DATA SHEET

AI03

ABB Ability™ Symphony® Plus Hardware Selector

The AI03 Analog Input module processes up to 8 group isolated, RTD temperature input field signals. Each channel supports 2/3/4 Wire RTD wiring an is independently configurable for any of the supported RTD types. FC 221 (I/O Device Definition) sets AI module operating parameters and each input channel is configured using FC 222 (Analog Input Channel) to set indivdual input channel parameters such as engineering units, High/Low alarm limits, etc.

A/D resolution of each channel is 16 bits with polarity. The AI03 module has 4 A/D converters, each serving 2 input channels. The module will update 8 input channels in 450 msecs.

The AI03 module is automatically calibrated, hence there is no need for manual calibration.

Features and benefits

- 8 independently configurable channels supporting RTD types:
- 100 Ω Platinum U.S. Lab & Industry Standard RTD
- 100 Ω Platinum European Standard RTD
- 120 Ω Nickel RTD, Chinese 53 Ω Copper
- A/D resolution 16-Bit (with polarity)
- A/D update of all 8 Channels in 450 msecs
- Accuracy is ±0.1 % of Full Scale Range where FSR = 500 Ω

General info	
Article number	AI03
Type	RTD Analog Input
Signal specification	RTD Types: 100 Ω Platinum U.S. & Euro Std., 120 Ω Nickel, or Chinese 53 Ω Copper
Life cycle status	ACTIVE
Number of channels	8
Signal type	2/3/4 - Wire RTDs
HART	No
SOE	No
Redundancy	No
Form factor	Standard (190 mm)
Mounting	Horizontal Row or Vertical Column
MTBF (per MIL-HDBK-217-FN2)	PR G: 235,718 Hours
MTTR (Hours)	1 Hours

Detailed data	
Module power requirements	24 VDC ± 10%, 68 mA typical, 76 mA max
Module power connection	POWER TB on cHBX01L or VBX01T
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	8 independently configurable AI channels
Signal ranges and types	RTD Analog Inputs: 100 Ω Platinum U.S. Lab & Industry Std., 100 Ω European Std, 120 Ω Nickel, Chinese 53 Ω Copper
A/D Conversion	4 A/D converters, each with 2 channels
A/D Resolution	16-Bits with Polarity
A/D Update rate	450 msec for all 8 channels
Accuracy, FSR	±0.1% of FSR, FSR = 500 Ω
Field signal to Logic isolation	Galvanically isolated, 1500 V up to 1 minute
Channel isolation	1x8 group isolated, 1500 V up to 1 minute
Open circuit detection time	Less than 5 seconds
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	STATUS LEDs: R (Run) and F (Fault) + 1 thru 8
Local availability	Mini USB connection on module front plate
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, IEC 529
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 G1, ISA S71.04 G3 compliant versions SPCxxxA are also available
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 accTested according to IEC/EN 61000-6-4, CISPR 11 + A1, CISPR 16-1-1, Group 1, Class A, ISM equipmentording 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	HBS01-CJC, VBS01-CJC
Module keying code for base	slot #1 = 13, slot #2 = 20

Dimensions	
Width	27 mm
Depth	106 mm
Height	190 mm
Weight	226 g

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