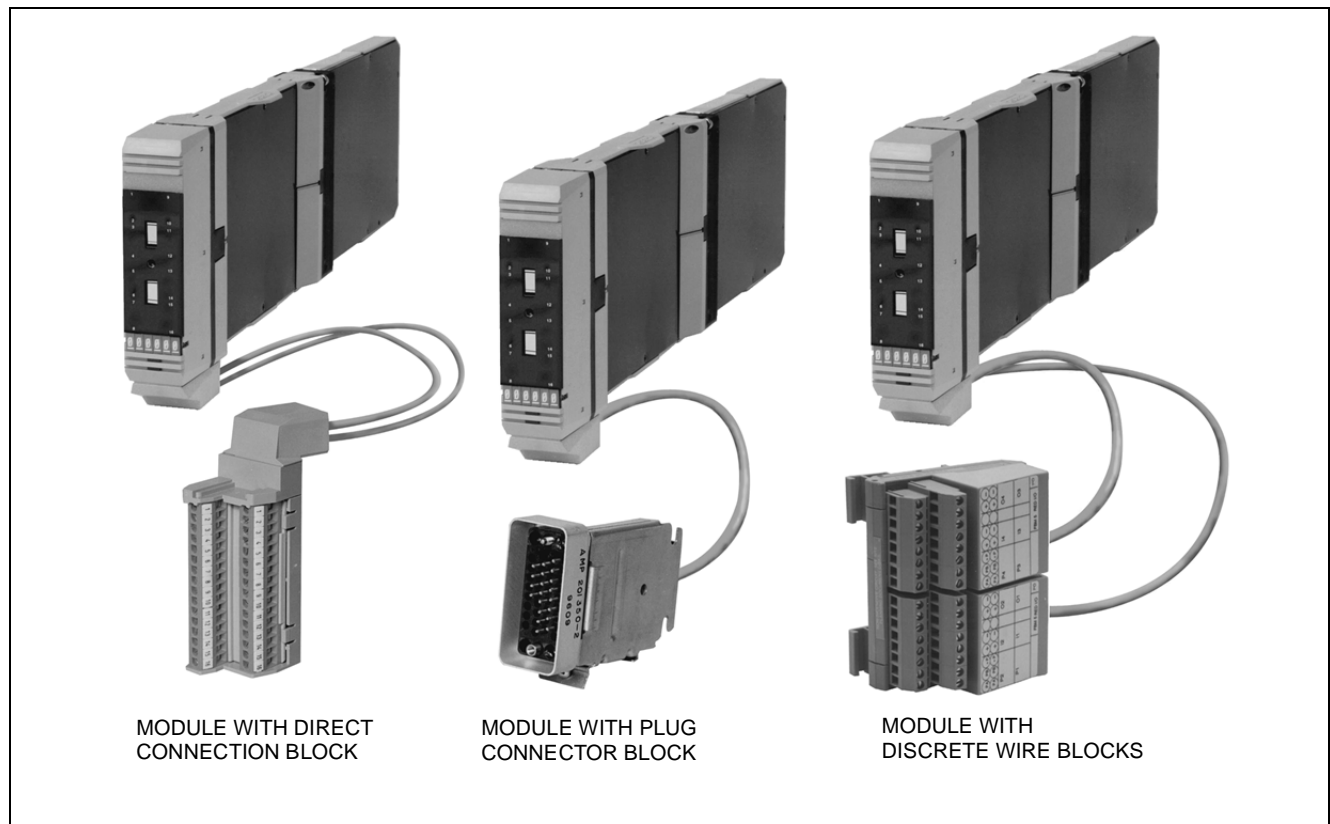


I/A Series® Hardware**240 V ac Input/Output Interface Module (FBM11) and
240 V ac Expansion Input/Output Interface Module (FBM16)**

The 240 V ac Input/Output Interface Module (an expandable main module) and its counterpart the 240 V ac Expansion Input/Output Interface Module individually provide the following functions: 8 input channels for 240 V ac voltage monitoring and 8 output channels for 240 V ac output switching with current overload protection. Each module performs the signal conversion required to interface these digital (i.e., on/off state) electrical input/output signals from/to the field sensors/actuators to/from 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.

When used alone or in conjunction with any expansion module, the main module executes either the Digital I/O or Ladder Logic application 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.

Automatic Restart from Overload

If an overload is sensed (either inrush or steady state current exceeded), the module opens for 64.5 line cycles and then retries again. This operation continues indefinitely for outputs only. Overloads exceeding 25 A causes damage to the module.

FUNCTIONAL SPECIFICATIONS

Common Characteristics

ISOLATION(A)

The module can withstand, without damage, a potential of 1250 V ac applied for one minute between any channel and earth (ground), or 600 V ac between a given channel and any other channel.

NOTE

This does not imply that these channels are intended for permanent connection to voltages of these levels. Connection of channels to voltages in excess of those specified under the "Input Functions" and "Output Functions" sections of this specification violates electrical safety code requirements and may expose users to electric shock.

POWER REQUIREMENTS

Input Voltage Range (redundant)

26 to 42 V dc

Consumption

Main Module Only

7 W (maximum)

Main Module plus Expansion Module

11 W (maximum)

HEAT DISSIPATION

Main Module Only

12 W (maximum)

Main Module plus Expansion Module

20 W (maximum)

INDICATORS (MOUNTED ON TERMINATION ASSEMBLY)

Operational Status

2 light-emitting diodes (LEDs)

(1 red and 1 green)

Input Channel Status

8 LEDs (1 per channel)

Output Channel Status

8 LEDs (1 per channel)

FIELD TERMINATION CONNECTIONS(B)

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 clamshell 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)

Voltage Monitor (Input Channels)

CAPACITY

8 independent channels

INPUT

ON-State Voltage(c)

164 to 264 V ac

OFF-State Voltage(c)

0 to 40 V ac

Current

2.2 mA (typical) at 40 to 264 V ac

SOURCE RESISTANCE LIMITS

ON-State

1 k Ω (maximum) at 164 V ac

OFF-State

100 k Ω (minimum) at 264 V ac

FILTER TIME

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

- (a) To meet CSA Ordinary Location personnel safety standards, the channel-to-channel voltage must not exceed 300 V rms. This means that the I/O channels must be wired to the same branch voltage.
- (b) The discrete wire or plug connector block is available on termination cable assemblies for all enclosures excluding Field Enclosure 4 and Multiple (Bridged) Industrial Enclosure 32. The direct connection block is available only on the termination cable assembly for Field Enclosure 4. Multiple (Bridged) Industrial Enclosure 32 uses the plug connector block only.
- (c) OFF-ON and ON-OFF transitions occur between 40 and 164 V ac.

FUNCTIONAL SPECIFICATIONS (CONT.)**Output Switch (Output Channels)****CAPACITY**

8 independent channels

VOLTAGE RANGE

164 to 264 V ac

NOMINAL VOLTAGE

240 V ac, 50/60 Hz

CURRENT

1 A (maximum) per channel;

7 A (maximum) per module

OFF-STATE LEAKAGE

2.5 mA (maximum)

INRUSH CURRENT

Overload sensing provided

12 A peak 10 ms (1/2 cycle)

6 A rms 20 ms (1 cycle)

1.7 A rms for 1 s

Short circuits that result in greater than 25 A peak current cause damage to the module. If a 25 A current is possible, external fusing is recommended.(c)

HOLDING CURRENT

No min required

ON-STATE VOLTAGE DROP

0.6 V @ 0.5 A

AUTOMATIC RESTART FROM OVERLOAD

Approximately 1 s after overload sensed.

(c) Fuse rating must be appropriate for the inrush current characteristics of this FBM.

ENVIRONMENTAL SPECIFICATIONS(D)**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

(d) 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)

The Foxboro Company

33 Commercial Street
Foxboro, Massachusetts 02035-2099
United States of America

<http://www.foxboro.com>

Inside U.S.: 1-508-543-8750 or 1-888-FOXBORO (1-888-369-2676)

Outside U.S.: Contact your local Foxboro Representative.

Foxboro and I/A Series are trademarks of The Foxboro Company.

Copyright 1992-1998 by The Foxboro Company
All rights reserved