast-Transient / Burst Immunity
EN 61000-4-5	2006	Surge Immunity
EN 61000-4-6	2008	Conducted Immunity
EN 61000-4-11	2004	Voltage Dips, Short Interruptions and Voltage Variations Immunity
EN 61000-3-2	2005	Harmonic Current Emissions
EN 61000-3-3[1]	2005	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	**2010**	**Safety Requirements of electrical equipment for measurement, control and laboratory use. Part 1: General requirements**

Compliant with 2002/95/EC RoHS Directive

Per 2002/96/EC W.E.E.E Directive 🗑 Please Recycle Properly

Joe Millanes	Winona, Minnesota, USA
Name of Authorized Representative	Place of Issue
Director of Operations	September 2013
Title of Authorized Representative	Date of Issue

Signature of Authorized Representative

How to Reach Us

Corporate Headquarters

Watlow Electric Manufacturing Company
12001 Lackland Road
St. Louis, MO 63146
Sales: 1-800-WATLOW2
Manufacturing Support: 1-800-4WATLOW
Email: info@watlow.com
Website: www.watlow.com
From outside the USA and Canada:
Tel: +1 (314) 878-4600
Fax: +1 (314) 878-6814

Latin America

Watlow de México S.A. de C.V.
Av. Fundición No. 5
Col. Parques Industriales
Querétaro, Qro. CP-76130
Mexico
Tel: +52 442 217-6235
Fax: +52 442 217-6403

Europe

Watlow France
Tour d'Asnières.
4 Avenue Laurent Cély
92600 Asnières sur Seine
France
Tél: + 33 (0)1 41 32 79 70
Télécopie: + 33(0)1 47 33 36 57
Email: info@watlow.fr
Website: www.watlow.fr

Watlow GmbH
Postfach 11 65, Lauchwasenstr. 1
D-76709 Kronau
Germany
Tel: +49 (0) 7253 9400-0
Fax: +49 (0) 7253 9400-900
Email: info@watlow.de
Website: www.watlow.de

Watlow Italy S.r.l.
Viale Italia 52/54
20094 Corsico   MI
Italy
Tel: +39 024588841
Fax: +39 0245869954
Email: italyinfo@watlow.com
Website: www.watlow.it

Watlow Ibérica, S.L.U.
C/Marte 12, Posterior, Local 9
E-28850 Torrejón de Ardoz
Madrid - Spain
T. +34 91 675 12 92
F. +34 91 648 73 80
Email: info@watlow.es
Website: www.watlow.es

Watlow UK Ltd.
Linby Industrial Estate
Linby, Nottingham, NG15 8AA
United Kingdom
Telephone: (0) 115 964 0777
Fax: (0) 115 964 0071
Email: info@watlow.co.uk
Website: www.watlow.co.uk
From outside The United Kingdom:
Tel: +44 115 964 0777
Fax: +44 115 964 0071

Asia and Pacific

Watlow Singapore Pte Ltd.
16 Ayer Rajah Crescent,
#06-03/04,
Singapore 139965
Tel: +65 6773 9488 Fax: +65 6778 0323
Email: info@watlow.com.sg   Website: www.watlow.com.sg

Watlow Australia Pty., Ltd.
4/57 Sharps Road
Tullamarine, VIC 3043
Australia
Tel: +61 3 9335 6449
Fax: +61 3 9330 3566
Website: www.watlow.com

Watlow Electric Manufacturing Company (Shanghai) Co. Ltd.
Room 501, Building 10, KIC Plaza
290 Songhu Road, Yangpu District
Shanghai, China 200433
China
Phone
Local: 4006 Watlow (4006 928569)
International: +86 21 3381 0188
Fax: +86 21 6106 1423
Email: info@watlow.cn
Website: www.watlow.cn

ワトロー･ジャパン株式会社
〒101-0047 東京都千代田区内神田1-14-4
四国ビル別館9階
Tel: 03-3518-6630 Fax: 03-3518-6632
Email: infoj@watlow.com   Website: www.watlow.co.jp

Watlow Japan Ltd.
1-14-4 Uchikanda, Chiyoda-Ku
Tokyo 101-0047
Japan
Tel: +81-3-3518-6630 Fax: +81-3-3518-6632
Email: infoj@watlow.com   Website: www.watlow.co.jp

Watlow Korea Co., Ltd.
#1406, E&C Dream Tower, 46, Yangpyeongdong-3ga
Yeongdeungpo-gu, Seoul 150-103
Republic of Korea
Tel: +82 (2) 2628-5770   Fax: +82 (2) 2628-5771
Website: www.watlow.co.kr

Watlow Malaysia Sdn Bhd
1F-17, IOI Business Park
No.1, Persiaran Puchong Jaya Selatan
Bandar Puchong Jaya
47100 Puchong, Selangor D.E.
Malaysia
Tel: +60 3 8076 8745   Fax: +60 3 8076 7186
Email: vlee@watlow.com
Website: www.watlow.com

瓦特龍電機股份有限公司
80143 高雄市前金區七賢二路189號 10樓之一
電話: 07-2885168   傳真: 07-2885568

Watlow Electric Taiwan Corporation
10F-1 No.189 Chi-Shen 2nd Road Kaohsiung 80143
Taiwan
Tel: +886-7-2885168   Fax: +886-7-2885568

Your Authorized Watlow Distributor

TOTAL
CUSTOMER
SATISFACTION
3 Year Warranty