

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 Ω current mode (externally powered), \geq 250 k Ω voltage mode
Output load	0 to 750 Ω Current mode, minimum 22k Ω 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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