Foxboro Evo™ Process Automation System

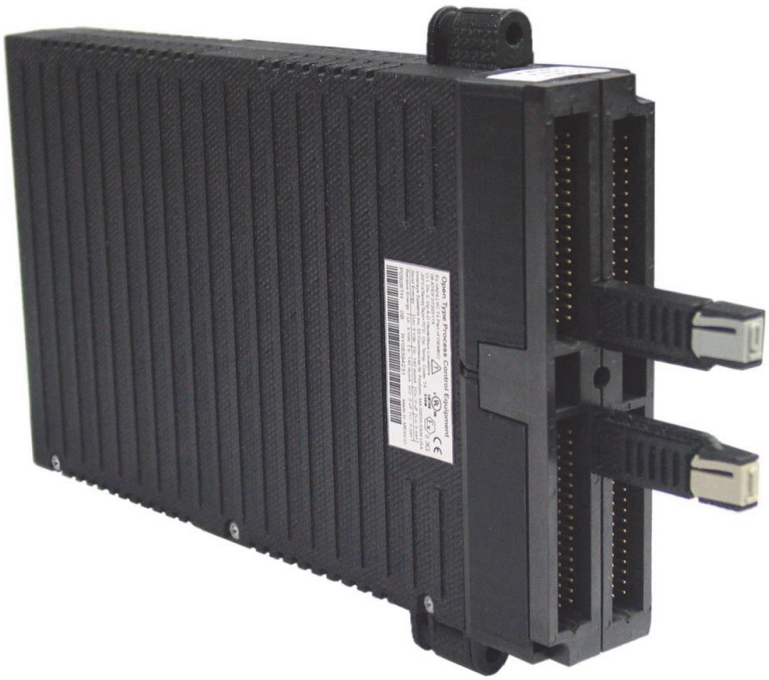
Product Specifications

Foxboro®

by Schneider Electric

PSS 31H-2W4

Termination Assembly Adapter Modules for 100 Series Upgrade



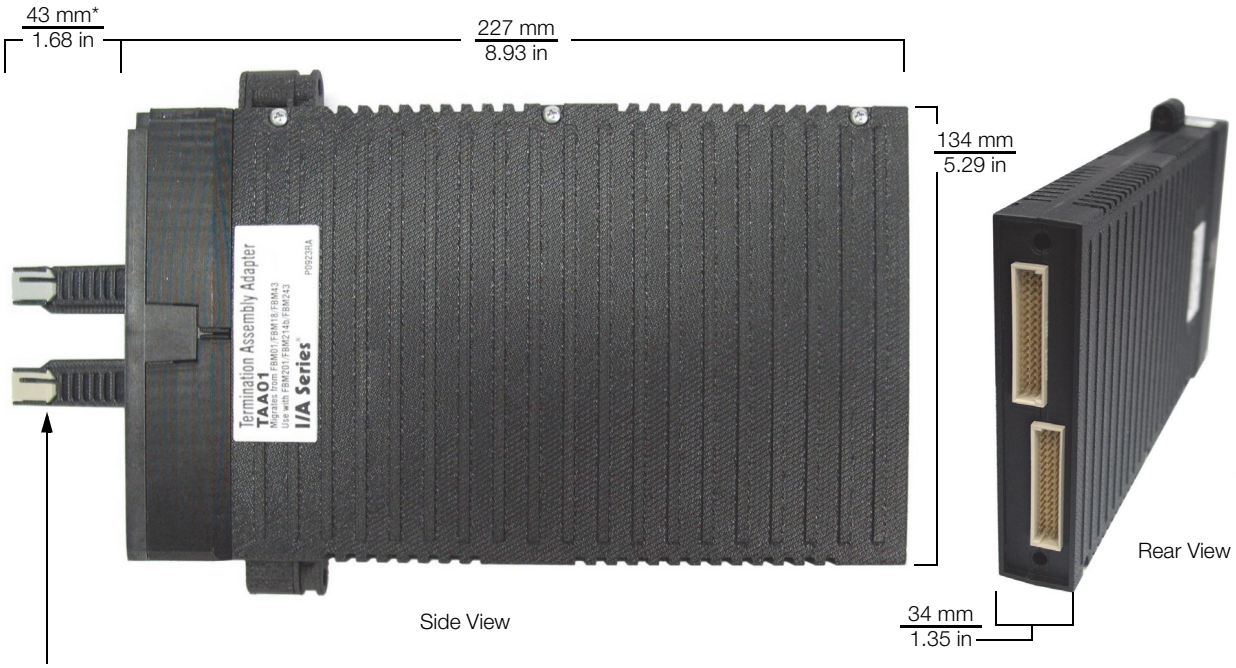
The Termination Assembly Adapter (TAA) modules for the 100 Series Fieldbus Module Upgrade subsystem connect in place of supported 100 Series FBMs and enable communication between the 200 Series FBMs and the Termination Cable Assemblies used to upgrade the original 100 Series FBMs.

OVERVIEW

The Termination Assembly Adapter (TAA) modules for the 100 Series Fieldbus Module Upgrade subsystem are installed in the new conversion mounting structures to mount the Termination Cable Assemblies (TCAs) formerly used by the 100 Series FBMs. TAAs facilitate communications between the 200 Series FBMs and the original 100 Series FBMs' field I/O wiring, via the termination connectors on these existing TCAs.

TAAs are available as either passive or active. Passive units pass signals, unmodified, via wiring from the termination connector (i.e., nosecone attachment point) to the rear backplane connector. Active TAAs modify the field signals (such as by providing signal conditioning and channel isolation) before sending them to their associated 100 Series conversion mounting structure.

Figure 1 shows the dimensions of a TAA module. All TAAs use this same housing and have the same dimensions.



Termination connector (i.e. nosecone) on 100 Series Termination Cable Assembly (TCA) is attached here.

* When attached, TCA also increases TAA height to 159 mm (6.27 in).

Figure 1. Example Termination Assembly Adapter (TAA) Module

FEATURES

The Termination Assembly Adapter (TAA) modules for the 100 Series upgrade offer the following features:

- Support for a variety of signals and power
- Easy installation in existing 100 Series mounting structures
- Support for existing Termination Cable Assemblies (TCAs) - no need to replace field wiring
- Active TAAs provide built-in signal conditioning and channel isolation.

LED INDICATORS

When the termination connector on a 100 Series Termination Cable Assembly is attached to a TAA, a green LED on its front is illuminated when 24 V dc power is supplied to the TAA.

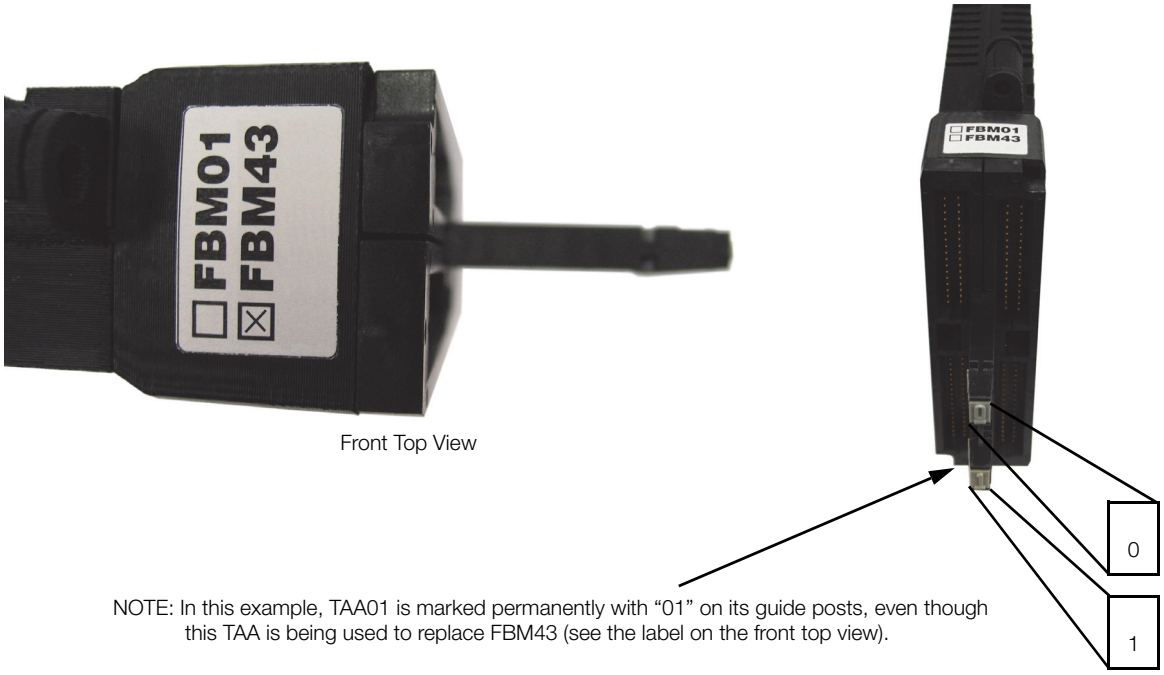
The red LED at the bottom of the connector is not used since its functionality is not supported by the 200 Series FBMs. The status LEDs on the termination connector are functional for digital signals and indicate the state of these signals.

TAA LABELS

Certain TAAs, listed in “AVAILABLE TAA MODULES” on page 4, support the replacement of multiple 100 Series FBMs. For example, TAA01 is used to replace FBM01 or FBM43. Thus, it can accept the Termination Cable Assemblies from any of these FBMs attached to its front.

For convenience, a label is mounted on the top of these TAAs to indicate which 100 Series FBM the TAA is substituting. Figure 2 shows an example of

this label, which has entries for FBM01 or FBM43 with checkboxes for each FBM. Installers mark the appropriate checkbox to indicate which FBM is being replaced with this TAA, and which Termination Cable Assembly should be used with this TAA. Installers are recommended to use permanent markers such as a Sharpie® pen (or equivalent) when marking the checkboxes.



Front Top View

NOTE: In this example, TAA01 is marked permanently with “01” on its guide posts, even though this TAA is being used to replace FBM43 (see the label on the front top view).

Figure 2. Example Termination Assembly Adapter (TAA) Module Label

AVAILABLE TAA MODULES

Table 1 lists the available TAA modules to use with each 200 Series FBM type when the FBM's associated field wiring was attached formerly to the termination connector (nosecone) on a100 Series FBM's Termination Cable Assembly.

Table 1. Available Termination Assembly Adapter (TAA) Modules

TAA Module	Used to Upgrade Original 100 Series FBM	Upgrade 200 Series FBM	TAA Described on Page	200 Series FBM(s) Described in PSS
TAA01	FBM01	FBM201, or FBM214b	page 8	PSS 31H-2Z1 PSS 31H-2Z14
	FBM43	FBM243	page 8	PSS 31H-2Z43
TAA02	FBM02	FBM202	page 9	PSS 31H-2Z2
	FBM36			
TAA03A	FBM03A	FBM203	page 10	PSS 31H-2Z3
	FBM33A	FBM203c	page 10	PSS 31H-2Z3
TAA03B	FBM03B	FBM203d	page 11	PSS 31H-2Z3
	FBM33B	FBM203d	page 11	PSS 31H-2Z3
TAA04	FBM04	FBM204, or FBM244	page 12	PSS 31H-2Z4 PSS 31H-2Z44
TAA05	FBM05	FBM208b	page 13	PSS 31H-2Z8
TAA06	FBM06	FBM206b	page 14	PSS 31H-2Z6
TAA07	FBM07A/07B (Main) with FBM12A/B, FBM13, FBM21 or FBM25A/B/C (Expansion)	FBM217	page 15	PSS 31H-2Z17
	FBM07A/07B (Main) with FBM14A/B/C/D, FBM15, FBM16, FBM27A/B/C or FBM42A/C (Expansion)	FBM219	page 15	PSS 31H-2Z19

Table 1. Available Termination Assembly Adapter (TAA) Modules (Continued)

TAA Module	Used to Upgrade Original 100 Series FBM	Upgrade 200 Series FBM	TAA Described on Page	200 Series FBM(s) Described in PSS
TAA08	FBM08 (Main) with FBM12A/B, FBM13, FBM21 or FBM25A/B/C (Expansion)	FBM217	page 18	PSS 31H-2Z17
	FBM08 (Main) with FBM14A/B/C/D, FBM15, FBM16, FBM27A/B/C or FBM42A/C (Expander)	FBM219	page 18	PSS 31H-2Z19
TAA09	FBM09A/09B/09C/09D (Main) with FBM12A/B, FBM13, FBM21 or FBM25A/B/C (Expansion)	FBM238	page 20	PSS 31H-2Z38
	FBM09A/09B/09C/09D (Main) with FBM14A/B/C/D, FBM15, FBM16, FBM27A/B/C or FBM42A/C (Expansion)	FBM239	page 20	PSS 31H-2Z39
TAA10	FBM10 (Main) with FBM12A/B, FBM13, FBM21 or FBM25A/B/C (Expansion)	FBM238	page 24	PSS 31H-2Z38
	FBM10 (Main) with FBM14A/B/C/D, FBM15, FBM16, FBM27A/B/C or FBM42A/C (Expansion)	FBM239	page 24	PSS 31H-2Z39
TAA11	FBM11 (Main) with FBM12A/B, FBM13, FBM21 or FBM25A/B/C (Expansion)	FBM238	page 27	PSS 31H-2Z38
	FBM11 (Main) with FBM14A/B/C/D, FBM15, FBM16, FBM27A/B/C or FBM42A/C (Expansion)	FBM239	page 27	PSS 31H-2Z39
TAA12	FBM12A (Expansion)/ FBM12B (Expansion)	FBM217, or FBM238	page 30	PSS 31H-2Z17 PSS 31H-2Z38
TAA13	FBM13 (Expansion)	FBM217, or FBM238	page 31	PSS 31H-2Z17 PSS 31H-2Z38

Table 1. Available Termination Assembly Adapter (TAA) Modules (Continued)

TAA Module	Used to Upgrade Original 100 Series FBM	Upgrade 200 Series FBM	TAA Described on Page	200 Series FBM(s) Described in PSS
TAA14	FBM14A (Expansion)/ FBM14B (Expansion)/ FBM14C (Expansion)/ FBM14D (Expansion)	FBM219, or FBM239	page 20	PSS 31H-2Z19 PSS 31H-2Z39
TAA15	FBM15 (Expansion)	FBM219, or FBM239	page 33	PSS 31H-2Z19 PSS 31H-2Z39
TAA16	FBM16 (Expansion)	FBM219, or FBM239	page 34	PSS 31H-2Z19 PSS 31H-2Z39
TAA17	FBM17A/FBM17B/FBM17C/ FBM17D	FBM227	page 35	PSS 31H-2Z27
TAA18	FBM18	FBM243	page 40	PSS 31H-2Z43
TAA20	FBM20 (Main) with FBM12A/B, FBM13, FBM21 or FBM25A/B/C (Expansion)	FBM217	page 41	PSS 31H-2Z17
	FBM20 (Main) with FBM14A/B/C/D, FBM15, FBM16, FBM27A/B/C or FBM42A/C (Expansion)	FBM219	page 41	PSS 31H-2Z19
TAA21	FBM21 (Expansion)	FBM217, or FBM238	page 43	PSS 31H-2Z17 PSS 31H-2Z38
TAA24	FBM24A/24B/24C (Main) with FBM12A/B, FBM13, FBM21 or FBM25A/B/C (Expansion)	FBM217	page 44	PSS 31H-2Z17
	FBM24A/24B/24C (Main) with FBM14A/B/C/D, FBM15, FBM16, FBM27A/B/C or FBM42A/C (Expansion)	FBM219	page 44	PSS 31H-2Z19
TAA25	FBM25A (Expansion)/ FBM25B (Expansion)/ FBM25C (Expansion)	FBM217, or FBM238	page 47	PSS 31H-2Z17 PSS 31H-2Z38

Table 1. Available Termination Assembly Adapter (TAA) Modules (Continued)

TAA Module	Used to Upgrade Original 100 Series FBM	Upgrade 200 Series FBM	TAA Described on Page	200 Series FBM(s) Described in PSS
TAA26	FBM26A/26B/26C (Main) with FBM12A/B, FBM13, FBM21 or FBM25A/B/C (Expansion)	FBM238	page 48	PSS 31H-2Z38
	FBM26A/26B/26C (Main) with FBM14A/B/C/D, FBM15, FBM16, FBM27A/B/C or FBM42A/C (Expansion)	FBM239	page 48	PSS 31H-2Z39
TAA27	FBM27A (Expansion)/ FBM27B (Expansion)/ FBM27C (Expansion)	FBM219, or FBM239	page 52	PSS 31H-2Z19 PSS 31H-2Z39
TAA37	FBM37	FBM215 (HART), or FBM237	page 53	PSS 31H-2Z15 PSS 31H-2Z37
TAA39	FBM39	FBM243b	page 54	PSS 31H-2Z43
TAA41	FBM41A/41C (Main) with FBM12A/B, FBM13, FBM21 or FBM25A/B/C (Expansion)	FBM238	page 55	PSS 31H-2Z38
	FBM41A/41C (Main) with FBM14A/B/C/D, FBM15, FBM16, FBM27A/B/C or FBM42A/C (Expansion)	FBM239	page 55	PSS 31H-2Z39
TAA42	FBM42A (Expansion)/ FBM42C (Expansion)	FBM219, or FBM239	page 59	PSS 31H-2Z19 PSS 31H-2Z39
TAA44	FBM44	FBM243b	page 60	PSS 31H-2Z43
TAA46	FBM46	FBM246b	page 61	PSS 31H-2Z46

The specifications for these TAA modules are provided as follows.

TAA01 SPECIFICATIONS

The TAA01 module supports communications for the following 100 Series FBMs:

- FBM01 - replaced by FBM201 or FBM214b
- FBM43 - replaced by FBM243.

Specifications for the TAA01 are provided below.

FUNCTIONAL SPECIFICATIONS

I/O Connection

The TAA01 provides a passive I/O connection between the Termination Cable Assembly of its replaced 100 Series FBM and the 100 Series conversion mounting structure.

Indicator (Mounted On Termination Cable Assembly)

OPERATIONAL STATUS
One green light-emitting diode (LED)

Communication
Via the redundant Fieldbus

ENVIRONMENTAL SPECIFICATIONS(1)

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

PHYSICAL SPECIFICATIONS

Mounting
Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight
1 kg (2.2 lb)

Part Number
P0923RA

(1) 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.}

TAA02 SPECIFICATIONS

The TAA02 module supports communications for FBM02 and FBM36, which have been replaced by FBM202.

Specifications for the TAA02 are provided below.

FUNCTIONAL SPECIFICATIONS

I/O Connection

The TAA02 provides a passive I/O connection between the Termination Cable Assembly of its replaced 100 Series FBM and the 100 Series conversion mounting structure.

Indicator (Mounted On Termination Cable Assembly)

OPERATIONAL STATUS

One green light-emitting diode (LED)

Communication

Via the redundant Fieldbus

ENVIRONMENTAL SPECIFICATIONS(2)

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

PHYSICAL SPECIFICATIONS

Mounting

Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight

1 kg (2.2 lb)

Part Number

P0923RB

(2) 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.}

TAA03A SPECIFICATIONS

The TAA03A module supports communications for the following 100 Series FBMs:

- FBM03A - replaced by FBM203
- FBM33A - replaced by FBM203c.

Specifications for the TAA03A are provided below.

FUNCTIONAL SPECIFICATIONS

I/O Connection

The TAA03A provides a passive I/O connection between the Termination Cable Assembly of its replaced 100 Series FBM and the 100 Series conversion mounting structure.

Indicator (Mounted On Termination Cable Assembly)

OPERATIONAL STATUS
One green light-emitting diode (LED)

Communication
Via the redundant Fieldbus

ENVIRONMENTAL SPECIFICATIONS(3)

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

PHYSICAL SPECIFICATIONS

Mounting
Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight
1 kg (2.2 lb)

Part Number
P0923RC

(3) 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.}

TAA03B SPECIFICATIONS

The TAA03B module supports communications for the FBM03B or FBM33B, when these FBMs are replaced by FBM203d.

Specifications for the TAA03B are provided below.

FUNCTIONAL SPECIFICATIONS

I/O Connection

The TAA03B provides a passive I/O connection between the Termination Cable Assembly of its replaced 100 Series FBM and the 100 Series conversion mounting structure.

Indicator (Mounted On Termination Cable Assembly)

OPERATIONAL STATUS
One green light-emitting diode (LED)

Communication
Via the redundant Fieldbus

ENVIRONMENTAL SPECIFICATIONS(4)

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

PHYSICAL SPECIFICATIONS

Mounting
Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight
1 kg (2.2 lb)

Part Number
P0924GX

(4) 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.}

TAA04 SPECIFICATIONS

The TAA04 module supports communications for the FBM04, which is replaced by FBM204, or for HART communications, FBM244.

Specifications for the TAA04 are provided below.

FUNCTIONAL SPECIFICATIONS

I/O Connection

The TAA04 provides a passive I/O connection between the Termination Cable Assembly of its replaced 100 Series FBM and the 100 Series conversion mounting structure.

Indicator (Mounted On Termination Cable Assembly)

OPERATIONAL STATUS
One green light-emitting diode (LED)

Communication
Via the redundant Fieldbus

ENVIRONMENTAL SPECIFICATIONS(5)

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

PHYSICAL SPECIFICATIONS

Mounting
Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight
1 kg (2.2 lb)

Part Number
P0923RD

(5) 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.}

TAA05 SPECIFICATIONS

The TAA05 module supports communications for the FBM05, which is replaced with the FBM208b.

Specifications for the TAA05 are provided below.

FUNCTIONAL SPECIFICATIONS

I/O Connection

The TAA05 provides a passive I/O connection between the Termination Cable Assembly of its replaced 100 Series FBM and the 100 Series conversion mounting structure.

Indicator (Mounted On Termination Cable Assembly)

OPERATIONAL STATUS

One green light-emitting diode (LED)

Communication

Via the redundant Fieldbus

ENVIRONMENTAL SPECIFICATIONS(6)

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

PHYSICAL SPECIFICATIONS

Mounting

Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight

1 kg (2.2 lb)

Part Number

P0923RE

(6) 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.}

TAA06 SPECIFICATIONS

The TAA06 module supports communications for the FBM06, which is replaced by the FBM206b.

Specifications for the TAA06 are provided below.

FUNCTIONAL SPECIFICATIONS

I/O Connection

The TAA06 provides a passive I/O connection between the Termination Cable Assembly of its replaced 100 Series FBM and the 100 Series conversion mounting structure.

Indicator (Mounted On Termination Cable Assembly)

OPERATIONAL STATUS
One green light-emitting diode (LED)

Communication
Via the redundant Fieldbus

ENVIRONMENTAL SPECIFICATIONS(7)

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

PHYSICAL SPECIFICATIONS

Mounting
Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight
1 kg (2.2 lb)

Part Number
P0923RF

(7) 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.}

TAA07 SPECIFICATIONS

The TAA07 Main module functions either as a 16-channel dc voltage monitor as FBM07A (replaced by FBM217) or as a 16-channel contact sensor as FBM07B (replaced by FBM219). It is capable of supporting a single expansion module to support additional features. Typically, the TAA07 is used with the TAA12 Expansion module, which also functions as a contact sensor or dc voltage monitor. TAA12 is discussed in "TAA12 SPECIFICATIONS" on page 30. The TAA07 may be used with the Expansion modules listed in Table 1 as well.

The TAA07 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 TAA07 and TAA12 inputs are isolated in pairs.

The TAA07 independently connects to the Fieldbus.

The TAA07's associated FBM217 or FBM219 is capable of executing any one of the application programs identified in the following schedule:

- When the TAA07 is used alone or in conjunction with an expansion module that interfaces field input signals only, the FBM217 executes either 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 the TAA07 is used in conjunction with an expansion module that interfaces field input and output signals, the FBM219 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.

Specifications for the TAA07 and TAA12 are provided below.

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.

ISOLATION (CONT.)

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.

FUNCTIONAL SPECIFICATIONS (CONTINUED)

Common Characteristics (Cont.)

ISOLATION (CONT.)

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)
24 V dc +5%, -10%

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 CABLE ASSEMBLY)

Operational Status
One green light-emitting diode (LED)
Input Channel Status
16 LED's (1 per channel)

FIELD TERMINATION CONNECTIONS[8]

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

FIELD TERMINATION CONNECTIONS (CONT.)

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)

Contact Sensor Function (see Figure 3 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 following Figure 3)

INPUT[9]

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

(8) 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.
(9) For CSA and FM rated versions with CM series part numbers, input voltage must be less than 60 V dc.

FUNCTIONAL SPECIFICATIONS (CONTINUED)

Voltage Monitor Function (Cont.)

SOURCE RESISTANCE LIMITS

ON-State
1 k Ω (maximum) at 15 V dc
OFF-State
100 k Ω (minimum) at 130 V dc

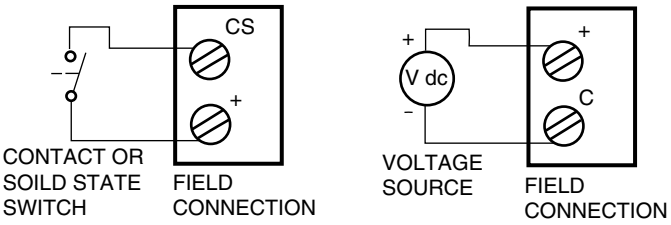


Figure 3. Input Configurations (TAA07)

ENVIRONMENTAL SPECIFICATIONS(10)

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

PHYSICAL SPECIFICATIONS

Mounting

Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight

1 kg (2.2 lb)

Part Number (TAA07)

P0923RG

(10)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.}

TAA08 SPECIFICATIONS

The TAA08 Main module functions as a 16-channel 120 V ac monitor as FBM08 (replaced by FBM217 or FBM219). It is capable of supporting a single expansion module to support additional features. Typically, the TAA08 is used with the TAA13 Expansion module, which also functions as a 120 V ac monitor. TAA13 is discussed in "TAA13 SPECIFICATIONS" on page 31. The TAA08 may be used with the Expansion modules listed in Table 1 as well.

The TAA08 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 (signal conditioning and channel isolation). It independently connects to the Fieldbus.

The TAA08's associated FBM217 or FBM219 is capable of executing any one of the application programs identified in the following schedule:

- When the TAA08 is used alone or in conjunction with an expansion module that interfaces field input signals only, the FBM217 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 the TAA08 is used in conjunction with an expansion module that interfaces field input and output signals, the FBM219 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.

Specifications for the TAA08 and TAA13 are provided on the following page.

FUNCTIONAL SPECIFICATIONS

Input

CAPACITY
16 independent channels

ON-STATE VOLTAGE(11)
79 to 132 V ac

OFF-STATE VOLTAGE(11)
0 to 20 V ac

CURRENT
2.2 mA (typical) at 20 to 132 V ac

Source Resistance Limits

ON-STATE
1 kΩ (maximum) at 79 V ac

OFF-STATE
100 kΩ (minimum) at 132 V ac

Isolation

The module will 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.

CAUTION

This does not imply that these channels are intended for permanent connection to voltages of this level. Connection of these channels to voltages higher than those stated in the "Input" specification will violate electrical safety code requirements and may expose users to electric shock.

(11)OFF-ON and ON-OFF transitions occur between 20 and 79 V ac.

FUNCTIONAL SPECIFICATIONS (CONTINUED)

Power Requirements

INPUT VOLTAGE RANGE (REDUNDANT)
24 V dc +5%, -10%

CONSUMPTION

Main Module only
5 W (maximum)

Main Module plus Expansion Module
7 W (maximum)

Filter Time

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

Heat Dissipation

MAIN MODULE ONLY
11 W (maximum)

MAIN MODULE PLUS EXPANSION MODULE
18 W (maximum)

Indicators (Mounted On Termination Cable Assembly)

OPERATIONAL STATUS
One green light-emitting diode (LED)

INPUT CHANNEL STATUS
16 LED's (1 per channel)

Field Termination Connections(12)

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 a redundant Fieldbus (main module only)

ENVIRONMENTAL SPECIFICATIONS(13)

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

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

(12)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.

(13)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
Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight
1 kg (2.2 lb)

Part Number (TAA08)
P0923RH

TAA09 SPECIFICATIONS

The TAA09 Main module provides the following input and output functions for digital field signals:

INPUT FUNCTIONS - 8 channels used collectively for either:

- contact sensing only (as FBM09C/09D), or
- dc voltage monitoring only (as FBM09A/09B).

OUTPUT FUNCTIONS - 8 channels used collectively for either:

- dc output switching with an external source only, e.g., to control powering of various external loads (as FBM09A/09C), or
- dc output switching with an internal source only, e.g., to power external solid state relays or other similar devices (as FBM09B/09D).

It is capable of supporting a single expansion module to support additional features. Typically, the TAA09 is used with the TAA14 Expansion module, which has the same functionality as the TAA09. TAA14 is discussed in “TAA14 SPECIFICATIONS” on page 32. The TAA09 may be used with the Expansion modules listed in Table 1 as well.

The TAA09 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. It independently connects to the Fieldbus. Its inputs and outputs are isolated in pairs.

When the TAA09 is used alone or in conjunction with any expansion module, its associated FBM238 or FBM239 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.

Specifications for the TAA09 and TAA14 are provided below.

FUNCTIONAL SPECIFICATIONS

Common Characteristics

ISOLATION

The module will withstand, without damage, a potential of 1250 V ac applied for one minute between the following points.

CAUTION

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.

ISOLATION (CONT.)

Input to Earth (Ground)
1250 V ac
Output to Earth (Ground)
1250 V ac
Input to Output
1250 ac
Input Pair to Input Pair
1250 V ac (between adjacent pairs of channels; each pair of channels shares a common return)
Output Pair to Output Pair
1250 V ac (between adjacent pairs of channels; each pair of channels shares a common return)

Common Characteristics (Cont.)

ISOLATION (CONT.)

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 nonhazardous voltages must not be mixed within a channel pair.

POWER REQUIREMENTS

Input Voltage Range (Redundant)
24 V dc +5%, -10%
Consumption
Main Module Only
8 W (maximum)
Main Module Plus Expansion Module
11 W (maximum)

HEAT DISSIPATION

Main Module Only
11 W (maximum)
Main Module Plus Expansion Module
18 W (maximum)

INDICATORS (MOUNTED ON TERMINATION CABLE ASSEMBLY)

Operational Status
One green light-emitting diode (LED)
Input Channel Status
8 LEDs (1 per channel)
Output Channel Status
8 LEDs (1 per channel)

FIELD TERMINATION CONNECTIONS[14]

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

(14)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 32 uses the plug connector block only.

FUNCTIONAL SPECIFICATIONS (CONTINUED)

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)

Input Functions

CAPACITY
8 independent channels

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

Contact Sensor
See Figure 4 below

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)

Input Functions (Cont.)

FILTER TIME (CONT.)

Voltage Monitor[15]
See Figure 4 below

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

Output Functions

CAPACITY
8 independent channels

Output Switch (with external source)
See Figure 5 below

Applied Voltage
60 V dc (maximum)
Load Current
0.5 A (maximum)
Shorted-Load Duration
Indefinite (duty cycle current limit on overload)
On-State Voltage Drop
0.5 V (typical) at 0.5 A
On-State Current Limit
0.75 A (typical)
Off-State Leakage Current
< 100 µA (typical)
1.0 mA (maximum)
Inductive Loads
Require a protective diode connected across the load (see Figure 5 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.

Output Switch (with internal source)
See Figure 5 below

Output Voltage (no load)
11 V dc ±2 V dc
Source Resistance
660 Ω (nominal)
Shorted-Output (On-State) Duration
Indefinite
Off-State Leakage Current
< 100 µA (typical)
0.5 mA (maximum)

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

FUNCTIONAL SPECIFICATIONS (CONTINUED)

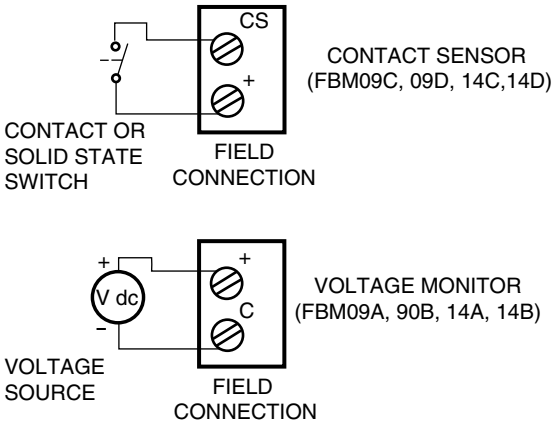


Figure 4. Input Configurations (TAA09)

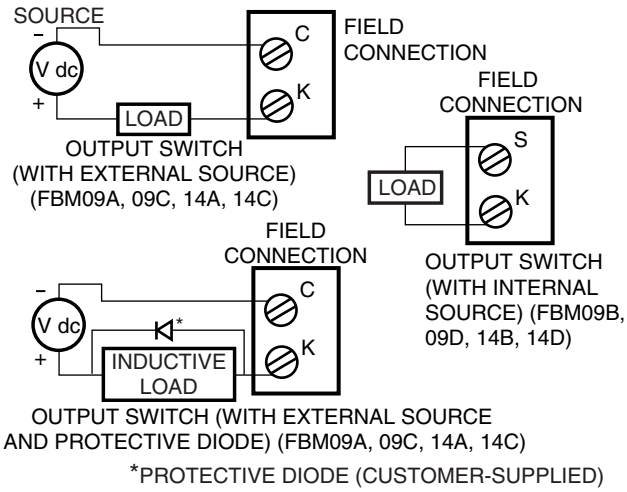


Figure 5. Output Configurations (TAA09)

ENVIRONMENTAL SPECIFICATIONS(16)

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

PHYSICAL SPECIFICATIONS

Mounting

Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight

1 kg (2.2 lb)

Part Number (TAA09)

P0923RJ

(16)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.}

TAA10 SPECIFICATIONS

The TAA10 Main module provides 8 input channels for 120 V ac voltage monitoring and 8 output channels for 120 V ac output switching with current overload protection. It is capable of supporting a single expansion module to support additional features. Typically, the TAA10 is used with the TAA15 Expansion module, which also shares its functionality. TAA15 is discussed in "TAA15 SPECIFICATIONS" on page 33. The TAA10 may be used with the Expansion modules listed in Table 1 as well.

The TAA10 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 TAA10's associated FBM238 or FBM239 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.

Automatic Restart from Overload

If an overload is sensed (either inrush or steady state current exceeded), the TAA circuitry will open for 64.5 line cycles and then retry again. This operation will continue indefinitely for outputs only. Overloads exceeding 50 A will cause damage to the modules.

Specifications for the TAA10 and TAA15 are provided below.

FUNCTIONAL SPECIFICATIONS

Common Characteristics

ISOLATION

The module will 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.

CAUTION

This does not imply that these channels are intended for permanent connection to voltages of this level. Connection of these channels to voltages higher than those stated in the "Voltage Monitor" and "Output Switch" sections of this module's specification will violate electrical safety code requirements and may expose users to electric shock.

POWER REQUIREMENTS

Input Voltage Range (Redundant)
24 V dc +5%, -10%
Consumption
11 W (maximum)

HEAT DISSIPATION

25 W (maximum)

INDICATORS (MOUNTED ON TERMINATION CABLE ASSEMBLY)

Operational Status
One green light-emitting diode (LED)
Input Channel Status
8 LED's on TCA (1 per channel)
Output Channel Status
8 LED's on TCA (1 per channel)

FUNCTIONAL SPECIFICATIONS (CONTINUED)

Common Characteristics (Cont.)

FIELD TERMINATION CONNECTIONS[17]

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

Voltage Monitor (Input Channels)

CAPACITY
8 independent channels

INPUT

ON-State Voltage[18]
79 to 132 V ac
OFF-State Voltage[18]
0 to 20 V ac
Current
2.2 mA (typical) at 20 to 132 V ac

SOURCE RESISTANCE LIMITS

ON-State
1 k Ω (maximum) at 79 V ac
OFF-State
100 k Ω (minimum) at 132 V ac

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

Output Switch (Output Channels)

CAPACITY
8 independent channels

VOLTAGE RANGE
79 to 132 V ac

NOMINAL VOLTAGE
120 V ac, 50/60 Hz

CURRENT
2 A (maximum) per channel; 12 A (maximum) per module

OFF-STATE LEAKAGE
3 mA (maximum)

INRUSH CURRENT
Overload sensing provided
24 A peak 10 ms (1/2 cycle)
12 A rms 20 ms (1 cycle)
3.5 A rms for 1 s
Short circuits that result in greater than 50 A peak current will result in damage to the module. If a 50 A current is possible, external fusing is recommended.[19]

HOLDING CURRENT
No min required

ON STATE VOLTAGE DROP
0.4 V @ 1 A

AUTOMATIC RESTART FROM OVERLOAD
Approximately 1 second after overload sensed.

---

(17)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.
(18)OFF-ON and ON-OFF transitions occur between 20 and 79 V ac.
(19)Fuse rating must be appropriate for the inrush current characteristics of this TAA.

ENVIRONMENTAL SPECIFICATIONS[20]

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

PHYSICAL SPECIFICATIONS

Mounting

Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight

1 kg (2.2 lb)

Part Number (TAA10)

P0923RK

(20)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.}

TAA11 SPECIFICATIONS

The TAA11 Main module provides eight input channels for 240 V ac voltage monitoring and eight output channels for 240 V ac output switching with current overload protection (same as FBM11). It is capable of supporting a single expansion module to support additional features. Typically, the TAA11 is used with the TAA16 Expansion module, which also has the same functionality as the TAA11. The TAA16 is discussed in "TAA16 SPECIFICATIONS" on page 34. The TAA11 may be used with the Expansion modules listed in Table 1 as well.

The TAA11 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, including signal conditioning and channel isolation. It independently connects to the Fieldbus.

When the TAA11 is used alone or in conjunction with any expansion module, its associated FBM238 or FBM239 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.

Automatic Restart from Overload

If an overload is sensed (either inrush or steady state current exceeded), the TAA circuitry 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.

Specifications for the TAA11 and TAA16 are provided below.

FUNCTIONAL SPECIFICATIONS

Common Characteristics

ISOLATION(21)

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)
24 V dc +5%, -10%
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)

(21)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.

FUNCTIONAL SPECIFICATIONS (CONTINUED)

Common Characteristics (Cont.)

INDICATORS (MOUNTED ON TERMINATION CABLE ASSEMBLY)

Operational Status
One green light-emitting diode (LED)
Input Channel Status
8 LEDs (1 per channel)
Output Channel Status
8 LEDs (1 per channel)

FIELD TERMINATION CONNECTIONS(22)

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(23)
164 to 264 V ac
OFF-State Voltage(23)
0 to 40 V ac
Current
2.2 mA (typical) at 40 to 264 V ac

Voltage Monitor (Input Channels) (Cont.)

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)

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.(24)

HOLDING CURRENT
No min required

ON-STATE VOLTAGE DROP
0.6 V @ 0.5 A

AUTOMATIC RESTART FROM OVERLOAD
Approximately 1 second after overload sensed.

---

(22)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.
(23)OFF-ON and ON-OFF transitions occur between 40 and 164 V ac.
(24)Fuse rating must be appropriate for the inrush current characteristics of this FBM.

ENVIRONMENTAL SPECIFICATIONS[25]

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

PHYSICAL SPECIFICATIONS

Mounting

Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight

1 kg (2.2 lb)

Part Number (TAA11)

P0923RL

(25)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.}

TAA12 SPECIFICATIONS

The TAA12 Expansion module, when used with a Main module listed in Table 1, functions as a 16-channel dc voltage monitor (as FBM12A) or as a 16-channel contact sensor (as FBM12B). It 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. Its inputs are isolated in pairs.

Typically, it is used in conjunction with the TAA07 Main module, discussed in "TAA07 SPECIFICATIONS" on page 15.

The TAA12 connects to the Fieldbus via any expandable main module and is functionally dependent on the supporting main module.

Specifications for the TAA12 are provided below.

FUNCTIONAL SPECIFICATIONS

Refer to the Functional Specifications in "TAA07 SPECIFICATIONS" on page 15 for the functional specifications for the TAA12 module.

ENVIRONMENTAL SPECIFICATIONS(26)

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

PHYSICAL SPECIFICATIONS

Mounting
Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight
1 kg (2.2 lb)

Part Number
P0923RM

(26)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.}

TAA13 SPECIFICATIONS

The TAA13 Expansion module, when used with a Main module listed in Table 1, functions as a 16-channel 120 V ac monitor (as FBM13). It 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 (signal conditioning and channel isolation).

Typically, it is used in conjunction with the TAA08 Main module, discussed in "TAA08 SPECIFICATIONS" on page 18.

The TAA13 connects to the Fieldbus via any expandable main module and is functionally dependent on the supporting main module.

Specifications for the TAA13 are provided below.

FUNCTIONAL SPECIFICATIONS

Refer to the Functional Specifications in "TAA08 SPECIFICATIONS" on page 18 for the functional specifications for the TAA13 module.

ENVIRONMENTAL SPECIFICATIONS(27)

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

PHYSICAL SPECIFICATIONS

Mounting
Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight
1 kg (2.2 lb)

Part Number
P0923RN

(27)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.}

TAA14 SPECIFICATIONS

The TAA14 Expansion module, when used with a Main module listed in Table 1, provides the following input and output functions for digital field signals:

INPUT FUNCTIONS - 8 channels used collectively for either:

- contact sensing only (as FBM14C/14D), or
- dc voltage monitoring only (as FBM14A/14B).

OUTPUT FUNCTIONS - 8 channels used collectively for either:

- dc output switching with an external source only, e.g., to control powering of various external loads (as FBM14A/14C), or
- dc output switching with an internal source only, e.g., to power external solid state relays or other similar devices (as FBM14B/14D).

Typically, it is used in conjunction with the TAA09 Main module, discussed in "TAA09 SPECIFICATIONS" on page 20.

The TAA14 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. Its inputs and outputs are isolated in pairs.

It connects to the Fieldbus via any expandable main module and is functionally dependent on the supporting main module.

FUNCTIONAL SPECIFICATIONS

Refer to the Functional Specifications in "TAA09 SPECIFICATIONS" on page 20 for the functional specifications for the TAA14 module.

ENVIRONMENTAL SPECIFICATIONS(28)

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

PHYSICAL SPECIFICATIONS

Mounting
Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight
1 kg (2.2 lb)

Part Number
P0923RP

(28)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.}

TAA15 SPECIFICATIONS

The TAA15 Expansion module, when used with a Main module listed in Table 1, provides 8 input channels for 120 V ac voltage monitoring and 8 output channels for 120 V ac output switching with current overload protection. It 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.

Typically, it is used in conjunction with the TAA10 Main module, discussed in "TAA10 SPECIFICATIONS" on page 24.

The TAA15 connects to the Fieldbus via any expandable main module and is functionally dependent on the supporting main module.

Specifications for the TAA15 are provided below.

FUNCTIONAL SPECIFICATIONS

Refer to the Functional Specifications in "TAA10 SPECIFICATIONS" on page 24 for the functional specifications for the TAA15 module.

ENVIRONMENTAL SPECIFICATIONS(29)

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

PHYSICAL SPECIFICATIONS

Mounting
Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight
1 kg (2.2 lb)

Part Number
P0923RQ

(29)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.}

TAA16 SPECIFICATIONS

The TAA16 Expansion module, when used with a Main module listed in Table 1, provides eight input channels for 240 V ac voltage monitoring and eight output channels for 240 V ac output switching with current overload protection (same as FBM16). It 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, including signal conditioning and channel isolation.

Typically, it is used in conjunction with the TAA11 Main module, discussed in "TAA11 SPECIFICATIONS" on page 27.

The TAA16 connects to the Fieldbus via any expandable main module and is functionally dependent on the supporting main module.

Specifications for the TAA16 are provided below.

FUNCTIONAL SPECIFICATIONS

Refer to the Functional Specifications in "TAA11 SPECIFICATIONS" on page 27 for the functional specifications for the TAA16 module.

ENVIRONMENTAL SPECIFICATIONS(30)

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

PHYSICAL SPECIFICATIONS

Mounting
Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight
1 kg (2.2 lb)

Part Number
P0923RR

(30)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.}

TAA17 SPECIFICATIONS

The TAA17 module provides the following input and output functions for analog and digital field signals.

For analog signals:

- INPUT FUNCTIONS – four channels used collectively for either:
  - dc voltage measuring only (as FBM17A/B/C/D), or
  - slidewire (position) sensing only (as FBM17A/B/C/D).
- OUTPUT FUNCTIONS – two channels used for driving positioners, controllers or remote indicators.

For digital signals:

- INPUT FUNCTIONS – 4 channels used collectively for either:
  - contact sensing only (as FBM17C/17D), or
  - dc voltage monitoring only (as FBM17A/17B).
- OUTPUT FUNCTIONS – 4 channels used collectively for either:
  - dc output switching with an external source only, e.g. to control powering of various external loads (as FBM17A/17C), or
  - dc output switching with an internal source only, e.g. to power external solid state relays or other similar devices (as FBM17B/17D).

The TAA17 performs the signal conversion required to interface these analog and digital (i.e. on/off state) electrical input/output signals from/to the field sensors/actuators to/from the redundant Fieldbus, including signal conditioning and channel isolation. In addition, its associated FBM227 executes the Analog and Digital I/O, DPIDA or MDACT application programs.

The configurable options for each analog program are Input Resolution, Fail-safe Configuration (Hold/Fallback) and Output Fail-safe Fallback Data. The configurable options for each digital program are Input Filter Time, Fail-safe Configuration, Fail-safe Fall Back 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.

Specifications for the TAA17 are provided on the following page.

FUNCTIONAL SPECIFICATIONS

Common Characteristics

ISOLATION

The module withstands, without damage, a potential of 600 V ac on the analog channels or 1250 V ac on the digital channels (see notes below) applied for one minute between the following points.

Analog Input to Earth (Ground)
600 V ac

Analog Output to Earth (Ground)
600 V ac

Analog Input to Output
600 V ac

Digital Input Pair to Input Pair(31)
1250 V ac

Digital Output Pair to Output Pair(31)
1250 V ac

Digital Input Pair to Output Pair(31)
1250 V ac

NOTE

This does not imply that these channels are intended for prolonged 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.

NOTE

Digital 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 nonhazardous voltages must not be mixed within a channel pair.

POWER REQUIREMENTS

Input Voltage Range (redundant)
24 V dc +5%, -10%

Consumption
11 W (maximum)

HEAT DISSIPATION

9 W (maximum)

INDICATORS (MOUNTED ON TERMINATION CABLE ASSEMBLY)

Operational Status
One green light-emitting diode (LED)

Digital Input Channel Status
4 LEDs (1 per channel)

Digital Output Channel Status
4 LEDs (1 per channel)

FIELD TERMINATION CONNECTIONS(32)

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

(31)Within the digital channel pairs, each of the two channels shares a common power supply and return.

(32)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 32 uses the plug connector block only.

FUNCTIONAL SPECIFICATIONS (CONTINUED)

Analog Signals

INPUT FUNCTIONS

Capacity
4 independent channels
Configurable Specifications
See Table 2 below
Voltage Measuring
See Figure 6
Range (each channel)
-0.2 to 10.2 V dc
Rated Mean Accuracy (each channel)
±0.025% of span
Slidewire (Position) Sensing
See Figure 6
Excitation Reference Voltage
10 V dc ±2%
Excitation Reference Current
10 mA (maximum)
Slidewire Resistance
1 k Ω to 100 k Ω (nominal)

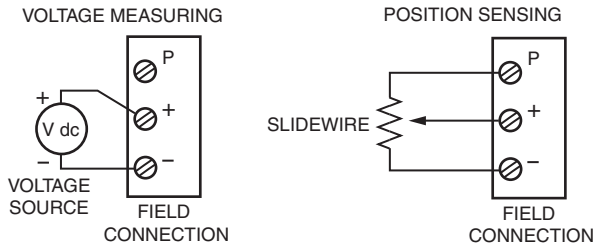


Figure 6. Analog Input Configurations (TAA17)

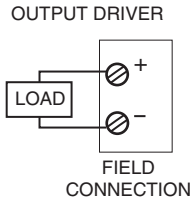


Figure 7. Analog Output Configuration (TAA17)

Table 2. Configurable Specifications for Analog Input Channels

Conversion Time (Seconds)	Settling Time[a] (Seconds)	Linearity Error[b] (% of Range)	Resolution (Bits)
0.1	0.3	0.013	12
0.2	0.5	0.008	13
0.5	1.1	0.005	14
1.0	2.1	0.005	15

(a) Output value settles within a 1% band of steady state for a 10 to 90% input step change.
(b) Monotonic (signal used for Fieldbus communications either increases or remains the same for increasing analog input signals).

FUNCTIONAL SPECIFICATIONS (CONTINUED)

Analog Signals (Cont.)

OUTPUT FUNCTIONS (Output Drivers)

See Figure 7 above

Capacity
2 independent channels
Range (each channel)
-0.2 to 10.2 V dc
Current (each channel)
2 mA (maximum)
Rated Mean Accuracy
±0.05% of span
Settling Time
150 ms maximum (to 1% of final value for 10 to 90% step change)
Linearity Error
±0.025% of span
Resolution
12 bits

Digital Signals

INPUT FUNCTIONS

Capacity
4 independent channels
Filter Time
Configurable (4, 8, 16, or 32 ms)
Contact Sensor
See Figure 8 below
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
See Figure 8 below
ON-State Voltage
15 to 130 V dc
OFF-State Voltage
0 to 5 V dc

INPUT FUNCTIONS (CONT.)

Voltage Monitor (Cont.)
Current
2.2 mA (typical) at 5 to 130 V dc
Source Resistance Limits (ON-State)
1 k Ω (maximum) at 15 V dc
Source Resistance Limits (OFF-State)
100 k Ω (minimum) at 130 V dc

OUTPUT FUNCTIONS

Capacity
4 independent channels
Output Switch (with external source)
See Figure 9 below
Applied Voltage
60 V dc (maximum)
Load Current
0.5 A (maximum)
Shorted-Load Duration
Indefinite (duty cycle current limit on overload)
ON-State Current Limit
0.75 A (typical)
OFF-State Leakage Current
< 100 µA (typical)
1.0 mA (maximum)
Inductive Loads
Require a protective diode connected across the load (see Figure 9 diagram with protective diode). Diode must be capable of conducting maximum expected load current and have a voltage rating greater than 1.3 times the supply voltage.
Output Switch (with internal source)
See Figure 9
Output Voltage (no load)
11 V dc ±2 V dc
Source Resistance
660 Ω (nominal)
Shorted-Output (ON-State) Duration
Indefinite
OFF-State Leakage Current
< 100 µA (typical)
0.5 mA (maximum)

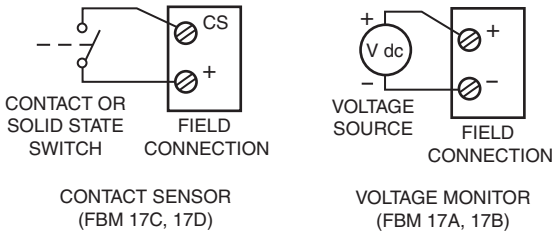


Figure 8. Digital Input Configurations (TAA17)

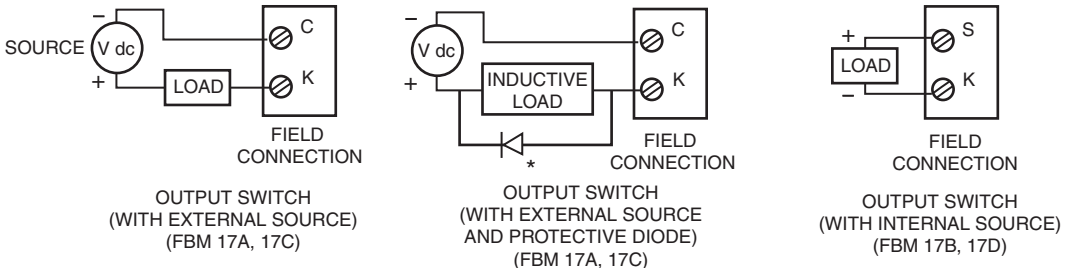


Figure 9. Digital Output Configurations (TAA17)

ENVIRONMENTAL SPECIFICATIONS(33)

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

PHYSICAL SPECIFICATIONS

Mounting

Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight

1 kg (2.2 lb)

Part Number (TAA17)

P0923RS

(33)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.}

TAA18 SPECIFICATIONS

The TAA18 module supports communications for the FBM18, which is replaced by FBM243.

Specifications for the TAA18 are provided below.

FUNCTIONAL SPECIFICATIONS

I/O Connection

The TAA18 provides a passive I/O connection between the Termination Cable Assembly of its replaced 100 Series FBM and the 100 Series conversion mounting structure.

Indicator (Mounted On Termination Cable Assembly)

OPERATIONAL STATUS
One green light-emitting diode (LED)

Communication
Via the redundant Fieldbus

ENVIRONMENTAL SPECIFICATIONS(34)

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

PHYSICAL SPECIFICATIONS

Mounting
Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight
1 kg (2.2 lb)

Part Number
P0924QA

(34)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.}

TAA20 SPECIFICATIONS

The TAA20 Main module functions as a 16-channel 240 V ac voltage monitor (as FBM20). It is capable of supporting a single expansion module to support additional features. Typically, the TAA20 is used with the TAA21 Expansion module, which also functions as an ac voltage monitor. TAA21 is discussed in "TAA21 SPECIFICATIONS" on page 43. The TAA20 may be used with the Expansion modules listed in Table 1 as well.

The TAA20 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, including signal conditioning and channel isolation. It independently connects to the Fieldbus.

The TAA20's associated FBM217 or FBM219 is capable of executing any one of the application programs identified in the following schedule:

- When the TAA20 is used alone or in conjunction with an expansion module that interfaces field input signals only, The FBM217 executes 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 the TAA20 is used in conjunction with an expansion module that interfaces field input and output signals, the FBM219 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.

Specifications for the TAA20 and TAA21 are provided below.

FUNCTIONAL SPECIFICATIONS

Input

CAPACITY
16 independent channels

ON-STATE VOLTAGE(35)
164 to 264 V ac

OFF-STATE VOLTAGE(35)
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

Isolation(36)

The module can withstand, without damage, a potential of 1500 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 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.

Filter Time

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

(35)OFF-ON and ON-OFF transitions occur between 40 and 164 V ac.

(36)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.

FUNCTIONAL SPECIFICATIONS (CONTINUED)

Power Requirements

INPUT VOLTAGE RANGE (REDUNDANT)
24 V dc +5%, -10%

CONSUMPTION

Main Module only
5 W (maximum)

Main Module plus Expansion Module
7 W (maximum)

Heat Dissipation

MAIN MODULE ONLY
12 W (maximum)

MAIN MODULE PLUS EXPANSION MODULE
20 W (maximum)

Indicators (Mounted On Termination Cable Assembly)

OPERATIONAL STATUS
One green light-emitting diode (LED)

INPUT CHANNEL STATUS
16 LEDs (1 per channel)

Field Termination Connections[37]

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 a redundant Fieldbus (main module only)

ENVIRONMENTAL SPECIFICATIONS[38]

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

(37)he 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.

(38)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
Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight
1 kg (2.2 lb)

Part Number (TAA20)
P0923RU

TAA21 SPECIFICATIONS

The TAA21 Expansion module, when used with a Main module listed in Table 1, functions as a 16-channel 240 V ac voltage monitor (as FBM21). It 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, including signal conditioning and channel isolation.

Typically, it is used in conjunction with the TAA20 Main module, discussed in "TAA20 SPECIFICATIONS" on page 41.

The TAA21 connects to the Fieldbus via any expandable main module and is functionally dependent on the supporting main module.

Specifications for the TAA21 are provided below.

FUNCTIONAL SPECIFICATIONS

Refer to the Functional Specifications in "TAA20 SPECIFICATIONS" on page 41 for the functional specifications for the TAA21 module.

ENVIRONMENTAL SPECIFICATIONS(39)

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

PHYSICAL SPECIFICATIONS

Mounting
Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight
1 kg (2.2 lb)

Part Number
P0923RV

(39)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.}

TAA24 SPECIFICATIONS

The TAA24 Main module functions as a 15- or 16-channel contact sensor with (as FBM24C) or without a power supply (as FBM24B), or as a 16-channel dc voltage monitor (as FBM24A). It is capable of supporting a single expansion module to support additional features. Typically, the TAA24 is used with the TAA25 Expansion module, which has the same functionality as the TAA24. The TAA25 is discussed in "TAA25 SPECIFICATIONS" on page 47. The TAA24 may be used with the Expansion modules listed in Table 1 as well.

The TAA24 performs the signal conversion required to interface digital input signals from the field sensors to the redundant Fieldbus, including signal conditioning. It independently connects to the Fieldbus.

The TAA24's associated FBM217 or FBM219 is capable of executing any one of the application programs identified in the following schedule:

- When the TAA24 is used alone or in conjunction with an expansion module that interfaces field input signals only, the FBM217 executes 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 the TAA24 is used with an expansion module that interfaces field input and output signals, the FBM219 executes either the Digital I/O or Ladder Logic program. 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.

Specifications for the TAA24 and TAA25 are provided below.

FUNCTIONAL SPECIFICATIONS

Common Characteristics

ISOLATION(40)

The module can withstand, without damage, a potential of 1250 V ac applied for one minute between any channel and earth (ground). FBM24A and FBM25A will withstand, without damage, a potential of 1250 V ac applied for one minute between a given channel and any other channel(40).

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, violates electrical safety codes and may expose users to electric shock.

FILTER TIME

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

(40)TAA24 inputs (i.e., input to input) are not isolated.

FUNCTIONAL SPECIFICATIONS (CONTINUED)

Common Characteristics (Cont.)

POWER REQUIREMENTS

Input Voltage Range (Redundant)
24 V dc +5%, -10%

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 CABLE ASSEMBLY)

Operational Status
One green light-emitting diode (LED)
Input Channel Status
16 LEDs (1 per channel)

Field Termination Connections(41)

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)

Input Functions

CAPACITY

16 independent channels (15 for contact sensor with external supply)

FILTER TIME

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

Contact Sensor - See Figure 10 (Input Configurations)
Open-Circuit Voltage
48 V dc nominal
Short-Circuit Current
2.5 mA ±20%
ON-State Resistance
1 kΩ (maximum)
OFF-State Resistance
100 kΩ (minimum)
External Contact Supply Voltage Range
48 V dc to 150 V dc

Voltage Monitor - See Figure 10 (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 kΩ (maximum) at 33 V dc
OFF-State
100 kΩ (minimum) at 150 V dc

(41)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.

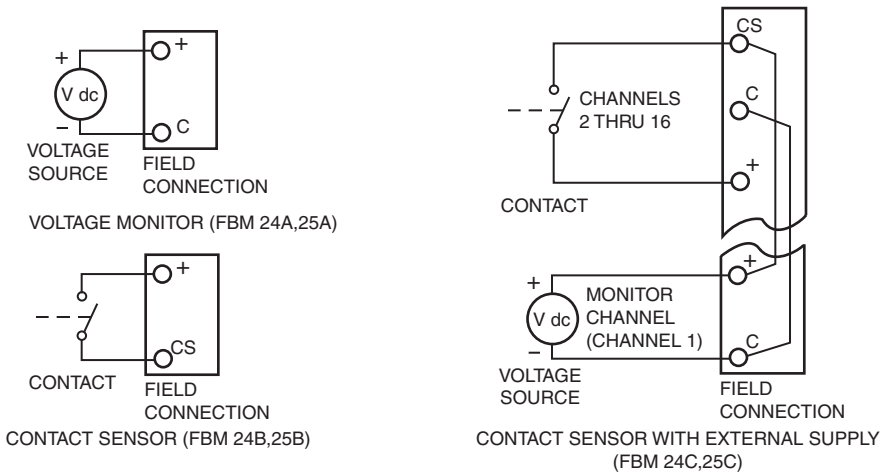


Figure 10. Input Configurations (TAA24)

ENVIRONMENTAL SPECIFICATIONS(42)

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

PHYSICAL SPECIFICATIONS

Mounting

Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight

1 kg (2.2 lb)

Part Number (TAA24)

P0923RW

(42)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.}

TAA25 SPECIFICATIONS

The TAA25 Expansion module, when used with a Main module listed in Table 1, functions as a 15- or 16-channel contact sensor with (as FBM25C) or without a power supply (as FBM25B), or as a 16-channel dc voltage monitor (as FBM25A). It performs the signal conversion required to interface digital input signals from the field sensors to the redundant Fieldbus, including signal conditioning and channel isolation.

Typically, it is used in conjunction with the TAA24 Main module, discussed in "TAA24 SPECIFICATIONS" on page 44.

The TAA25 connects to the Fieldbus via any expandable main module and is functionally dependent on the supporting main module.

Specifications for the TAA24 and TAA25 are provided below.

FUNCTIONAL SPECIFICATIONS

Refer to the Functional Specifications in "TAA24 SPECIFICATIONS" on page 44 for the functional specifications for the TAA25 module.

ENVIRONMENTAL SPECIFICATIONS(43)

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

PHYSICAL SPECIFICATIONS

Mounting
Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight
1 kg (2.2 lb)

Part Number
P0923RX

(43)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.}

TAA26 SPECIFICATIONS

The TAA26 Main module provides 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 (as FBM26C), or
- contact sensing only (as FBM26B), or
- dc voltage monitoring only (as FBM26A).

OUTPUT FUNCTIONS – 8 channels used for:

- dc output switching with an external source only, e.g., to control powering of various external loads (as FBM26A/B/C).

It is capable of supporting a single expansion module to support additional features. Typically, the TAA26 is used with the TAA27 Expansion module, which provides the same functionality as the TAA26. TAA27 is discussed in “TAA27 SPECIFICATIONS” on page 52. The TAA26 may be used with the Expansion modules listed in Table 1 as well.

The TAA26 performs the signal conversion required to interface digital electrical input/output signals between the field sensors/actuators and the redundant Fieldbus, including signal conditioning and channel isolation. The expandable main module independently connects to the Fieldbus.

When the TAA26 is used alone or in conjunction with any expansion module, its associated FBM238 or FBM239 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.

Automatic Restart From Overload

If an overload is sensed (either inrush or steady state current exceeded), the FBM238 or FBM239 opens for approximately one second and then retries again. This operation continues indefinitely for outputs only.

Specifications for the TAA26 and TAA27 are provided below.

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 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.

FUNCTIONAL SPECIFICATIONS (CONTINUED)

Common Characteristics (Cont.)

POWER REQUIREMENTS

Input Voltage Range (Redundant)
24 V dc +5%, -10%
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 CABLE ASSEMBLY)

Operational Status
One green light-emitting diode (LED)
Input Channel Status
8 LEDs (1 per channel)
Output Channel Status
8 LEDs (1 per channel)

FIELD TERMINATION CONNECTIONS(44)

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

Common Characteristics (Cont.)

COMMUNICATION

Via the redundant Fieldbus (main module only)

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 11 (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 11 (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

(44)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 (CONTINUED)

Output Functions

CAPACITY

8 independent channels

Output Switch

See Figure 12 (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 12 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.

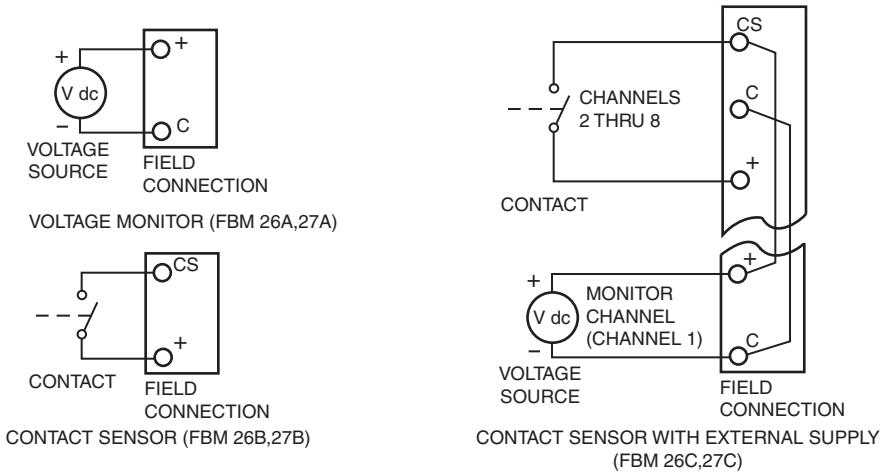


Figure 11. Input Configuration (TAA26)

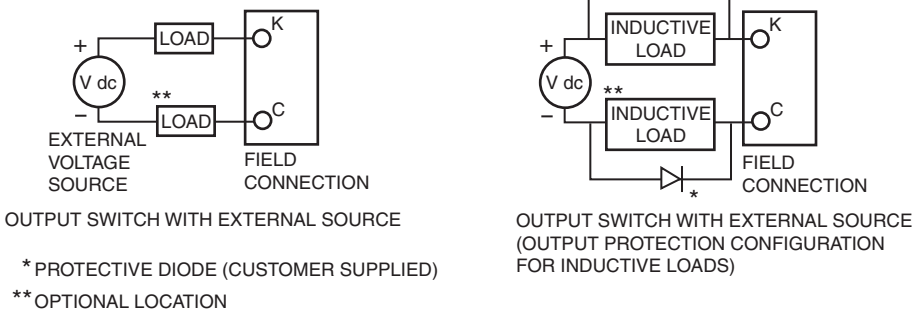


Figure 12. Output Configuration (TAA26)

ENVIRONMENTAL SPECIFICATIONS(45)

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

PHYSICAL SPECIFICATIONS

Mounting

Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight

1 kg (2.2 lb)

Part Number (TAA26)

P0923RY

(45)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.}

TAA27 SPECIFICATIONS

The TAA27 Expander module, when used with a Main module listed in Table 1, provides 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 (as FBM27C), or
- contact sensing only (as FBM27B), or
- dc voltage monitoring only (as FBM27A).

OUTPUT FUNCTIONS – 8 channels used for:

- dc output switching with an external source only, e.g., to control powering of various external loads (as FBM27A/B/C).

It performs the signal conversion required to interface digital electrical input/output signals between the field sensors/actuators and the redundant Fieldbus, including signal conditioning and channel isolation.

Typically, it is used in conjunction with the TAA26 Main module, discussed in "TAA26 SPECIFICATIONS" on page 48.

The TAA27 connects to the Fieldbus via any expandable main module and is functionally dependent on the supporting main module.

Specifications for the TAA27 are provided below.

FUNCTIONAL SPECIFICATIONS

Refer to the Functional Specifications in "TAA26 SPECIFICATIONS" on page 48 for the functional specifications for the TAA27 module.

ENVIRONMENTAL SPECIFICATIONS(46)

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

PHYSICAL SPECIFICATIONS

Mounting
Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight
1 kg (2.2 lb)

Part Number
P0923RZ

(46)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.}

TAA37 SPECIFICATIONS

The TAA37 module supports communications for the FBM37, which is replaced by FBM237, or for HART communications, FBM215.

Specifications for the TAA37 are provided below.

FUNCTIONAL SPECIFICATIONS

I/O Connection

The TAA37 provides a passive I/O connection between the Termination Cable Assembly of its replaced 100 Series FBM and the 100 Series conversion mounting structure.

Indicator (Mounted On Termination Cable Assembly)

OPERATIONAL STATUS

One green light-emitting diode (LED)

Communication

Via the redundant Fieldbus

ENVIRONMENTAL SPECIFICATIONS(47)

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

PHYSICAL SPECIFICATIONS

Mounting

Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight

1 kg (2.2 lb)

Part Number

P0924EP

(47)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.}

TAA39 SPECIFICATIONS

The TAA39 module supports communications for the FBM39, which is replaced by FBM243b.

Specifications for the TAA39 are provided below.

FUNCTIONAL SPECIFICATIONS

I/O Connection

The TAA39 provides a passive I/O connection between the Termination Cable Assembly of its replaced 100 Series FBM and the 100 Series conversion mounting structure.

Indicator (Mounted On Termination Cable Assembly)

OPERATIONAL STATUS
One green light-emitting diode (LED)

Communication
Via the redundant Fieldbus

ENVIRONMENTAL SPECIFICATIONS(48)

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

PHYSICAL SPECIFICATIONS

Mounting
Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight
1 kg (2.2 lb)

Part Number
P0923SE

(48)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.}

TAA41 SPECIFICATIONS

The TAA41 Main module provides high current capability on output channels and isolation on a per channel basis. It provides the following input and output functions for digital field signals.

INPUT FUNCTIONS - 8 channels used collectively for either:

- contact sensing only (as FBM41C), or
- dc voltage monitoring only (as FBM41A).

OUTPUT FUNCTIONS - 8 channels used for:

- dc output switching with an external source only at high current ratings, e.g., to control powering of various external loads (as FBM41A/C).

It is capable of supporting a single expansion module to support additional features. Typically, the TAA41 is used with the TAA42 Expansion module, which has the same functionality as the TAA41. The TAA42 is discussed in “TAA42 SPECIFICATIONS” on page 59. The TAA41 may be used with the Expansion modules listed in Table 1 as well.

The TAA41 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, including signal conditioning and channel isolation. The TAA41 independently connects to the Fieldbus.

When the TAA41 is used alone or in conjunction with any expansion module, its associated FBM238 or FBM239 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.

Automatic Restart from Overload

If an overload is sensed (either inrush or steady state current exceeded), the FBM238 or FBM239 will open for 64.5 line cycles and then retry again. This operation will continue indefinitely for outputs only. Overloads exceeding 50 A will cause damage to the module.

Specifications for the TAA41 and TAA42 are provided on the following page.

FUNCTIONAL SPECIFICATIONS

Common Characteristics

ISOLATION

The module will 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 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.

POWER REQUIREMENTS

Input Voltage Range (Redundant)
24 V dc +5%, -10%
Consumption
Main Module Only
9 W (maximum)
Main Module Plus Expansion Module
15 W (maximum)

HEAT DISSIPATION

Main Module Only
13 W (maximum)
Main Module Plus Expansion Module
23 W (maximum)

INDICATORS (MOUNTED ON TERMINATION CABLE ASSEMBLY)

Operational Status
One green light-emitting diode (LED)
Input Channel Status
8 LED's (1 per channel)
Output Channel Status
8 LED's (1 per channel)

FIELD TERMINATION CONNECTIONS(49)

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)

(49)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 (CONTINUED)

Output Functions

CAPACITY

8 independent and isolated channels

Output Switch

See Figure 14 below

Applied Voltage

60 V dc (maximum)

Load Current

Steady State

2.25 A dc (maximum) per channel, 12 A dc (maximum) total for all channels

In-rush

10 A dc (maximum) for 20 ms (maximum) per channel

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

0.5 mA (maximum)

Inductive Loads

Require a protective diode connected across the load (see Figure 14 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

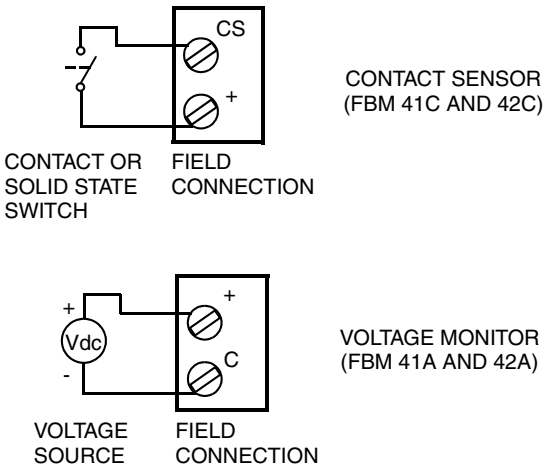
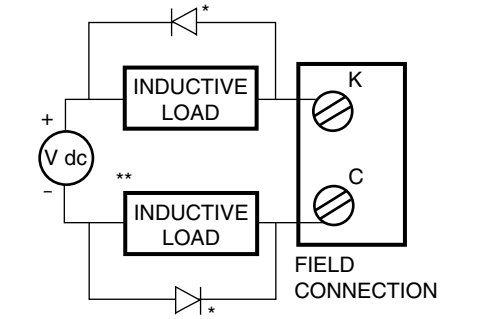


Figure 13. Input Configurations (TAA41)



* PROTECTIVE DIODE (CUSTOMER SUPPLIED) FOR INDUCTIVE LOADS

** OPTIONAL LOCATION

OUTPUT SWITCH WITH EXTERNAL SOURCE

Figure 14. Output Configurations (TAA41)

ENVIRONMENTAL SPECIFICATIONS(50)

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

PHYSICAL SPECIFICATIONS

Mounting

Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight

1 kg (2.2 lb)

Part Number (TAA41)

P0923SC

(50)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.}

TAA42 SPECIFICATIONS

The TAA42 Expansion module provides high current capability on output channels and isolation on a per channel basis. It provides the following input and output functions for digital field signals.

INPUT FUNCTIONS - 8 channels used collectively for either:

- contact sensing only (as FBM42C), or
- dc voltage monitoring only (as FBM42A).

OUTPUT FUNCTIONS - 8 channels used for:

- dc output switching with an external source only at high current ratings, e.g., to control powering of various external loads (as FBM42A/C).

It 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, including signal conditioning and channel isolation.

Typically, it is used in conjunction with the TAA41 Main module, discussed in "TAA41 SPECIFICATIONS" on page 55.

The TAA42 connects to the Fieldbus via any expandable main module and is functionally dependent on the supporting main module.

Specifications for the TAA41 and TAA42 are provided below.

FUNCTIONAL SPECIFICATIONS

Refer to the Functional Specifications in "TAA41 SPECIFICATIONS" on page 55 for the functional specifications for the TAA42 module.

ENVIRONMENTAL SPECIFICATIONS(51)

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

PHYSICAL SPECIFICATIONS

Mounting
Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight
1 kg (2.2 lb)

Part Number
P0923SD

(51)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.}

TAA44 SPECIFICATIONS

The TAA44 module supports communications for the FBM44, which has been replaced by FBM243b.

Specifications for the TAA44 are provided below.

FUNCTIONAL SPECIFICATIONS

I/O Connection

The TAA44 provides a passive I/O connection between the Termination Cable Assembly of its replaced 100 Series FBM and the 100 Series conversion mounting structure.

Indicator (Mounted On Termination Cable Assembly)

OPERATIONAL STATUS
One green light-emitting diode (LED)

Communication
Via the redundant Fieldbus

ENVIRONMENTAL SPECIFICATIONS(52)

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

PHYSICAL SPECIFICATIONS

Mounting
Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight
1 kg (2.2 lb)

Part Number
P0923SG

(52)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.}

TAA46 SPECIFICATIONS

The TAA46 module supports communications for the FBM46, which has been replaced by FBM246b.

Specifications for the TAA46 are provided below.

FUNCTIONAL SPECIFICATIONS

I/O Connection

The TAA46 provides a passive I/O connection between the Termination Cable Assembly of its replaced 100 Series FBM and the 100 Series conversion mounting structure.

Indicator (Mounted On Termination Cable Assembly)

OPERATIONAL STATUS

One green light-emitting diode (LED)

Communication

Via the redundant Fieldbus

ENVIRONMENTAL SPECIFICATIONS(53)

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

PHYSICAL SPECIFICATIONS

Mounting

Installable in the 100 Series conversion mounting structures listed in *100 Series Conversion Mounting Structures* (PSS 31H-2W8).

Weight

1 kg (2.2 lb)

Part Number

P0924SN

(53)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.}

FOR MORE INFORMATION

For additional information describing these TAA modules, refer to the following documentation.

Document Number	Description
PSS 31H-2S200	Standard 200 Series Subsystem Overview
PSS 31H-2W100	100 Series Fieldbus Module Upgrade Subsystem Overview
PSS 31H-2CERTS	Standard and Compact 200 Series I/O - Agency Certifications
PSS 31H-2W3	Standard 200 Series Power Supply - FPS400-24
PSS 31H-2FPS	200 Series Power Supplies - FPS240-24 and FPS120-24
PSS 31H-2W8	100 Series Conversion Mounting Structures
B0700BQ	100 Series Fieldbus Module Upgrade User's Guide

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