

# AI12ev

## ABB Ability™ Symphony® Plus Hardware Selector



The AI12ev Analog Input module processes up to fifteen (15) high-level analog input field signals. Each channel is independently configurable for any of the supported high-level signal ranges.

The AI12ev Analog Input module is a Form/Fit/Function replacement for the FEC12 Analog Input HR I/O module.

FC 132 (Analog Input Slave) sets I/O module operating parameters, analog input parameters, and action on module failure. Up to three (3) instances of FC 132 are used to configure up to fifteen (15) analog input channels.

### Features and benefits

- Fifteen (15) high-level Analog Input signal channels including:
- 4 to 20 mA, 0 to 1 VDC, 1 to 5 VDC, -10 to +10 VDC
- $\pm 0.1\%$  of Full Scale Range accuracy

#### General info

Article number	7PAA004001R11
Type	Analog Input
Signal specification	4...20 mA, 0...+1 VDC, 1...+5 VDC, -10...+10 VDC
Life cycle status	ACTIVE
Number of channels	15
Signal type	High Level AI
HART	No
SOE	No
Redundancy	No
Form factor	HR MMU
Mounting	MMU (1-Slot)
MTBF (per MIL-HDBK-217-FN2)	PR: A = 146,733 Hours @ 30 °C; 109,094 Hours @ 40 °C; 43,780 Hours @ 70 °C
MTTR (Hours)	8 Hours

**Detailed data**

Module power requirements	630 mA (typical) @ 5 VDC $\pm$ 10%, 115 mA (typical) @ 24 VDC $\pm$ 10%
Module power connection	+ 5V connection on MMU
Field IO power	20 mA per CH @ 24 VDC $\pm$ 10%
Overvoltage category	Category I for power, inputs or outputs. Tested according to EN 61010-1
Max field cable length	600 meters (1968 feet)
Number of Channels	15 independently configurable channels
Signal ranges and types	4...20mA, 0...+1 VDC, 1...5+5VDC, or -10...+10 VDC
Input Impedance	250 $\Omega$ current mode (externally powered), $\geq$ 250 k $\Omega$ voltage mode
Output load	0 to 750 $\Omega$ Current mode, minimum 22k $\Omega$ voltage mode
A/D Conversion	1 A/D converter per module
A/D Resolution	16-Bits with polarity
A/D Update rate	100 msec for all channels
Accuracy, FSR	$\pm$ 0.01% FSR, FSR = 25mA or 20VDC
Temp effect on accuracy	Max $\pm$ 0.003% per deg C
Field signal to Logic isolation	Galvanically isolated, 1500 V up to 1 minute
Channel isolation	1x16 group isolated, 1500 V up to 1 minute
Open circuit detection time	Less than 5 seconds (current mode)
Short circuit protection	Max 96 mA per AI CH (current mode)
Normal mode noise rejection	-70 dB minimum
Common mode noise rejection	-90 dB minimum
DC common mode rejection	-90 dB minimum

**Diagnostics**

Front plate LED's	R (Run), F (Fault), P (Primary), and B (Backup) + 8 Diagnostic & Status LEDs
Local availability	S+ Menu from Module Front Plate
Remote availability	Using SPE

## Environment and certification

Temperature, Operating	-40 to +70 °C Tested according to IEC/EN 60068-2-1, IEC/EN 60068-2-2
Temperature, Storage	-40 to +85 °C Tested according to MIL-STD-810G
Relative humidity	20% to 95% @ 40°C non-condensing. Tested according to IEC/EN 60068-2-78, IEC/EN 61298-3
Vibration (operational sinusoidal)	5 to 60 Hz 0.137 mm (0.0054 in.), 60 to 150 Hz 1.0 G. Tested according to IEC/EN 60068-2-6
Vibration (transportation)	10 to 500 Hz. Tested according to MIL-STD-810G
Shock (storage)	15 G, 11 msec. Tested according to IEC/EN 60068-2-27
Drop	100 mm. Tested according to IEC/EN 60068-2-31
Protection class	IP20 according to EN 60529
Altitude (operational)	Sea level to 3,048 meters (10,000 ft.) Tested according to MIL-STD-810G
Altitude (storage)	Sea level to 12,192 meters (40,000 ft.) Tested according to MIL-STD-810G
Air quality	ISA S71.04 G3 compliant
ESD immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-2, Severity level 3
Surge immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-5, Severity level 3
Electrical fast transient immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-4, Severity level 3
Radiated RFI immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-3, Severity level 3
Conducted Immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-6, Severity level 3
Magnetic field immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-8, Severity level 4
Radiated emission	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-6, Severity level 3
Conducted emission	Tested according to IEC/EN 61000-6-4, CISPR 11 + A1, CISPR 16-1-1, Group 1, Class A, ISM equipment
Voltage dips and interruption immunity	Tested according to IEC/EN 61000-6-2, IEC/EN 61000-4-11
CSA non-hazardous locations	Certified for use as process control equipment in an ordinary (non-hazardous) location
CSA hazardous, nonincendive locations	Class I, Division 2, Groups A, B, C, D
CE Mark	CE Mark EMC directive 2004/108/EC & Low Voltage Directive 2006/95/EC
RoHS compliance	RoHS Directive 2015/863
WEEE compliance	DIRECTIVE/2012/19/EU

## Compatibility

Use with MTU	NTAI05, NIAI04
Module keying code for base	n/a

## Dimensions

Width	35.6 mm (1.40 inch)
Depth	177.8 mm (7.0 inch)
Height	298.5 mm (11.75 inch)
Weight	414 g (14.6 oz.)

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