

S-series AS-i Interface Cards



The DeltaV S-series AS-i Interface Cards provide the solutions for interfacing to discrete actuators and sensors.

- Integrate AS-I device signals directly into control logic.
- Auto sense of AS-I field devices
- Native DeltaV™ bus interface eliminates data mapping
- Reduces wiring costs
- Mix-and-match bus technologies to meet application requirements

Introduction

The DeltaV™ actuator sensor interface (AS-i) is a field-proven interface for discrete actuators and sensors. It is easy to install, reliable, and simple to use and complements traditional instrumentation as well as other more sophisticated busses available with DeltaV.

The DeltaV AS-i interface uses an automatic addressing system via the bus connection. The DeltaV implementation focuses on ease of use and robustness for troublefree installation and operation. The DeltaV system auto-senses AS-i devices and provides smooth activation of new devices. This smart design gives each field device a specific tag name that identifies the device for configuration and diagnostic purposes.

Benefits

Integrate AS-I device signals directly into control logic. The DeltaV AS-I card integrates simple AS-I field devices natively into the controller's I/O subsystem. This allows the control modules to directly access field signals by device/signal name, making configuration easy and self documenting.

Auto sense of AS-I field devices. Like all DeltaV products, the AS-I card is easy to install. The card and connected devices are auto-sensed, making field signals available for use in control logic with zero additional configuration. Signals can be renamed to reflect signal function.

Native DeltaV bus interface eliminates data mapping. By using the AS-I card, device data is made available directly within the DeltaV controller's I/O subsystem. There is no data mapping as would be needed with a third party interface using a different protocol.

Reduces wiring costs The use of bus technologies greatly reduces the wiring costs of traditional instrumentation. The AS-I bus uses a cable with a mechanical profile that ensures correct connection, making installation quick and easy.

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.

AS-i bus, Profibus DP, DeviceNet, 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 Actuator-Sensor Interface (AS-i) is a digital, serial, bi-directional communications protocol and bus system that interconnects simple binary on-off devices such as actuators, sensors, and discrete devices in the field. The AS-i standard is now defined by CENELEC standard EN 50295. DeltaV implements AS-I 2.0, supporting 31 basic digital devices per segment, 62 devices per card.

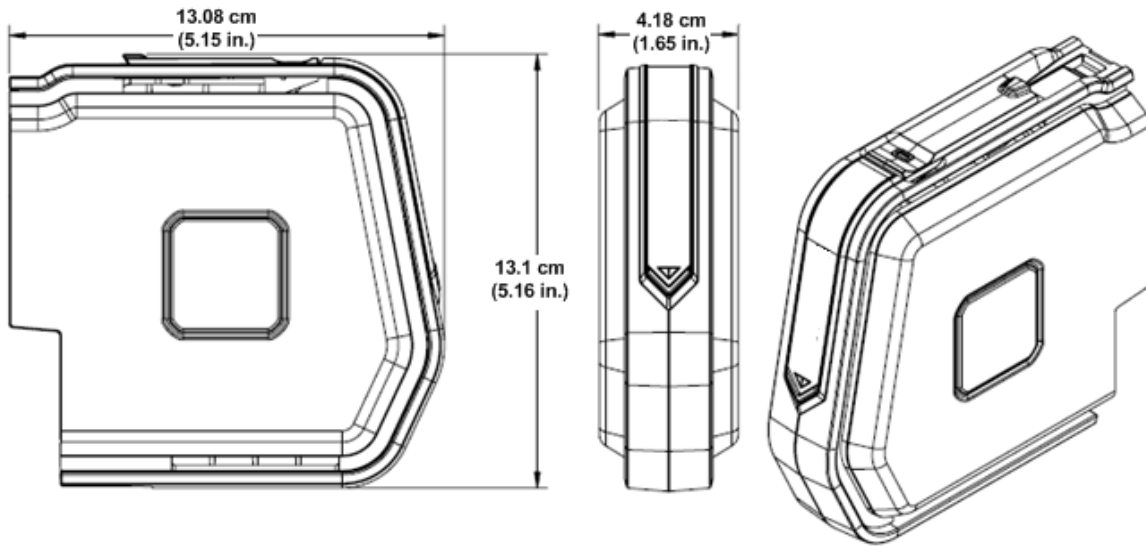
The two-conductor AS-i bus cable supplies both power and data for the field devices. The AS-i bus is designed to operate over distances of up to 100m (more if extenders or repeaters are used). No terminators are needed anywhere on the AS-i bus.

The AS-i bus requires use of a special AS-i power supply that provides electrical isolation from the data signals. For convenience, a special AS-i yellow bus cable that provides a simple cabling and connection method to most AS-i devices can be purchased. This cable has a mechanical profile that provides foolproof, correct connections via insulation displacement connection (IDC) technology built into the AS-i devices. This cabling method ensures fast connection and disconnection. Conventional round profile cable can also be used with AS-i devices, since many vendors supply screw terminal options. Black (for DC) and red (for AC) color-coded cables are also available for field devices that require external power connections. Many low- or medium-powered devices are simply powered through the AS-i yellow cable and do not require external power.

The DeltaV AS-i card has two AS-i master ports. It controls communications on the AS-i network by polling the network devices, issuing commands, and receiving and processing replies from the network devices.

Each AS-i network can include up to 31 slave devices. Each slave can connect up to four conventional non-smart inputs and four non-smart outputs, meaning that up to 124 inputs and 124 outputs can be involved in each AS-i network. Network topology can include branches and stars (using passive splitters or hubs). The only limit is that the total length of AS-i cable anywhere between extenders or repeaters is limited to 100 meters. Repeaters generally require a separate AS-i power supply on the far side of the repeater.

Each signal brought into a control module via AS-i counts as a DST, and is handled in exactly the same manner as directly connected I/O in the control strategies. The number of DSTs per connected device can vary from 1 to 8 (4 in and 4 out), with a typical device using 3.



S-series AS-i card dimensions

Hardware Specifications

S-series AS-i Interface Specifications	
Category	Specifications:
Number of ports	2
Number of devices per port	31
Environmental Specifications	
Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Operating Temperature	-25 to 70 °C (-13 to 158 °F)
Relative humidity	5 to 95% , non-condensing
Airborne contaminants	ISA-S71.04-1985 Airborne Contaminants Class G3 Conformal coating
Protection rating	IP 20
Shock	10 g ½-sine wave for 11 ms
Vibration	1 mm peak-to-peak from 5 to 13.2 Hz; 0.7 g from 13.2 to 150 Hz
Isolation	Each AS-i port is optically isolated from each other and the system and factory tested to 1500 VDC

Certifications

The following certifications are available on the S-series AS-I card.

■ CE:

- EMC- EN 61326-1:2006
- LVD- EN 61010-1:2001

■ CSA:

- CLASS 2252 05 - PROCESS CONTROL EQUIPMENT:

CAN/CSA-C22.2 No. 0-M91 General Requirements-
Canadian Electrical Code, Part II

CAN/CSA-C22.2 No. 61010-1-04 Safety
Requirements for Electrical Equipment for
Measurement, Control, and Laboratory Use,
Part 1: General Requirements

The following certifications have been submitted for Hazardous Locations and for Marine applications. Please verify with the appropriate certifying agency for a specific list of approved components

■ CENELEC Zone 2 ATEX/IEC EX

EN 60079-15:2005

Certifying agency: Nemko
Certificate Number: TBD

Refer to document TBD
*"DeltaV™ Scalable Process System Zone 2
Installation Instructions"*

■ FM Approval

Class 1 Division 2 Hazardous Locations

Certifying agency: FM Approvals
Certificate Number: TBD

Refer to document TBD
*"DeltaV™ Scalable Process System Class 1
Division 2 installation Instructions"*

■ Marine Certifications:

IACS E10:2006 Rev.5 Control, protection &
Safety

- ABS Certificate of Design Assessment
- Bureau Veritas Certificate

- DNV Marine Certificate
- Lloyds Register

■ GOST Hazardous Area certification Zone 2 (Russian)

Other country specific certifications may also be available. Verify with your local Emerson sales office to confirm any certification requirements not listed here.

Complies with NAMUR NE21 per DeltaV Digital Automation System NAMUR NE21 Installation Instructions 12P2822.

Ordering Information

Description	Model Number
S-series Actuator Sensor Interface Card, includes terminal block	SE4009

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

www.EmersonProcess.com/DeltaV

Or call us at:

Asia Pacific: 65.777.8211

Europe, Middle East: 41.41.768.6111

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

For large power, water, and wastewater applications

contact Power and Water Solutions at:

www.EmersonProcess-powerwater.com

Or call us at:

Asia Pacific: 65.777.8211

Europe, Middle East, Africa: 48.22.630.2443

North America, Latin America: +1 412.963.4000

© Emerson Process Management 2011. All rights reserved. For Emerson Process Management trademarks and service marks, go to:
<http://www.emersonprocess.com/home/news/resources/marks.pdf>.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available on request. We reserve the right to modify or improve the design or specification of such products at any time without notice.

