

## FUNCTIONAL SPECIFICATIONS (CONTINUED)

### Regulatory Compliance

#### ELECTROMAGNETIC COMPATIBILITY (EMC)

*European EMC Directive 89/336/EEC*

Meets: EN 50081-2 Emission standard  
EN 50082-2 Immunity standard  
EN 61326 Annex A (Industrial

Levels)

*CISPR 11, Industrial Scientific and Medical (ISM) Radio-frequency Equipment - Electromagnetic Disturbance Characteristics - Limits and Methods of Measurement*

Meets: Class A Limits

*IEC 61000-4-2 ESD Immunity*

Contact 4 kV, air 8 kV

*IEC 61000-4-3 Radiated Field Immunity*

10 V/m at 80 to 1000 MHz

*IEC 61000-4-4 Electrical Fast*

*Transient/Burst Immunity*

2 kV on I/O, V dc power and communication lines

*IEC 61000-4-5 Surge Immunity*

2kV on ac and dc power lines; 1kV on I/O and communications lines

*IEC 61000-4-6 Immunity to Conducted Disturbances induced by Radio-frequency Fields*

10 V (rms) at 150 kHz to 80 MHz on I/O, V dc power and communication lines

*IEC 61000-4-8 Power Frequency Magnetic Field Immunity*

30 A/m at 50 and 60 Hz

### PRODUCT SAFETY

*Underwriters Laboratories (UL) for U.S. and Canada*

UL/UL-C listed as suitable for use in

UL/UL-C listed Class I, Groups A-D;

Division 2; temperature code T4 enclosure

based systems. These modules are also UL

and UL-C listed as associated apparatus for

supplying non-incendive communication

circuits for Class I, Groups A-D hazardous

locations when connected to specified

I/A Series® processor modules as described

in the *I/A Series DIN Rail Mounted*

*Subsystem User's Guide* (B0400FA).

Communications circuits also meet the

requirements for Class 2 as defined in Article

725 of the National Electrical Code (NFPA

No.70) and Section 16 of the Canadian

Electrical Code (CSA C22.1). Conditions for

use are as specified in the *I/A Series DIN*

*Rail Mounted Subsystem User's Guide*

(B0400FA).

*European Low Voltage Directive 73/23/EEC*

*and Explosive Atmospheres (ATEX) directive*

*94/9/EC*

CENELEC (DEMKO) certified as

EEx nA IIC T4 for use in CENELEC certified

Zone 2 enclosure certified as associated

apparatus for supplying non-incendive field

circuits for Zone 2, Group IIC, potentially

explosive atmospheres when connected to

specified I/A Series processor modules as

described in the *I/A Series DIN Rail*

*Mounted Subsystem User's Guide*

(B0400FA). Also see, Table 1 on page 7.

## ENVIRONMENTAL SPECIFICATIONS<sup>(1)</sup>

### Operating

#### TEMPERATURE

##### *Module*

-20 to +70°C (-4 to +158°F)

##### *Termination Assembly - PVC*

-20 to +50°C (-4 to +122°F)

#### RELATIVE HUMIDITY

5 to 95% (noncondensing)

#### ALTITUDE

-300 to +3,000 m (-1,000 to +10,000 ft)

#### RELATIVE HUMIDITY

5 to 95% (noncondensing)

#### ALTITUDE

-300 to +12,000 m (-1,000 to +40,000 ft)

### Contamination

Suitable for use in Class G3 (Harsh) environments as defined in ISA Standard S71.04, based on exposure testing according to EIA Standard 364-65, Class III.

### Vibration

0.75 m/S<sup>2</sup> (5 to 500 Hz)

### Storage

#### TEMPERATURE

-40 to +70°C (-40 to +158°F)

## PHYSICAL SPECIFICATIONS

### Mounting

#### MODULE

FBM211 mounts on a Modular baseplate. The Modular baseplate can be mounted on a DIN rail (horizontally or vertically), or horizontally on a 19-inch rack using a mounting kit. Refer to PSS 21H-2W6 B4 for details.

#### TERMINATION ASSEMBLY

The TA mounts on a DIN rail and accommodates multiple DIN rail styles including 32 mm (1.26 in) and 35 mm (1.38 in).

### Mass

#### MODULE

284 g (10 oz) approximate

#### TERMINATION ASSEMBLIES

##### *Compression*

272 g (0.60 lb, approximate)

##### *Ring Lug*

363 g (0.80 lb, approximate)

### Dimensions - Module

#### HEIGHT

102 mm (4 in), 114 mm (4.5 in) including mounting lugs

#### WIDTH

45 mm (1.75 in)

#### DEPTH

104 mm (4.11 in)

### Dimensions - Termination Assemblies

Refer to page 9.

### Part Numbers

#### FBM211 MODULE

P0914TN

#### TERMINATION ASSEMBLIES

See "FUNCTIONAL SPECIFICATIONS - TERMINATION ASSEMBLIES" on page 7.

### Termination Cables

#### CABLE LENGTHS

Up to 30 m (98 ft)

#### CABLE MATERIALS

Polyurethane or Low Smoke Zero Halogen (LSZH)

#### TERMINATION CABLE TYPE

Type 4 - Refer to Table 2.

#### CABLE CONNECTION

37-pin male D-subminiature

(1) 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 (CONTINUED)

### Construction - Termination Assembly

#### MATERIAL

Polypropylene (PVC), compression  
PVC, ring lug

#### FAMILY GROUP COLOR

Raspberry red - analog

#### TERMINAL BLOCKS

Inputs - 2 tiers, 16 positions

### Field Termination Connections

#### COMPRESSION - ACCEPTED WIRING SIZES

*Solid/Stranded/AWG*

0.2 to 4 mm<sup>2</sup>/0.2 to 2.5 mm<sup>2</sup>/24 to 12  
AWG

*Stranded with Ferrules*

0.2 to 2.5 mm<sup>2</sup> with or without plastic collar

#### RING-LUG - ACCEPTED WIRING SIZES

#6 size connectors (0.375 in (9.5 mm))

0.5 to 4 mm<sup>2</sup>/22 AWG to 12 AWG

### TERMINATION ASSEMBLIES AND CABLES

Field I/O signals connect to the FBM subsystem via DIN rail mounted termination assemblies, which are **electrically passive**. TAs for the FBM211 module are available in the following forms:

- ▶ Compression screw type using Polyvinyl Chloride (PVC) material
- ▶ Ring lug type using PVC material.

Each FBM211 Termination Assembly and its associated termination cable provide feedthrough connection between sixteen 2-wire analog input signals and the FBM211.

Loop power is provided to the field devices by a customer-supplied external dc power supply or by the FBM auxiliary +24 V dc power supply depending on the TA selected.

A removable termination cable connects the DIN rail mounted TA to the FBM via a field connector on the baseplate in which the FBM is installed. Termination cables are available in the following materials:

- ▶ Polyurethane
- ▶ Low Smoke Zero Halogen (LSZH).

Termination cables are available in a variety of lengths, up to 30 meters (98 feet), allowing the termination assembly to be mounted in either the enclosure or in an adjacent enclosure. See Table 2 for a list of termination cables used with the TAs for the FBM211.

**FUNCTIONAL SPECIFICATIONS - TERMINATION ASSEMBLIES**

FBM Type	Input Signal	TA Part Number <sup>(a)</sup>	Termination Type <sup>(b)</sup>	TA Cable Type <sup>(c)</sup>	TA Certification Type <sup>(d)</sup>
		PVC			
FBM211	Loop power is provided to the field devices by a customer-supplied external dc power supply.	P0916JT P0916PQ	C RL	4	1,2
FBM211	Loop power is provided to the field devices by the FBM auxiliary +24 V dc power supply.	P0916BT P0916BU	C RL	4	1,4

- (a) PVC is polyvinyl chloride rated from -20 to +50°C (-4 to +122°F).
- (b) C = TA with compression terminals; RL = TA with ring lug terminals.
- (c) See Table 2 for cable part numbers.
- (d) See Table 1 for Termination Assembly certification definitions.

**Table 1. Certification for Termination Assemblies**

Type	Certification
Type 1	TAs are UL/UL-C listed as suitable for use in Class I; Groups A-D; Division 2 temperature code T4 hazardous locations. They are CENELEC (DEMKO) certified EEx nA IIC T4 for use in Zone 2 potentially explosive atmospheres.
Type 2	TAs are UL/UL-C listed as associated apparatus for supplying non-incendive field circuits Class I; Groups A-D; Division 2 hazardous locations when connected to specified DIN rail mounted FBMs and field circuits meeting entity parameter constraints specified in <i>DIN Rail Mounted Subsystem User's Guide</i> (B0400FA). They are also CENELEC (DEMKO) certified as associated apparatus for supplying field circuits for Group IIC, Zone 2 potentially explosive atmospheres. Field circuits are also Class 2 limited energy (60 V dc, 30 V ac, 100 VA or less) if customer-supplied equipment meets Class 2 limits.
Type 4	All field circuits are Class 2 limited energy (60 V dc, 30 V ac, 100 VA or less) if customer-supplied equipment meets Class 2 limits.

Table 2. Cables Types and Part Numbers

Cable Length m (ft)	Type 4 P/PVC <sup>(a)</sup>	Type 4 LSZH <sup>(b)</sup>	Type 4 H/XLPE <sup>(c)</sup>
0.5 (1.6)	P0916FG	P0928BA	P0916WD
1.0 (3.2)	P0916FH	P0928BB	P0916WE
2.0 (6.6)	P0931RQ	P0928BC	P0931RU
3.0 (9.8)	P0916FJ	P0928BD	P0916WF
5.0 (16.4)	P0916FK	P0928BE	P0916WG
10.0 (32.8)	P0916FL	P0928BF	P0916WH
15.0 (49.2)	P0916FM	P0928BG	P0916WJ
20.0 (65.6)	P0916FN	P0928BH	P0916WK
25.0 (82.0)	P0916FP	P0928BJ	P0916WL
30.0 (98.4)	P0916FQ	P0928BK	P0916WM

(a) P/PVC is polyurethane outer jacket and semi-rigid PVC primary conductor insulation. PVC is rated from -20 to +50°C (-4 to 122°F).

(b) Low smoke zero halogen or low smoke free of halogen (LSZH) is a material classification used for cable jacketing. LSZH is composed of thermoplastic or thermoset compounds that emit limited smoke and no halogen when exposed to high sources of heat. Temperature range; -40 to +105°C (-40 to +221°F)

(c) H/XLPE is Hypalon outer jacket and XLPE (cross-linked polyethylene) primary conductor insulation. H/XLPE is rated from -40 to +90°C (-40 to 194°F). Hypalon cables are no longer available for purchase.