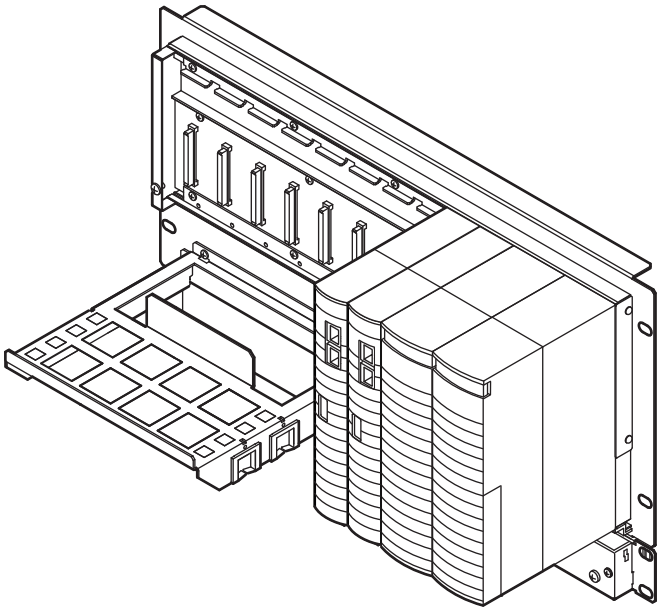
General Specifications

GS 32P06D10-01EN

ProSafe-RS
S2SC70S, S2SC70D
Safety Control Unit, Duplexed Safety Control Unit
(for N-IO/FIO, Rack Mountable Type)

■ GENERAL

This General Specifications (GS) provides the hardware specifications of the safety control unit, which are intelligent parts of the safety control station (SCS). This product supports both N-IO and FIO.



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■ HARDWARE SPECIFICATIONS

For the criteria for the installation environment, refer to “ProSafe-RS Safety Instrumented System Overview (for Vnet/IP)” (GS 32P01B10-01EN).

● Safety Integrity Level

SIL 3

● Module Configuration

Power Supply Module (SPW481, SPW482 or SPW484): 2 modules
Processor Module (S2CP471 or SCP461 style S2 or later): 2 modules for dual-redundant configuration. (*1)

*1: A dual-redundant configuration is enabled by using 2 identical modules with same model code (S2CP471 or SCP461).

● Memory Protection at Power Failured

Application program is stored in the flash memory. Processor module operation data is stored in NVRAM (nonvolatile memory).

● Temperature Adaptability

A fan unit is provided for high temperature use where the safety control units (S2SC70S-F/S2SC70D-F) ambient temperature exceeds 40 °C.

● Control Network

Vnet/IP interface: Dual-redundant

● No. of Node Units Connectable

In order to extend the number of I/O channels, S2SC70☐ allows N-IO nodes and safety node units to be connected to it. The number of individual nodes that can be connected is as follows.

N-IO node (*1): Max. 32/ SCS
Safety Node Unit (SNB10D): Max. 13/ SCS

*1: For details, refer to the GS “ProSafe-RS Outline of I/O Modules (for N-IO)” (GS 32P06F10-01EN).

● Installation Restrictions for Node Units

N-IO Node

An N-IO node is connected via an N-ESB bus or optical ESB bus. A node connection via the N-ESB bus needs an N-ESB bus coupler module (S2EN402 or S2EN404).

A node connection via the optical ESB bus needs an ESB bus coupler module (SEC401 or SEC402) and an ESB bus optical repeater module (SNT401 or SNT411).

Safety Node Unit (SNB10D)

A safety node unit is connected via an ESB bus or optical ESB bus. A safety node unit connection via the ESB bus needs an ESB bus coupler module (SEC401 or SEC402). A safety node unit connection via the optical ESB bus needs an ESB bus coupler module (SEC401 or SEC402) and an ESB bus optical repeater module (SNT401 or SNT411).

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● Installation Restrictions for Bus Interface Module

N-ESB Bus Coupler Modules (S2EN402 or S2EN404) shall be installed in an odd-numbered slot and the adjacent slot on the right of slots 1 to 8 according to the number of branches.

A pair of ESB Bus Coupler Modules (SEC401 or SEC402) shall be installed in slots 7 and 8.

A pair of Optical ESB Bus Repeater Master Modules (SNT401 or SNT411) shall be installed in an odd-numbered slot and the adjacent slot on the right of slots 1 to 6 according to the number of branches.

For details, refer to the GS of each module.

● Installation Restrictions

Up to eight I/O modules (for FIO) can be installed to a S2SC70☐.

For the I/O module (for FIO) installation limitations and notes, refer to “ProSafe-RS Outline of I/O Modules” (GS 32P06K60-01EN).

● Power Requirements

Specify suffix codes.
Voltage: 100 to 120 V AC, 50 or 60 Hz
Voltage: 220 to 240 V AC, 50 or 60 Hz
Voltage: 24 V DC

● Power Consumption

- S2SC70S-S /S2SC70D-S
  - 100 to 120 V AC model: 200 VA
  - 200 to 240 V AC model: 230 VA
  - 24 V DC model: 5.5 A
- S2SC70S-F/S2SC70D-F
  - 100 to 120 V AC model: 240 VA
  - 200 to 240 V AC model: 290 VA
  - 24 V DC model: 7.0 A

● Battery

- S2CP471
  Part No. : S9450FE
  Battery’s recommended replacement period: Three years under the average ambient temperature of 30 °C or less.
- SCP461
  Part No. : S9185FA
  Battery’s recommended replacement period: Three years under the average ambient temperature of 30 °C or less.

● Weight

S2SC70S-S: Approx. 7.9 kg
S2SC70S-F: Approx. 13 kg
S2SC70D-S: Approx. 8.5 kg
S2SC70D-F: Approx. 13 kg

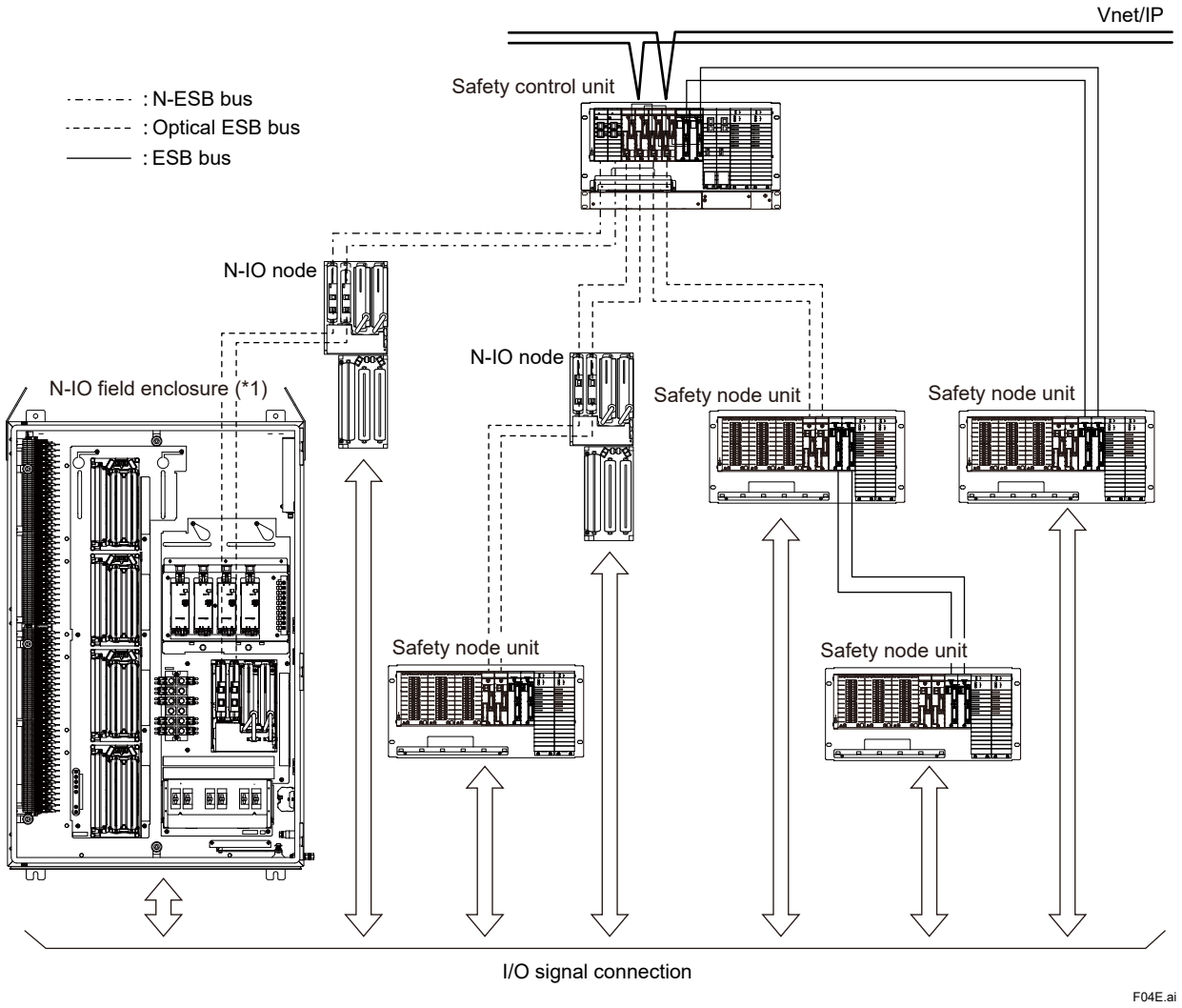
● Mounting

Rack mounting: Rack mount
(S2SC70☐-S, M5x8 screws)
(S2SC70☐-F, M5x12 screws)
Insulation bush (accessory)

● Connection

Power Supply: M4 screw terminal connection
Grounding: M4 screw terminal connection

The following shows a configuration example of ProaSafe-RS system of S2SC70☐, N-IO node and safety node units.

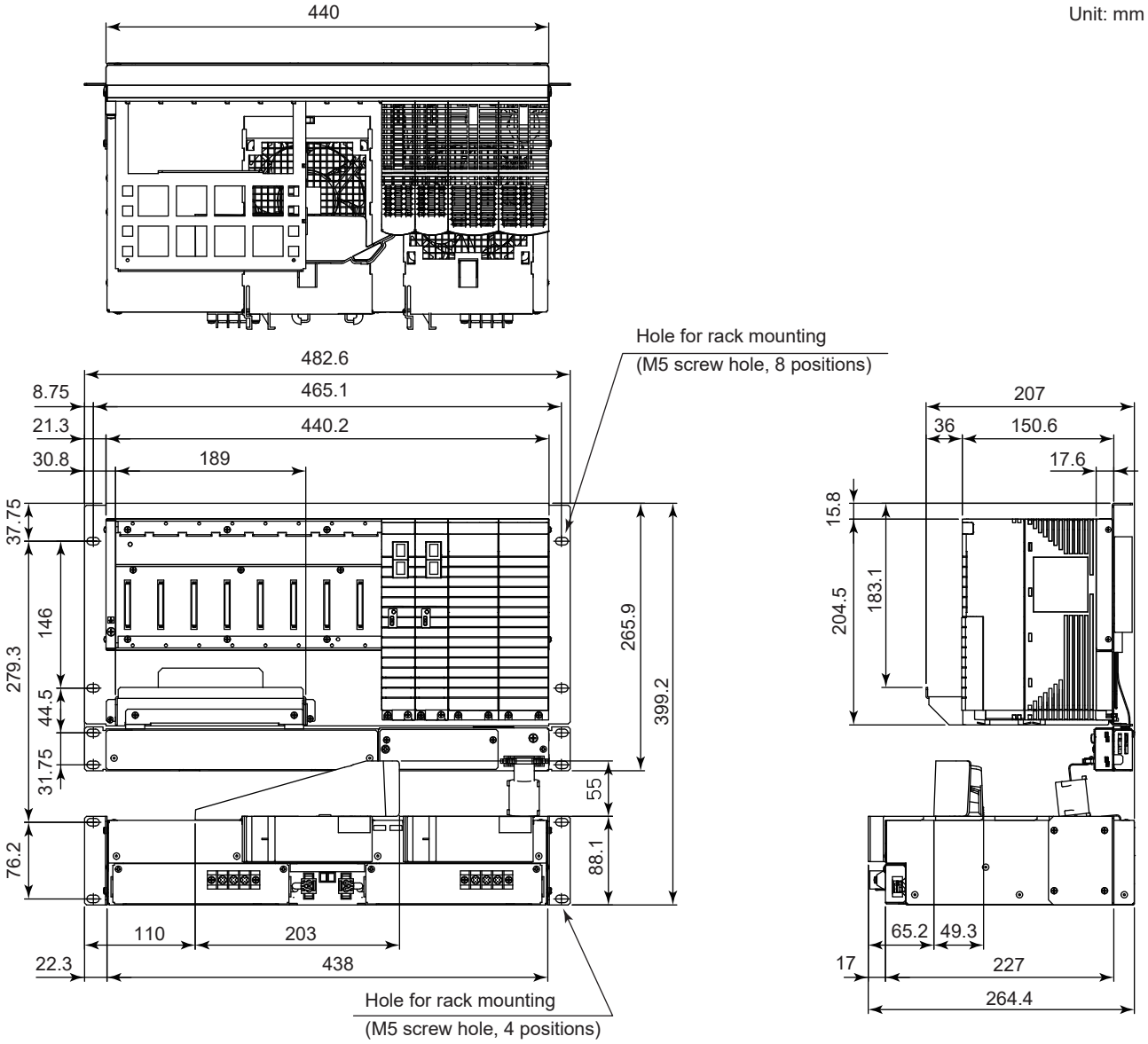


*1: For details, refer to the GS “N-IO field enclosure” (GS 32P06Q10-01EN)

Figure Safety Control Station (SCS) System Configuration

■ EXTERNAL DIMENSIONS

Unit: mm



Nominal tolerance:

Nominal tolerance is ± 0.8 mm for the dimensions of 0.5 mm or more and 120 mm or less, and the combined nominal tolerance is ± 1.5 mm.
The nominal tolerance is in accordance with JEM 1459 for the dimensions over 120 mm.

■ SOFTWARE

One S2SC70S or S2SC70D requires one software license for the safety control function. For details, refer to the GS “Safety Control Function (for S2SC70☐), Safety Control Function for SCS Simulator (for S2SC70☐)” (GS 32P03B30-01EN) and “Project I/O License” (GS 32P03A10-01EN).

■ STANDARD ACCESSORIES

S2SC70S and S2SC70D are delivered with the following standard accessories.

Parts Names	Parts Numbers	Description	Quantity	Remarks
Insulating bush	S9049PM	S2SC70S-S / S2SC70D-S	8	Accessories
		S2SC70S-F / S2SC70D-F	12	

■ MODEL AND SUFFIX CODES

Safety Control Unit

		Description
Model	S2SC70S	Safety Control Unit (for N-IO/FIO, Rack Mountable Type) (*1)
Suffix Codes	-S	Standard type (-20 to 40 °C)
	-F	wide range temperature (-20 to 70 °C) type (with Fan unit and ISA Standard G3)
	A	S2CP471, Dual-redundant Vnet/IP, dual-redundant power supply (*2)
	4	SCP461, Dual-redundant Vnet/IP, dual-redundant power supply (*3)
	1	Always 1
	1	100 - 120 V AC power supply
	2	220 - 240 V AC power supply
	4	24 V DC power supply
	0	With no explosion protection
	1	With explosion protection
	1	With ISA Standard G3
	0	Always 0
Option Code	/ATDOC	Explosion Protection Manual (*4)

*1: Supports ProSafe-RS R4.01 or later.
*2: When S2SC70S that is mounted with S2CP471 is used with ProSafe-RS R4.01, R4.02, R4.03, or R4.04, be sure to apply the software patch for supporting S2CP471.
*3: Shipped with SCP461. Also S2CP471 is usable. Replacing from SCP461 to S2CP471 by a user is prohibited. Replacement work must be done by the service engineer authorized by Yokogawa Electric Corporation. See GS 32P06D20-01EN.
*4: Select the option code "/ATDOC" to follow the ATEX Directive and UKEX Regulation when any components are used for explosion protection.

Duplexed Safety Control Unit

		Description
Model	S2SC70D	Duplexed Safety Control Unit (for N-IO/FIO, Rack Mountable Type) (*1)
Suffix Codes	-S	Standard type (-20 to 40 °C)
	-F	wide range temperature (-20 to 70 °C) type (with Fan unit and ISA Standard G3)
	A	S2CP471, Dual-redundant Vnet/IP, dual-redundant power supply (*2)
	4	SCP461, Dual-redundant Vnet/IP, dual-redundant power supply (*3)
	1	Always 1
	1	100 - 120 V AC power supply
	2	220 - 240 V AC power supply
	4	24 V DC power supply
	0	With no explosion protection
	1	With explosion protection
	1	With ISA Standard G3
	0	Always 0
Option Code	/ATDOC	Explosion Protection Manual (*4)

*1: Supports ProSafe-RS R4.01 or later.
*2: When S2SC70D that is mounted with S2CP471 is used with ProSafe-RS R4.01, R4.02, R4.03, or R4.04, be sure to apply the software patch for supporting S2CP471.
*3: Shipped with a pair of SCP461. Also a pair of S2CP471 is usable. Replacing from SCP461 to S2CP471 by a user is prohibited. Replacement work must be done by the service engineer authorized by Yokogawa Electric Corporation. See GS 32P06D20-01EN.
*4: Select the option code "/ATDOC" to follow the ATEX Directive and UKEX Regulation when any components are used for explosion protection.

■ CONFORMITY STANDARDS

Refer to the GS "Standards compliant models" (GS 32P01B60-01EN).

■ ORDERING INFORMATION

Specify the model, suffix code(s), and option code(s).
For selecting the right products for explosion protection, please refer to the TI “Explosion Protection” (TI 32S01J30-01E) without fail.

■ TRADEMARK ACKNOWLEDGMENT

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