

AIS890

Compact Product Suite hardware selector



Select I/O is an Ethernet networked, single-channel granular I/O system for the ABB Ability™ System 800xA automation platform. Select I/O helps decouple project tasks, minimizes the impact of late changes, and supports standardization of I/O cabinetry ensuring automation projects are delivered on time and under budget. A Signal Conditioning Module (SCM) performs the necessary signal conditioning and powering of the connected field device for one I/O channel.

The AIS890 is an Analog Input Signal Conditioning Module (16-bit) for use in High Integrity (certified for SIL3) and intrinsically safe applications (Zone 0) supporting 2-wire devices and HART communications.

Features and benefits

- Analog input for 2-wire field devices
- Signal range: 4...20 mA
- Can be used in hazardous areas providing IS signals up to Zone 0
- Certified for Functional safety
- Transmitter power current limited to 25 mA
- 16 bit A/D converter resolution
- Channel to channel galvanic isolation
- Hardware filter, rise time 1ms
- Software filter configurable through parameters
- Protected against wrong wiring
- Diagnostics:
 - Loop supervision (open circuit and short circuit)
 - Internal hardware supervision
 - Communication supervision
 - Device malfunction low, under range, over range and device malfunction high detection
 - Internal power supervision
- Support of HART field devices (up to HART application layer rev. 7):
 - HART Pass-Through
 - Cyclic read of up to two HART Device Variables
 - HART Device Validation
- Single loop granularity - each SCM handles a single channel
- Supports hot swap
- Mechanical locking slider which turns off field device power and/or output before removal
- Field disconnect function which can galvanically separate the field loop wiring from the SCM during commissioning and maintenance
- All SCMs have electronic current limitation
- Mechanical keying to prevent insertion of wrong module type after commissioning
- 24V DC powered through Modulebus
- Configurable through parameters
- LED indicators on the SCM indicate the operational state of the module
- Certified for SIL3

General info	
Article number	3BSE074063R1
Type	Analog Input Module - IS, SIL3
Number of channels	1
Signal specification	4...20 mA
HART	Yes
Detailed HART information	HART v7, HART pass-through and HART variables to the application
SOE	N/A
Redundancy	No
Hot swap	Yes
High integrity	Yes
Intrinsic safety	Yes
Mechanics	Select I/O

Detailed data	
Supported field devices	2-wire (loop powered transmitters)
Isolation	Galvanic isolation to system and between each channel (including field power). Routine tested at factory with 3060 V DC.
Field power	Current limited to 25 mA
Accuracy	0.1 %
Resolution	16-bit A/D converter
Diagnostics	Loop supervision (open circuit and short circuit) Device malfunction low, under range, over range, and device malfunction high Internal hardware supervision Communication supervision Internal power supervision
Calibration	Factory calibration
Power dissipation	0.63 W at 20 mA
Installation in Hazardous Area/Locations	Yes/Yes (on IPA)
IS barrier	Yes
Input impedance	300 ohm

Environment and certification	
Temperature, Operating	-40 °C (-40 °F) to +70 °C (158 °F)
Temperature, Storage	-40 °C (-40 °F) to +85 °C (185 °F)
Pollution degree	Pollution Degree 2 acc. to IEC 60664-1
Relative humidity	5 to 95 %, non-condensation
Altitude	-1000 to 5000 m (restrictions apply)
Mechanical operating conditions	IEC 61131-2
EMC	IEC/EN 61000-6-4, IEC/EN 61000-6-2
Overvoltage categories	Category II acc. to IEC 60664-1
Protection class	IP20 acc. to IEC 60529
CE-marking	Yes
UKCA	Yes
Electrical Safety	IEC/EN 61010-1 UL 61010-1 CSA-C22.2 No. 61010-1-12 IEC/EN 61010-2-201 UL 61010-2-201 CSA C22.2 No. 61010-2-201
Marine certification	DNV, ABS
Corrosive atmosphere	G3
RoHS compliance	EU RoHS, UAE RoHS, CN RoHS
WEEE compliance	EU
Hazardous Area ATEX	II 3 (1) G II 3G (1D) Ex ec [ia Ga] IIC T4 Gc Ex ec [ia IIIC Da] IIC T4 Gc Ex ic ec [ia Ga] IIC T4 Gc Ex ic ec [ia IIIC Da] IIC T4 Gc
Hazardous Area IECEx	Available on IPA: II 3 (1) G II 3G (1D) Ex ec [ia Ga] IIC T4 Gc Ex ec [ia IIIC Da] IIC T4 Gc Ex ic ec [ia Ga] IIC T4 Gc Ex ic ec [ia IIIC Da] IIC T4 Gc
Hazardous Location US/CAN	Available on IPA: cULus CL I, ZN2, Ex ec [ia Ga] IIC T4 Gc X Ex ec [ia IIIC Da] IIC T4 Gc X CL I, ZN 2, AEx ec [ia Ga] IIC T4 Gc AEx ec [ia IIIC Da] IIC T4 Gc CL I, DIV 2, Groups A-D T4 Provides I.S. circuits for CL I, Zn 0, Gp IIC, Zn 20 Gp IIIC or CL I, DIV 1, Gps A, B, C, D: CL II, Gps E, F, G: CL III
Hazardous Area CCC	Ex ec [ia Ga] IIC T4 Gc Ex ec [ia IIIC Da] IIC T4 Gc Ex ic ec [ia Ga] IIC T4 Gc Ex ic ec [ia IIIC Da] IIC T4 Gc
Functional Safety	IEC 61508 Ed. 2, SIL 1-3 IEC 61511-1 IEC 62061 IEC 61131-2, IEC 61131-6 IEC 60204-1 NFPA 72, NFPA 79, NFPA 85, NFPA 86 EN ISO 14118 EN 50156-1 EN 298 EN 54-2, EN 54-2 A1 EN ISO 13850

Dimensions

Width	77.9 mm
Depth	105 mm
Height	9.8 mm
Weight (including base)	73 g

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