DATA SHEET

AD11ev

ABB Ability™ Symphony® Plus Hardware Selector

The AD11ev Analog Drive module processes up to thirteen (13) mixed type field signals. The AD11ev provides 4x AI, 2x AO, 3x DI and 4x DO signals.

The AD11ev Analog Drive module is a Form/Fit/Function replacement for CIS22 Control Interface and QRS22 Quick Response Slave HR I/O modules.

FC 79 (Control Interface Slave) sets I/O module operating parameters, analog input parameters, and action on module failure. One instance of FC 79 is used to configure all functions of the I/O module.

The analog I/O channels are 1x6 group isolated. The digital I/O channels provide CH-2-CH isolation.

The digital outputs of the AD11ev module are open-collector transistor type, 24-48 VDC outputs capable of handling 250 mA.

Features and benefits

- Thirteen (13) mixed Input/Output signal channels including:
- 4x AI: 4 to 20 mA or 1 to +5 VDC
- 2x AO: 4 to 20 mA or 1 to +5 VDC
- 3x DI: 24/48/110/125 VDC, or 100/120 VAC
- 4x DO: 24-48 VDC max 250 mA

General info	
Article number	7PAA004002R11
Type	Mixed I/O
Signal specification	4…20 mA, 1…+5 V, 24/48/110/125 VDC, 100/120 VAC, 24-48 VDC
Life cycle status	ACTIVE
Number of channels	13
Signal type	4xAI, 2xAO, 3xDI, 4xDO
HART	No
SOE	No
Redundancy	No
Form factor	HR MMU
Mounting	MMU
MTBF (per MIL-HDBK-217-FN2)	PR B: 127,578 hours @ 30 °C 103,425 hours @ 45 °C 58,811 hours @ 70 °C
MTTR (Hours)	8 Hours

Detailed data	
Module power requirements	43 mA (typical) @ 5 VDC ± 10% 122 mA (typical) @ 24 VDC ± 10%
Module power connection	POWER from MMU
Field IO power	AI: 20 mA (typical)@ 24 VDC ± 10% AO: 36 mA (typical) 42 mA (max) @ 24 VDC ± 10% Per DI Channel: 24 VDC: 4.8 mA (typical) 7.0 mA (max) 48 VDC: 4.6 mA (typical) 5.3 mA (max) 110 VDC: 5.0 mA (typical) 6.7 mA (max) 125 VDC: 4.5 mA (typical) 5.5 mA (max) 100 VAC: 5.0 mA (typical) 6.0 mA (max) 120 VAC: 5.0 mA (typical) 6.0 mA (max)
Digital Input Turn ON / OFF voltage	24 VDC: 18 V (ON) 17 V (OFF) 48 VDC: 20 V (ON) 18.5 V (OFF) 110 VDC: 80 V (ON) 74 V (OFF) 125 VDC: 80 V (ON) 74 V (OFF) 100 VAC: 61 VAC (ON) 60 VAC (OFF) 120 VAC: 65 VAC (ON) 64 VAC (OFF)
Field IO Power, Digital Outputs	24-48 VDC ± 10%, 250 mA max
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	13 mixed I/O channels
Signal ranges and types	4xAI: 4…20 mA or 1…+5VDC, 2xAO: 4…20 mA or 1…5+5 VDC, 3xDI: 24/48/110/125 VDC or 100/120 VAC, 4xDO: 24/48 VDC
Output response time	95% of Step change 2.4 seconds (Normal response) 0.27 seconds (Fast response)
Input Impedance	250 Ω current mode (externally powered), >= 250 kΩ voltage mode
Output load	0 to 750 Ω Current mode, minimum 22kΩ voltage mode
A/D Conversion	1 A/D converter for all 4 AI channels
A/D Resolution	Configurable from 12 to 16-Bits
A/D Update rate	100 msec for all channels
D/A Conversion	6 D/A converters, each channel has a dedicated D/A converter
D/A Resolution	12-Bits
Accuracy, FSR	±0.01% FSR, FSR = 25 mA or 6.25 VDC
Temp effect on accuracy	Max ±0.003% per deg C
Field signal to Logic isolation	Galvanically isolated, 1500 V up to 1 minute
Channel isolation	Analog I/O is 1x8 group isolated, Digital I/O is CH-2-CH isolated, 1500 V up to 1 minute
Open circuit detection time	Less than 5 seconds (for AI)
Short circuit protection	Max 96 mA per AI CH (current mode)
Normal mode noise rejection	-70 dB minimum (Normal AI Response mode), -37 dB minimum (Fast AI Response mode)
Common mode noise rejection	-90 dB minimum (Normal AI Response mode), -53 dB minimum (Fast AI Response mode)

Diagnostics	
Front plate LED's	R (Run), F (Fault), P (Primary), and B (Backup) + 16 Diagnostic & Status LEDs
Local availability	R (Run), F (Fault), P (Primary), and B (Backup) + 16 Diagnostic & Status LEDs
Remote availability	HN800 device diagnostics via 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
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	NTCS04, NICS01
Module keying code for base	slot #1 = 11, slot #2 = 19

Dimensions	
Width	35.6 mm
Depth	177.8 mm
Height	298.5 mm
Weight	420 g

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