

DeltaV™ M-series Zone 2 Remote I/O



Unlike any other remote I/O solution, DeltaV shared remote I/O connects with any DeltaV controller for maximum installation flexibility.

- Shared remote I/O for maximum flexibility
- Easy plug-and-play installation
- Easy to use

Introduction

DeltaV™ M-series Zone 2 Remote I/O scanners provide communication and control between the field devices and the other nodes on the control network. Control strategies and system configurations can be used with the DeltaV system's powerful controllers with I/O residing either local to the controller, or on a remote I/O scanner.

Benefits

Shared remote I/O. Unlike other remote I/O, DeltaV M-series Zone 2 Remote I/O can be shared amongst several DeltaV controllers for a greater range of applications and installation flexibility.

Easy plug-and-play installation. DeltaV M-series Zone 2 Remote I/O automatically identifies itself to the control network, saving the usual no-value engineering work that other automation systems require. Additionally, I/O cards are recognized as they are inserted into the remote I/O subsystem.

Easy to use. Like the regular I/O in your DeltaV system, the DeltaV controller manages all activities for your Zone 2 Remote I/O.

Product Description

The DeltaV M-series Zone 2 Remote I/O delivers big savings in the installation process. The compact, modular design allows you to cost-effectively meet your process needs.

Shared remote I/O for maximum flexibility

I/O Targeting. The M-series Zone 2 Remote I/O scanner supports targeting of Classic I/O to controllers on a per card basis. For example, a card can be owned by a controller, with different I/O cards owned by a different controller, with the limit that a Remote I/O scanner can support 4 controllers maximum.

Each DeltaV controller can have up to 16 Remote I/O scanners associated with it.

The DeltaV system supports up to 300 remote I/O scanners¹. The scanners communicate on the same Ethernet network as the controllers and workstations.

The primary port supports 10/100 MB communication, and the secondary supports 10 MB only.

Data Passthrough. The controller is equipped with the ability to pass smart HART[®] information from field devices to any workstation node in the control network.

This means you can take advantage of applications, such as AMS Device Manager that enable you to remotely manage the HART information contained in your HART equipped devices.

Mounting. This plug-and-play system structure provides modular system growth with a single controller and is approved for remote mounting in a Class 1, Div 2 or ATEX Zone II environment. Refer to the System Power Supplies and I/O Subsystem Carriers product data sheets for additional information.

I/O Types and Capacity. The M-series Zone 2 Remote I/O scanner supports one carrier (8 simplex cards) of either Classic I/O or Hart I/O. The scanner and I/O cards can be installed on either horizontal or VerticalPlus carriers. Any of the Classic or Hart I/O cards may be utilized. The Hart data from the I/O channels can be used in a control strategy, providing the user with the same experience using remote I/O as when using local I/O.

The following M-series card types are NOT supported with the M-series Zone 2 remote I/O: High Density Plus cards, Pulse Count Input card, Sequence of Events card, Foundation Fieldbus cards, Profibus DP card, DeviceNet card, AS-i card, and Serial cards. I/O card redundancy is also not supported.

Easy plug-and-play installation

Self-Addressing. The M-series Zone 2 Remote I/O scanner is unique in its ability to automatically identify itself to the DeltaV control network. When the Zone 2 Remote I/O scanner is powered up, it is automatically assigned a unique address—no dip switches, no configuring—just **plug and play!**

Self-Locating. A M-series Zone 2 Remote I/O scanner's physical location is easy to find. LEDs on the face of the controller can be made to flash, providing a **strong visual clue.**

Automatic I/O Detection. The M-series Zone 2 Remote I/O scanner can identify all I/O interface channels located on the subsystem. As soon as an I/O interface is plugged in, the scanner knows the general characteristics of the field devices managed by that I/O interface. This reduces the “no-value engineering” associated with configuration—**easy!**

Easy to use

Total Control. The controller(s) manages all control activities for the I/O interface channels. It also manages all communication functions for the communications network. Time stamping, alarming, and trend objects are also managed within the controller(s). The controller(s) executes your control strategy. Information from an input channel on a Remote I/O scanner is received, control strategy applied, and data is sent to an output channel on Remote I/O scanner within 200 ms -assuming a 100 ms scan time for the I/O.

¹DeltaV supports a combined 300 Remote I/O nodes, CHARM I/O cards (CIOCs), Wireless I/O cards (WIOCs), and Ethernet I/O Cards (EIOCs) in a single system.

Hardware Specifications

Specifications for the Zone 2 Remote I/O Scanner	
Power Requirement	Supplied by System Power Supply through 2 wide Power/Controller Carrier
Maximum Current	2.0 A
Fuse Protection	3.0 A, non-replaceable fuses
Power Dissipation	4.0 W typical, 5.4 W maximum
Mounting	On right slot of power/controller carrier
Environmental specifications	
Operating Temperature*	-40 to 70°C (-40 to 158°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Relative Humidity	5 to 95%, non-condensing
Airborne Contaminants	ISA-S71.04-1985 Airborne Contaminants Class G3 Conformal coating
Shock (normal operating conditions)	10 g ½-sine wave for 11 ms
Vibration (operative limit)	1 mm peak-to-peak from 5 Hz to 16 Hz, 0.5 g from 16 Hz to 150 Hz
Hazardous area/location**	ATEX EEx nA IIC T4 Class 1, Div 2, Groups A, B, C, D, T4
LED Indicators	
Green – Power	Indicates DC power is applied
Red – Error	Indicates an error condition
Yellow flashing – Pri. CN	Indicates valid primary control network communication
Yellow, flashing – Sec. CN	Indicates valid secondary control network communication
All except Power Flashing	Visual identification mode (Initiated by user from engineering software tools)
All except Power Flashing, Sequenced	Firmware upgrade in progress
External connections	
Primary Control Network	8-pin RJ-45 connector
Redundant Control Network	8-pin RJ-45 connector

*Operating any electronics at the higher end of its temperature range for long periods of time will shorten its expected lifetime, see *Effects of Heat and Airflow Inside an Enclosure White Paper* for more information.

**Refer to Zone 2 installation instructions (12P2046) and/or Class 1 Division 2 installation instructions (12P1293) for information on installing in hazardous areas.

Ordering Information

Description	Model Number
M-series Zone 2 Remote I/O scanner	VE4021

Prerequisites

- For each M-series Zone 2 Remote I/O scanner you will need to select the mounting carrier. Please refer to the I/O Subsystem Carrier product data sheets for details.

Use either the horizontally mounted model VE4050S2K1C0 8-Wide I/O Interface Carrier for the I/O cards, and model VE3051C0 2-Wide Power/Controller Carrier for the scanner and associated power supply, or use the vertically mounted model VE4054S1C0 8-Wide VerticalPlus I/O Interface Carrier for the I/O cards, and model VE3056 4-Wide VerticalPlus Power/Controller Carrier for the scanner and associated power supply.

- Each M-series Zone 2 Remote I/O scanner requires a dedicated system power supply. Please refer to the Power Supplies product data sheet for details. Use model VE5009 enhanced DC to DC System power supply.

Compatibility

- The M-series Zone 2 Remote I/O scanner is supported by the M- and S-series Controller Portfolio.
- The M-series Zone 2 Remote I/O scanner is not supported on the M- and S- series Migration Controllers for PROVOX and is not supported on the M- series Migration Controller for RS3.

Emerson
North America, Latin America:
 ☎ +1 800 833 8314 or
 ☎ +1 512 832 3774

Asia Pacific:
 ☎ +65 6777 8211

Europe, Middle East:
 ☎ +41 41 768 6111

🌐 www.emerson.com/deltav

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