



Foxboro™ DCS

FBM217 Discrete Input Module

PSS 41H-2S217

Product Specification

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Overview

The FBM217 Discrete Input 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 VAC, 120 VAC/125 VDC or 240 VAC. The module performs signal conversion required to interface the electrical input signals from the field sensors to the Module Fieldbus.

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
FBM217	30 VDC, 125 VDC, 120 VAC, or 240 VAC Voltage monitor or Contact sense

The module can be used as a single unit, or as a redundant pair (two FBM217s). When used as a redundant pair, the modules combine to provide redundancy at the Foxboro DCS Fieldbus Module (FBM) level, with field input signals received from one common termination assembly through a redundant adapter affixed to the FBMs' baseplate. The field input current for redundant modules is doubled. A redundant digital input block in the Foxboro DCS Control Software validates each input in conjunction with information to/from the module, and selects the input with the highest 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 verify redundant power.

A redundant contact input function block, CINR, is used for each redundant 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 sent to both modules, fully exercising the fieldbus and the logic circuitry of each module.

When connected to the appropriate TAs, the FBM217 module provides functionality formerly provided by the 100 Series FBM I/O subsystem. TAs are available which support the functionality of the 100 Series main FBM07A/B, FBM08, FBM20, and FBM24A/B/C (16 input main FBMs). Expansion TAs are available for use with these main FBM TAs to support the functionality of expansion FBM12, FBM13, FBM21, or FBM25A/B/C (16 input expansion FBMs).

Features

- 32 discrete inputs
- Supports discrete input signals at voltages of:
 - 15 to 60 VDC
 - 120 VAC/125 VDC
 - 240 VAC
- Single or redundant modules
- 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

Standard Design

FBM217 has a rugged extruded aluminum exterior for physical protection of the circuits. Enclosures specially designed for mounting the FBMs provide various levels of environmental protection.

Visual Indicators

Red and green light-emitting diodes (LEDs) incorporated into the front of the module provide visual indication of the FBM operational status, as well as the discrete states of the individual input points.

Easy Removal/Replacement

The module can be removed/replaced without removing field device termination cabling, power, or communication cabling.

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. 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. The module can be removed/replaced without removing field device termination cabling, power, or communications cabling.

Redundant Modules in Foxboro DCS HMI

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

Sequence of Events

The Sequence of Events (SOE) software package (for use with I/A Series® v8,x software and Control Core Services v9.0 or later) is used for acquisition, storage, display, and reporting of events associated with digital input points in a control system. SOE, using the optional GPS based time synchronization capability, supports data acquisition across control processors at intervals of up to one millisecond, depending on the signal source.

Refer to *Sequence of Events* (PSS 31S-2SOE) to learn more about this package, and to *Time Synchronization Equipment* (PSS 41H-4C2), for a description of the optional time synchronization capability.

Foxboro DCS with software earlier than V8.x can support SOE through ECB6 and EVENT blocks. However, these systems do not support GPS time synchronization and use a timestamp sent by the Control Processor which is accurate to the nearest second and does not provide synchronization between different Control Processors.

Fieldbus Communication

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

Modular Baseplate Mounting

The module mounts on a DIN rail mounted baseplate, which accommodates up to four or eight Fieldbus Modules. The Modular baseplate is either DIN rail mounted or rack mounted, and includes signal connectors for redundant Fieldbus, redundant independent DC power, and termination cables.

Redundant modules must be located in odd and even adjacent positions on the baseplate (positions 1 and 2, 3 and 4, 5 and 6, or 7 and 8). To achieve the redundancy, a redundant adapter module is placed on the two adjacent baseplate termination cable connectors to provide a single termination cable connection. A single termination cable connects from the redundant adapter to the associated TA.

To system configurator applications and monitoring through SMON, System Manager, and SMDH, redundant modules appear to be separate, nonredundant modules. The functional redundancy for these modules is provided by their associated control blocks.

Termination Assemblies

Field I/O signals connect to the FBM subsystem via DIN rail mounted TAs. The TAs used with the FBM217 are described in Termination Assemblies And Cables, page 12.

Functional Specifications

FBM218 Module	<ul style="list-style-type: none"> Input: 32 group isolated channels On-State Voltage: 15 to 30 VDC Off-State Voltage: 0 to 5 VDC Current: 2.2 mA (typical) at 30 VDC Input Source Resistance Limits (Applies to All TAs): <ul style="list-style-type: none"> On-State: 1 kΩ (maximum) at 15 VDC Off-State: 100 kΩ (minimum) at 30 VDC
Filter/Debounce Time ⁽¹⁾	Configurable (No Filtering, 4, 8, 16, or 32 ms)
Maximum Pulse Count Rate	250 Hz
Isolation (Module/TA Combination)	<p>For TAs that provide group isolation (RH916CA, RH916XZ, RH916YB, RH916QA, RH924HA, RH924HP, RH924HQ, RH924HS, and RH924HT), input channels are group isolated from ground. For details, see <i>Standard and Compact 200 Series Subsystem User's Guide</i> (B0400FA). These module/TA combinations can withstand, without damage, a potential of 600 VAC applied for one minute between the group isolated channels and ground.</p> <div style="background-color: black; color: white; padding: 5px; text-align: center;"> ⚠️ DANGER </div> <div style="background-color: black; color: white; padding: 5px; text-align: center;"> HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH </div> <p>Although the module can withstand a maximum of 600 VAC applied for one minute between any channel, DO NOT apply voltages beyond the published input ranges. The channels are NOT intended for permanent connection to hazardous voltage circuits. Understand that connection of these channels to voltages greater than 30 VAC or 60 VDC violates electrical safety code requirements and may expose users to electric shock.</p> <p>Failure to follow these instructions will result in death or serious injury.</p>
	<ul style="list-style-type: none"> High-voltage TAs RH916YB, RH916QA, and P0916QB: Inputs are group-isolated. These TAs can withstand UL required dielectric potentials. High-voltage TAs RH916YA, RH916PU, and P0916PV: Inputs are channel isolated. These TAs can withstand UL required dielectric potentials.
Communication	Communicates with its associated FCM or FCP via the module Fieldbus

Power Requirements	<ul style="list-style-type: none"> Input Voltage Range: 24 VDC +5%, -10% Consumption: 3 W (maximum) at 24 VDC Heat Dissipation: 5 W (maximum) at 24 VDC (including contribution from field power supply)
Calibration Requirements	Calibration of the module and termination assembly is not required
Regulatory Compliance: Electromagnetic Compatibility (EMC)	<ul style="list-style-type: none"> <i>European EMC Directive 2004/108/EC (Prior to April 20, 2016) and 2014/30/EU (Beginning April 20, 2016):</i> Meets: EN61326-1:2013 Class A Emissions and Industrial Immunity Levels
Regulatory Compliance: Product Safety	<ul style="list-style-type: none"> <i>Underwriters Laboratories (UL) for U.S. and Canada:</i> 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 DCS processor modules. 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). For more information, see <i>Standard and Compact 200 Series Subsystem User's Guide</i> (B0400FA). <i>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):</i> DEMKO certified as Ex nA IIC T4 for use in certified Zone 2 enclosure when connected to specified processor modules as described in the <i>Standard and Compact 200 Series Subsystem User's Guide</i> (B0400FA). For use in an enclosure suited for an ATEX Zone 2 classified area.
RoHS Compliance	Complies with European RoHS Directive 2011/65/EU, including amending Directives 2015/863 and 2017/2102
IECEx Certification	IECEx Certified

⁽¹⁾ Digital filtering available for 200 Series FBM or competitive migration modules with version 1.25H or later firmware.

Environmental Specifications

	Operating	Storage
Temperature	<ul style="list-style-type: none">FBM217 : -20 to +70°C (-4 to +158°F)Termination Assembly - PA (Polyamide): -20 to +70°C (-4 to +158°F)	-40 to +70°C (-40 to +158°F)
Relative Humidity	5 to 95% (noncondensing)	5 to 95% (noncondensing)
Altitude	-300 to +3,000 m (-1,000 to +10,000 ft)	-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	0.75g from (5 to 500 Hz)	

Physical Specifications

	FBM217	Termination Assembly
Mounting	<p>The FBM217 mounts on a modular baseplate. The baseplate can be mounted on a DIN rail (horizontally or vertically), 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, or 7 and 8) along with the appropriate redundancy adapter.</p> <p>See <i>Standard 200 Series Baseplates</i> (PSS 41H-2SBASPLT) for details. Alternatively, a non-redundant FBM217 mounts on a 100 Series conversion mounting structure. See <i>100 Series Conversion Mounting Structures</i> (PSS 41H-2W8) for details.</p>	<p>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)</p>
Weight	284 g (10 oz) approximate	<p>Compression:</p> <ul style="list-style-type: none"> 216 mm (8.51 in) – 420 g (0.93 lb, approximate) 233 mm (9.15 in) – 454 g (1.0 lb, approximate)
Dimensions	<ul style="list-style-type: none"> Height: 102 mm (4 in), 114 mm (4.5 in) including mounting lugs Width: 45 mm (1.75 in) Depth: 104 mm (4.11 in) 	<p>Compression Screw:</p> <ul style="list-style-type: none"> See Dimensions - Nominal, page 21
Part Numbers	<ul style="list-style-type: none"> FBM217 Module: RH914TR Redundant Adapter: RH926ZY 	See Functional Specifications - Termination Assemblies, page 14
Termination Cables	<ul style="list-style-type: none"> Cable Lengths: Up to 30 m (98 ft) Cable Materials: Polyurethane or Low Smoke Zero Halogen Termination Cable Type: <ul style="list-style-type: none"> Baseplate to Main TA: Type 4 - See Table 2, page 20 Main TA to Expansion TA: Type 6 - See Table 3, page 20 	

Cable Connection	Type 4: <ul style="list-style-type: none">FBM Baseplate End: 37-pin D-subminiature plugTermination Assembly End: 37-pin D-subminiature receptacle	Type 6: <ul style="list-style-type: none">Main TA End: 25-pin D-subminiature receptacleExpansion TA End: 37-pin D-subminiature receptacle
Construction - Termination Assembly	<ul style="list-style-type: none">Material: Polyamide (PA), compression	
Field Termination Connections	<p>Compression — Accepted Wiring Sizes:</p> <ul style="list-style-type: none">Solid/Stranded/AWG: 0.2 to 4 mm²/0.2 to 2.5 mm²/24 to 12 AWGStranded with Ferrules: 0.2 to 2.5 mm² with or without plastic collar	

Termination Assemblies and Cables

Field I/O signals connect to the FBM subsystem via DIN rail mounted termination assemblies (TAs). Multiple types of TAs are available with 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 FBM217 or with a redundant pair (two 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 redundant adapter (RH926ZY).

The cables are available in a variety of lengths, up to 30 meters (98 feet), allowing the termination assemblies to be mounted in either the enclosure or in an adjacent enclosure. See *Functional Specifications - Termination Assemblies*, page 14 for termination cable part numbers and specifications.

Migration Use of Termination Assemblies

When an FBM217 is used to replace 100 Series FBMs, its associated termination assembly is determined based on which 100 Series FBM is being replaced. Typically, the 100 Series FBM being replaced was a main FBM and may have been used in conjunction with an expansion FBM.

A single FBM217 provides the I/O communications for both the 100 Series equivalent main and expansion TAs. To provide enough terminals for the field input wiring, two termination assemblies are used with the FBM217 - one for the field input wiring for the replaced main FBM, and one for the field input wiring for the replaced expansion FBM.

The “expansion” termination assembly is daisy-chained to the “main” termination assembly via the expansion cables listed in Table 3, page 20.

See *Functional Specifications - Termination Assemblies*, page 14 for a list of the termination assemblies needed to replace both the 100 Series main FBMs and the expansion FBMs.

Alternatively, the FBM217 can accept field wiring through a Termination Assembly Adapter (TAA) instead of the termination assemblies when upgrading 100 Series FBMs. This is discussed in *Termination Assembly Adapter Modules for 100 Series Upgrade* (PSS 41H-2W4).

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.

Be aware that for configurations which use main and expansion TAs, the I/O signal conditioning circuits are designed to emulate the 100 Series FBM I/O subsystem. This provides for functional I/O equivalence during upgrades from 100 Series to 200 Series hardware.

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 VDC) 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 VDC 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 VDC, 120 VAC, or 240 VAC. 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.

Functional Specifications - Termination Assemblies

FBM Type	Input Signal	TA Part Number PA ^(a)	Termination Type ^(b)	BP to TA Cable Type ^(c)	TA Cert. Type ^(d)
FBM217	32 channel, voltage monitor 30 VDC Logic Zero – 0 to 5 VDC Logic One – 15 to 30 VDC Passive feedthrough with FBM217 group isolation	RH916CA	C	4	1, 2, 4
FBM217	32 channel, contact sense 24 VDC contact wetting from FBM Passive feedthrough with FBM217 group isolation	RH916XZ ^(e)	C	4	1, 2, 4
FBM217	32 channel, voltage monitor 132 VAC or 150 VDC maximum Logic Zero - 0 to 20 VAC; 0 to 20 VDC Logic One - 80 to 132 VAC; 75 to 150 VDC Input Current for Logic One; 2.6 mA maximum Channel isolation provided by termination assembly	RH916YA ^(e)	C	4	1, 4
FBM217	32 channel, contact sense inputs, 132 VAC or 150 VDC maximum with external excitation Logic Zero - 0 to 20 VAC; 0 to 20 VDC Logic One - 80 to 132 VAC; 75 to 150 VDC Input Current for Logic One; 2.6 mA maximum Group isolation provided by termination assembly	RH916YB ^(e)	C	4	1, 4
FBM217	32 channel, voltage monitor 240 VAC Logic Zero: 0 to 40 VAC Logic One: 164 to 264 VAC Input Current for Logic One; 2.8 mA maximum Channel isolation provided by termination assembly	RH916PU	C	4	1

FBM Type	Input Signal	TA Part Number PA ^(a)	Termination Type ^(b)	BP to TA Cable Type ^(c)	TA Cert. Type ^(d)
FBM217	<p>32 channel, contact sense inputs, 240 VAC with external excitation</p> <p>Logic Zero: 0 to 40 VAC</p> <p>Logic One: 164 to 264 VAC</p> <p>Input Current for Logic One; 2.8 mA maximum</p> <p>Group isolation provided by termination assembly</p>	RH916QA	C	4	1
FBM217	<p>When replacing a main FBM07A:</p> <p>Voltage monitor, external source, 130 VDC maximum voltage</p> <p>Logic Zero: 0 to 5 VDC</p> <p>Logic One: 15 to 130 VDC</p> <p>2.2 mA typical 5 to 130 VDC</p> <p>1 kΩ Maximum On-state resistance</p> <p>100 kΩ Minimum Off-state resistance</p> <p>When replacing a main FBM07B:</p> <p>Contact Sense, internal source 24 VDC ±10% Open circuit voltage</p> <p>2.5 mA maximum short circuit current</p> <p>1 kΩ Maximum On-state resistance</p> <p>100 kΩ Minimum Off-state resistance</p> <p>Pairs isolation provided by termination assembly</p>	RH924HA	C	4	1, 2, 4
FBM217	<p>When replacing a main FBM08:</p> <p>Voltage monitor, external source, 132 VAC or 150 VDC maximum voltage</p> <p>Logic Zero: 0 to 20 VAC; 0 to 20 VDC</p> <p>Logic One: 79 to 132 VAC; 75 to 150 VDC</p> <p>2.2 mA typical 20 to 132 VAC</p> <p>1 kΩ Maximum On-state resistance</p> <p>100 kΩ Minimum Off-state resistance</p> <p>Channel isolation provided by termination assembly</p>	RH924HC	C	4	1, 4

FBM Type	Input Signal	TA Part Number PA ^(a)	Termination Type ^(b)	BP to TA Cable Type ^(c)	TA Cert. Type ^(d)
FBM217	<p>When replacing a main FBM20:</p> <p>Voltage monitor, external source, 264 VAC maximum voltage</p> <p>Logic Zero: 0 to 40 VAC</p> <p>Logic One: 164 to 264 VAC</p> <p>2.2 mA typical 40 to 264 VAC</p> <p>1 kΩ Maximum On-state resistance</p> <p>100 kΩ Minimum Off-state resistance</p> <p>Channel isolation provided by termination assembly</p>	RH924HL	C	4	1
FBM217	<p>When replacing a main FBM24A:</p> <p>Voltage monitor, external source, 150 VDC maximum voltage</p> <p>Logic Zero: 0 to 10 VDC</p> <p>Logic One: 33 to 150 VDC</p> <p>2.5 mA typical 10 to 150 VDC</p> <p>1 kΩ Maximum On-state resistance</p> <p>100 kΩ Minimum Off-state resistance</p> <p>Channel isolation provided by termination assembly</p>	RH924HN	C	4	1, 2, 4
FBM217	<p>When replacing a main FBM24B:</p> <p>Contact sense, internal source, 48 VDC nominal open circuit voltage</p> <p>2.5 mA ±20% short circuit current</p> <p>1 kΩ Maximum On-state resistance</p> <p>100 kΩ Minimum Off-state resistance</p> <p>Two groups of eight isolation provided by termination assembly</p>	RH924HP	C	4	1, 2, 4

FBM Type	Input Signal	TA Part Number PA ^(a)	Termination Type ^(b)	BP to TA Cable Type ^(c)	TA Cert. Type ^(d)
FBM217	<p>When replacing a main FBM24C:</p> <p>Contact sense, external source on Channel 1, 150 VDC maximum voltage</p> <p>Logic Zero: 0 to 10 VDC</p> <p>Logic One: 33 to 150 VDC</p> <p>2.5 mA typical 10 to 150 VDC</p> <p>Two groups of eight isolation provided by termination assembly</p>	RH924HQ	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) Refer to Table 2, page 20 and Table 3, page 20 for cable part numbers and specifications.

(d) Refer to Table 1, page 19 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 PA ^(a)	Termination Type ^(b)	Main TA to Exp. TA Cable Type ^(c)	TA Cert. Type ^(d)
FBM217	When replacing an expansion FBM12A/B (16 input voltage monitor/contact sense): Input/output specifications are the same as for TA RH924HA in Functional Specifications - Termination Assemblies, page 14 Connect this TA to the main TA. Pairs isolation provided by termination assembly.	RH924HB	C	6	1, 2, 4
FBM217	When replacing an expansion FBM13 (16 input voltage monitor): Input/output specifications are the same as for TA RH924HC in Functional Specifications - Termination Assemblies, page 14 Connect this TA to the main TA. Channel isolation provided by termination assembly.	RH924HD	C	6	1, 4
FBM217	When replacing an expansion FBM21 (16 input voltage monitor): Input/output specifications are the same as for TA RH924HL in Functional Specifications - Termination Assemblies, page 14 Connect this TA to the main TA. Channel isolation provided by termination assembly.	RH924HM	C	6	1
FBM217	When replacing an expansion FBM25A (16 input voltage monitor): Input/output specifications are the same as for TA RH924HN in Functional Specifications - Termination Assemblies, page 14 Connect this TA to the main TA. Channel isolation provided by termination assembly.	RH924HR (Expansion)	C	6	1, 2, 4

FBM Type	Input Signal	TA Part Number PA ^(a)	Termination Type ^(b)	Main TA to Exp. TA Cable Type ^(c)	TA Cert. Type ^(d)
FBM217	When replacing an expansion FBM25B (16 input contact sense): Input/output specifications are the same as for TA RH924HP in Functional Specifications - Termination Assemblies, page 14 Connect this TA to the main TA. Two groups of eight isolation provided by termination assembly.	RH924HS	C	6	1, 2, 4
FBM217	When replacing an expansion FBM25C (15 input contact sense with external power supply): Input/output specifications are the same as for TA RH924HQ in Functional Specifications - Termination Assemblies, page 14 Connect this TA to the main TA. Group isolation provided by termination assembly.	RH924HT	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, page 20 and Table 3, page 20 for cable part numbers and specifications.
 (d) See Table 1, page 19 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 <i>Standard and Compact 200 Series Subsystem User's Guide</i> (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 VDC, 30 VAC, 100 VA or less) if customer-supplied equipment meets Class 2 limits.
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 VDC, 30 VAC, 100 VA or less) if customer-supplied equipment meets Class 2 limits.

Table 2 - Cables 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)	RH916FG	RH928BA
1.0 (3.2)	RH916FH	RH928BB
2.0 (6.6)	RH931RQ	RH928BC
3.0 (9.8)	RH916FJ	RH928BD
5.0 (16.4)	RH916FK	RH928BE
10.0 (32.8)	RH916FL	RH928BF
15.0 (49.2)	RH916FM	RH928BG
20.0 (65.6)	RH916FN	RH928BH
25.0 (82.0)	RH916FP	RH928BJ
30.0 (98.4)	RH916FQ	RH928BK

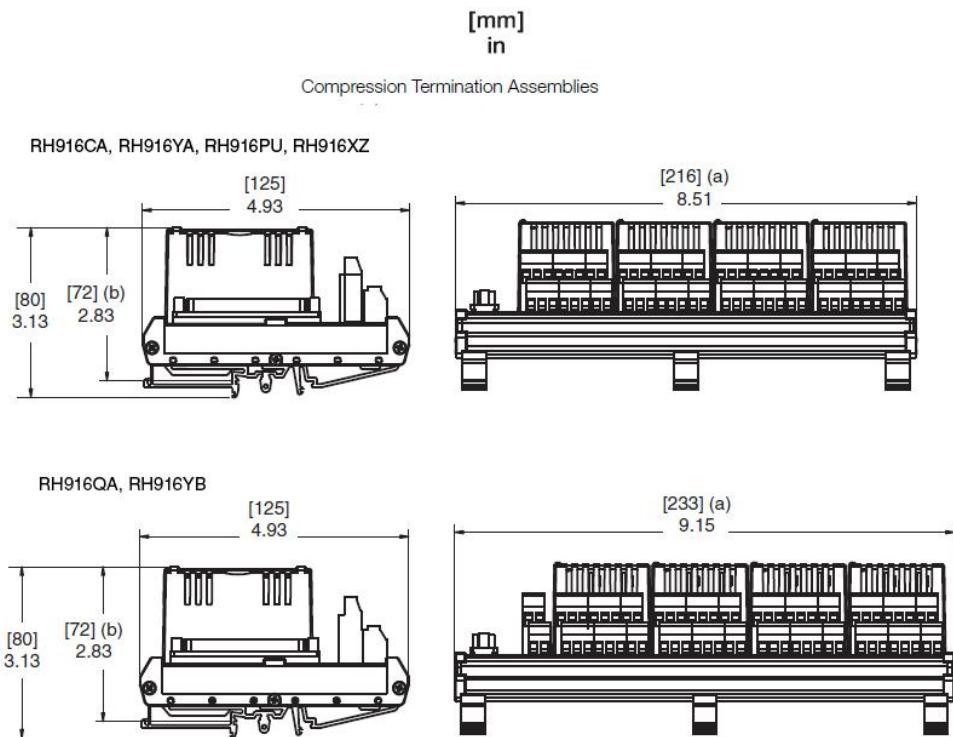
(a) P/PVC is polyurethane outer jacket and semi-rigid PVC primary conductor insulation. P/PVC cable is rated at -20 to +80°C (-4 to 176°F).

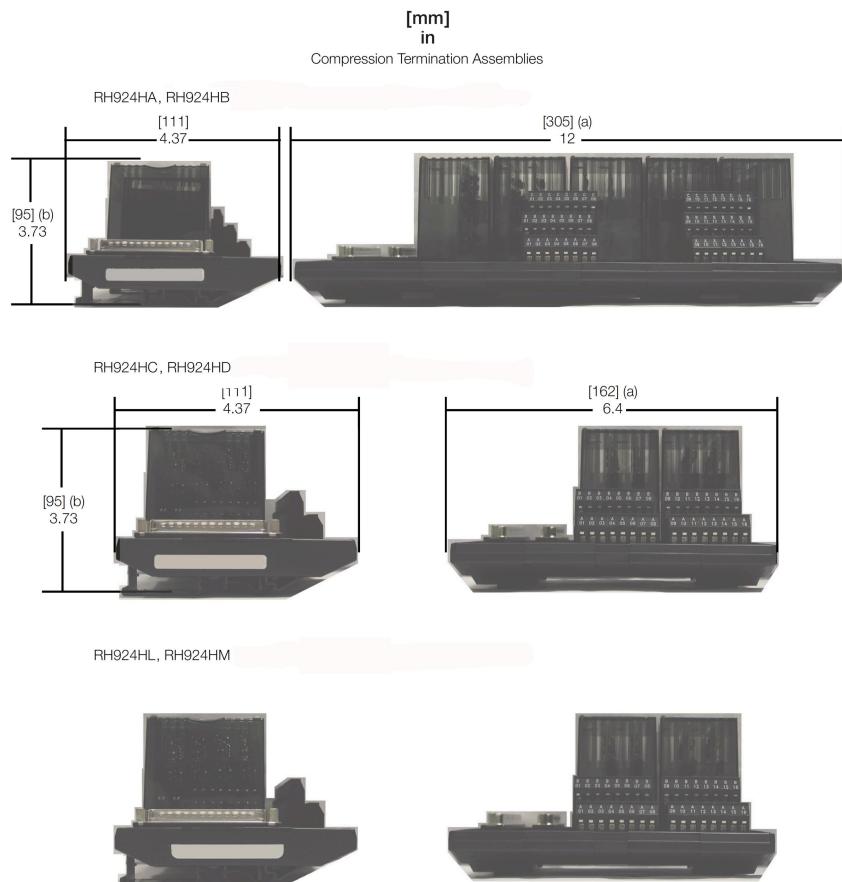
(b) Low smoke zero halogen or low smoke free of halogen (LSZH) is a material classification used for cable jacketing. LSZH is composed of thermoplastic or thermoset compounds that emit limited smoke and no halogen when exposed to high sources of heat. Temperature range: -40 to +105°C (-40 to +221°F).

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

Cable Length m (ft)	Type 6 P/PVC^(a)	Type 6 LSZH^(b)
0.75 (2.5)	RH924CK	RH928CQ
(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).		

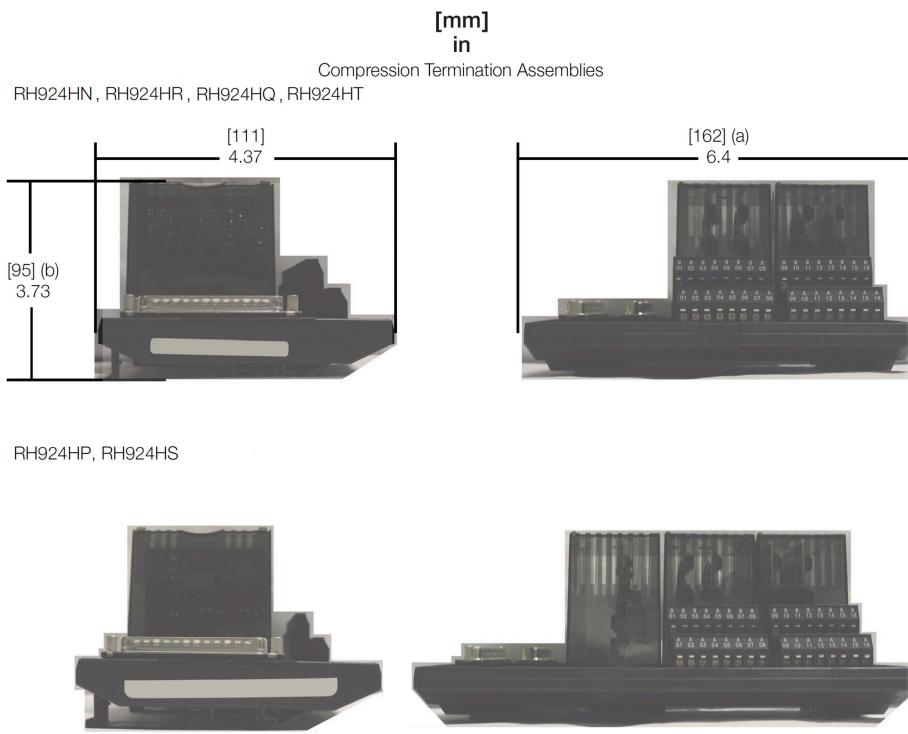
Dimensions - Nominal





^(a) Overall width – for determining DIN rail loading.

^(b) Height above DIN rail (add to DIN rail height for total).



(a) Overall width – for determining DIN rail loading.

(b) Height above DIN rail (add to DIN rail height for total).

Related Product Documents

Document Number	Description
PSS 41H-2COV	<i>Compact 200 Series I/O Subsystem Overview</i>
PSS 41H-2W100	<i>100 Series Fieldbus Module Upgrade Subsystem Overview</i>
PSS 41H-2CERTS	<i>Standard and Compact 200 Series I/O, Agency Certifications</i>
PSS 41H-2W4	<i>Termination Assembly Adapter Modules for 100 Series Upgrade</i>
PSS 41H-2SBASPLT	<i>Standard 200 Series Baseplates</i>
PSS 41H-2W8	<i>100 Series Conversion Mounting Structures</i>
PSS 41S-3FCPICS	<i>Field Control Processor 280 (FCP280) Integrated Control Software</i>
B0400FA	<i>Standard and Compact 200 Series Subsystem User's Guide</i>