General Specifications

Terminal Boards/
Relay Boards
(for ProSafe-RS)

ProSafe-RS

GS 32Q06L20-31E

[Release 3]

■ GENERAL

This GS describes the hardware specifications of the terminal boards used for the ProSafe-RS system.

■ STANDARD SPECIFICATIONS

● Terminal Board

19-inch Rack Mountable Type

Application	Model	Number of connection points	Terminal	Connection module	Connection cable	Weight	Withstand voltage	Insulation resistance
For analog signals (single/ dual-redundant configuration)	SEA4D	16-channel x 2	M4 screw	SAI143	KS1	1.5 kg	500 V AC (for one minute) (*4)	100 MΩ minimum (500 V DC)
				SAV144	KS1			
				SAI533	KS1			
For digital signals (single/ dual-redundant configuration)	SED2D	4-channel x 4	M4 screw	SDV521	AKB651	2.3 kg	2000 V AC (for one minute) (*4)	100 MΩ minimum (500 V DC)
	SED3D	8-channel x 4	M4 screw	SDV53A	AKB331 (*2)	2.0 kg	2000 V AC (for one minute) (*4)	
	SED4D	16-channel x 2 (*1)	M4 screw	SDV144	AKB331	1.5 kg	500 V AC (for one minute) (*4)	
				SDV531-S	AKB331			
				SDV531-L	AKB331			
				SDV541	AKB331			
	SWD2D (*3)	4-channel x 4	M4 screw	SDV526	AKB652	2.9 kg	1500 V AC (for one minute) (*4)	

DIN Rail Mount Type

Application	Model	Number of connection points	Terminal	Connection module	Connection cable	Weight	Withstand voltage	Insulation resistance
For analog signals (single/ dual-redundant configuration)	SBA4D	16-channel x 1	Pressure clamp	SAI143	KS1	0.2 kg	NA	NA
				SAV144	KS1			
				SAI533	KS1			
	SBT4D	16-channel x 1	Pressure clamp	SAT145	AKB331	0.3 kg	200 V AC (for one minute) (*5)	10 MΩ minimum (200 V DC)
	SBR4D	16-channel x 1	Pressure clamp	SAR145	AKB611	0.3 kg		
For digital signals (single/ dual-redundant configuration)	SBD2D (*7)	4-channel x 1	Pressure clamp	SDV521	AKB651	0.3 kg	2000 V AC (for one minute) (*6)	10 MΩ minimum (500 V DC)
	SBD3D (*7)	8-channel x 1	Pressure clamp	SDV531-L	AKB331 (*2), AKB651	0.3 kg	2000 V AC (for one minute) (*6)	
				SDV531-S	AKB331 (*2)			
				SDV53A	AKB331 (*2), AKB651			
	SBD4D (*7)	16-channel x 1	Pressure clamp	SDV144	AKB331 (*2)	0.3 kg	2000 V AC (for one minute) (*6)	
				SDV541	AKB331 (*2), AKB651			

Note: Connector covers must be mounted on connectors that do not have cables connected to them, to protect them from dust, and also to protect the connector pins.

*1: 8-points × 2 for SDV531 connection
*2: Use AKB331 of style code S3.

*3: Contact rating between ALM terminals when any fuse is blown
Meet all the following requirements.
Rated output voltage: 125 V AC or less, 125 V DC or less
Rated output current: 0.3 A or less
Rated power: 25 VA or less
*4: Between input signal and case
*5: Between channels
*6: Between power terminal and READY terminal
*7: The READY contact rating shows below.
125 V AC or less and 0.3 A or less
60 V DC or less and 1 A or less

● Relay Board

19-inch Rack Mountable Type

Item	Specifications	
Model	SRM53D	SRM54D
Type of input/output and number of I/O points	Contact output/8-point x 2 (dry contact outputs)	Contact output/16-point x 1 (dry contact outputs)
Terminals	M4 screws, 16-pole x 2 (outputs) M4 screws, 2-pole x 1 (power)	
Connection module	SDV531, SDV144 (read-back) (*1) Dual-redundant possible	SDV541, SDV144 (read-back) (*1) Dual-redundant possible
External connection	Dedicated signal cable AKB331	
Target IOM and interface	SDV531 + AKB331/SDV531 (*1) SDV144 (read-back) + AKB331/SDV144 Dual-redundant possible	SDV541 + AKB331/SDV541 (*1) SDV144 (read-back) + AKB331/SDV144 Dual-redundant possible
Withstanding voltage	Between field device terminals and case: 2 kV Between 24-V power terminal and case: 500 V Between 24-V power terminal and field device terminals: 2.5 kV	
Insulation resistance	At least 10 MΩ (at 500 V DC)	
External supply voltage/current	24 V DC +5 %, -3.1 % (*2) Up to 1500 mA (at 24 V DC)	24 V DC +5 %, -1.2 % (*2) Up to 1500 mA (at 24 V DC)
Rated output voltage/current (current /point)	250 V AC / 2 A 125 V DC / 0.4 A 30 V DC / 2 A	
Ambient temperature (during operation)	-20 to 70 °C	
Ambient humidity (both during operation and in transit/storage conditions)	5 to 85 % RH	
Weight	2.7 kg	

*1: When connecting relay boards with output modules, refer to “Field Device Connection (for ProSafe-RS)” (GS 32Q06J10-31E).
*2: This is the tolerance of the external supply voltage when the signal cable of 10 m (AKB331-M010) is used. The voltage loss of the external power supply varies with the length of the signal cable. For details, refer to “ ProSafe-RS Outline of I/O Modules” (GS 32Q06K20-31E). Moreover, the maximum length of the signal cable (AKB331) used for connecting to the relay board is 20 m.

DIN Rail Mount Type

Item	Specifications
Model	SBM54D (*1)
Type of input/output and number of I/O points	Contact output/16-point x 1 (dry contact outputs)
Terminals	Pressure clamp
Connection module(*2)	SDV541 (*3) Dual-redundant possible
External connection	Dedicated signal cable AKB331
Withstanding voltage	Between field device terminal and case: 2 kV Between 24 V power terminal and case: 2 kV Between 24 V power terminal and field device terminals: 2.5 kV Between READY terminal and case: 2 kV Between READY terminal and 24 V power terminal: 2 kV Between READY terminal and field device terminals: 2.5 kV
Insulation resistance	At least 10 MΩ (at 500 V DC)
External supply voltage/current	24 V DC +20 %, -10% Up to 500 mA (at 24 V DC)
Rated output voltage/current (current/point)	30 V DC/4 A 240 V AC/4 A
Ambient temperature (during operation)	-20 to 70 °C
Ambient humidity (both during operation and in transit/storage conditions)	5 to 85 % RH
Weight	0.6 kg

*1: Dual power supply is available.
In case of power supply is normal operation, LED keeps ON. In the other case LED turns OFF.
The READY contact outputs the condition which power supply and all fuses is normal opration.
The READY contact rating shows below.
125 V AC or less and 0.3 A or less
60 V DC or less and 1 A or less

*2: When connecting relay boards with output modules, refer to “Field Device Connection (for ProSafe-RS)” (GS 32Q06J10-31E).

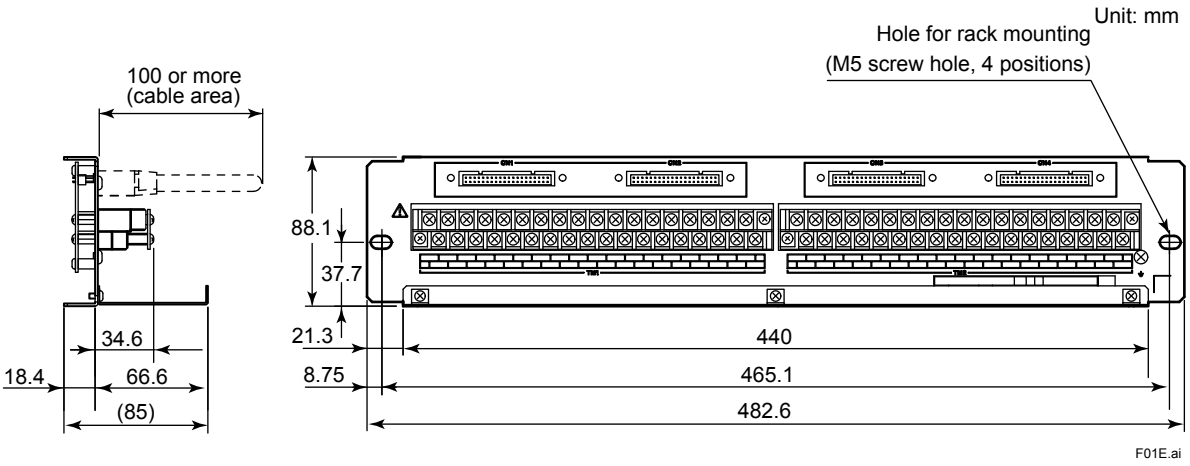
*3: The style code and firmware revision numbers of SDV541 must be used following revision or later.
SDV541 S3, F1: 1 F2: 1

■ EXTERNAL DIMENSIONS

● Terminal Boards

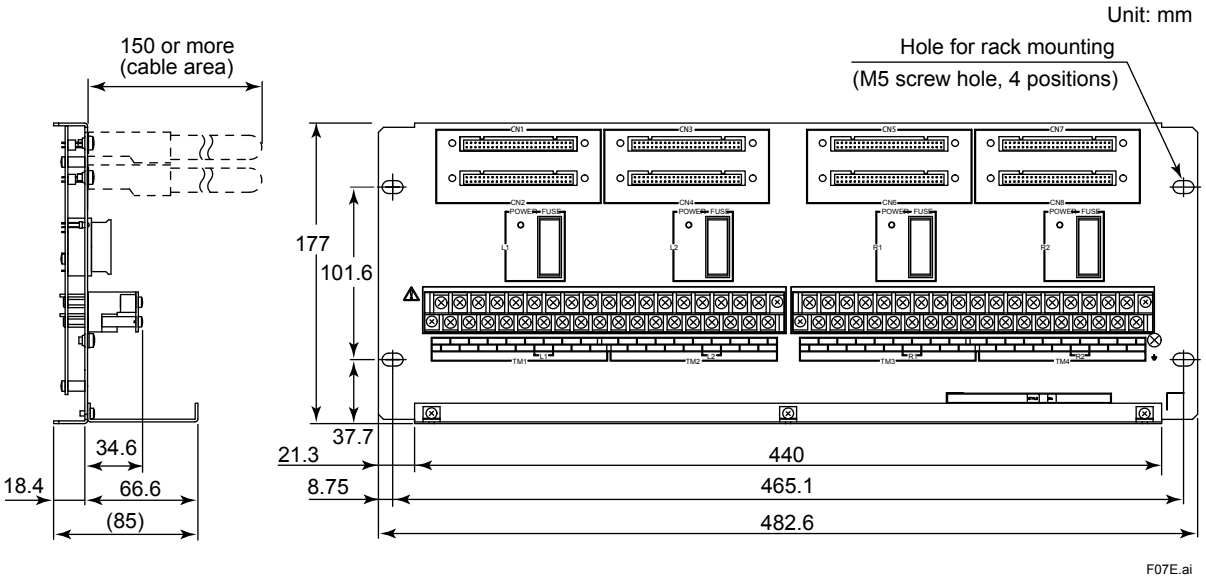
SEA4D

Unit: mm

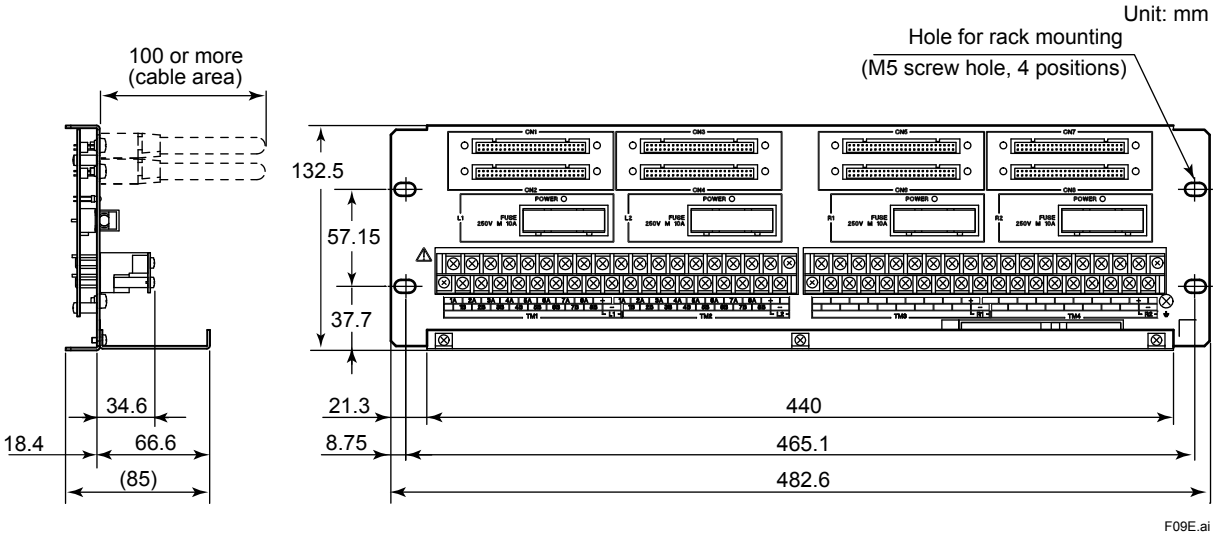


SED2D

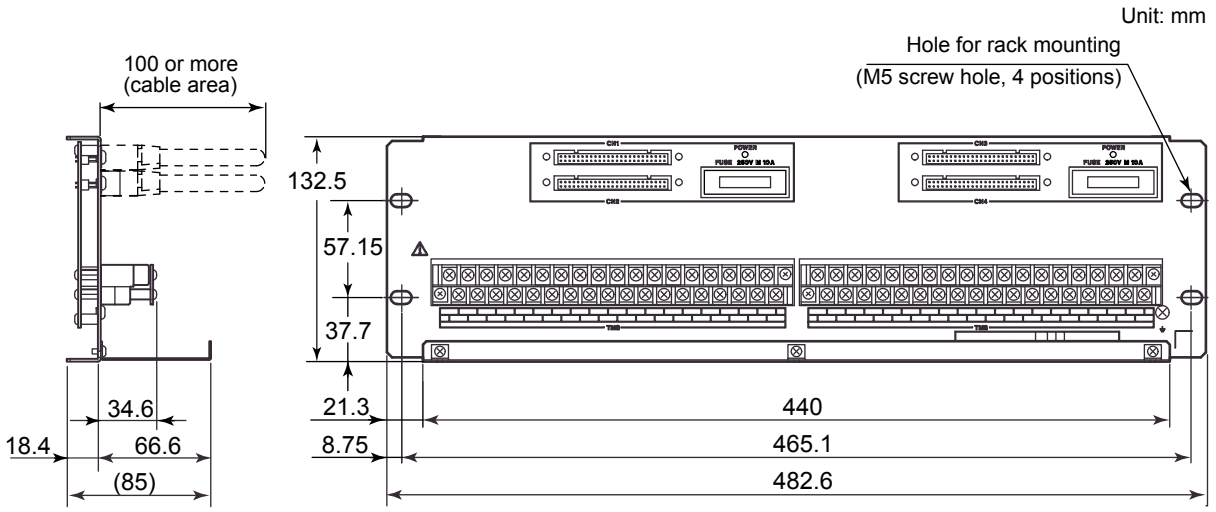
Unit: mm



SED3D

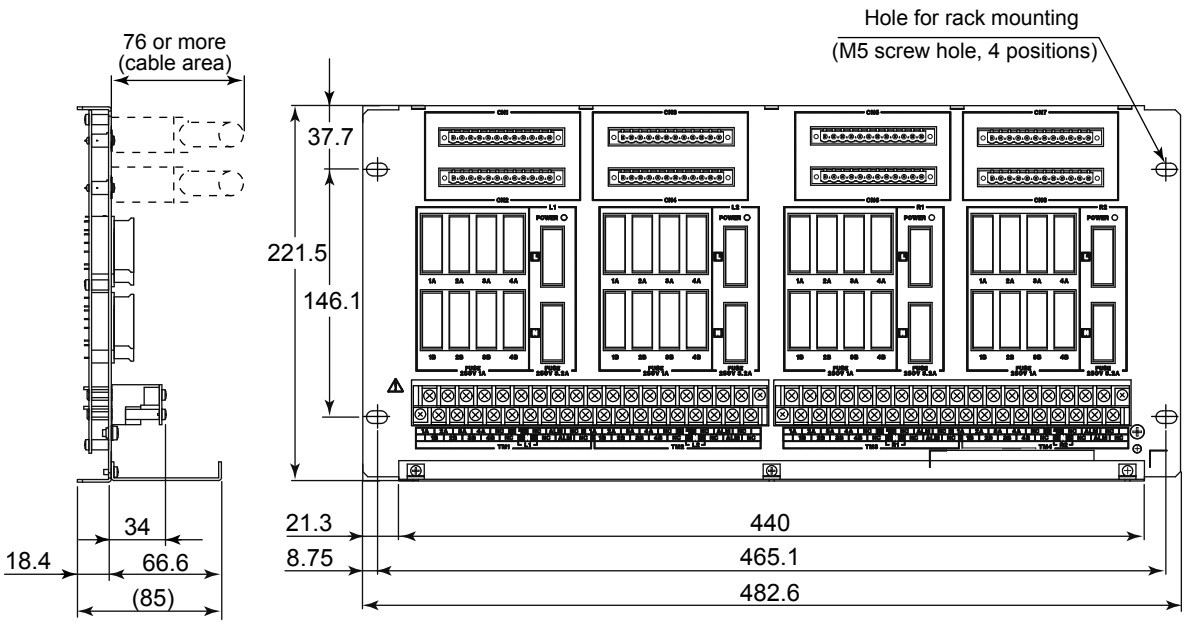


SED4D



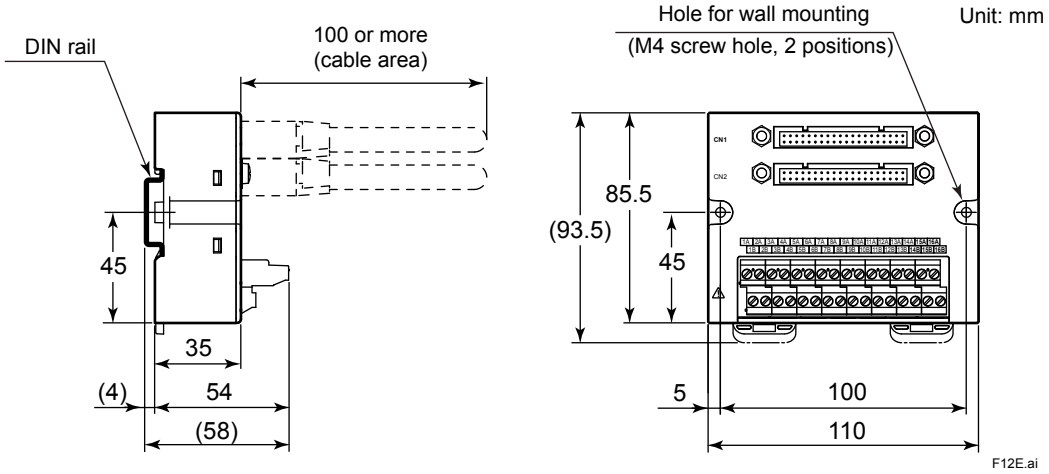
SWD2D

Unit: mm



F08E.ai

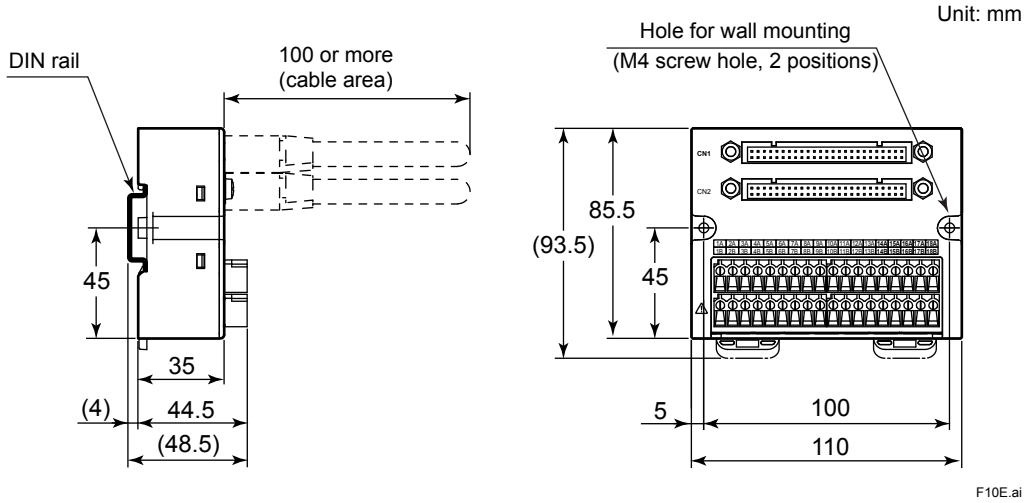
SBA4D



F12E.ai

SBT4D

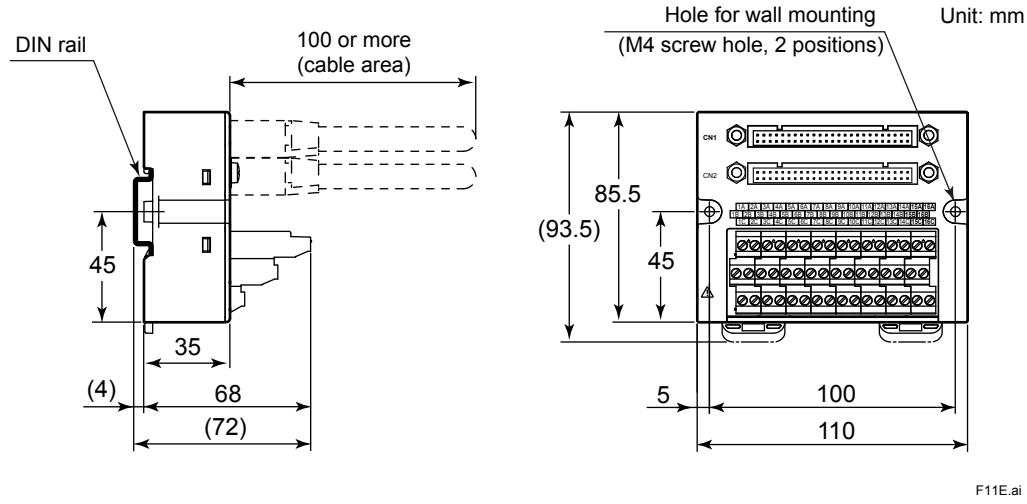
Unit: mm



F10E.ai

SBR4D

Unit: mm

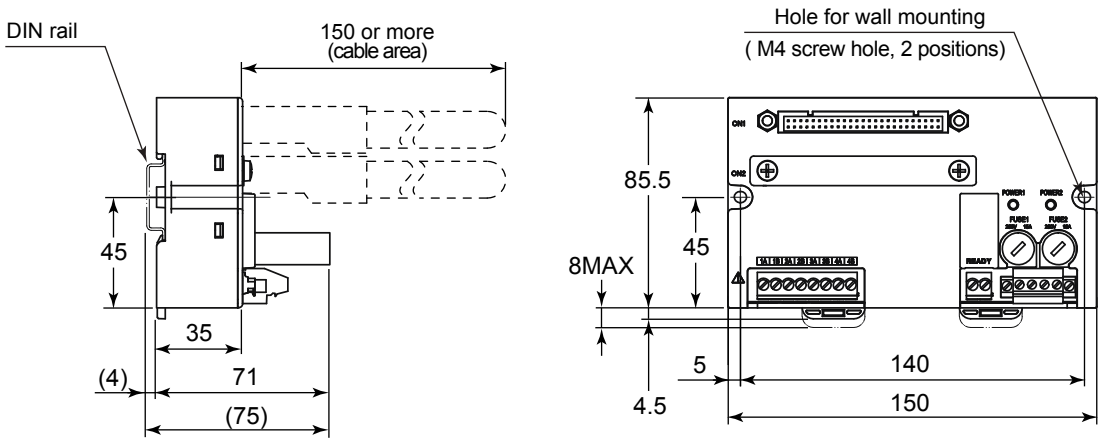


F11E.ai

SBD2D

-

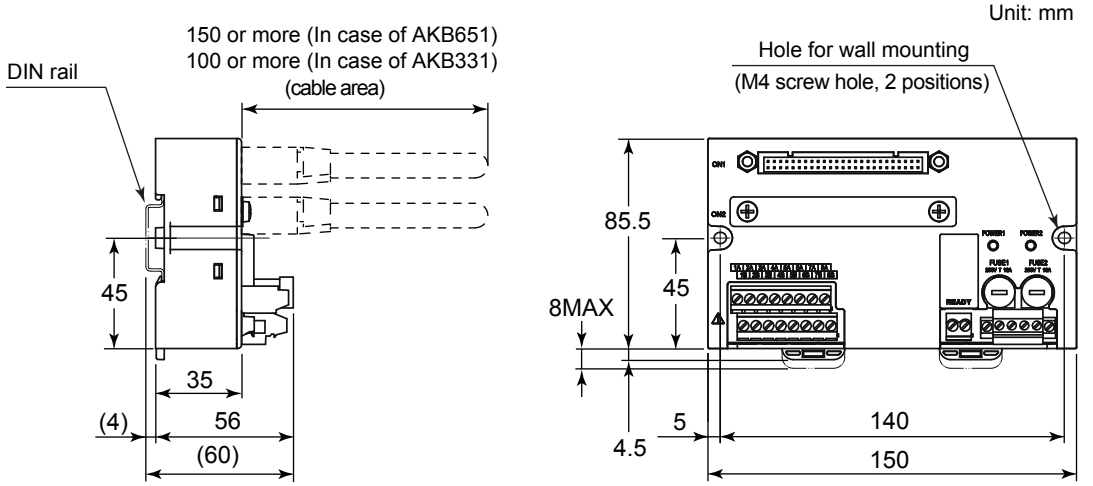
Unit: mm



F15E.ai

SBD3D

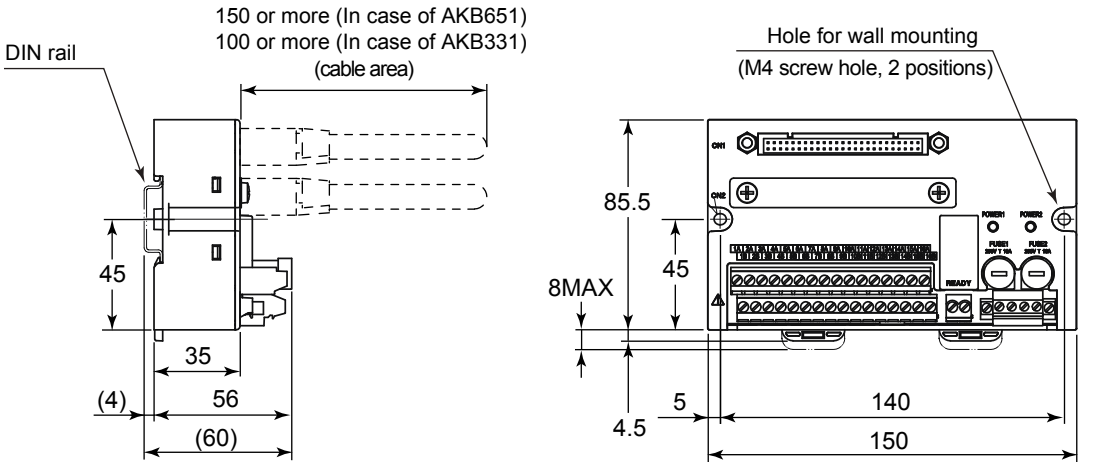
Unit: mm



F14.ai

SBD4D

Unit: mm

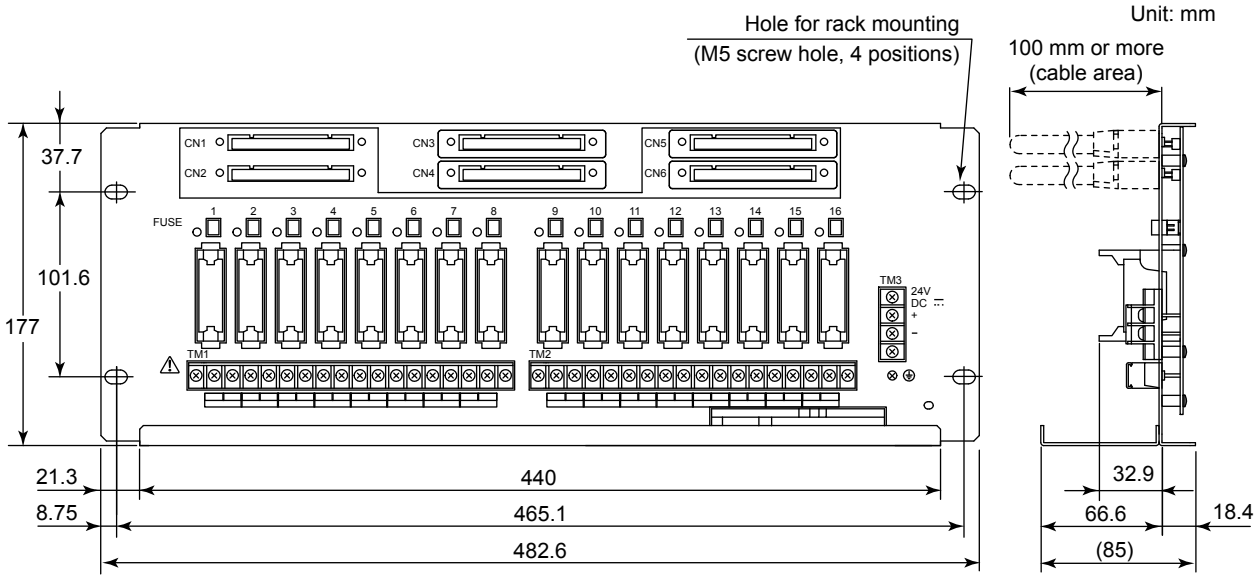


F13.ai

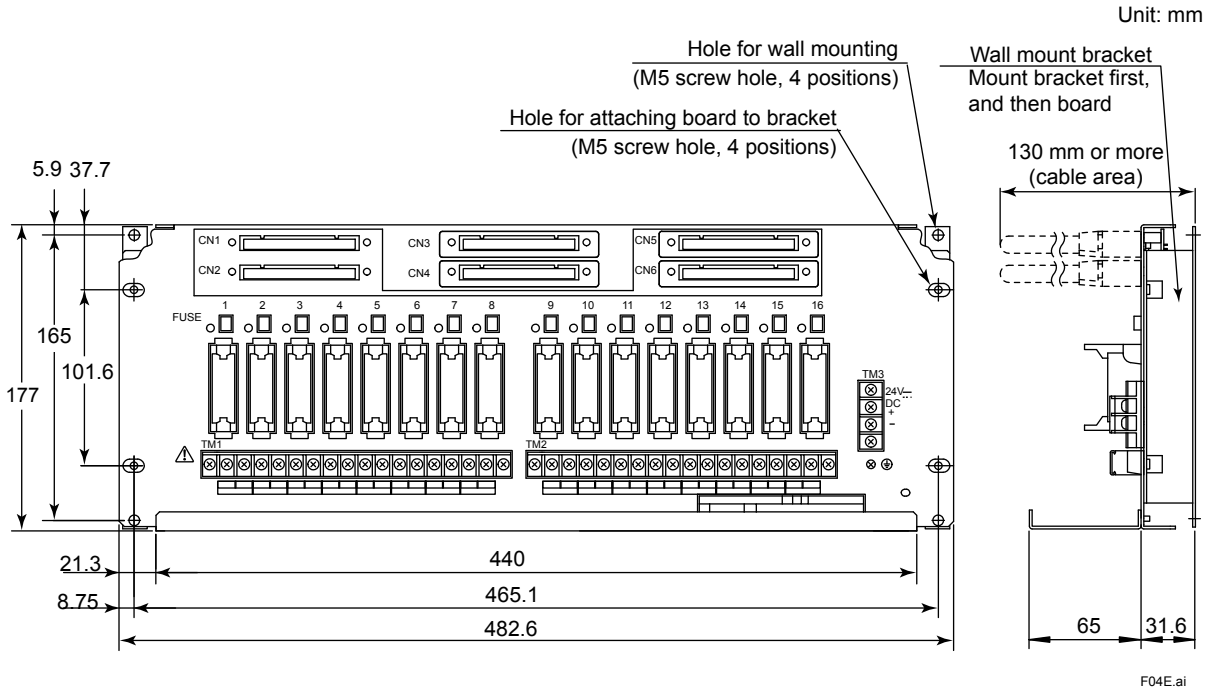
● Relay Board

SRM53D

Other than /BR4

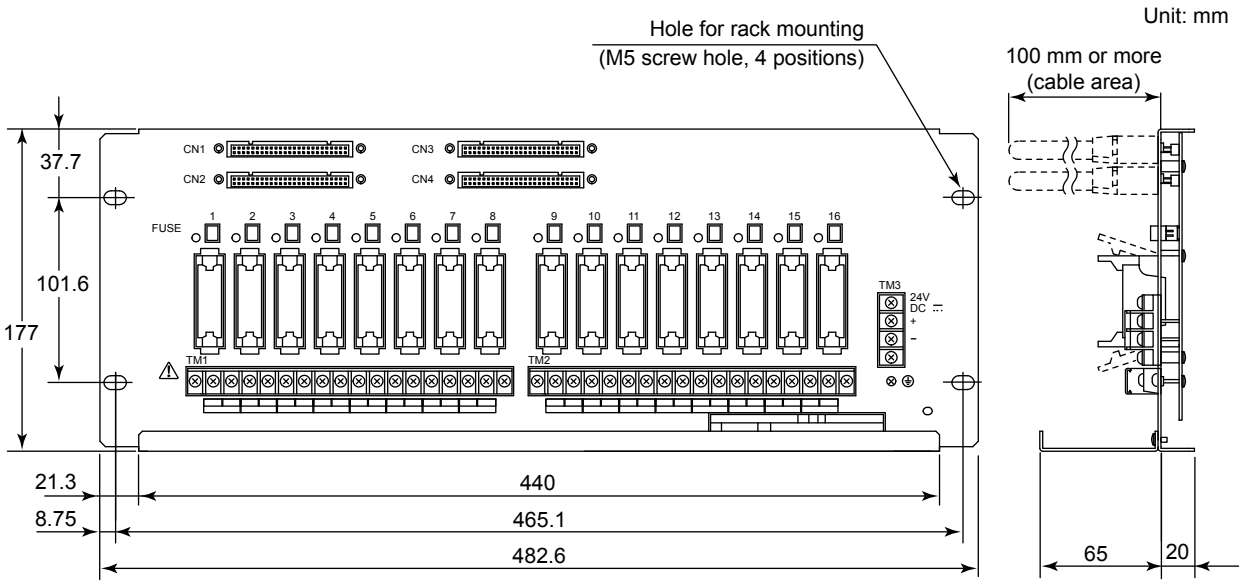


For /BR4

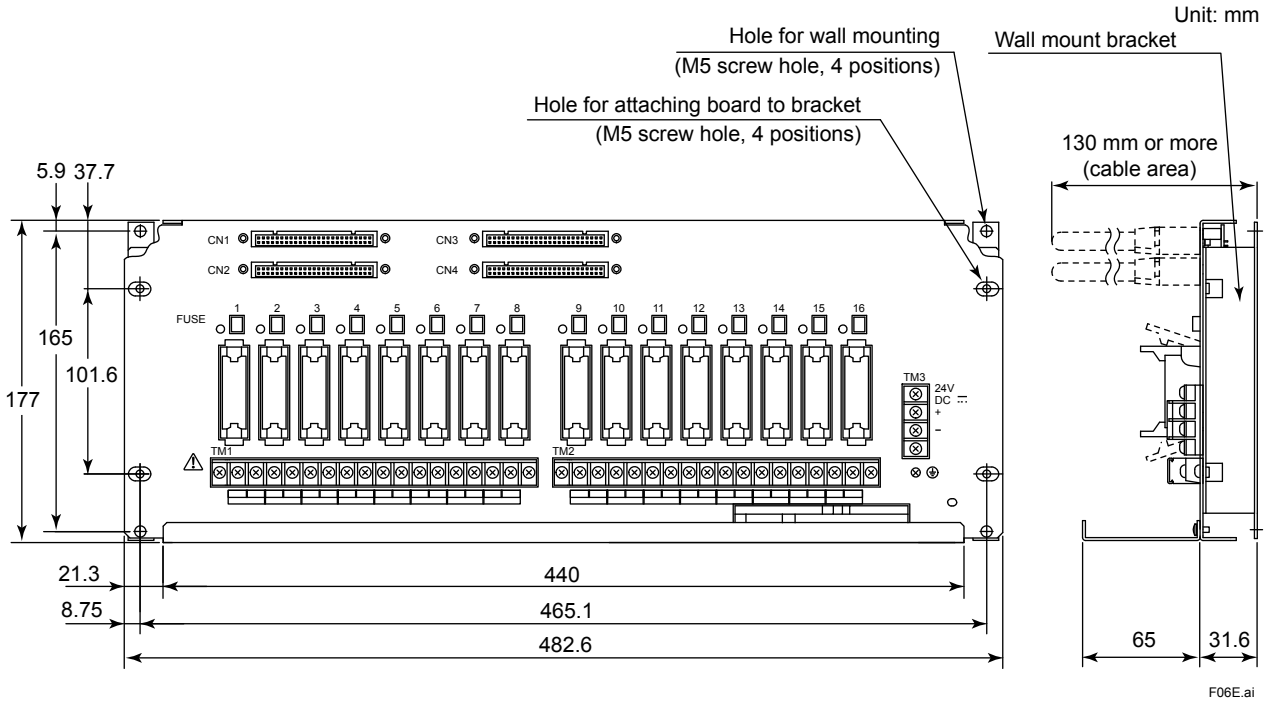


SRM54D

Other than /BR4

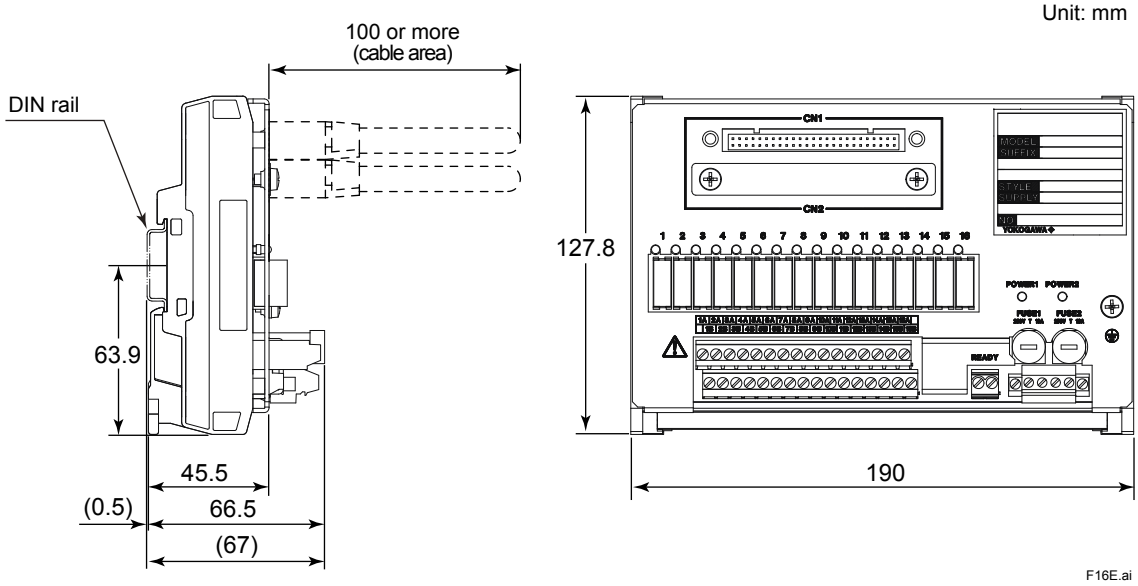


For /BR4



SBM54D

Unit: mm



■ MODEL AND SUFFIX CODES

Analog terminal board for single/dual-redundant configuration

		Description
Model	SEA4D	Analog Terminal Board (Single and Dual-Redundant, 16-channel x 2)
Suffix Codes	-0	Without surge absorber
	-1	With surge absorber
	6	With ISA Standard G3 and no explosion protection
	F	With ISA Standard G3 and explosion protection

		Description
Model	SBA4D	Terminal board for Analog: DIN rail mount type (Single and Dual-redundant, 16-channel x 1)
Suffix Codes	-0	Always 0
	6	With ISA Standard G3 and no explosion protection
	F	With ISA Standard G3 and explosion protection

		Description
Model	SBT4D	Terminal board for TC/mV: DIN rail mount type (Single and Dual-redundant, 16-channel x 1)
Suffix Codes	-0	Without surge absorber
	6	With ISA Standard G3 and no explosion protection
	F	With ISA Standard G3 and explosion protection

		Description
Model	SBR4D	Terminal board for RTD input: DIN rail mount type (Single and Dual-redundant, 16-channel x 1)
Suffix Codes	-0	Without surge absorber
	6	With ISA Standard G3 and no explosion protection
	F	With ISA Standard G3 and explosion protection

Digital terminal board for single/dual-redundant configuration

		Description
Model	SED2D	Digital Terminal Board (Single and Dual-Redundant, 4-channel x 4)
Suffix Codes	-0	Without surge absorber
	-1	With surge absorber
	6	With ISA Standard G3 and no explosion protection
	F	With ISA Standard G3 and explosion protection

		Description
Model	SED3D	Digital Terminal Board (Single and Dual-Redundant, 8-channel x 4)
Suffix Codes	-A	For 48 V DC output, without surge absorber
	6	With ISA Standard G3 and no explosion protection
	F	With ISA Standard G3 and explosion protection

		Description
Model	SED4D	Digital Terminal Board (Single and Dual-Redundant, 16-channel x 2)
Suffix Codes	-0	Without surge absorber
	-1	With surge absorber
	6	With ISA Standard G3 and no explosion protection
	F	With ISA Standard G3 and explosion protection

		Description
Model	SWD2D	Digital Terminal Board (Single and Dual-Redundant, 100 to 120 V AC, 4-channel x 4)
Suffix Codes	-2	For 100 to 120 V AC output
	1	With ISA Standard G3

		Description
Model	SBD2D	Terminal board for Digital output: DIN rail mount type (Single and Dual-redundant, 4-channel x 1, for SDV521)
Suffix Codes	-0	Always 0
	6	With ISA Standard G3 and no explosion protection
	F	With ISA Standard G3 and explosion protection

		Description
Model	SBD3D	Terminal board for Digital output: DIN rail mount type (Single and Dual-redundant, 8-channel x 1, for SDV53□)
Suffix Codes	-0	24 V DC (for SDV531)
	-A	48 V DC (for SDV53A)
	6	With ISA Standard G3 and no explosion protection
	F	With ISA Standard G3 and explosion protection

		Description
Model	SBD4D	Terminal board for Digital: DIN rail mount type (Single and Dual-redundant, 16-channel x 1, for SDV144/SDV541)
Suffix Codes	-0	Always 0
	6	With ISA Standard G3 and no explosion protection
	F	With ISA Standard G3 and explosion protection

Single or dual-redundant relay board with digital output

		Description
Model	SRM53D	8 × 2 Dry Contact Output (Safety Relay Built-In, M4 Terminals)
Suffix Codes	-0	Always 0
	0	19-inch Rack mountable
	0	Basic
Option Code	/BR4	Wall-mount bracket

		Description
Model	SRM54D	16 × 1 Dry Contact Output (Safety Relay Built-In, M4 Terminals)
Suffix Codes	-0	Always 0
	0	19-inch Rack mountable
	0	Basic
Option Code	/BR4	Wall-mount bracket

		Description
Model	SBM54D	Relay board for Digital output: DIN rail mount type (Single and Dual-redundant, 16-channel x 1, for SDV541)
Suffix Codes	-0	Always 0
	0	Always 0
	0	Standard type

■ APPLICABLE STANDARDS

Refer to “ProSafe-RS Safety Instrumented System Overview (GS 32Q01B10-31E, GS 32Q01B20-31E).”

■ ORDERING INFORMATION

Specify the model and suffix codes.

For selecting the right products for explosion protection, please refer to TI 32S01J30-01E without fail.

■ TRADEMARKS

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