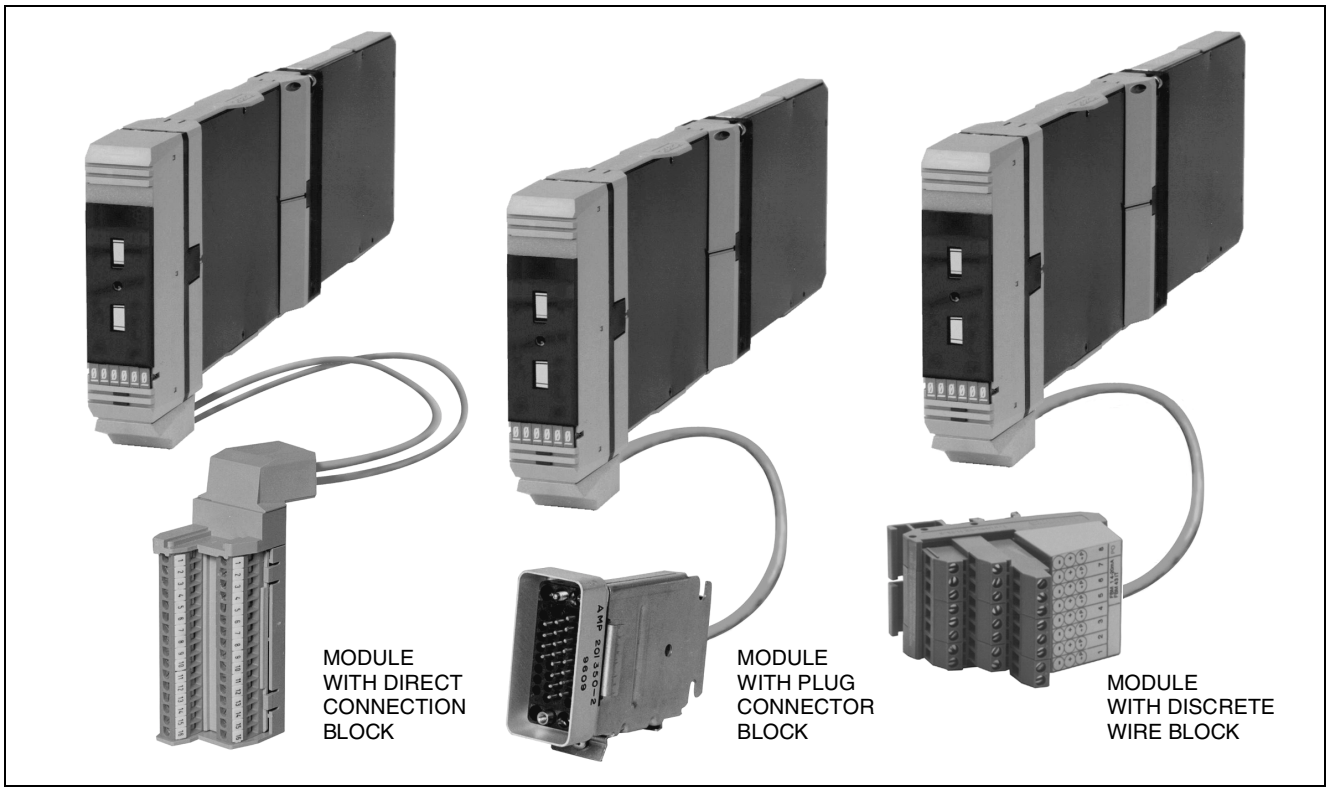
FOXBORO®

PSS 21H-2D8 B4

I/A Series® Hardware
Dual Baud Rate Intelligent Device Interface Module (FBM43)



The Dual Baud Rate Intelligent Transmitter Interface Fieldbus Module contains eight individual channels, each providing internal isolated power and communications capabilities to an Intelligent Transmitter or Intelligent Positioner over a single twisted-pair of wires. The module also allows the use of an external power supply to power the Intelligent Transmitter or Positioner. The use of an external power supply common to two or more loops requires the use of a Cable Balun Module to maintain Digital Communication line balance. The baud rate is software-selectable with all channels at the same baud rate. The module provides bi-directional digital communications at 4800 baud rate between the Intelligent Transmitter (or Positioner) and the system redundant Fieldbus or provides bi-directional digital communications at 600 baud rate while allowing simultaneous 4 to 20 mA analog signal to an emergency shutdown system.

The module is an Intelligent Transmitter and Positioner host, enabling the system to receive digital messages from the transmitter in engineering units. Each message is received ten times per second at 4800 baud and two times per second at 600 baud and contains:

- Up to three measured variables in IEEE 32-bit floating point
- Security information
- Diagnostics
- Message Checking

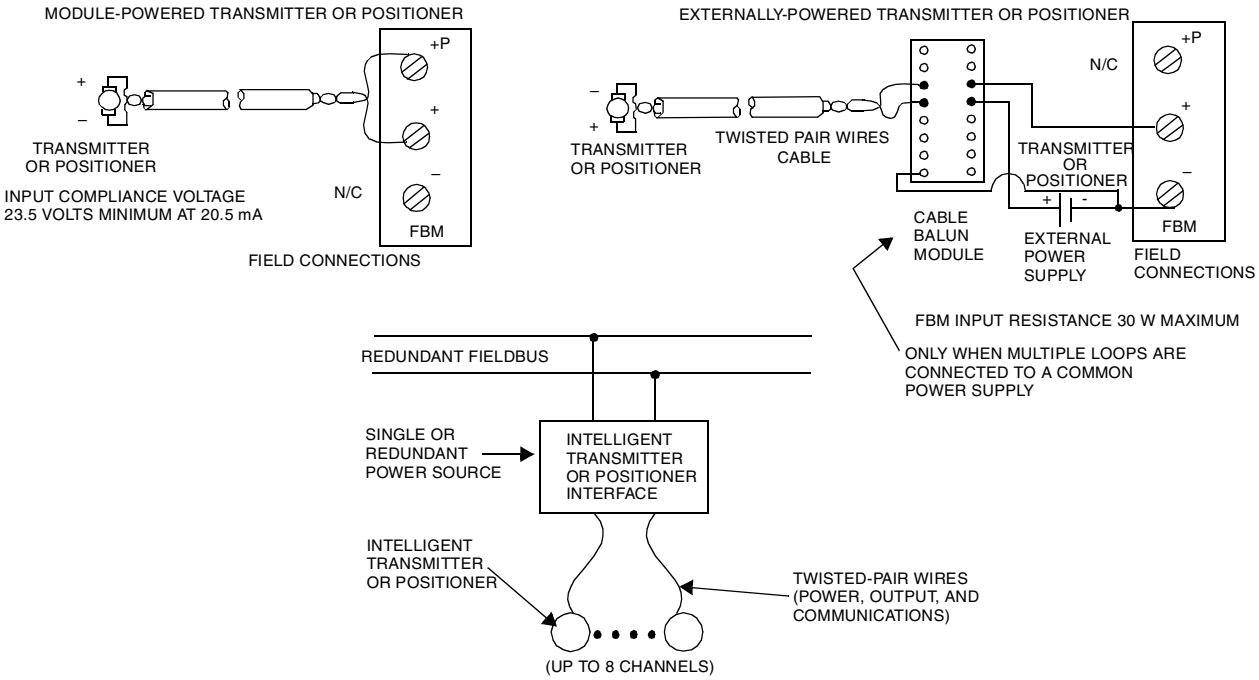
This information is available to all elements of the system.

Invensys™

Product Specifications

Since the communications are bi-directional, the system can display the output, transmitter temperature (°C and °F), and continuous self-diagnostics. In addition, information that can be displayed or reconfigured from the console or a Hand-Held Terminal(1) (PSS 2A-1Z3 A) includes:

- Output in engineering units
- Failsafe
- Tag Number, Name and Location
- Device Name (Letterbug)
- Last calibration date
- Two levels of upload/download capabilities



(1) The Intelligent Positioner cannot be used with a Hand-Held Terminal.

FUNCTIONAL SPECIFICATIONS

Transmitter Channel

INTERFACE

8 isolated and independent channels

COMMUNICATIONS

Non-redundant, point-to-point, master/slave, asynchronous, half-duplex at a baud rate of 600 or 4800 baud. (The required baud rate is determined by the configuration of the field devices.)

All 8 connected field devices must be configured for the same baud rate. The configuration choices are:

- 4800 baud with 10 signal updates per second*
- 600 baud with 2 signal updates per second, plus a superimposed 4 to 20 mA field transmitter signal optionally powered by the FBM43.

ERROR CHECKING

CCITT 2 byte CRC

SPEED

10 messages per second at 4800 baud, or 2 messages per second at 600 baud.

MAXIMUM DISTANCE (INTERFACE TO TRANSMITTER)**

(Shielded twisted-pair wires, or at minimum, twisted-pair with overall shield.)

600 m (2000 ft) (shielded twisted-pair wires) at 4800 baud, or 1800 m (6000 ft) at 600 baud.

MAXIMUM LOOP RESISTANCE

500 Ω (not including the transmitter). The maximum resistance between the Hand-Held Terminal (HHT) and the transmitter is 350 Ω.

Transmitter Channel (Cont.)

ISOLATION

The module can withstand, without damage, a potential of 600 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.

TRANSMITTER INTERNAL POWER

24 V dc +4%, -2%, source resistance 30 Ω maximum

Fieldbus Channel

Communication via a redundant Fieldbus

Power Requirements

INPUT VOLTAGE RANGE (REDUNDANT)

26 to 42 V dc

CONSUMPTION

10 W (maximum)

HEAT DISSIPATION

7 W (maximum)

*FBM43 communicates with positioners at 4800 baud only.

**The maximum distance decreases when the loop is operated through an intrinsic safety barrier. See MI 020-350.

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 limits of this module may be enhanced by the type of enclosure containing the module. {Refer to the applicable Product Specification Sheet (PSS) which describes the specific type of enclosure that is to be used.}

PHYSICAL SPECIFICATIONS

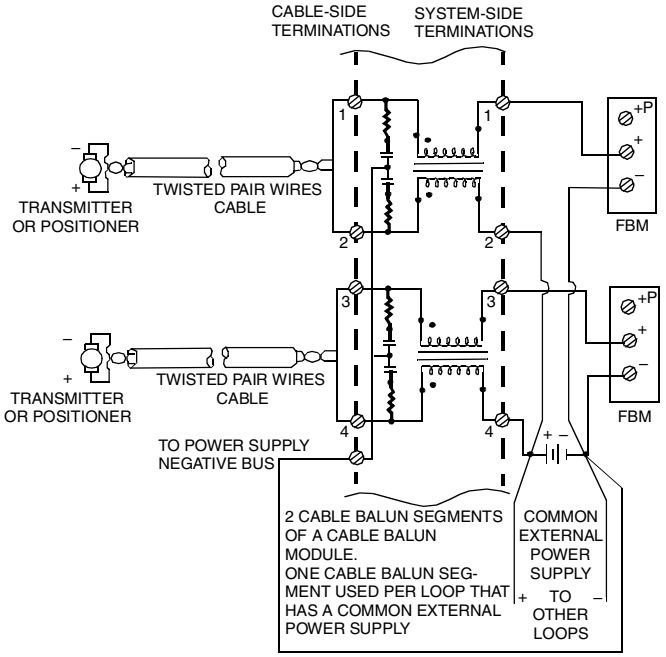
Mounting
WITH Y-ADAPTER
Installable in the 1x8 Mounting Structure, I/A Series Industrial Enclosures and Field Enclosure 8.
WITHOUT Y-ADAPTER
Installable in I/A Series Field Enclosure 4 and the 1x8 FBM Mounting Structure

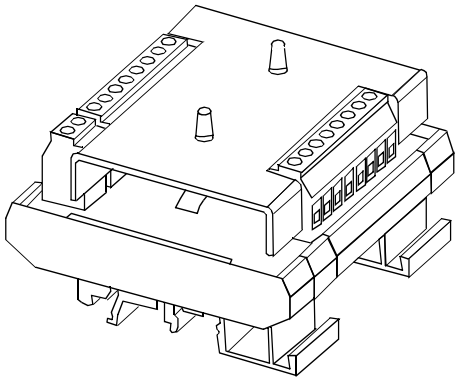
Mass
1 kg (2.2 lb)

Indicators (mounted on termination connector)
OPERATIONAL STATUS
Red and green light-emitting diodes (LEDs)

Field Termination Connections(a)
DISCRETE WIRE BLOCK
16 screw-clamp terminals
DIRECT CONNECTION BLOCK
16 screw-clamp terminals
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

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





Cable Balun Module

The Cable Balun Module is used to maintain digital communication line balance for Intelligent Transmitter (or Positioner) to FBM loops that are powered from a common external power supply. This powering effectively connects one line of each loop together. Without the baluns, in each loop so powered, the common connection at the external power supply, would cause near end crosstalk at the system end of the loop wiring cable. Loops using FBM internal power source do not require baluns.

The Cable Balun Module contains multiple baluns. One balun segment is interconnected in each loop powered from an external power supply per the diagram above. There is one Cable Balun Module.

Cable Balun Module

Module Model	Module Part No.	No. of Baluns in the Module
CBM-4	P0903SV	4

PRODUCT SPECIFICATION SHEETS (PSSs) FOR INTELLIGENT TRANSMITTERS

Category	Device Types	Models	PSS Numbers
Magnetic Flow	Flowtubes	2800 Series	1-6B5 A, 1-6B5 C, 1-6B5 E
	Transmitters	IMT25/IMT25L	1-6F5 A/1-6F6 A
		IMT96 (MagEXPERT)	1-6F8 A
Vortex Flow	Flowmeters	83 Series	1-8A1 E (83F and 83W); 1-8A2 D (83S)
Pressure	Transmitters	I/A Series (-D)	2A-1C13 A; 2A-1C14 A; 2A-1C14 D; 2A-1C14 E; 2A-1Z9 E
		I/A Series (-T)	2A-1C13 B; 2A-1C14 B; 2A-1C14 F; 2A-1C14 G; 2A-1Z9 E
		I/A Series (-A, -I)	2A-1C13 C; 2A-1C14 C; 2A-1C14 H; 2A-1C14 J; 2A-1Z9 E
		I/A Series (-V)	2A-1C13D; 2A-1Z9 E
		I/A Series (-F)	2A-1C13E; 2A-1Z9 E
Electrochemical	Transmitters	870IT Series	6-1B1 B; 6-3N2 A
Temperature	Transmitters	RTT20	2A-1F4 A; 2A-1Z9 F (Options)
Valves	Positioner	SRD 991	EVE0105A-(en)
Remote Communication	Configurators	HHT (FoxCom Only)	2A-1Z3 A
		PC20 (FoxCom & HART)	2A-1Z3 E
	I/A Series Interfaces (FoxCom Only)	FBM18 & FBM39	21H-2D5 B4; 21H-2C4 B4
		FBM43 & FBM44	21H-2D8 B4; 21H-2D4 B4
		FBM243	21H-2Z43 B4
		FBM246	21H-2Z46 B4

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