MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Amikon cover with selected official Foxboro pages

FOXBORO I/A SERIES FIELDBUS MODULES

FBM07 CM400YH/FBM7

FBM07 CONTACT AND DC INPUT INTERFACE MODULE

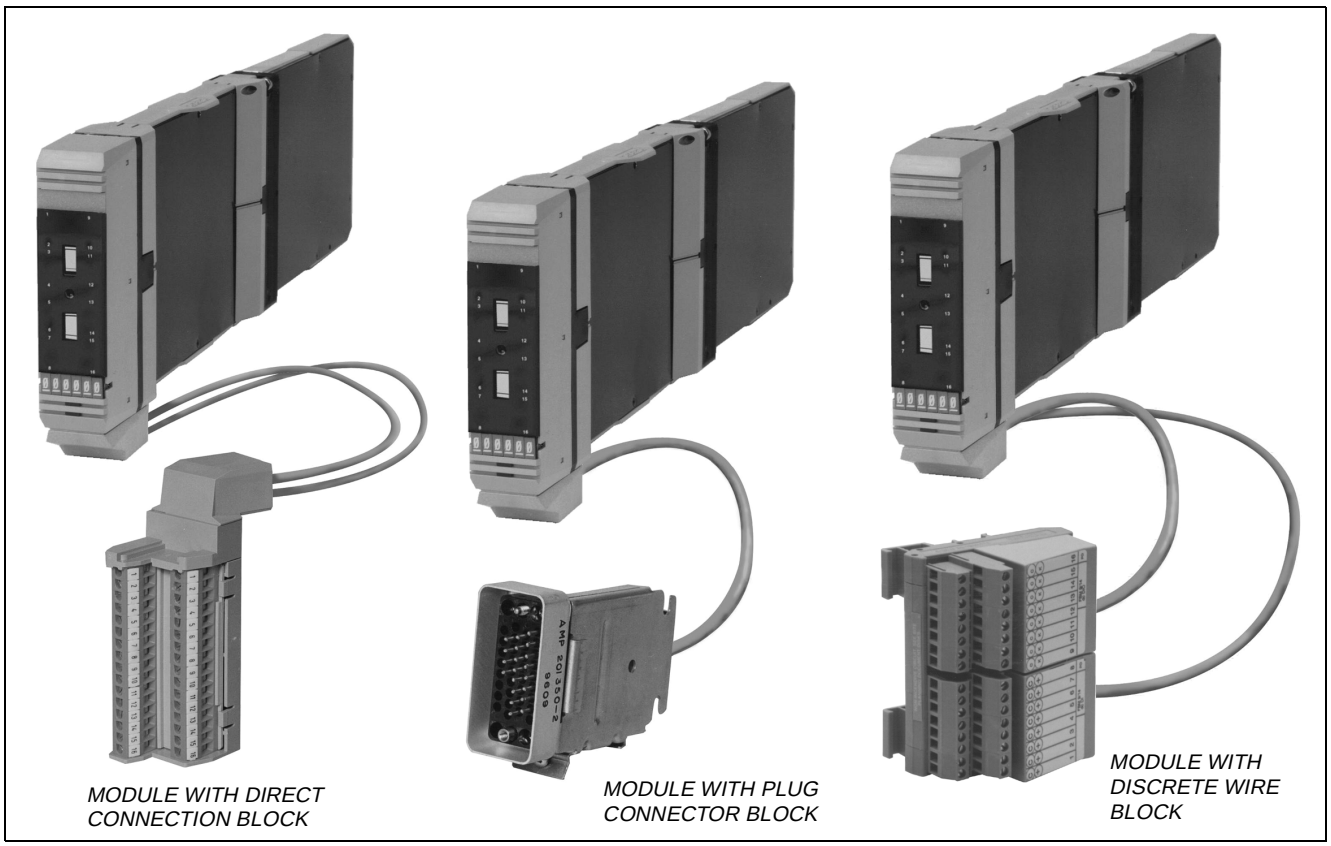
OFFICIAL SOURCES

Foxboro official product documentation. Selected pages retain their original content, color and aspect ratio.

FOXBORO®

PSS 21H-2C3 B4

I/A Series® Hardware
Contact/dc Input Interface Module (FBM07) and Contact/dc Expansion Input Interface Module (FBM12)



MODULE WITH DIRECT CONNECTION BLOCK

MODULE WITH PLUG CONNECTOR BLOCK

MODULE WITH DISCRETE WIRE BLOCK

The Contact/dc Input Interface Module (an expandable main module) and its counterpart Contact/dc Expansion Input Interface Module individually function as a 16-channel contact sensor or 16-channel dc voltage monitor. Each module performs the signal conversion required to interface these digital (i.e., on/off state) electrical input signals from the field sensors to the redundant Fieldbus. The expandable main module independently connects to the Fieldbus and is capable of supporting a single expansion module. The expansion module connects to the Fieldbus via any expandable main module and is functionally dependent on the supporting main module.

The main module is capable of executing any one of the application programs identified in the following schedule:

- When used alone or in conjunction with an expansion module that interfaces field input signals only, the main module executes either the Digital I/O, Sequence of Events Monitor, Pulse Count Inputs or Ladder Logic program. The configurable option for each program is Input Filter Time.
- When used in conjunction with an expansion module that interfaces field input and output signals, the main module executes either the Digital I/O or Ladder Logic program. The configurable options for each program are Input Filter Time, Fail Safe Configuration, Fail Safe Fallback and Sustained or Momentary Outputs. If the Momentary Output configuration is selected, then Pulse Output Interval is also configurable.

Configurable options for inputs are exercised on a per module basis; those for outputs are exercised on a per channel basis.

The functional, environmental and physical specifications are applicable to both modules.

FUNCTIONAL SPECIFICATIONS

Common Characteristics

INPUT

16 independent channels

ISOLATION

Input to Earth (Ground)

The module will withstand, without damage, a potential of 1250 V ac applied for one minute between any channel and earth (ground).

CAUTION

This does not imply that these channels are intended for permanent connection to voltages of these levels. Exceeding the limits for input voltages, as stated elsewhere in this specification, will violate electrical safety codes and may expose users to electric shock.

Input Pair to Input Pair

The module will withstand, without damage, a potential of 1250 V ac applied for one minute between pairs of channels. Channels are paired and share a common return; isolation is between pairs of channels.

NOTE

This does not imply that these channels are intended for permanent connection to voltages of these levels. Exceeding the limits for input voltages, as stated elsewhere in this specification, will violate electrical safety codes and may expose users to electric shock.

Channel Inputs

Inputs are isolated in pairs (e.g., channels 1 and 2 are isolated from channels 3 and 4). When inputs are used with hazardous voltages (greater than 60 V dc), both channels of a pair must be used with hazardous voltages. Hazardous and non-hazardous voltages must not be mixed within a channel pair.

FILTER TIME

Configurable (4, 8, 16, or 32 ms)

POWER REQUIREMENTS

Input Voltage Range (Redundant)

26 to 42 V dc

Consumption

Main Module Only

7 W (maximum)

Main Module Plus Expansion Module

12 W (maximum)

HEAT DISSIPATION

Main Module Only

12 W (maximum)

Main Module Plus Expansion Module

22 W (maximum)

INDICATORS (MOUNTED ON TERMINATION ASSEMBLY)

Operational Status

2 light-emitting diodes (LED's) (1 red and 1 green)

Input Channel Status

16 LED's (1 per channel)

FIELD TERMINATION CONNECTIONS(a)

Discrete Wire Blocks

32 screw-clamp terminals (2 blocks using 16 terminals per block)

Plug Connector Block

34-pin connector. Mates with:

- Burndy MSD 34 PM 118 (plug with bar-type cable clamp)
- Burndy MSD 34 PM 124 (plug with clam shell hood)
- Burndy MSD 34 PM 824 (plug with suitcase hood)
- or equivalent

Direct Connection Block

32 screw-clamp terminals

COMMUNICATION

Via the redundant Fieldbus (main module only)

(a) The discrete wire or plug connector block is available on termination cable assemblies for all enclosures excluding Local Enclosures, Field Enclosure 4 and Multiple (Bridged) Industrial Enclosure 32. The direct connection block is available only on the termination cable assembly for Local Enclosures and Field Enclosure 4. Multiple (Bridged) Industrial Enclosure 32 uses the plug connector block only.

FUNCTIONAL SPECIFICATIONS (CONT.)

Contact Sensor Function (see figure below)

INPUT

Range (each channel)
Contact open (off) or closed (on)

Open-Circuit Voltage
24 V dc ±10%

Short-Circuit Current
2.5 mA (maximum)

ON-State Resistance
1 k Ω (maximum)

OFF-State Resistance
100 k Ω (minimum)

Voltage Monitor Function (see figure below)

INPUT(B)

ON-State Voltage
15 to 130 V dc

OFF-State Voltage
0 to 5 V dc

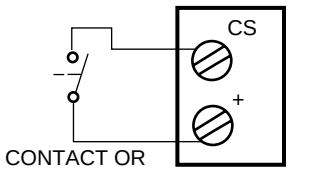
Current
2.2 mA (typical) at 5 to 130 V dc

SOURCE RESISTANCE LIMITS

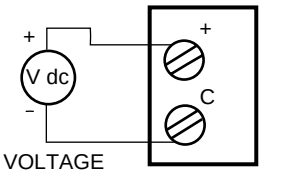
ON-State
1 k Ω (maximum) at 15 V dc

OFF-State
100 k Ω (minimum) at 130 V dc

(b) For CSA and FM rated versions with CM series part numbers, input voltage must be less than 60 V dc.



CONTACT SENSOR
(FBM 7B, 12B)



VOLTAGE MONITOR
(FBM 7A, 12A)

ENVIRONMENTAL SPECIFICATIONS(A)

Operating

TEMPERATURE
0 to 60°C (32 to 140°F)
RELATIVE HUMIDITY
5 to 95% (Noncondensing)
ALTITUDE
-300 to +3,000 m (-1,000 to +10,000 ft)

Storage

TEMPERATURE
-40 to +70°C (-40 to +158°F)
RELATIVE HUMIDITY
5 to 95% (Noncondensing)
ALTITUDE
-300 to +12,000 m (-1,000 to +40,000 ft)

Contamination

Class G3 (Harsh) as defined in ISA Standard S71.04

(a) The environmental ranges can be extended by the type of enclosure containing the module. [Refer to the Product Specification Sheet (PSS) applicable to the enclosure that is to be used.]

PHYSICAL SPECIFICATIONS

Mounting

WITH Y-ADAPTER
Installable in the 1X8 Mounting Structure, I/A Series Industrial Enclosures and Field Enclosure 8
WITHOUT Y-ADAPTER
Installable in I/A Series Field Enclosure 4 and the 1X8 FBM Mounting Structure

Mass

1 kg (2.2 lb)

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