

General Specifications

Models SNT401, SNT501
Optical ESB Bus Repeater
Module



GS 32Q06L16-31E

■ GENERAL

The Optical ESB Bus Repeater Module converts ESB Bus, which connects among safety control unit, safety node unit and N-IO node, to optical signal.

ESB Bus transmission distance can be extended by connecting Optical ESB Bus Repeater Master Module (SNT401) and Optical ESB Bus Repeater Slave Module (SNT501) with an optical fiber cable.

The ESB bus transmission distance can be extended within the range of up to 5 km by connecting Optical ESB Bus Repeater Master Module (SNT401) at master side to N-ESB Bus Module (S2EN501) at slave side and N-ESB Bus Module (S2EN501) at master side to Optical ESB Bus Repeater Slave Module (SNT501) at slave side with an optical fiber cable.

● SNT401 Optical ESB Bus Repeater Master Module

This module is connected from ESB Bus Coupler Module (SEC401, SEC402) on the safety control unit or ESB Bus Interface Module (SSB401) on the safety node unit (SNB10D) through ESB Bus cable.

There are two types of ESB Bus Repeater Modules: with or without a terminator.

● SNT501 Optical ESB Bus Repeater Slave Module

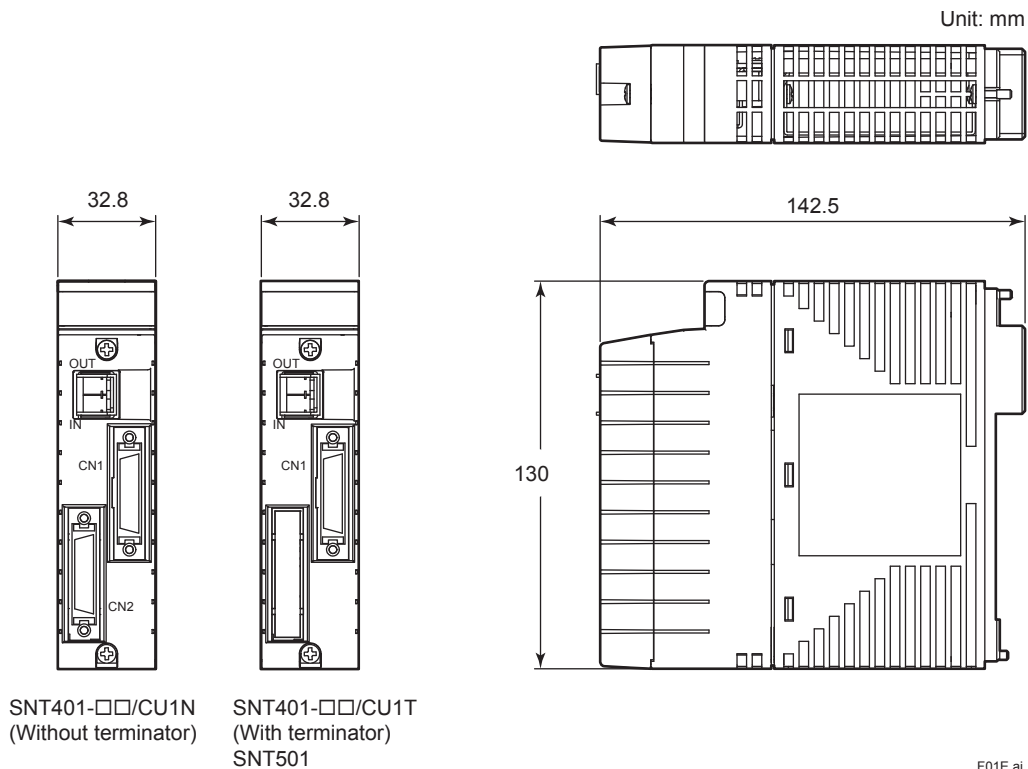
This module is connected from Optical ESB Bus Repeater Master Module or N-ESB Bus Module through fiber-optic cable. Furthermore, it is connected through ESB Bus cable to ESB Bus Interface Module (SSB401) on the safety node unit (SNB10D).

■ STANDARD SPECIFICATIONS

Function:	ESB Bus optical transport function
Connection method:	Star type connection Chain type connection Available for both star and chain type connection.
Number of connecting stage:	Maximum two
Transmission distance:	Maximum 5 km (total two stages) In case of Vnet/IP system with the R1.03 or later, the total distance of two stages is maximum 10 km.
Current consumption:	0.5 A
Weight:	Approx. 0.3 kg

EXTERNAL DIMENSIONS

SNT401, SNT501 Optical ESB Bus Repeater Module



Nominal Tolerances:

When the reference dimension is over 0.5 mm and equal or less than 120 mm, its nominal tolerance is ± 0.8 mm, while its combination of nominal tolerance is ± 1.5 mm.

When the reference dimension is over 120 mm, its nominal tolerance is in accordance with JEM 1459.

RESTRICTIONS AND CAUTIONS FOR MOUNTING

- Mount a set of Optical ESB Bus Repeater Module for duplex on a pair of continuous slots. The module for ESB Bus 1 is always mounted on a slot with odd number, and The module for ESB Bus 2 on a slot with even number.
- When mounting on SNT10D at 60 to 70 °C, leave two slots next to Power supply module and mount one set in every two slots, and leave two slots between one set SNT□01. Unit for Optical Bus Repeater Module (SNT10D) is a unit to install Optical ESB Bus Repeater Modules. Refer to “Unit for Optical Bus Repeater Module (Rack Mountable Type)” (GS 32Q06K11-31E).
- For restrictions regarding mounting S2SC70□, SSC60□, SSC50□, and SNB10D, refer to “ProSafe-RS Outline of I/O Modules (for FIO)” (GS 32P06K60-01EN).

System Requirements

Optical ESB Bus Repeater Module can be used from the following revisions or later.

SENG: R1.02 or later

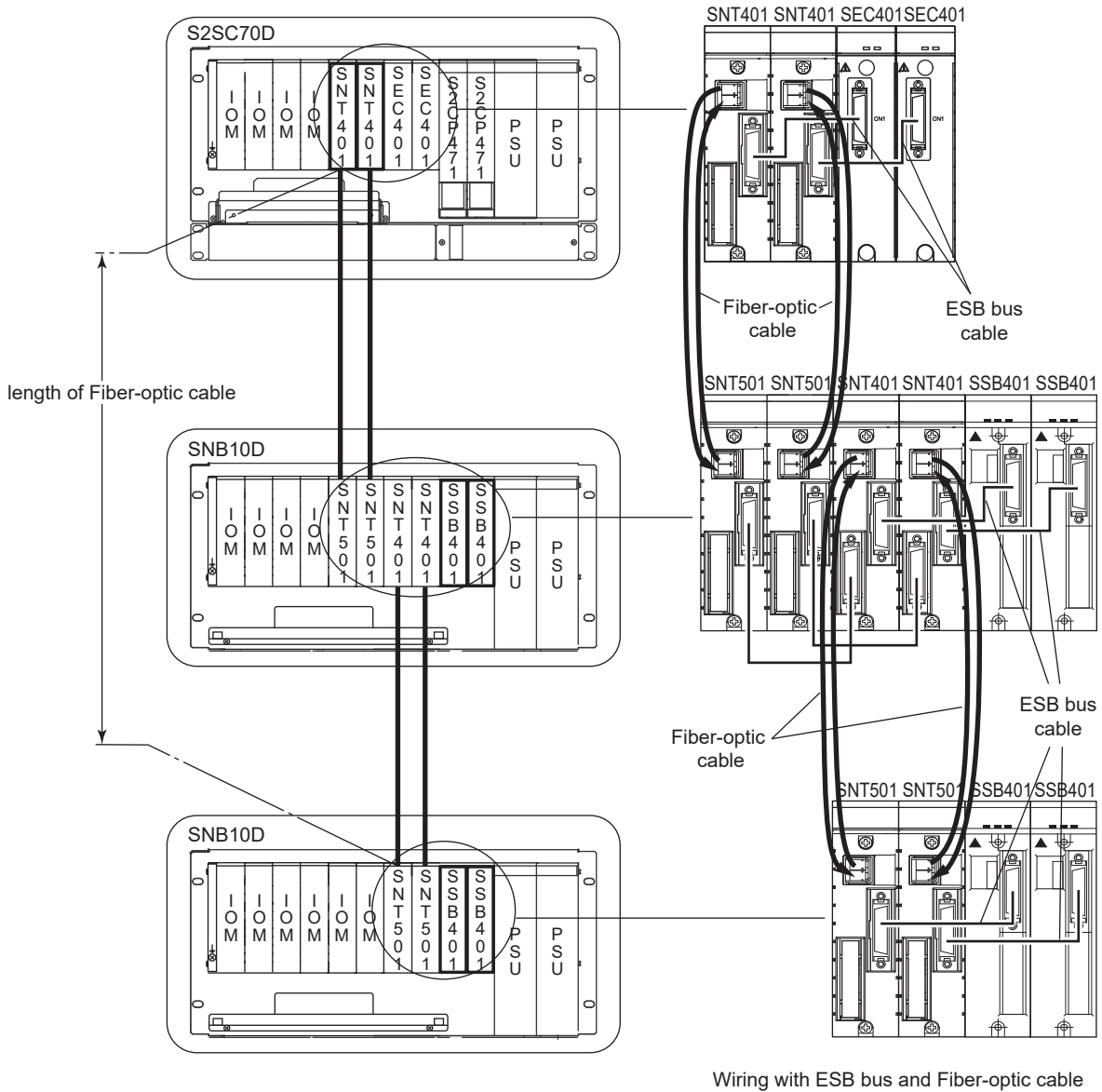
SCS: R1.02 or later


EXAMPLE OF CONNECTION STRUCTURE

● Example of Chain Type Connection

For chain type connection, there are two structures: one is to mount the optical modules on Safety Control Unit and Safety Node Unit; the other is to mount the optical modules on the dedicated SNT10D (Unit for Optical Bus Repeater Module). It is also possible to mix these two structures for connection. There are two occasions: using SNT10D and not using SNT10D.

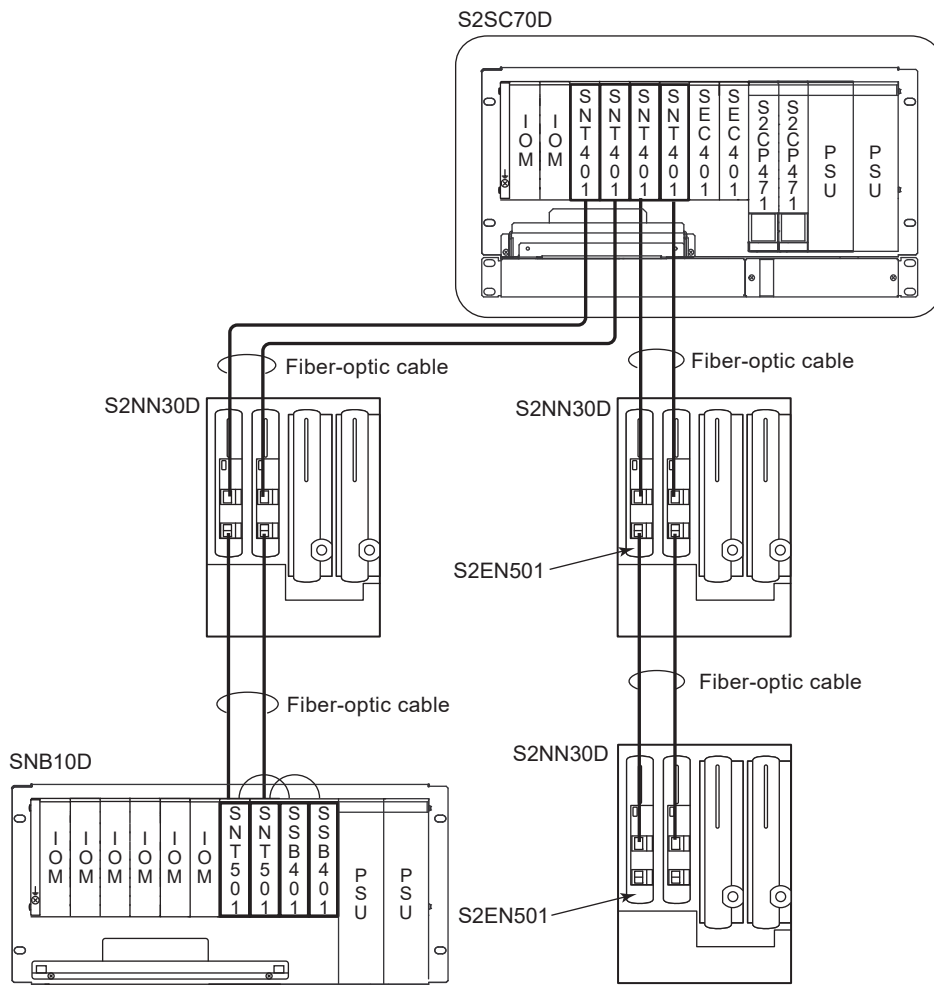
Example of not using SNT10D



 : With terminator for ESB bus

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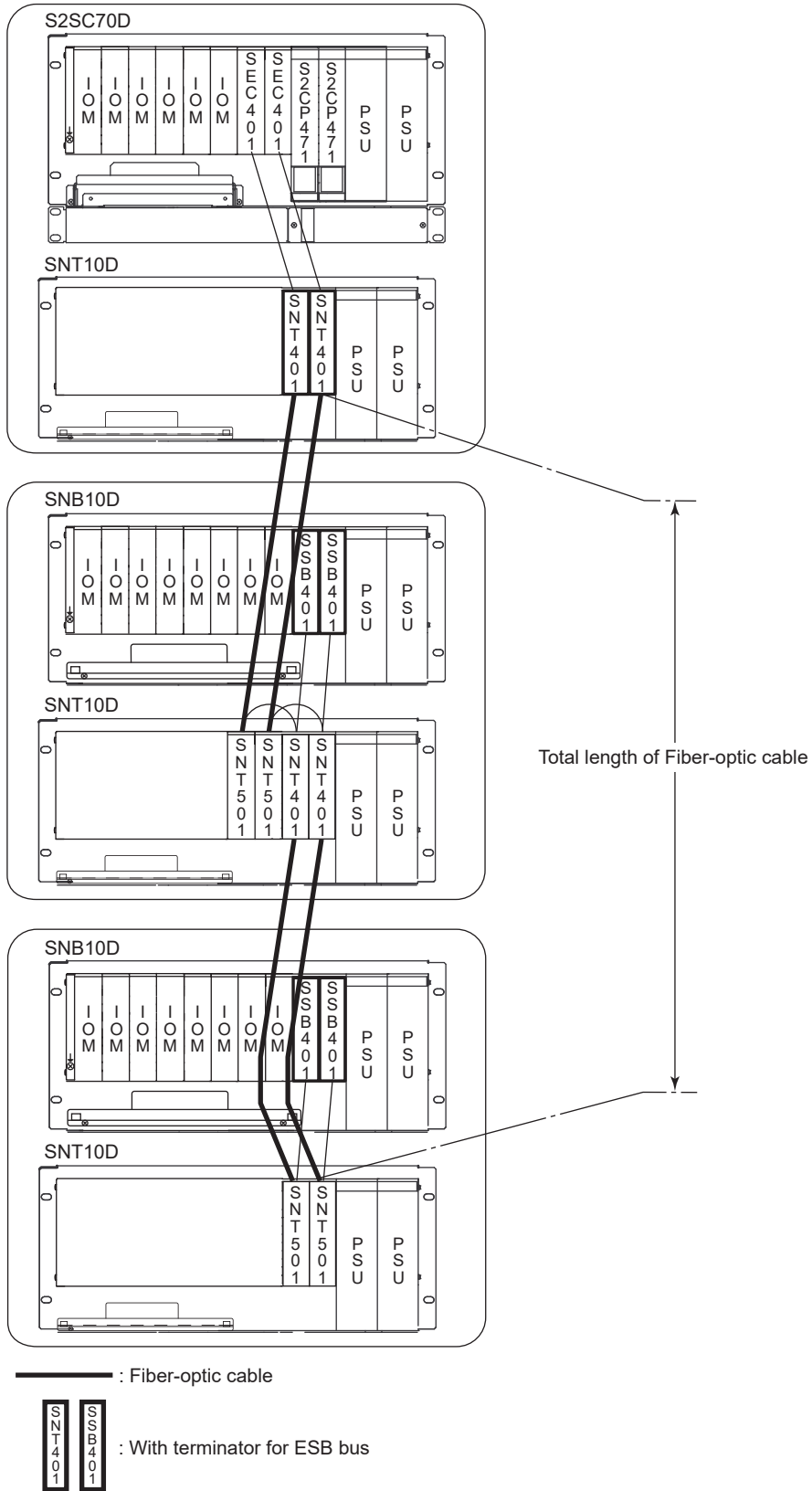
Figure Example of Chain Type Connection



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Figure Example of Chain Type Connection for N-IO node

Example of using SNT10D



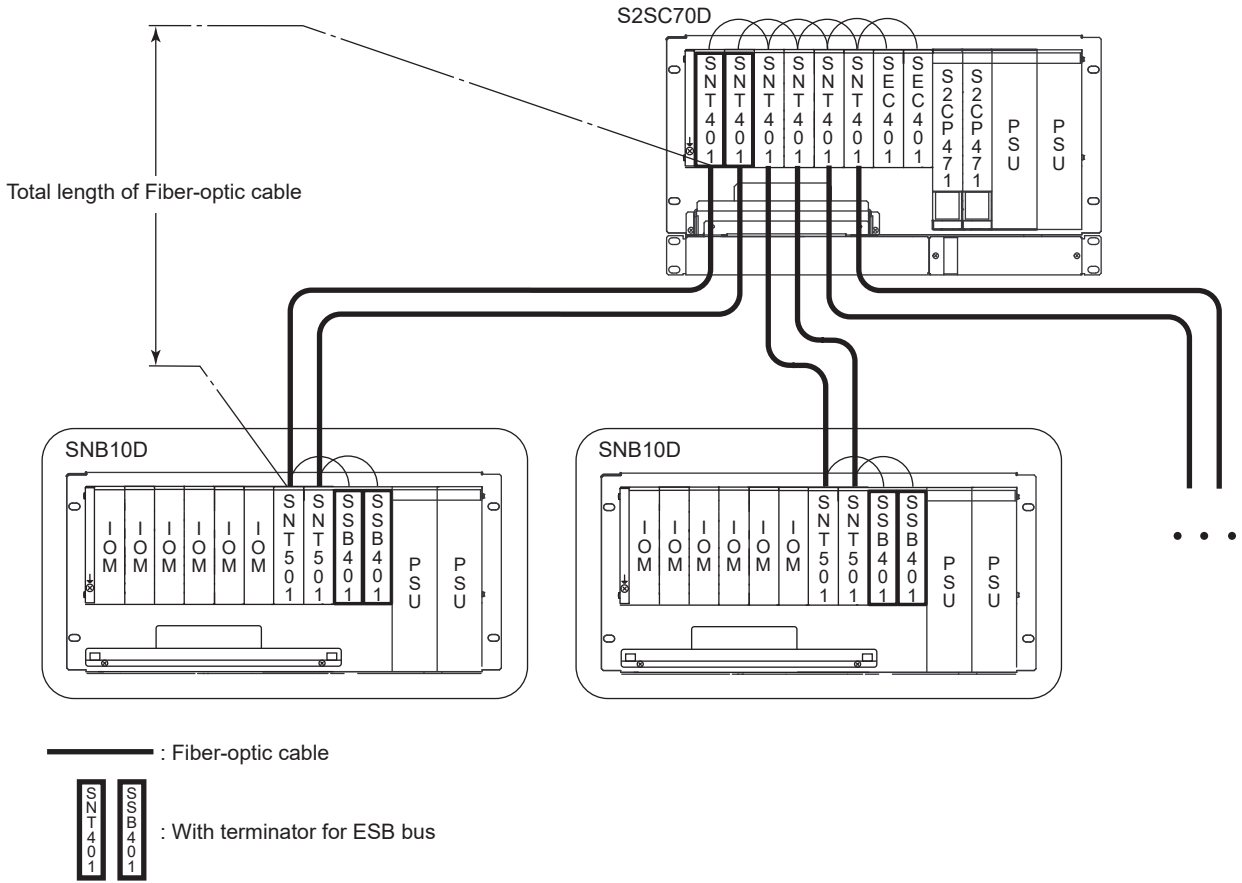
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Figure Example of Chain Type Connection

● Example of Star Type Connection

In star type connection, it is possible to use the dedicated SNT10D (Unit for Optical Bus Repeater Module) as a HUB of ESB Bus. There are two occasions: using SNT10D and not using SNT10D.

Example of not using SNT10D



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Figure Example of Star Type Connection

Example of using SNT10D

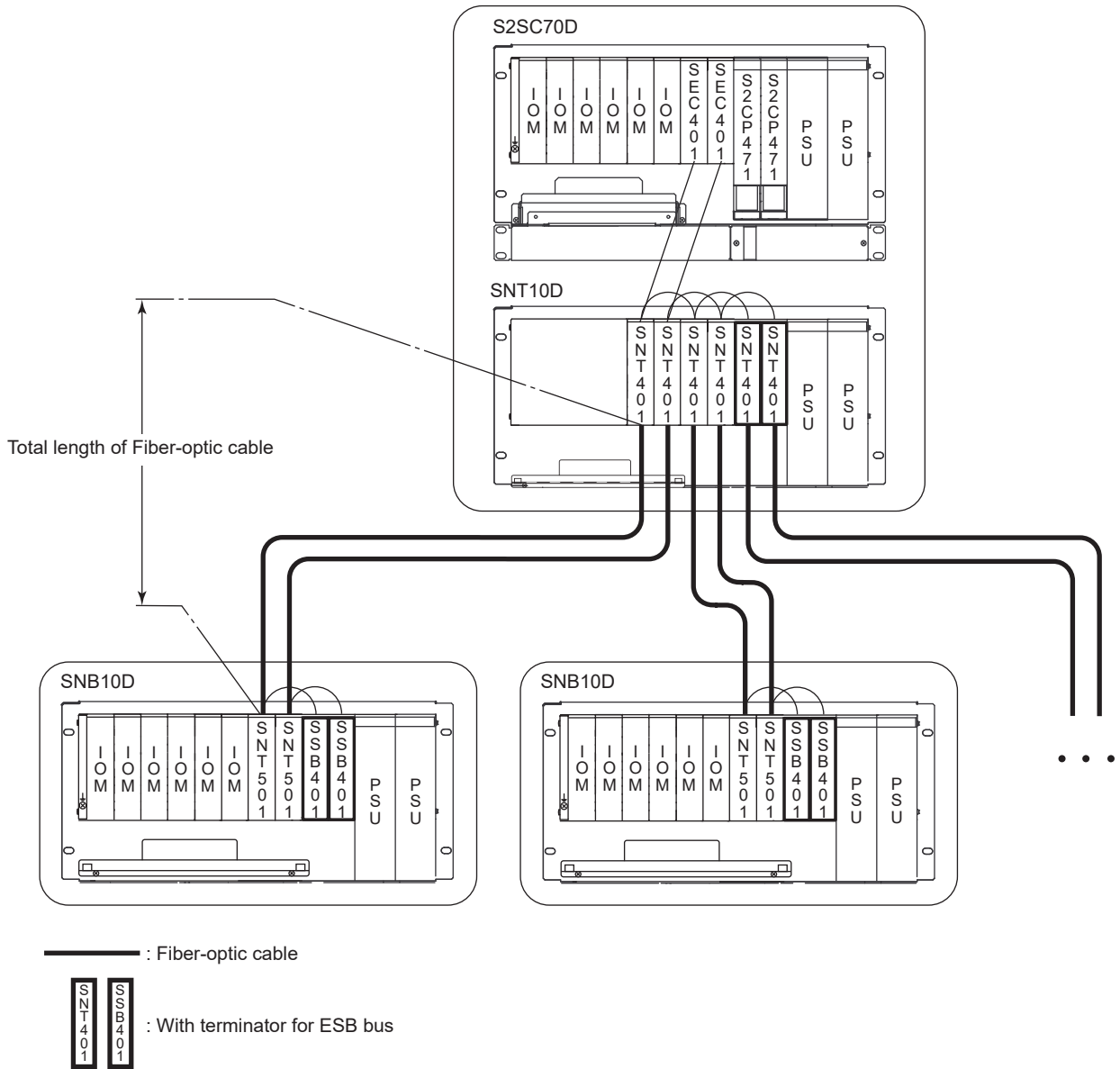


Figure Example of Star Type Connection

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■ MODEL AND SUFFIX CODES

		Description
Model	SNT401	Optical ESB Bus Repeater Master Module
Suffix Codes	-5	With no explosion protection
	-E	With explosion protection
	3	ISA Standard G3 and temperature (-20 to 70 °C) (only for maintenance purpose)
	F	ISA Standard G3 and temperature (-20 to 70 °C) (for SNT501-□F and S2EN501-□1□□□□ (*1))
Option Codes	/CU1N	Connector unit for ESB Bus [Part Number: S9345FA]
	/CU1T	Connector unit with terminator for ESB Bus [Part Number: S9346FA]

		Description
Model	SNT501	Optical ESB Bus Repeater Slave Module
Suffix Codes	-5	With no explosion protection
	-E	With explosion protection
	3	ISA Standard G3 and temperature (-20 to 70 °C) (only for maintenance purpose)
	F	ISA Standard G3 and temperature (-20 to 70 °C) (for SNT401-□F and S2EN501-□□1□□□□ (*1))

Note: The suffix code of the module for bus 1 and the module for bus 2 must be same.

Note: When optical ESB bus repeater modules are connected via fiber-optic cable, the master side must be paired with the slave side as described below.

Master side	Slave side
SNT401-□3	SNT501-□3
SNT401-□F	SNT501-□F
SNT401-□F	S2EN501-□1□□□□
S2EN501-□□1□□□□	SNT501-□F

*1: S2EN501 is a module installed in S2NN30D.

■ CONFORMITY STANDARDS

Refer to "ProSafe-RS Standards Compliant Models" (GS 32P01B60-01EN).

■ ORDERING INFORMATION

Specify the model and suffix codes when ordering.

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

■ TRADEMARKS

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