Foxboro Evo™ Process Automation System

Product Specifications

Foxboro by Schneider Electric

PSS 31H-2C217

Compact FBM217 Discrete Input Module

The Compact FBM217 Discrete Input Module provides 32 dc voltage input channels.

OVERVIEW

The Compact FBM217 Discrete Input Interface Module provides 32 input channels, each accepting a 2-wire input from a dc voltage source. Associated termination assemblies (TAs) provide for discrete inputs of under 60 V ac, 120 V ac/125 V dc or 240 V ac. The module performs signal conversion required to interface the electrical input signals from the field sensors to the FCP or ZCP. It is part of the Compact 200 Series I/O subsystem described in *Compact 200 Series I/O Subsystem Overview* (PSS 31H-2COV).

Depending on the type of I/O signal required, the TAs contain current limiting devices, high voltage attenuation circuits, optical isolation and external power source connections.

The module with its associated TA supports the following discrete inputs:

FBM	Inputs
Compact FBM217	30 V dc, 125 V dc, 120 V ac, or 240 V ac Voltage monitor or Contact sense

The module can be used as a single unit, or as a redundant pair. When used as a redundant pair, the modules combine to provide redundancy at the FBM level, with field input signals received from one common termination assembly though a redundant adapter affixed to the FBMs' baseplate. The field input current for redundant modules is doubled. A redundant digital input block in the control software validates each input in conjunction with information to/from the module, and selects the input with the higher quality for processing in the control strategy.

In a redundant configuration, contact sense power from each module is diode OR'd together in the redundant adapter to assure redundant power.

A redundant contact input function block, CINR, is used for each pair of inputs. The CINR block handles input reads and initialization logic for the redundant channels. On each execution cycle of the CINR block, identical reads are queried from each module, fully exercising the fieldbus and the logic circuitry of each module.

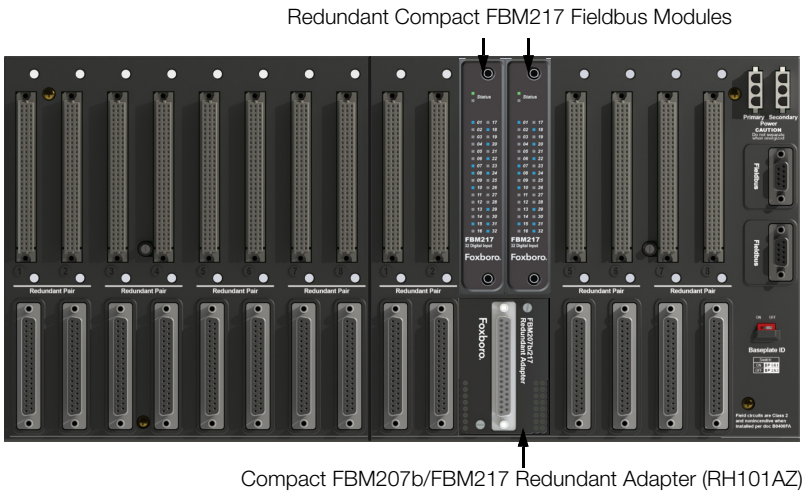


Figure 1. Compact FBM217 Redundant Module Configuration

FEATURES

Key features of the Compact FBM217 are:

- Thirty-Two (32) discrete inputs
- Supports discrete input signals at voltages of:
  - 15 to 60 V dc
  - 120 V ac/125 V dc
  - 240 V ac
- Single or redundant modules
- Compact, rugged design suitable for enclosure in Class G3 (harsh) environments
- Executes the programs for Discrete Input, Ladder Logic, Pulse Count, and Sequence of Events, with the configurable options: Input Filter Time and Fail-Safe Configuration
- Various Termination Assemblies (TAs) that contain:
  - High voltage attenuation and optical isolation for inputs
  - External power connection for device excitation.
  - Main/expansion TA functionality

COMPACT DESIGN

The Compact FBM217's design is narrower than the standard 200 Series FBMs. It has a rugged acrylonitrile butadiene styrene (ABS) exterior for physical protection of the circuits. Enclosures specially designed for mounting the FBMs provide various levels of environmental protection, up to harsh environments, per ISA Standard S71.04.

VISUAL INDICATORS

Red and green light-emitting diodes (LEDs) incorporated into the front of the modules provide visual module status indications of Fieldbus Module (FBM) functions. 32 blue LEDs provide the status of each input channel.

EASY REMOVAL/REPLACEMENT

The module mounts on a Compact 200 Series baseplate. Two screws on the FBM secure the module to the baseplate.

Redundant modules must be located in adjacent positions on the baseplate, with the first module located in an odd-numbered position (for example, the positions labelled "3" and "4"). To achieve redundancy, a redundant adapter module is placed on the two adjacent baseplate termination cable connectors to provide termination for a single cable (see Figure 1). A single termination cable connects from the redundant adapter to the associated termination assembly (TA).

When redundant, either module may be replaced without upsetting field input signals to the good module. Each module can be removed/replaced without removing field termination cabling, power, or communications cabling.

REDUNDANT MODULES IN FOXBORO EVO HMI

The redundant pair of modules appear as two independent modules to system management software applications (such as System Manager, and System Manager/Display Handler (SMDH)). The functional redundancy for these modules is provided by their associated control blocks.

FIELDBUS COMMUNICATION

A Fieldbus Communications Module or a Control Processor interfaces to the 2 Mbps module Fieldbus used by the FBMs. The Compact FBM217 accepts communication from either path (A or B) of the 2 Mbps Fieldbus —should one path fail or be switched at the system level, the module continues communication over the active path.

TERMINATION ASSEMBLIES

Field I/O signals connect to the FBM subsystem via DIN rail mounted TAs. The TAs used with the Compact FBM217 are described in "TERMINATION ASSEMBLIES AND CABLES" on page 7.

FUNCTIONAL SPECIFICATIONS

Input (Compact FBM217 Module)
32 group isolated channels

On-State Voltage
15 to 30 V dc

Off-State Voltage
0 to 5 V dc

Current
2.2 mA (typical) at 30 V dc Input

Source Resistance Limits (Applies to All TAs)
ON-STATE
1 k Ω (maximum)
OFF-STATE
100 k Ω (minimum)

Filter/Debounce Time(1)
Configurable (No Filtering, 4, 8, 16, or 32 ms)

Maximum Pulse Count Rate
250 Hz

Isolation (Module/Passive TA Combination)
For TAs that provide group isolation (RH916CA (supersedes P0916CA), RH916XZ (supersedes P0916XZ, P0916PW) P0916CB and P0916PX) input channels are group isolated from earth (ground). For details, refer to the *Standard and Compact 200 Series Subsystem User's Guide* (B0400FA). These module/TA combinations can withstand, without damage, a potential of 600 V ac applied for one minute between the group isolated channels 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, violates electrical safety codes and may expose users to electric shock.

Isolation (Module/Signal Conditioning TA Combination)(2)
For high-voltage TAs P0916PY, P0916PZ, RH916YB (supersedes P0916YB), RH916QA (supersedes P0916QA) and P0916QB, the inputs are group-isolated. These TAs can withstand UL required dielectric potentials.
For high-voltage TAs P0916PS/PT/YA/PU/PV, the inputs are channel isolated. These TAs can withstand UL required dielectric potentials.

Isolation (Remaining TAs)
For TAs RH924HA (supersedes P0924HA), RH924HB (supersedes P0924HB), their channels are isolated in pairs (1 and 2, 3 and 4, 5 and 6, and 7 and 8). Any pair will withstand 120 V ac between any other pair of channels and earth.
For TAs RH924HC (supersedes P0924HC), RH924HD (supersedes P0924HD), RH924HN (supersedes P0924HN), and RH924HR (supersedes P0924HR), the inputs are per-channel isolated. and will withstand 1250 V ac between any other channel and earth.
For TAs RH924HL (supersedes P0924HL) and RH924HM (supersedes P0924HM), their inputs are per-channel isolated, and will withstand 1500 V ac between any other channel and earth.
For TAs RH924HP (supersedes P0924HP) and RH924HS (supersedes P0924HS), channels are isolated in two groups of eight (channels 1-8 and channels 9-16), and will withstand 1250 V ac between the two groups and earth.
For TAs RH924HQ (supersedes P0924HQ) and RH924HT (supersedes P0924HT), channels are group isolated, and will withstand 1250 V ac between the group and earth.

Communication
Communicates with its associated FCM or FCP via the module Fieldbus

(1) Digital filtering available for 200 Series FBM or competitive migration modules with version 1.25H or later firmware.
(2) For input specifications for signal conditioning TAs, refer to "FUNCTIONAL SPECIFICATIONS - TERMINATION ASSEMBLIES" on page 9

Power Requirements

INPUT VOLTAGE RANGE (REDUNDANT)

24 V dc +5%, -10%

CONSUMPTION

3 W

HEAT DISSIPATION

5 W

Calibration Requirements

Calibration of the module and termination assembly is not required.

Regulatory Compliance

ELECTROMAGNETIC COMPATIBILITY (EMC)

European EMC Directive 2004/108/EC (Prior to April 20, 2016) and 2014/30/EU (Beginning April 20, 2016)
Meets: EN61326-1:2013 Class A Emissions and Industrial Immunity Levels

RoHS COMPLIANCE

Complies with European RoHS Directive 2011/65/EU

PRODUCT SAFETY

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

UL/UL-C listed as suitable for use in UL/UL-C listed Class I, Groups A-D; Division 2; temperature code T4 enclosure based systems when connected to specified Foxboro Evo processor modules as described in the *Standard and Compact 200 Series Subsystem User's Guide* (B0400FA). Communications circuits also meet the requirements for Class 2 as defined in Article 725 of the National Electrical Code (NFPA No.70) and Section 16 of the Canadian Electrical Code (CSA C22.1). Conditions for use are as specified in the *Standard and Compact 200 Series Subsystem User's Guide* (B0400FA).

European Low Voltage Directive 2006/95/EC (Prior to April 20, 2016) and 2014/35/EU (Beginning April 20, 2016) and Explosive Atmospheres (ATEX) directive 94/9/EC (Prior to April 20, 2016) and 2014/34/EU (Beginning April 20, 2016)

DEMKO certified as Ex nA IIC T4 for use in certified Zone 2 enclosure when connected to specified I/A Series processor modules as described in the *Standard and Compact 200 Series Subsystem User's Guide* (B0400FA). For use in an enclosure suited for an ATEX Zone 2 classified area.

MARINE CERTIFICATION

ABS Type Approved and Bureau Veritas Marine certified for Environmental Category EC31.

ENVIRONMENTAL SPECIFICATIONS

Operating

TEMPERATURE

Compact FBM217
-20 to +60°C (-4 to +140°F)
Termination Assembly
PA
-20 to +70°C (-4 to +158°F)

RELATIVE HUMIDITY
5 to 95% (noncondensing)

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

Storage

TEMPERATURE
-40 to +85°C (-40 to +185°F)

RELATIVE HUMIDITY
5 to 95% (noncondensing)

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

Contamination

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

Vibration

0.75 m/S^2 (5 to 500 Hz)

PHYSICAL SPECIFICATIONS

Mounting

MODULE

The Compact FBM217 mounts on a Compact 200 Series 16-slot horizontal baseplate. The baseplate can be mounted on a horizontal DIN rail, or horizontally on a 19-inch rack using a mounting kit.

Redundant modules must be located in odd and even adjacent positions on the baseplate (positions 1 and 2, 3 and 4, 5 and 6, 7 and 8, 9 and 10 (the second 1 and 2), 11 and 12 (the second 3 and 4), 13 and 14 (the second 5 and 6), or 15 and 16 (the second 7 and 8)). Refer to *Compact 200 Series 16-Slot Horizontal Baseplate* (PSS 31H-2C200) for details.

TERMINATION ASSEMBLY

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

Weight

COMPACT FBM217

185 g (6.5 oz) approximate

Weight (Cont.)

TERMINATION ASSEMBLY

Compression
216 mm (8.51 in) – 420 g (0.93 lb, approximate)
233 mm (9.15 in) – 454 g (1.0 lb, approximate)
Ring Lug
356 mm (14.02 in) – 908 g (2.0 lb, approximate)
391 mm (15.38 in) – 950 g (2.1 lb, approximate)

Dimensions

COMPACT FBM217

Height
130 mm (5.12 in)
Width
25 mm (0.98 in)
Depth
150 mm (5.9 in) - Including baseplate connectors, 139 mm (5.46 in)

TERMINATION ASSEMBLY

Compression Screw - Refer to page 17
Ring Lug - Refer to page 19

PHYSICAL SPECIFICATIONS (CONTINUED)

Part Numbers

COMPACT FBM217
RH101DF

TERMINATION ASSEMBLIES
Refer to "FUNCTIONAL SPECIFICATIONS - TERMINATION ASSEMBLIES" on page 9

REDUNDANT ADAPTER
RH101AZ

Termination Cables

CABLE LENGTHS
Up to 30 m (98 ft)

CABLE MATERIALS
Polyurethane or Low Smoke Zero Halogen (LSZH)

TERMINATION CABLE TYPE
Baseplate to Main TA
Type 4 - Refer to Table 2
Main TA to Expansion TA
Type 6 - Refer to Table 3

Termination Cables (Cont.)

CABLE CONNECTION
Type 4
FBM Baseplate End
37-pin D-subminiature plug
Termination Assembly End
37-pin D-subminiature receptacle
Type 6
Main TA End
25-pin D-subminiature receptacle
Expansion TA End
37-pin D-subminiature receptacle

Construction - Termination Assembly

Polyamide (PA), compression

Field Termination Connections

COMPRESSION - ACCEPTED WIRING SIZES
Solid/Stranded/AWG
0.2 to 4 mm^2/0.2 to 2.5 mm^2/24 to 12 AWG
Stranded with Ferrules
0.2 to 2.5 mm^2 with or without plastic collar

RING-LUG - ACCEPTED WIRING SIZES
#6 size screw connectors (0.375 in (9.5 mm))
0.5 to 4 mm^2/22 AWG to 12 AWG

TERMINATION ASSEMBLIES AND CABLES

General Description

Field I/O signals connect to the FBM subsystem via DIN rail mounted termination assemblies (TAs). Multiple types of TAs are available with Compact FBM217 to provide input signal connections, signal conditioning, optical isolation from signal surges and external power connections for field devices. Since these features are built into the termination assemblies (where required), in most applications there is no need for additional termination equipment for field circuit functions such as circuit protection or signal conditioning (including fusing and power distribution).

The termination assembly can be used with a single Compact FBM217 or with a redundant pair (two Compact FBM217s).

The DIN rail mounted termination assemblies connect to the FBM subsystem baseplate by means of removable termination cables. When used with a redundant module pair, the termination assembly is connected to the baseplate using a Compact FBM217 redundant adapter (RH101AZ). The DIN rail mounted TAs connect to the redundant adapter by means of a removable termination cable.

The cables are available in a variety of lengths, up to 30 meters (98 feet), allowing the termination assemblies to be mounted as needed by plant design. Refer to "FUNCTIONAL SPECIFICATIONS - TERMINATION ASSEMBLIES" below for termination

cable part numbers and specifications.

Discrete Inputs

Various termination assemblies are available to support the interfacing of field signals to the low level FBM input circuits. Active termination assemblies support input signal conditioning for the FBM as well as channel isolation.

The signal conditioning circuits are located on daughter boards that are mounted under the component covers of the termination assemblies. To condition signals, these termination assemblies provide optical isolation, current limiting, voltage attenuation and optional terminal blocks to connect externally supplied excitation voltage.

Low Voltage Discrete Inputs

The low voltage inputs (less than 60 V dc) use passive termination assemblies. Inputs are voltage monitor or contact sense types. Voltage monitor inputs require an external field voltage source. Contact sense inputs use the FBM auxiliary +24 V dc power supply to wet field contacts.

A load may be required for proper operation of the input channels.

High Voltage Discrete Inputs

The high voltage input circuits support 125 V dc, 120 V ac, or 240 V ac. Voltage monitor inputs require a field voltage source.

Some versions of the termination assembly have a pair of external excitation voltage terminals, which distribute customer-supplied wetting voltage to all input channels on the assembly. These terminals allow the field power to be daisy chained between terminal assemblies.

Main and Expansion Termination Assemblies

The Compact FBM217 supports 16 channel Main and Expansion termination assemblies. These types of termination assemblies were created originally to expand the functionality of the 100 Series FBMs, and equivalents were provided for the 200 Series subsystem as part of the 100 Series Fieldbus Module Upgrade Subsystem (as described in PSS 31H-2W100).

Any FBM217 main termination assembly can be matched with any FBM217 expansion termination assembly to provide system flexibility. When paired, the main and expansion termination assemblies are connected together using a Type 6 cable (P0928CQ).

In addition, the FBM217 can operate with only a single 16-channel main termination assembly.

FUNCTIONAL SPECIFICATIONS - TERMINATION ASSEMBLIES

FBM Type	Input Signal	TA Part Number	Termination	BP to TA Cable	TA Certification
		PA[a]	Type[b]	Type[c]	Type[d]
Compact FBM217	32 channel, voltage monitor 30 V dc Logic Zero – 0 to 5 V dc Logic One – 15 to 30 V dc Passive feedthrough with Compact FBM217 group isolation	RH916CA (supersedes P0916CA)	C	4	1, 2, 4
Compact FBM217	32 channel, contact sense 24 V dc contact wetting from FBM Passive feedthrough with Compact FBM217 group isolation	RH916XZ (supersedes P0916XZ, P0916PW)[e]	C	4	1, 2, 4
Compact FBM217	32 channel, voltage monitor 132 V ac or 150 V dc maximum Logic Zero - 0 to 20 V ac; 0 to 20 V dc Logic One - 80 to 132 V ac; 75 to 150 V dc Input Current for Logic One; 1.6 mA maximum Channel isolation provided by termination assembly	RH916YA (supersedes P0916YA, P0916PS)[e]	C	4	1, 4
Compact FBM217	32 channel, contact sense inputs 132 V ac or 150 V dc maximum with external excitation Logic Zero - 0 to 20 V ac; 0 to 20 V dc Logic One - 80 to 132 V ac; 75 to 150 V dc Input Current for Logic One; 1.6 mA maximum Group isolation provided by termination assembly	RH916YB (supersedes P0916YB, P0916PY)[e]	C	4	1, 4

FUNCTIONAL SPECIFICATIONS - TERMINATION ASSEMBLIES (CONTINUED)

FBM Type	Input Signal	TA Part Number	Termination	BP to TA Cable	TA Certification
		PA[a]	Type[b]	Type[c]	Type[d]
Compact FBM217	32 channel, voltage monitor 240 V ac Logic Zero: 0 to 40 V ac Logic One: 164 to 264 V ac Input Current for Logic One; 1.6 mA maximum Channel isolation provided by termination assembly	RH916PU (supersedes P0916PU)	C	4	1
Compact FBM217	32 channel, contact sense inputs 240 V ac with external excitation Logic Zero: 0 to 40 V ac Logic One: 164 to 264 V ac Input Current for Logic One; 1.6 mA maximum Group isolation provided by termination assembly	RH916QA (supersedes P0916QA)	C	4	1
Compact FBM217	16 Channel Voltage Monitor, external source 130 V dc Maximum voltage Logic Zero: 0 to 5 V dc Logic One: 15 to 130 V dc 2.2 mA typical 5 to 130 V dc 1 KΩ Maximum On-state resistance 100 KΩ Minimum Off-state resistance -OR- Contact Sense, internal source 24 V dc ±10% Open circuit voltage 2.5 mA maximum short circuit current 1 KΩ Maximum On-state resistance 100 KΩ Minimum Off-state resistance Pairs isolation provided by termination assembly	RH924HA (supersedes P0924HA)	C	4	1, 2, 4

FUNCTIONAL SPECIFICATIONS - TERMINATION ASSEMBLIES (CONTINUED)

FBM Type	Input Signal	TA Part Number	Termination	BP to TA Cable	TA Certification
		PA[a]	Type[b]	Type[c]	Type[d]
Compact FBM217	16 Channel Voltage Monitor, external source 132 V ac or 150 V dc Maximum voltage Logic Zero: 0 to 20 V ac; 0 to 20 V dc Logic One: 79 to 132 V ac; 75 to 150 V dc 2.2 mA typical 20 to 132 V ac 1 KΩ Maximum On-state resistance 100 KΩ Minimum Off-state resistance Channel isolation provided by termination assembly	RH924HC (supersedes P0924HC) (Main)	C	4	1, 4
Compact FBM217	16 Channel Voltage Monitor, external source 264 V ac Maximum voltage Logic Zero: 0 to 40 V ac Logic One: 164 to 264 V ac 2.2 mA typical 40 to 264 V ac 1 KΩ Maximum On-state resistance 100 KΩ Minimum Off-state resistance Channel isolation provided by termination assembly	RH924HL (supersedes P0924HL) (Main)	C	4	1
Compact FBM217	16 Channel Voltage Monitor, external source 150 V dc Maximum voltage Logic Zero: 0 to 10 V dc Logic One: 33 to 150 V dc 2.5 mA typical 10 to 150 V dc 1 KΩ Maximum On-state resistance 100 KΩ Minimum Off-state resistance Channel isolation provided by termination assembly	RH924HN (supersedes P0924HN (Main)	C	4	1, 2, 4

FUNCTIONAL SPECIFICATIONS - TERMINATION ASSEMBLIES (CONTINUED)

FBM Type	Input Signal	TA Part Number PA[a]	Termination Type[b]	BP to TA Cable Type[c]	TA Certification Type[d]
Compact FBM217	16 Channel Contact Sense, internal source 48 V dc nominal open circuit voltage 2.5 mA ±20% short circuit current 1 KΩ Maximum On-state resistance 100 KΩ Minimum Off-state resistance Two groups of eight isolation provided by termination assembly	RH924HP (supersedes P0924HP (Main)	C	4	1, 2, 4
Compact FBM217	16 Channel Contact sense with external source on Channel 1 150 V dc Maximum voltage Logic Zero: 0 to 10 V dc Logic One: 33 to 150 V dc 2.5 mA typical 10 to 150 V dc 1 KΩ Maximum On-state resistance 100 KΩ Minimum Off-state resistance Group isolation provided by termination assembly	RH924HQ (supersedes P0924HQ (Main)	C	4	1, 2, 4

(a) PA is Polyamide rated from -20 to +70°C (-4 to +158°F).
(b) C = TA with compression terminals; RL = TA with ring lug terminals. Knife has compression terminals.
(c) See Table 2 and Table 3 for cable part numbers and specifications.
(d) See Table 1 for Termination Assembly certification definitions.
(e) Polyamide RL supersedes the PVC RL, note this is not a RoHS part.

FUNCTIONAL SPECIFICATIONS - EXPANSION TERMINATION ASSEMBLIES

FBM Type	Input Signal	TA Part Number	Termination	Main TA to Exp. TA Cable	TA Certification
		PA[a]	Type[b]	Type[c]	Type[d]
Compact FBM217	For 16 input voltage monitor/contact sense: Input/output specifications are the same as for TA RH924HA above, on page 10. Pairs isolation provided by termination assembly	RH924HB (supersedes P0924HB) (Expansion)	C	6	1, 2, 4
Compact FBM217	For 16 input voltage monitor: Input/output specifications are the same as for TA RH924HC above, on page 11. Channel isolation provided by termination assembly	RH924HD (supersedes P0924HD) (Expansion)	C	6	1, 4
Compact FBM217	For 16 input voltage monitor: Input/output specifications are the same as for TA RH924HL above, on page 11. Channel isolation provided by termination assembly	RH924HM (supersedes P0924HM) (Expansion)	C	6	1
Compact FBM217	For 16 input voltage monitor: Input/output specifications are the same as for TA RH924HN above, on page 11. Channel isolation provided by termination assembly	RH924HR (supersedes P0924HR) (Expansion)	C	6	1, 2, 4

FUNCTIONAL SPECIFICATIONS - EXPANSION TERMINATION ASSEMBLIES

FBM Type	Input Signal	TA Part Number	Termination	Main TA to Exp. TA Cable	TA Certification
		PA[a]	Type[b]	Type[c]	Type[d]
Compact FBM217	For 16 input contact sense: Input/output specifications are the same as for TA RH924HP above, on page 12. Two groups of eight isolation provided by termination assembly	RH924HS supersedes P0924HS) (Expansion)	C	6	1, 2, 4
Compact FBM217	For 15 input contact sense with external power supply: Input/output specifications are the same as for TA RH924HQ above, on page 12. Group isolation provided by termination assembly	RH924HT (supersedes P0924HT) (Expansion)	C	6	1, 2, 4

(a) PA is Polyamide rated from -20 to +70°C (-4 to +158°F).
(b) C = TA with compression terminals; RL = TA with ring lug terminals.
(c) See Table 2 and Table 3 for cable part numbers and specifications.
(d) See Table 1 for Termination Assembly certification definitions.

Table 1. Certifications for Termination Assemblies

Type	Certification
Type 1	TAs are UL/UL-C listed as suitable for use in Class I; Groups A-D; Division 2 temperature code T4 hazardous locations. They are DEMKO certified Ex nA IIC T4 for use in Zone 2 potentially explosive atmospheres.
Type 2	TAs are UL/UL-C listed as associated apparatus for supplying non-incendive field circuits Class I; Groups A-D; Division 2 hazardous locations when connected to specified 200 Series FBMs and field circuits meeting entity parameter constraints specified in *Standard and Compact 200 Series Subsystem User's Guide* (B0400FA). They are also DEMKO certified as associated apparatus for supplying field circuits for Group IIC, Zone 2 potentially explosive atmospheres. Field circuits are also Class 2 limited energy (60 V dc, 30 V ac, 100 VA or less) if customer-supplied equipment meets Class 2,
Type 3	Same as Type 2 above except that only input circuits are non-incendive/Class 2.
Type 4	All field circuits are Class 2 limited energy (60 V dc, 30 V ac, 100 VA or less) if customer-supplied equipment meets Class 2.

Table 2. Cable Types (Baseplate to Main TA Cables) and Part Numbers

Cable Length m (ft)	Type 4 P/PVC[a]	Type 4 LSZH[b]
0.5 (1.6)	RH100CJ	RH100BN
1.0 (3.2)	RH100CK	RH100BP
1.5 (4.9)	RH100EQ	RH100EN
2.0 (6.6)	RH100CL	RH100BQ
3.0 (9.8)	RH100CM	RH100BR
5.0 (16.4)	RH100CN	RH100BS
10.0 (32.8)	RH100CP	RH100BT
15.0 (49.2)	RH100CQ	RH100BU
20.0 (65.6)	RH100CR	RH100BV
25.0 (82.0)	RH100CS	RH100BW
30.0 (98.4)	RH100CT	RH100BX

(a) P/PVC is polyurethane outer jacket and semi-rigid PVC primary conductor insulation. P/PVC cable is rated at -20 to +80°C (-4 to 176°F).

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

Table 3. Cable Types (Main TA to Expansion TA Cables) and Part Numbers

Cable Length m (ft)	Type 6 LSZH[a]
0.75 (2.5)	P0928CQ

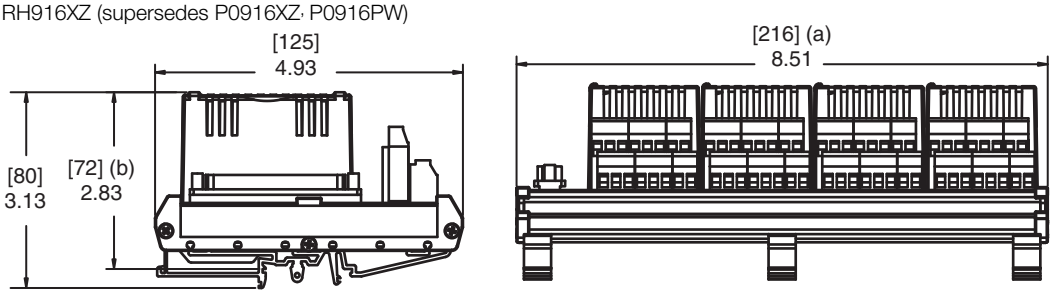
(a) Low smoke zero halogen or low smoke free of halogen (LSZH) is a material classification used for cable jacketing. LSZH is composed of thermoplastic or thermoset compounds that emit limited smoke and no halogen when exposed to high sources of heat. Temperature range: -40 to +105°C (-40 to +221°F.)

DIMENSIONS – NOMINAL

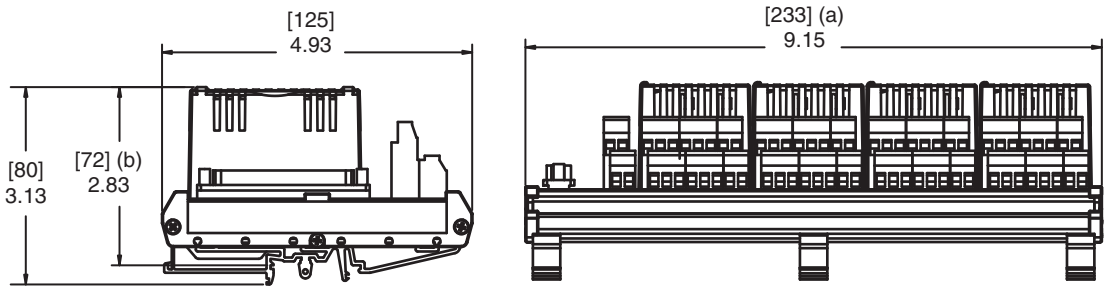
[mm]
in

Compression Termination Assemblies

RH916CA (supersedes P0916CA), RH916YA (supersedes P0916YA), RH916PU (supersedes P0916PU), RH916XZ (supersedes P0916XZ, P0916PW)



RH916QA (supersedes P0916QA), RH916YB (supersedes P0916YB, P0916PY)



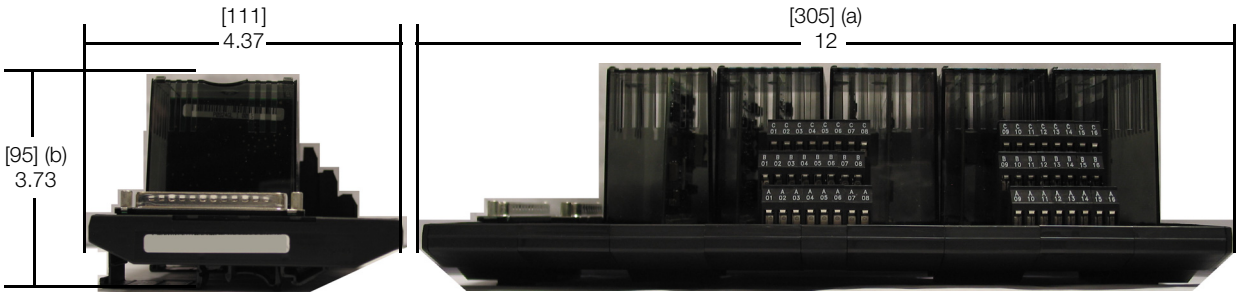
(a) Overall width – for determining DIN rail loading.
(b) Height above DIN rail (add to DIN rail height for total).

DIMENSIONS – NOMINAL(CONTINUED)

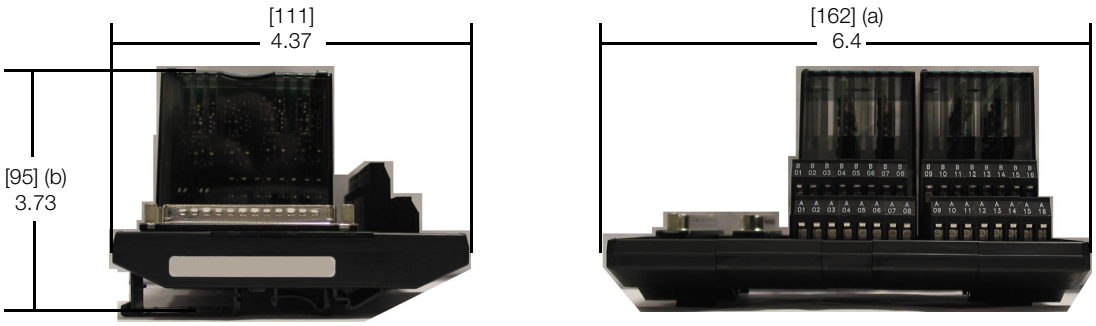
[mm]
in

Compression Termination Assemblies

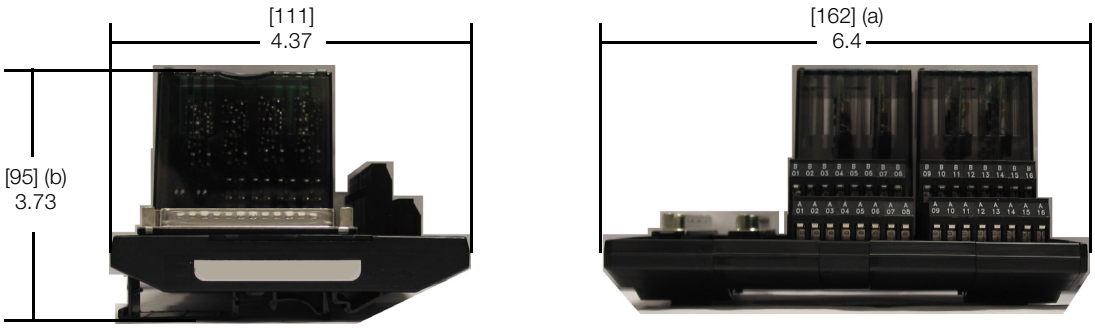
RH924HA (supersedes P0924HA), RH924HB (supersedes P0924HB)



RH924HC (supersedes P0924HC), RH924HD (supersedes P0924HD)



RH924HL (supersedes P0924HL), RH924HM (supersedes P0924HM)



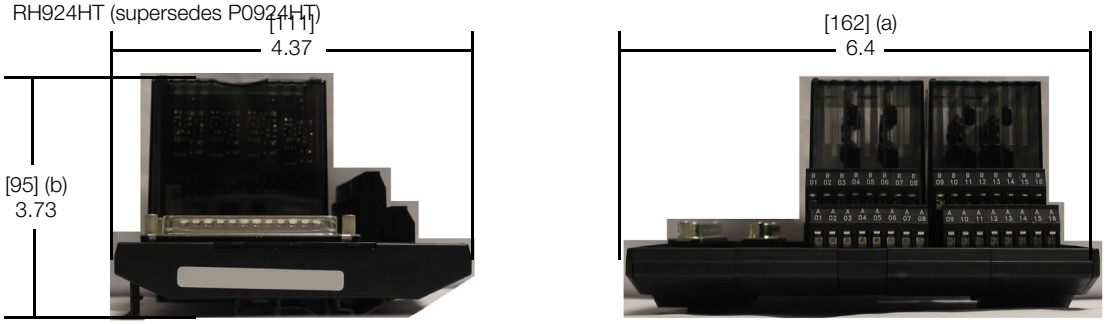
(a) Overall width – for determining DIN rail loading.
(b) Height above DIN rail (add to DIN rail height for total).

DIMENSIONS – NOMINAL(CONTINUED)

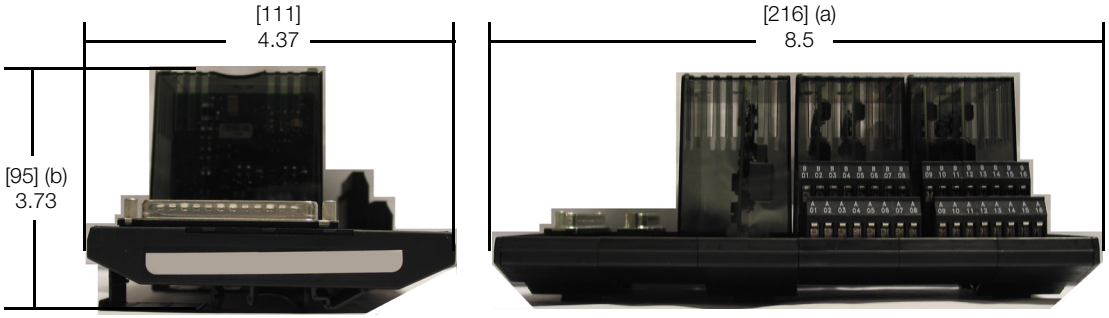
[mm]
in

Compression Termination Assemblies

RH924HN (supersedes P0924HN), RH924HR (supersedes P0924HR), RH924HQ (supersedes P0924HQ), RH924HT (supersedes P0924HT)



RH924HP (supersedes P0924HP), RH924HS (supersedes P0924HS)



(a) Overall width – for determining DIN rail loading.
(b) Height above DIN rail (add to DIN rail height for total).

RELATED PRODUCT DOCUMENTS

Table 4. Other Related Documents

PSS Number	Description
PSS 31H-2COV	Compact 200 Series I/O Subsystem Overview
B0400FA	Standard and Compact 200 Series Subsystem User's Guide
PSS 31H-2C200	Compact 200 Series 16-Slot Horizontal Baseplate
PSS 21H-2S200	Standard and Compact 200 Series Subsystem Overview
PSS 31H-2CERTS	Standard and Compact 200 Series I/O, Agency Certifications
PSS 31H-2C480 B4	Compact Power Supply - FPS480-24
PSS 31S-3FCPICS	Field Control Processor 280 (FCP280) Integrated Control Software
PSS 21S-3CP270ICS	Control Processor 270 (CP270) Integrated Control Software

Foxboro®
by Schneider Electric

Invensys Systems, Inc.
38 Neponset Avenue
Foxborough, MA 02035-2037
United States of America
www.schneider-electric.com

Global Customer Support
Inside U.S.: 1-866-746-6477
Outside U.S.: 1-508-549-2424
Website: https://support.ips.invensys.com

Copyright 2015-2016 Invensys Systems, Inc.
All rights reserved.
Invensys is now part of Schneider Electric.

Schneider Electric, Invensys, Foxboro, Foxboro Evo, FoxCom, and I/A Series, are trademarks owned by Schneider Electric S.E., its subsidiaries and affiliates. All other trademarks are the property of their respective owners.

MB 031 0816