

S-series AS-i Interface Card



The DeltaV™ S-series AS-i Interface Card provides the solution 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 trouble-free 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.

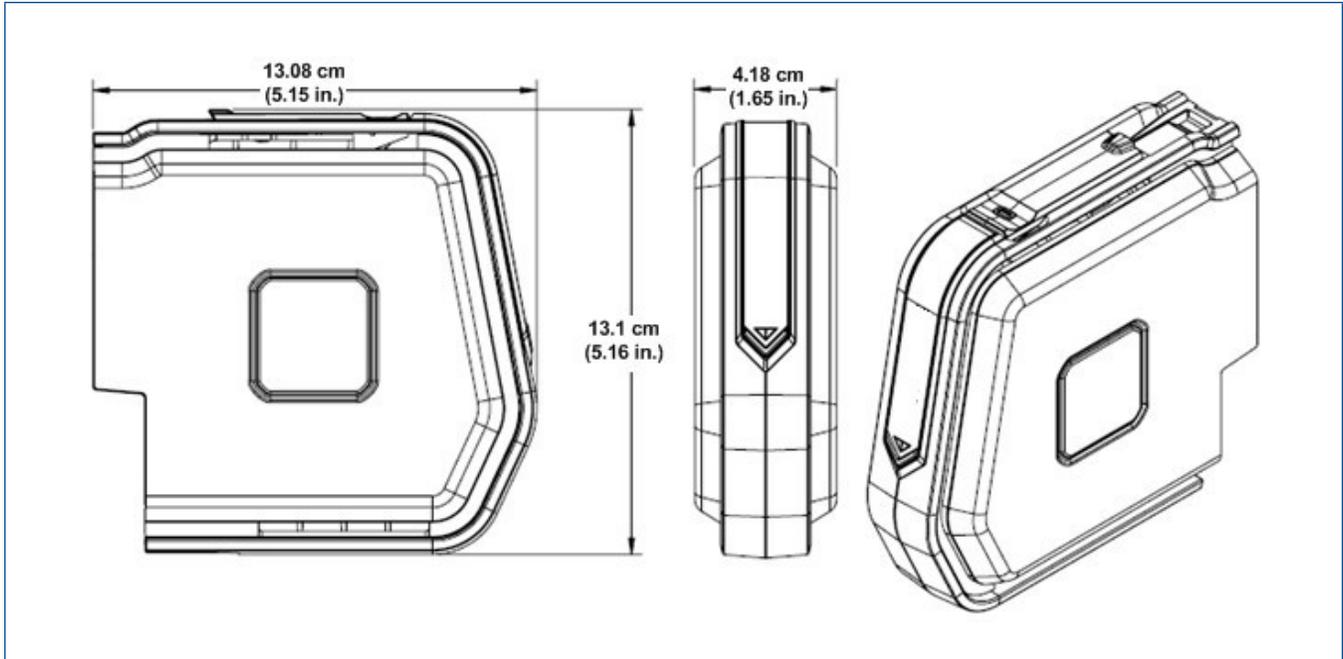
The DeltaV AS-i card has two AS-i master ports. It controls communications on the AS-i network by polling the network devices, issuing commands, and receiving and processing replies from the network devices.



S-series AS-i Interface Card.

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.

In DeltaV v12 and later, signals referenced for each connected AS-i device will count at most 1 DST. The DST type counted will be the most valuable type used to reference a signal for each device. For example, a device with 1 DI signal reference and 1 DO signal reference will count as 1 DO DST. For DeltaV versions prior to v12, each signal referenced from a connected AS-i device will count as 1 DST each.



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 1500V DC

*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.

Certifications

The following certifications available on the S-series AS-i card (see actual certificates for exact certifications):

- **CE:**
 - EMC- EN 61326-1
- **FM:**
 - FM 3600
 - FM 3611
- **CSA:**
 - CSA C22.2 No. 213
 - CSA C22.2 No. 1010-1
- **ATEX:**
 - EN60079-0
 - EN60079-7
- **IEC Ex:**
 - IEC60079-0
 - IEC60079-7
- **Marine Certifications:** IACS E10
 - ABS Certificate of Design Assessment
 - DNV Type Approval Certificate

Hazardous Area/Locations

The DeltaV S-series AS-i card can be installed and used based on the following standards (see actual certificates for exact product markings):

- **FM (USA):**

Class I, Division 2, Groups A, B, C, D, T4

- **cFM (Canada):**

Class I, Division 2, Groups A, B, C, D, T4

- **ATEX:**

II 3G Ex ec IIC T4 Gc

- **IEC Ex:**

II 3G Ex ec IIC T4 Gc

Regarding the installation instructions please refer to the following documents:

Class 1 Division 2 Installation Instructions DeltaV S-Series (12P5402)

Zone 2 Installation Instructions DeltaV S-series (12P5404)

Ordering Information

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

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