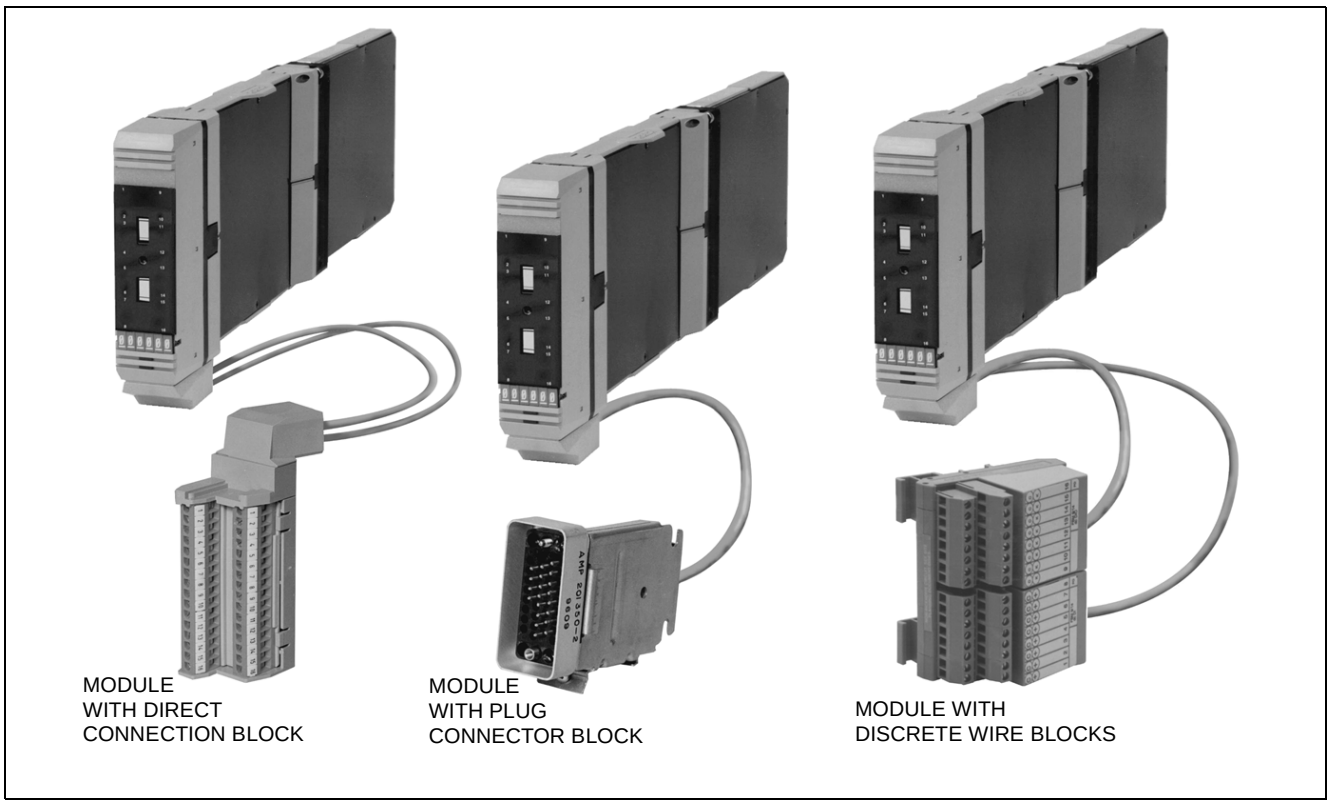
FOXBORO®

PSS 21H-2E6 B4

I/A Series® Hardware

Contact/125 V dc Input/Output Interface Module (FBM26) and Contact/125 V dc Expansion Input/Output Interface Module (FBM27)



The Contact/dc Input/Output Interface Module (an expandable main module) and its counterpart Contact/dc Expansion Input/Output Interface Module individually provide the following input and output functions for digital field signals.

INPUT FUNCTIONS – 7 or 8 channels used collectively for:

- contact sensing with external supply only, or
- contact sensing only, or
- dc voltage monitoring only.

OUTPUT FUNCTIONS – 8 channels used for:

- dc output switching with an external source only (e.g., to control powering of various external loads)

Each module performs the signal conversion required to interface digital electrical input/output signals between the field sensors/actuators and 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.

Invensys
An Invensys company

Product Specifications

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 approximately 1 second and then retries again. This operation continues indefinitely for outputs only.

FUNCTIONAL SPECIFICATIONS

Common Characteristics

ISOLATION

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

NOTE

This does not imply that these channels are intended for permanent connection to hazardous voltage circuits. Connection of these channels to voltages greater than 30 V ac or 60 V dc 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
8 W (maximum)
Expansion Module
5 W (maximum)

HEAT DISSIPATION

Main Module
15 W (maximum)

Expansion Module
12 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)

(a) FBM26B, FBM26C, FBM27B, and FBM27C inputs (i.e., input to input) are not isolated.

(b) 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)

Input Functions

CAPACITY

8 independent channels (7 for contact sensor with external supply)

FILTER TIME

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

Contact Sensor

See Figure 1 (Input Configurations)

Open-Circuit Voltage
48 V dc nominal

Short-Circuit Current
2.5 mA ±20%

ON-State Resistance
1 k Ω (maximum)

OFF-State Resistance
100 k Ω (minimum)

External Contact Supply Voltage Range
48 to 150 V dc

Voltage Monitor

See Figure 1 (Input Configurations)

ON-State Voltage
33 to 150 V dc

OFF-State Voltage
0 to 10 V dc

Current
2.5 mA (typical) at 10 to 150 V dc

Source Resistance Limits

ON-STATE
1 k Ω (maximum) at 33 V dc

OFF-STATE
100 k Ω (minimum) at 150 V dc

Output Functions

CAPACITY

8 independent channels

Output Switch

See Figure 2 (Output Configuration)

Applied Voltage
150 V dc (maximum)

Load Current

Steady State
2 A dc (maximum), 12 A dc (maximum) for all channels

In-rush
20 A dc (maximum) for 20 ms (maximum), I x t = 400 mA x seconds for I < 20 A

Shorted-Load Duration
Indefinite (switch shuts off for 1 sec. nominal on overload)

ON-State Voltage Drop
0.4 V at 1A

OFF-State Leakage Current
2 mA (maximum)

Inductive Loads
Require a protective diode connected across the load (see Figure 2 diagram with protective diode). Diode must be capable of conducting the maximum expected load current and have a voltage rating greater than 1.3 times the supply voltage.

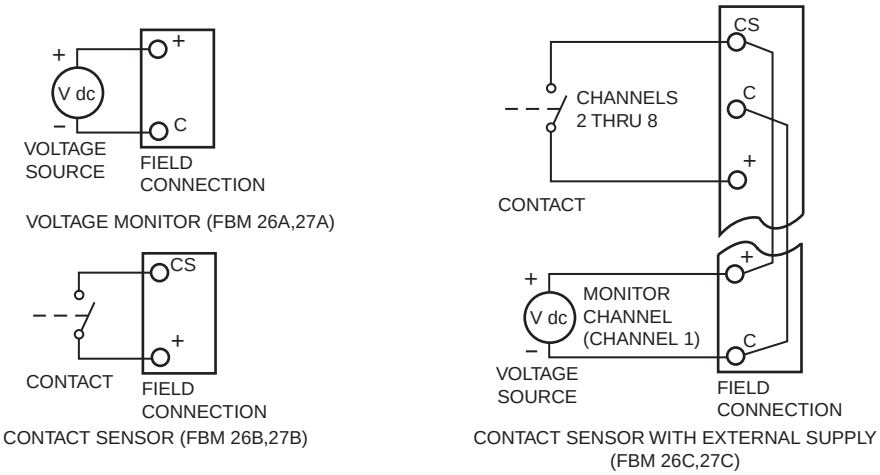
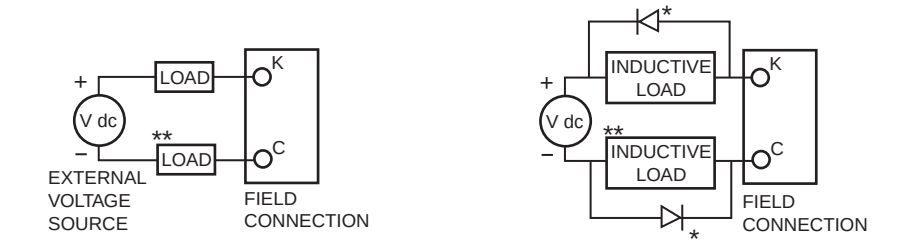


Figure 1. Input Configuration



OUTPUT SWITCH WITH EXTERNAL SOURCE

OUTPUT SWITCH WITH EXTERNAL SOURCE (OUTPUT PROTECTION CONFIGURATION FOR INDUCTIVE LOADS)

*PROTECTIVE DIODE (CUSTOMER SUPPLIED)

**OPTIONAL LOCATION

Figure 2. Output Configuration

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)

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.