

M-series DeviceNet Interface Card



The DeltaV™ M-series DeviceNet Interface Card provides the solution for interfacing to discrete actuators and sensors.

- Offers freedom to choose appropriate bus for application
- Supports standard device-level busses
- Reduces wiring costs
- Features native controller level interface
- Able to mix and match bus technologies to meet application requirements

Introduction

The DeltaV™ M-series DeviceNet interface Card is a field-proven interface for discrete actuators and sensors. It is easy to install, reliable, and simple to use.

High data throughput, simple installation, good diagnostic capabilities and error-free proven transmission technology make the DeltaV M-series DeviceNet Interface Card a good interface solution for complex devices such as motor starters and variable frequency drives.

Benefits

Offers freedom to choose appropriate bus for application. The DeltaV system supports sensor, device, and fieldbus technologies. Choose the most efficient and effective DeltaV interface for your needs, based on your operating philosophy and plant constraints.

Supports standard device-level busses. The DeltaV system gives a seamless interface with CENELEC or IEC standard device busses. Our support of standards ensures your freedom to use the devices you prefer.

Reduces wiring costs. The DeltaV M-series DeviceNet interface Card decreases the number of wiring diagrams and cable and clamp labeling needed. The modular designs reduce network creation time. And, it takes less time to install and test the DeviceNet than M-series Classic I/O for the equivalent number of discrete signals.

Features native controller-level interface. DeltaV M-series DeviceNet Interface Cards communicate directly to the controller, without the need for a serial interface and other intermediate converters. This greatly simplifies the configuration and maintenance. You can rely on DeltaV M-series DeviceNet Interface Cards to provide real-time, consistently accurate inputs and outputs. As the network of field devices grows, maintenance remains constant.

Able to mix and match bus technologies to meet application requirements. The DeltaV system makes it easy to configure and activate the devices. For devices not in the library, users can add devices and customize signal labeling according to specific plant standards.

DeviceNet, AS-i bus, Profibus DP, FOUNDATION fieldbus, HART, and traditional I/O can be easily intermixed on an I/O card basis on the same DeltaV controller. The same configuration, diagnostic, and operator interface techniques are used to configure the system.

Product Description

The DeltaV M-series DeviceNet Interface Card uses standard DeviceNet cabling. The interface is based on the master/slave principle. Sixty-one slaves may run on a cable.

One DeviceNet segment is supported on a single interface. Temperature and certification specifications are the same as other DeltaV I/O.

The DeviceNet transmission technology is easy to install. The bus structure permits addition and removal of stations or step-by-step commissioning of the system without influencing the other stations. Future expansions have no effect on stations already in operation.

Transmission speeds between 125 kbit/sec and 500 kbit/sec can be selected. One unique transmission speed is selected for all devices on the bus when the system is commissioned.

It should be noted that signals connected to the controller through the M-series DeviceNet Interface Card are not as fast as signals that are directly wired to DeltaV discrete I/O cards.

In most cases, the number of DSTs per connected DeviceNet device will be 1 DST. The DST type counted will be the most valuable type used to reference a signal for each device. If references are made to more than 16 signals from a device, additional signal references beyond the 16th reference will each count as a DST. A motor starter, for example, with 4 to 5 signal references, will consume 1 DST (typically an AI or DO DST). A remote I/O island will consume 1 DST for the first 16 signal references, and 1 DST for each additional signal reference beyond the 16th signal reference.

Performance of the DeviceNet segment will be a function of the number of devices connected and the baud rate; typically, an additional 80—100mS latency will be introduced rather than directly connecting the signal.

Fully utilize the intelligence of your DeviceNet devices - control module and graphical display templates are included with the DeltaV system for common DeviceNet devices, providing easy integration of diagnostic information from these devices within the DeltaV system.

System Compatibility

DeviceNet transmission speeds and cable lengths			
Baud rate (kbit/sec)	125	250	500
Distance/segment	500m	250m	100m

Common Environmental Specifications for all I/O Carriers and Power/Controller Interfaces		
	Series 1 Card	Series 2 Card**
Category	Specifications:	
Storage Temperature	-40 to 85 °C (-40 to 185 °F)	-40 to 85 °C (-40 to 185 °F)
Operating Temperature	0 to 55 °C (32 to 131 °F)	-40° C to 70° C (-40° to 158° F)
Relative humidity	5 to 95% , non-condensing	5 to 95% , non-condensing
Airborne contaminants	ISA-S71.04-1985 Airborne Contaminants Class G3 Conformal coating	ISA-S71.04-1985 Airborne Contaminants Class G3 Conformal coating
Protection rating	IP 20, NEMA 12	IP 20, NEMA 12
Hazardous area/location*	ATEX EEx nA IIC T4 Class 1, Div 2, Groups A, B, C, D, T4	ATEX EEx nA IIC T4 Class 1, Div 2, Groups A, B, C, D, T4
Shock	10 g ½-sine wave for 11 ms	10 g ½-sine wave for 11 ms
Vibration	1 mm peak-to-peak from 5 to 16 Hz; 0.5 g from 16 to 150 Hz	1 mm peak-to-peak from 5 to 16 Hz; 0.5 g from 16 to 150 Hz

DeviceNet Interface Specifications	
Number of ports	1

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

**Series 2 card complies with NAMUR NE21 per DeltaV Digital Automation System NAMUR NE21 Installation Instructions 12P2822.

DeviceNet Slave

A DeviceNet slave is a peripheral device (I/O device, drive, HMI, valve, etc.) that collects input information and sends output information to the master. There are also devices that supply only input or only output information.

The amount of input and output information depends on the device type.

Only slave devices that support polling may be used. The DeltaV DeviceNet card (master) cyclically reads the input information from the slaves and cyclically writes the output information to the slaves. In addition to cyclic user data transmission, DeviceNet provides powerful functions for diagnostics and configuration.

EDS Files

A EDS file is used to identify a DeviceNet device. (master or slave). It contains data making it possible to have manufacturer-independent configuration tools. Typical information in an EDS file is vendor information, device identification, and configuration and diagnostic parameter information. An EDS file must be available for every DeviceNet slave. The DeltaV system uses the information in the EDS file to set up the communications to the slave device. The EDS can be imported into the DeltaV system to add the new slave to the library.

Ordering Information

Description	Model Number
M-series DeviceNet Interface Card	VE4016

To locate a sales office near you, visit our website at:

www.EmersonProcess.com/DeltaV

Or call us at:

Asia Pacific: 65.6777.8211

Europe, Middle East: 41.41.768.6111

North America, Latin America: +1 800.833.8314 or
+1 512.832.3774

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