

GS 32Q06J10-31E

■ GENERAL

This GS explains how to connect I/O modules of the ProSafe-RS to field devices.

■ SIGNAL CONNECTIONS

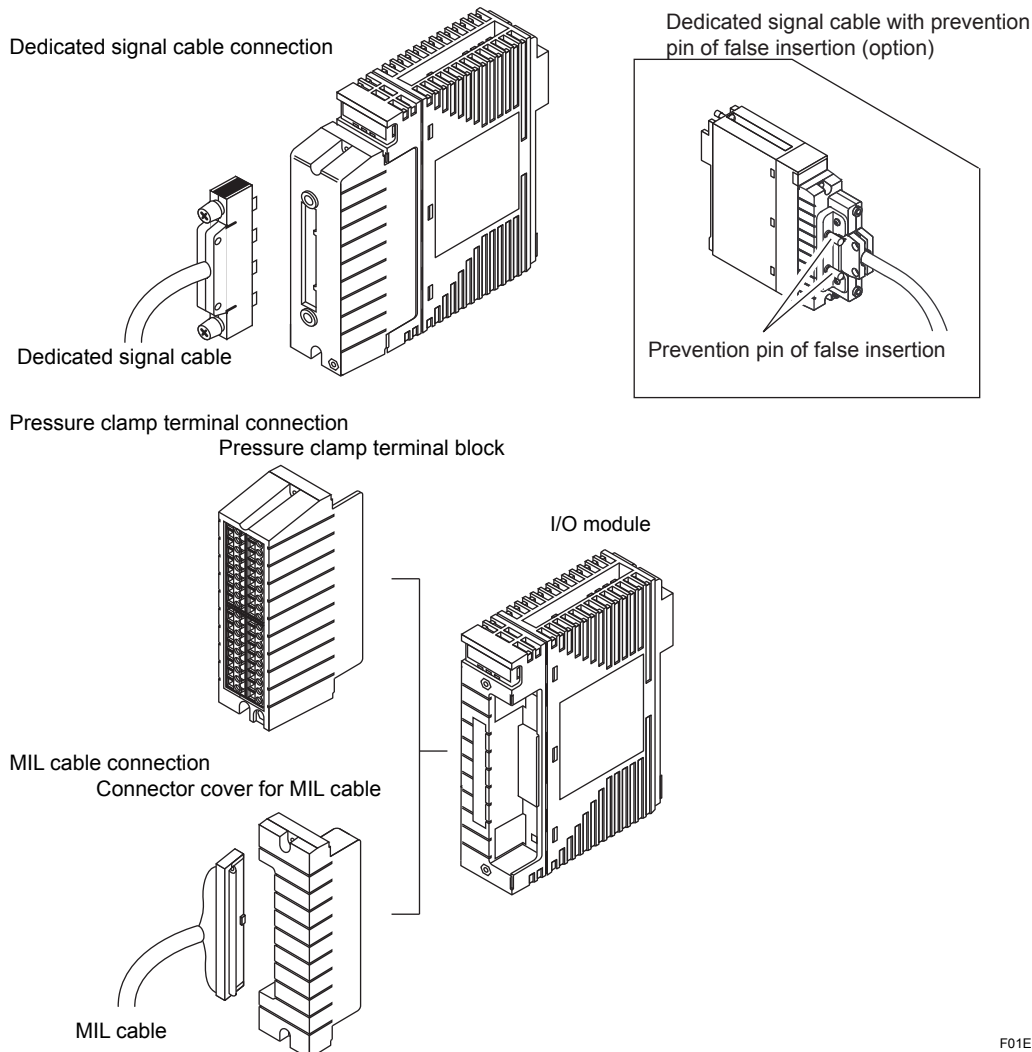
● Variation of Signal Connection

Three kinds of connections are available for a wiring between an I/O module and field devices: a dedicated signal cable connection, a pressure clamp terminal connection, and an MIL cable connection.

For the dedicated signal cable connection, the dedicated signal cable is used to connect field devices via a terminal board or a relay board. The signal cable interface adapter is structurally integrated with the I/O module. Wrong type I/O module insertion can be prevented by selecting an option code for I/O module and signal cables respectively.

As for a pressure clamp terminal connection, field devices can be directly wired to I/O module. Two types of pressure clamp terminal blocks are available – one is a single configuration type and the other is a dual-redundant configuration type. The I/O module can be made dual redundant on the terminal block.

The MIL cable, which is provided by a customer, can be connected directly to an I/O module without a terminal block. Preventing the MIL cable from being disconnected from the I/O module, cable connector covers (SCCC01 and SCCC02) are available for use with the MIL cable.



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● Configuration of I/O Module Connections

The following table shows two possible combinations of an I/O module, a pressure clamp terminal block, a terminal board, a relay board, and a signal cable: a pressure clamp terminal connection, and a dedicated signal cable connection.

For the pressure clamp terminal connection and the MIL cable connection, the I/O module “For pressure clamp terminal block or MIL cable” must be used. For a dedicated signal cable connection, the I/O module “With signal cable interface adapter” must be used.

Table Combinations of I/O Modules and Terminal Blocks

Module Type	Module Name	Connection Configuration				
		Pressure clamp terminal connection		Dedicated signal cable connection		
		Single	Dual-redundant	Cable	Terminal board	Relay board
Analog I/O module						
SAI143	Analog current input module (4 to 20 mA, 16-channel, module isolation)	STA4S	STA4D	KS1	SEA4D SBA4D S1BB4D	—
SAV144	Analog voltage input module (1 to 5 V/1 to 10 V, 16-channel, module isolation)	STA4S	STA4D	KS1	SEA4D SBA4D	—
SAI533	Analog current output module (4 to 20 mA, 8-channel, module isolation)	STA4S	STA4D	KS1	SEA4D SBA4D	—
SAT145	TC/mV input module (16-channel, isolated channels)	—	—	AKB331	SBT4D	—
SAR145	RTD input module (16-channel, isolated channels)	—	—	AKB611	SBR4D	—
Digital I/O module						
SDV144	Digital input module (16-channel, no-voltage contacts, module isolation)	STB4S	STB4D	AKB331 (*2)	SED4D SBD4D	SRM53D SRM54D (*1)
SDV521	Digital output module (4-channel, 24 V DC/2 A, module isolation)	—	—	AKB651	SED2D SBD2D	—
SDV526	Digital output module (4-channel, 100 to 120 V AC, module isolation)	—	—	AKB652	SWD2D	—
SDV531-L	Digital output module (8-channel, 24 V DC, module isolation for long-distance)	STB4S	STB4D	AKB331 (*2)	SED4D SBD3D	SRM53D
				AKB651	SBD3D	—
SDV531-S	Digital output module (8-channel, 24 V DC, module isolation)	STB4S	STB4D	AKB331 (*2)	SED4D SBD3D	SRM53D
SDV53A	Digital output module (8-channel, 48 V DC, module isolation)	—	—	AKB331 (*2)	SED3D SBD3D	—
				AKB651	SBD3D	—
SDV541 (*3)	Digital output module (16-channel, 24 V DC, module isolation)	STB4S	STB4D	AKB331 (*2)	SED4D SBD4D	SRM54D SBM54D
				AKB651	SBD4D	—

Note 1: An I/O module has constraints, such as the magnitude of current or the cable length, depending on the connection configuration. For more information, see “ProSafe-RS Outline of I/O Modules (for FIO)” (GS 32P06K60-01EN).

Note 2: Connect one terminal block for dual-redundant configuration to two adjacent I/O module.

Note 3: Cable connector covers (SCCC01 and SCCC02) are provided for the connection via a MIL connector cable.

Note 4: Do not ground the secondary side of a field power supply to be connected to the digital input module.

Note 5: When the input module is not individual insulation when the output of analog current output module (SAI533) is connected directly with other input modules, it is necessary to put isolator between SAI533 and the input module.

*1: Relay read-back for DI module.

*2: When AKB331 is connected to SED3D, SBD3D or SBD4D, use AKB331 of style code S3.

*3: The style code and firmware revision numbers of SDV541 to be connected with SBM54D must be used following revision or later.

SDV541-S33 S3, F1:1 F2:1

■ CABLES

- SBT4D, SEA4D, SED2D, SED3D, SED4D, STA4S, STA4D, STB4S, STB4D, SRM53D, SRM54D, SWD2D

Applicable Cables

Refer to “ProSafe-RS Installation Guidance” (TI 32P01J10-01EN), and use the proper cable appropriate for its installation environment.

Recommended Cable Thickness

- Pressure clamp terminals
Without sleeve: 0.5 mm² to 2 mm² (AWG20 to 14)
With sleeve: 0.5 mm² to 1.5 mm² (AWG20 to 16)
- M4 crimping terminals
0.5 mm² to 2 mm² (AWG20 to 14)

Cable Termination Process when Pressure Clamp Terminals are Used

- Without a Sleeve

Cable thickness (mm ²)	Peel-off length (mm)
0.5 to 2 (AWG20 to 14)	11

- With a sleeve

When using a sleeve, a cable must have terminal processing in accordance with the instructions of the sleeve manufacturer. Use one of the following sleeves is recommended.

Sleeve without insulating cover (DIN 46 228/1) Sleeve with insulating cover (DIN 46 228/4)

Cable nominal cross sectional area (mm ²)	When using a sleeve with insulating cover			When using a sleeve without insulating cover	
	Peel-off length (mm)	Sleeve dimensions		Peel-off length (mm)	Sleeve dimensions
		Total length (mm)	Contact section length (mm)		Total length (mm)
0.5	12	16	10	10	10
0.75	12	16	10	10	10
1.0	12	16	10	10	10
1.25 to 1.5	12	16	10	10	10

● **SBA4D, SBD2D, SBD3D, SBD4D, S1BB4D, SBR4D, SBM54D**

Applicable Cables

Refer to “ProSafe-RS Installation Guidance” (TI 32P01J10-01EN), and use the proper cable appropriate for its installation environment.

Recommended Cable Thickness

- Pressure clamp terminals
Without sleeve: 0.5 mm² to 2.5 mm² (AWG20 to 14)

Cable Termination Process when Pressure Clamp Terminals are Used

- Without a Sleeve

Cable thickness (mm ²)	Peel-off length (mm)
0.5 to 2.5 (AWG20 to 14)	7

- With a sleeve

When using a sleeve, a cable must have terminal processing in accordance with the instructions of the sleeve manufacturer. Use one of the following sleeves is recommended.

Sleeve without insulating cover (DIN 46 228/1) Sleeve with insulating cover (DIN 46 228/4)

Cable nominal cross sectional area (mm ²)	When using a sleeve with insulating cover			When using a sleeve without insulating cover	
	Peel-off length (mm)	Sleeve dimensions		Peel-off length (mm)	Sleeve dimensions
		Total length (mm)	Contact section length (mm)		Total length (mm)
0.5	10	14	8	6	6
0.75	10	14	8	6	6
1.0	10	14	8	6	6
1.5	10	14	8	7	7
2.5	10	14	8	7	7

■ **TERMINAL BLOCK AND CONNECTOR CONNECTION SPECIFICATIONS**

For analog input modules, the terminals to which signal cables are connected differ depending on the device to be connected. Refer to the table below to connect signal cables to the correct terminals.

Model name	Signal name	Input Type	
		Connection : 2 wire (Setting : 2-wire input)	Connection : 3 wire / 4 wire (*2) (Setting : 4-wire input)
SAI143 (*1)	IN□A	2-wire transmitter input +	Current input -
	IN□B	2-wire transmitter input -	Current input +

□ is channel number

*1: If the SAI143 module is turned off or fails, the current input loop becomes open-circuited. Do not share the current signal with any other signal-receiving instrument.

*2: A field power supply is required separately.

● Pressure Clamp Terminals

For SAI144

For SAI143

Signal name	Terminal No.		Signal name
IN1A	A1	B1	IN1B
IN2A	A2	B2	IN2B
IN3A	A3	B3	IN3B
IN4A	A4	B4	IN4B
IN5A	A5	B5	IN5B
IN6A	A6	B6	IN6B
IN7A	A7	B7	IN7B
IN8A	A8	B8	IN8B
IN9A	A9	B9	IN9B
IN10A	A10	B10	IN10B
IN11A	A11	B11	IN11B
IN12A	A12	B12	IN12B
IN13A	A13	B13	IN13B
IN14A	A14	B14	IN14B
IN15A	A15	B15	IN15B
IN16A	A16	B16	IN16B
N.C.	A17	B17	N.C.
N.C.	A18	B18	N.C.

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Signal name	Terminal No.		Signal name
IN1+	A1	B1	IN1-
IN2+	A2	B2	IN2-
IN3+	A3	B3	IN3-
IN4+	A4	B4	IN4-
IN5+	A5	B5	IN5-
IN6+	A6	B6	IN6-
IN7+	A7	B7	IN7-
IN8+	A8	B8	IN8-
IN9+	A9	B9	IN9-
IN10+	A10	B10	IN10-
IN11+	A11	B11	IN11-
IN12+	A12	B12	IN12-
IN13+	A13	B13	IN13-
IN14+	A14	B14	IN14-
IN15+	A15	B15	IN15-
IN16+	A16	B16	IN16-
N.C.	A17	B17	N.C.
N.C.	A18	B18	N.C.

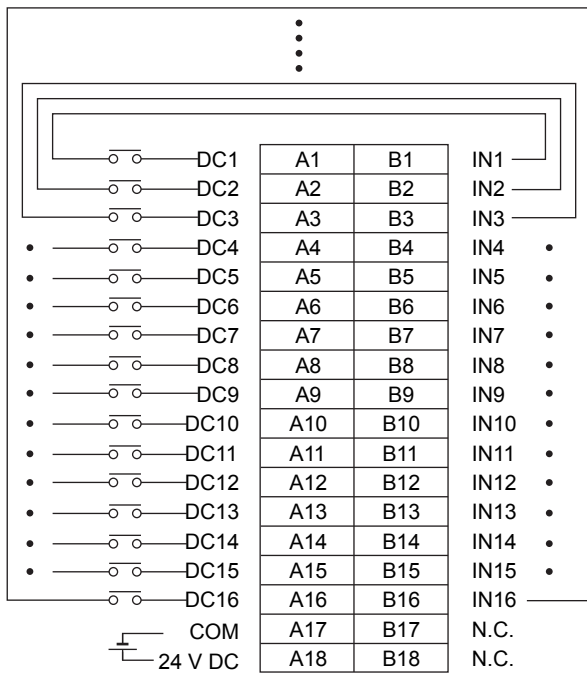
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For SAI533

Signal name	Terminal No.		Signal name
OUT1+	A1	B1	OUT1-
N.C.	A2	B2	N.C.
OUT2+	A3	B3	OUT2-
N.C.	A4	B4	N.C.
OUT3+	A5	B5	OUT3-
N.C.	A6	B6	N.C.
OUT4+	A7	B7	OUT4-
N.C.	A8	B8	N.C.
OUT5+	A9	B9	OUT5-
N.C.	A10	B10	N.C.
OUT6+	A11	B11	OUT6-
N.C.	A12	B12	N.C.
OUT7+	A13	B13	OUT7-
N.C.	A14	B14	N.C.
OUT8+	A15	B15	OUT8-
N.C.	A16	B16	N.C.
N.C.	A17	B17	N.C.
N.C.	A18	B18	N.C.

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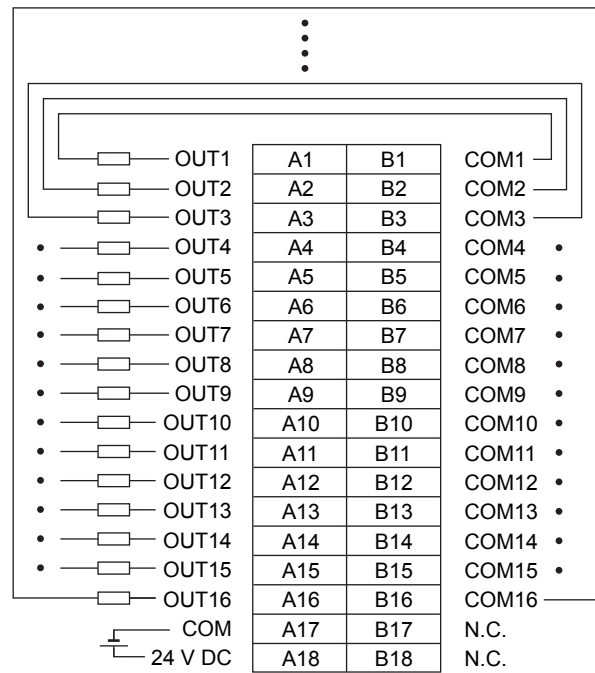
For SDV144



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Note: Connect the positive terminal of an external 24 V DC power supply to the 24 V DC terminal and the negative terminal to the COM terminal.

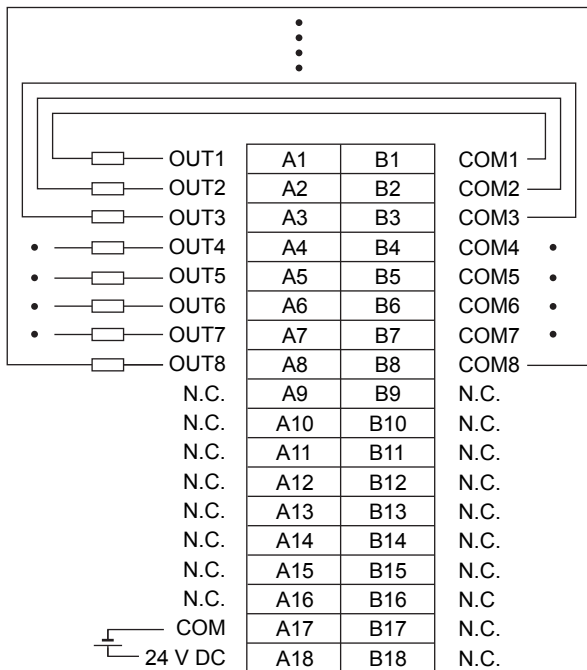
For SDV541



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Note: Connect the positive terminal of an external 24 V DC power supply to the 24 V DC terminal and the negative terminal to the COM terminal.

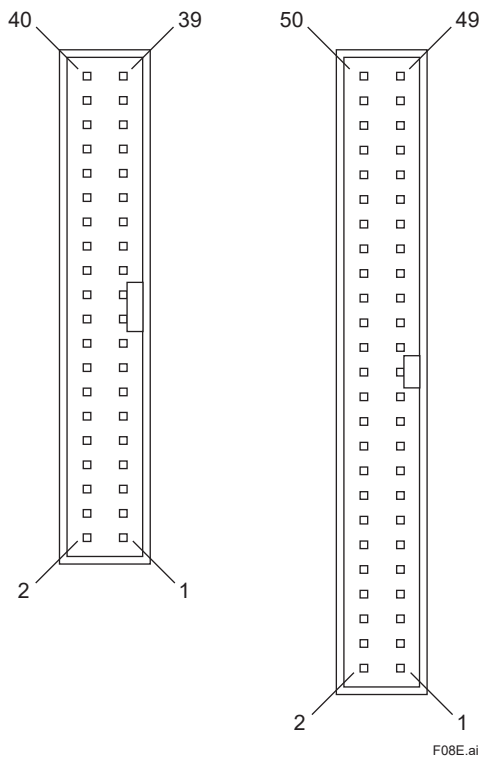
For SDV531



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Note: Connect the positive terminal of an external 24 V DC power supply to the 24 V DC terminal and the negative terminal to the COM terminal.

● MIL Cable Interfaces



For SAI533 (MIL 40-pin)

Signal name	Pin No.		Signal name
CBSE(1*)	40	39	N.C.
OUT1+	38	37	OUT1-
N.C.	36	35	N.C.
OUT2+	34	33	OUT2-
N.C.	32	31	N.C.
OUT3+	30	29	OUT3-
N.C.	28	27	N.C.
OUT4+	26	25	OUT4-
N.C.	24	23	N.C.
OUT5+	22	21	OUT5-
N.C.	20	19	N.C.
OUT6+	18	17	OUT6-
N.C.	16	15	N.C.
OUT7+	14	13	OUT7-
N.C.	12	11	N.C.
OUT8+	10	9	OUT8-
N.C.	8	7	N.C.
N.C.	6	5	N.C.
N.C.	4	3	N.C.
N.C.	2	1	CBSE(1*)

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*1: For MIL 40-pin connectors, short-circuit between pins no.1 and 40 (for CBSE signals) externally to check that no external cable is connected.

For SAI143 (MIL 40-pin)

Signal name	Pin No.		Signal name
CBSE(1*)	40	39	N.C.
IN1A	38	37	IN1B
IN2A	36	35	IN2B
IN3A	34	33	IN3B
IN4A	32	31	IN4B
IN5A	30	29	IN5B
IN6A	28	27	IN6B
IN7A	26	25	IN7B
IN8A	24	23	IN8B
IN9A	22	21	IN9B
IN10A	20	19	IN10B
IN11A	18	17	IN11B
IN12A	16	15	IN12B
IN13A	14	13	IN13B
IN14A	12	11	IN14B
IN15A	10	9	IN15B
IN16A	8	7	IN16B
N.C.	6	5	N.C.
N.C.	4	3	N.C.
N.C.	2	1	CBSE(1*)

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*1: For MIL 40-pin connectors, short-circuit between pins no.1 and 40 (for CBSE signals) externally to check that no external cable is connected.

For SAV144 (MIL 40-pin)

Signal name	Pin No.		Signal name
CBSE(1*)	40	39	N.C.
IN1+	38	37	IN1-
IN2+	36	35	IN2-
IN3+	34	33	IN3-
IN4+	32	31	IN4-
IN5+	30	29	IN5-
IN6+	28	27	IN6-
IN7+	26	25	IN7-
IN8+	24	23	IN8-
IN9+	22	21	IN9-
IN10+	20	19	IN10-
IN11+	18	17	IN11-
IN12+	16	15	IN12-
IN13+	14	13	IN13-
IN14+	12	11	IN14-
IN15+	10	9	IN15-
IN16+	8	7	IN16-
N.C.	6	5	N.C.
N.C.	4	3	N.C.
N.C.	2	1	CBSE(1*)

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*1: For MIL 40-pin connectors, short-circuit between pins no.1 and 40 (for CBSE signals) externally to check that no external cable is connected.

For SDV144 (MIL 50-pin)

Signal name	Pin No.		Signal name
CBSE(*1)	50	49	COM
DC1	48	47	IN1
DC2	46	45	IN2
DC3	44	43	IN3
DC4	42	41	IN4
DC5	40	39	IN5
DC6	38	37	IN6
DC7	36	35	IN7
DC8	34	33	IN8
DC9	32	31	IN9
DC10	30	29	IN10
DC11	28	27	IN11
DC12	26	25	IN12
DC13	24	23	IN13
DC14	22	21	IN14
DC15	20	19	IN15
DC16	18	17	IN16
COM	16	15	COM
COM	14	13	COM
COM	12	11	COM
24 V DC	10	9	COM
24 V DC	8	7	24 V DC
24 V DC	6	5	24 V DC
24 V DC	4	3	24 V DC
24 V DC	2	1	CBSE(*1)

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*1: For MIL 50-pin connectors, short-circuit between pins no.1 and 50 (for CBSE signals) externally to check that no external cable is connected.

Note: For details on the external wiring, see “● Pressure Clamp Terminals”.

For SDV531 (MIL 50-pin)

Signal name	Pin No.		Signal name
CBSE(*1)	50	49	COM
OUT1	48	47	COM1
OUT2	46	45	COM2
OUT3	44	43	COM3
OUT4	42	41	COM4
OUT5	40	39	COM5
OUT6	38	37	COM6
OUT7	36	35	COM7
OUT8	34	33	COM8
N.C.	32	31	N.C.
N.C.	30	29	N.C.
N.C.	28	27	N.C.
N.C.	26	25	N.C.
N.C.	24	23	N.C.
N.C.	22	21	N.C.
N.C.	20	19	N.C.
N.C.	18	17	N.C.
COM	16	15	COM
COM	14	13	COM
COM	12	11	COM
24 V DC	10	9	COM
24 V DC	8	7	24 V DC
24 V DC	6	5	24 V DC
24 V DC	4	3	24 V DC
24 V DC	2	1	CBSE(*1)

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*1: For MIL 50-pin connectors, short-circuit between pins no.1 and 50 (for CBSE signals) externally to check that no external cable is connected.

Note: For details on the external wiring, see “● Pressure Clamp Terminals”.

For SDV541 (MIL 50-pin)

Signal name	Pin No.		Signal name
CBSE(*1)	50	49	COM
OUT1	48	47	COM1
OUT2	46	45	COM2
OUT3	44	43	COM3
OUT4	42	41	COM4
OUT5	40	39	COM5
OUT6	38	37	COM6
OUT7	36	35	COM7
OUT8	34	33	COM8
OUT9	32	31	COM9
OUT10	30	29	COM10
OUT11	28	27	COM11
OUT12	26	25	COM12
OUT13	24	23	COM13
OUT14	22	21	COM14
OUT15	20	19	COM15
OUT16	18	17	COM16
COM	16	15	COM
COM	14	13	COM
COM	12	11	COM
24 V DC	10	9	COM
24 V DC	8	7	24 V DC
24 V DC	6	5	24 V DC
24 V DC	4	3	24 V DC
24 V DC	2	1	CBSE(*1)

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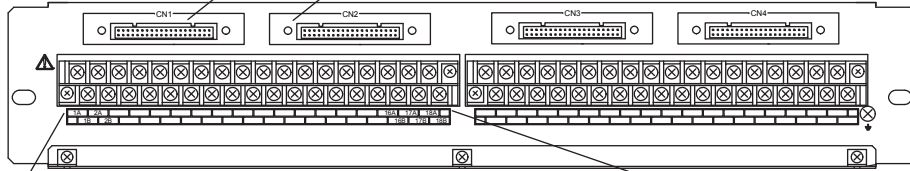
*1: For MIL 50-pin connectors, short-circuit between pins no.1 and 50 (for CBSE signals) externally to check that no external cable is connected.

Note: For details on the external wiring, see “● Pressure Clamp Terminals”.

■ TERMINAL BOARDS

● SEA4D

When duplexing the I/O module, connect it to both the CN1 and CN2 connectors or both the CN3 and CN4 connectors.

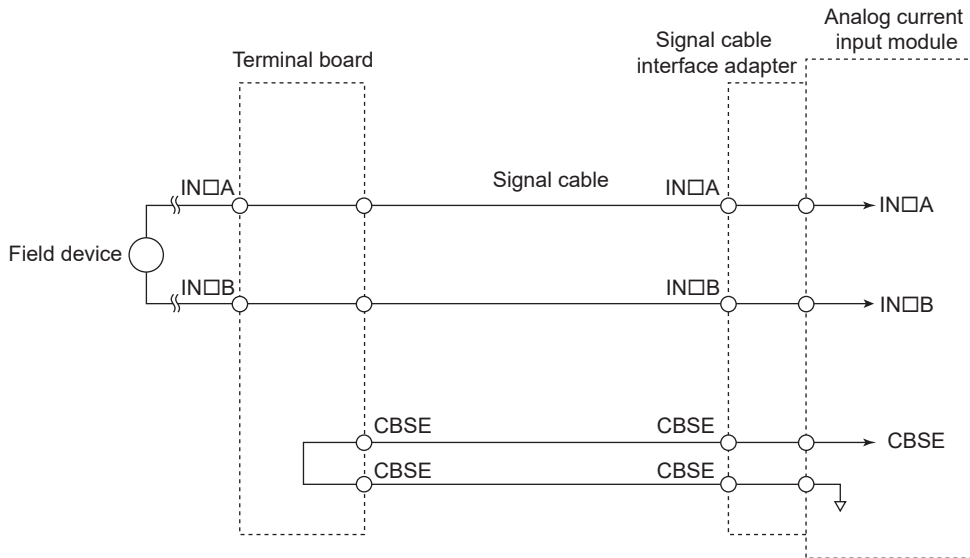


When connecting SAI143

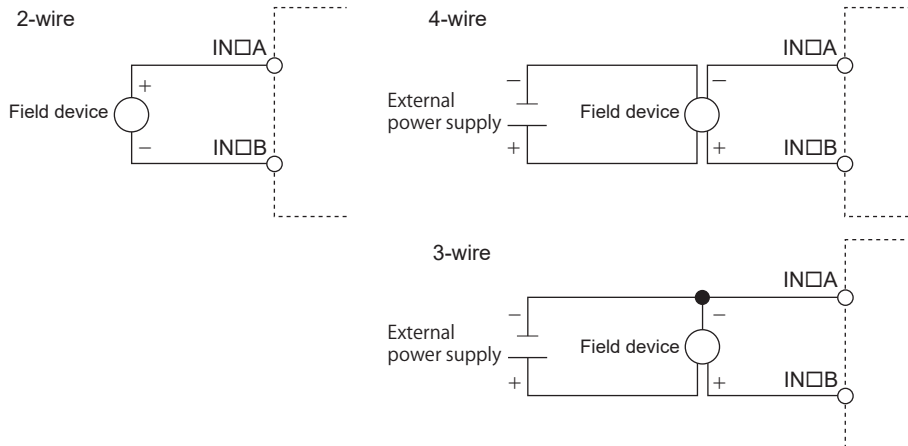
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Terminal No.	TM1, TM2	1A	2A	3A	4A	5A	6A	7A	8A	9A	10A	11A	12A	13A	14A	15A	16A	17A	18A
		1B	2B	3B	4B	5B	6B	7B	8B	9B	10B	11B	12B	13B	14B	15B	16B	17B	18B
		IN1B	IN2B	IN3B	IN4B	IN5B	IN6B	IN7B	IN8B	IN9B	IN10B	IN11B	IN12B	IN13B	IN14B	IN15B	IN16B	N.C.	N.C.
		Signal name																	

N.C.: Not used.

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Field device type:



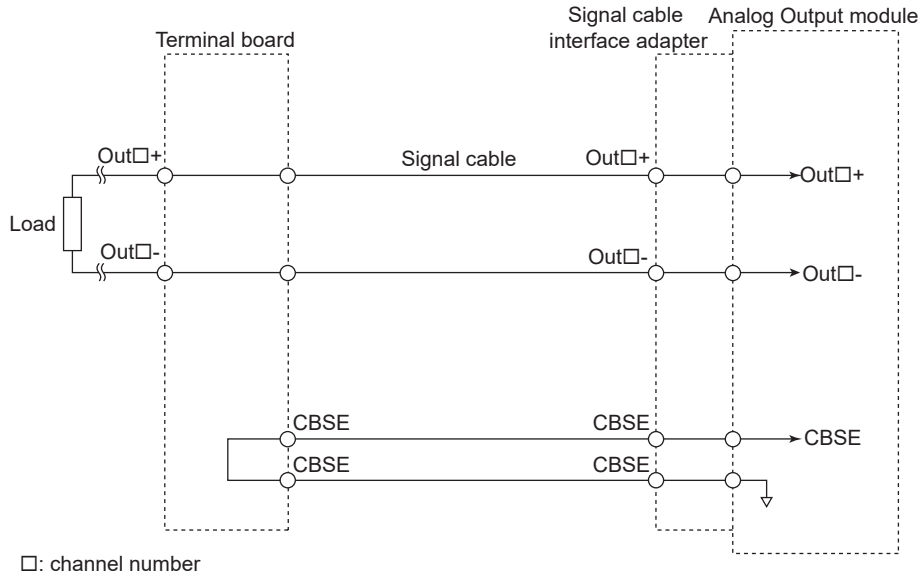
□: channel number

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When connecting SAI533

Signal name		OUT1+	N.C.	OUT2+	N.C.	OUT3+	N.C.	OUT4+	N.C.	OUT5+	N.C.	OUT6+	N.C.	OUT7+	N.C.	OUT8+	N.C.	N.C.	N.C.
Terminal No. TM1, TM2	1A	2A	3A	4A	5A	6A	7A	8A	9A	10A	11A	12A	13A	14A	15A	16A	17A	18A	
	1B	2B	3B	4B	5B	6B	7B	8B	9B	10B	11B	12B	13B	14B	15B	16B	17B	18B	
Signal name		OUT1-	N.C.	OUT2-	N.C.	OUT3-	N.C.	OUT4-	N.C.	OUT5-	N.C.	OUT6-	N.C.	OUT7-	N.C.	OUT8-	N.C.	N.C.	N.C.

N.C.: Not used.

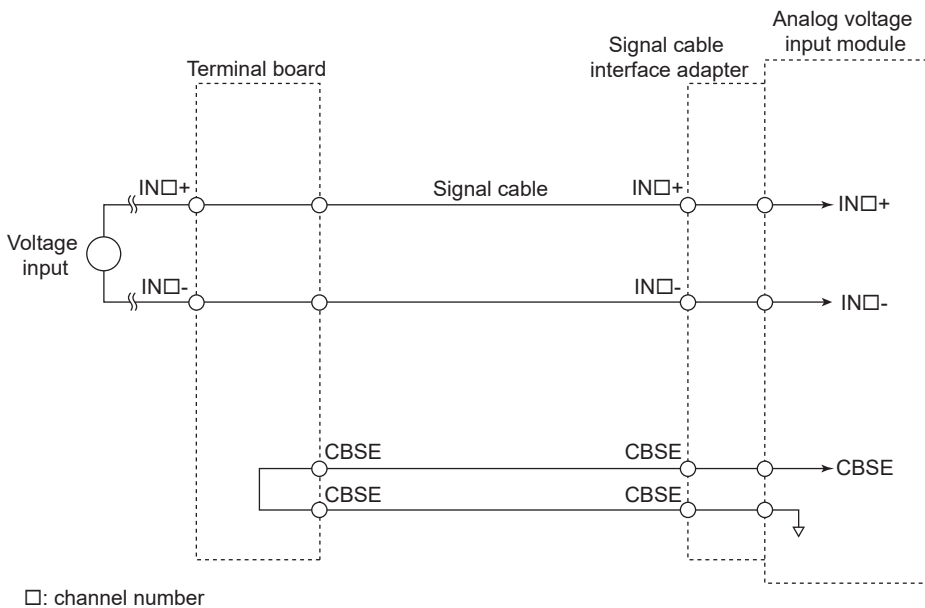


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When connecting SAV144

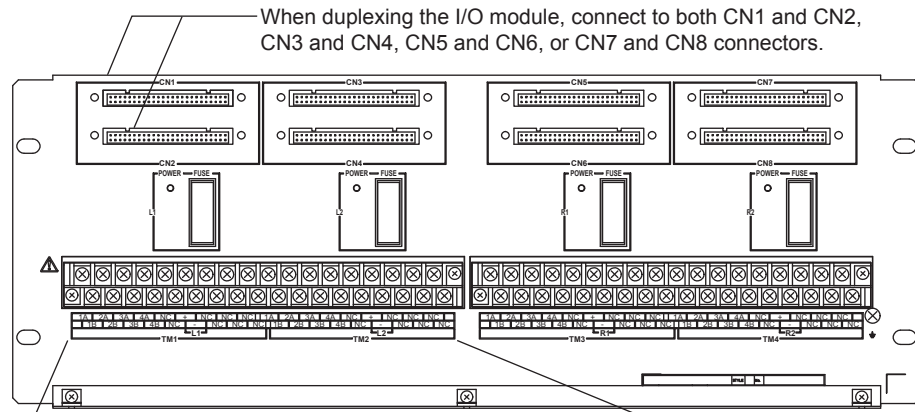
Signal name		IN1+	IN2+	IN3+	IN4+	IN5+	IN6+	IN7+	IN8+	IN9+	IN10+	IN11+	IN12+	IN13+	IN14+	IN15+	IN16+	N.C.	N.C.
Terminal No. TM1, TM2	1A	2A	3A	4A	5A	6A	7A	8A	9A	10A	11A	12A	13A	14A	15A	16A	17A	18A	
	1B	2B	3B	4B	5B	6B	7B	8B	9B	10B	11B	12B	13B	14B	15B	16B	17B	18B	
Signal name		IN1-	IN2-	IN3-	IN4-	IN5-	IN6-	IN7-	IN8-	IN9-	IN10-	IN11-	IN12-	IN13-	IN14-	IN15-	IN16-	N.C.	N.C.

N.C.: Not used.



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● SED2D



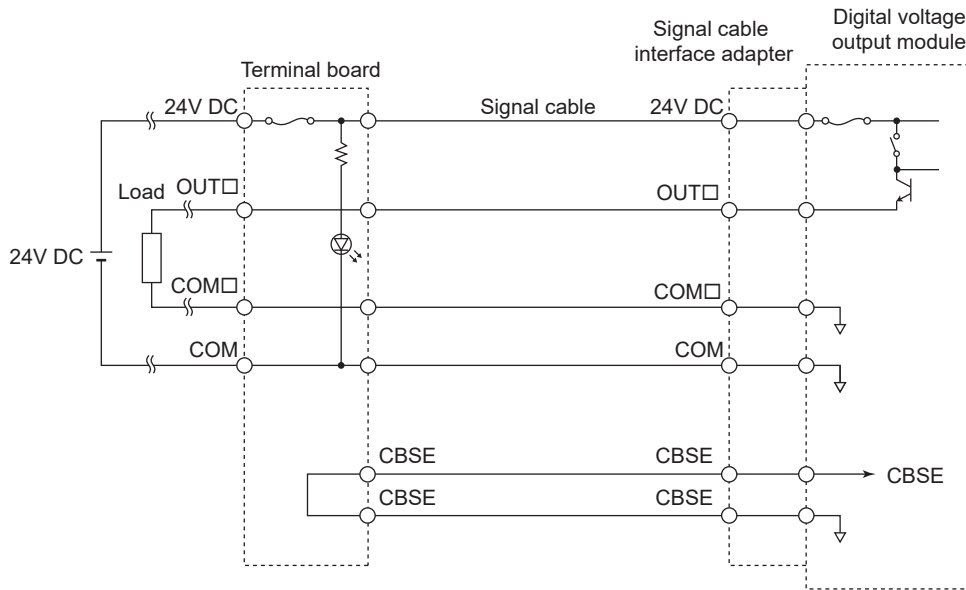
When connecting SDV521

Signal name

OUT1 OUT2 OUT3 OUT4 N.C. 24V DC N.C. N.C. N.C. OUT1 OUT2 OUT3 OUT4 N.C. 24V DC N.C. N.C. N.C.

Terminal No.	1A	2A	3A	4A		+				1A	2A	3A	4A		+			
TM1, TM2, TM3, TM4	1B	2B	3B	4B		-				1B	2B	3B	4B		-			
	COM1	COM2	COM3	COM4	N.C.	COM	N.C.	N.C.	N.C.	COM1	COM2	COM3	COM4	N.C.	COM	N.C.	N.C.	N.C.
	Signal name													N.C. : Not used				

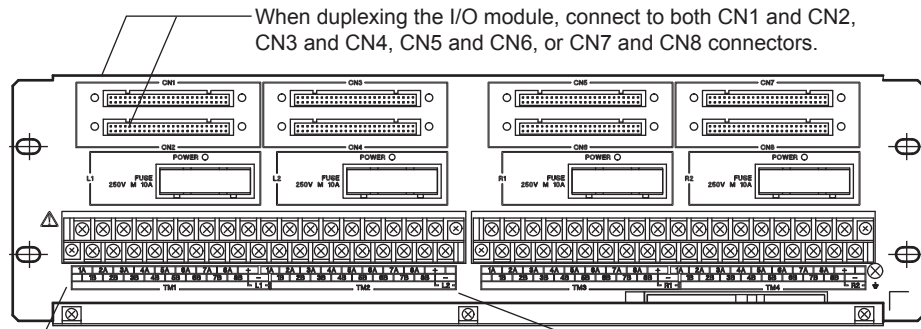
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□: channel number

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● SED3D



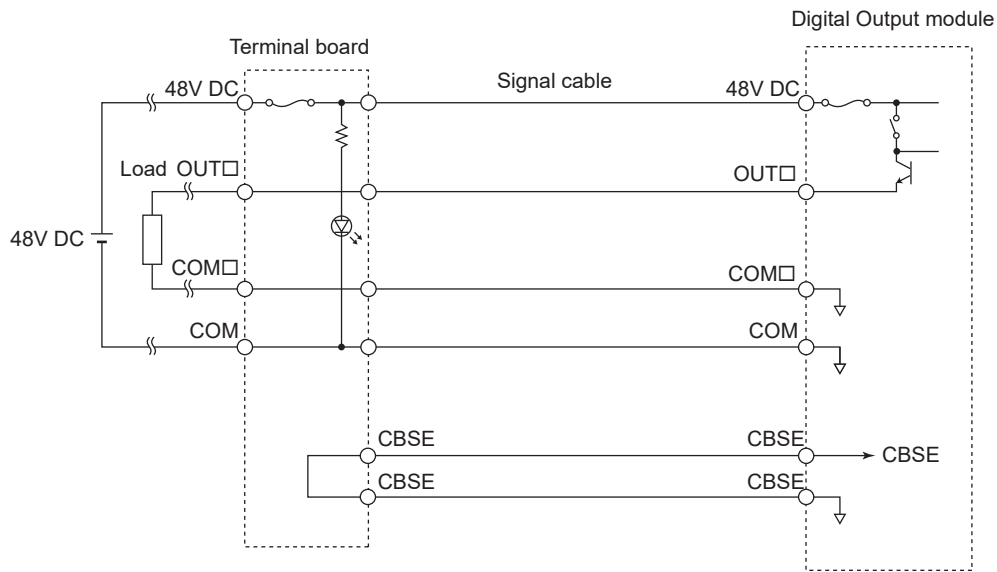
When connecting SDV53A

Signal name

OUT1	OUT2	OUT3	OUT4	OUT5	OUT6	OUT7	OUT8	48V DC	OUT1	OUT2	OUT3	OUT4	OUT5	OUT6	OUT7	OUT8	48V DC
1A	2A	3A	4A	5A	6A	7A	8A	+	1A	2A	3A	4A	5A	6A	7A	8A	+
1B	2B	3B	4B	5B	6B	7B	8B	-	1B	2B	3B	4B	5B	6B	7B	8B	-
COM1	COM2	COM3	COM4	COM5	COM6	COM7	COM8	COM	COM1	COM2	COM3	COM4	COM5	COM6	COM7	COM8	COM
Signal name																	

Terminal No. TM1, TM2, TM3, TM4

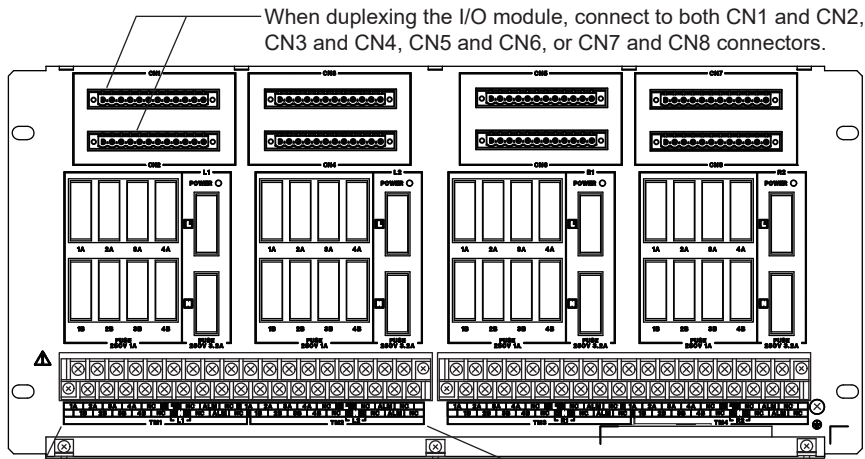
F21E.ai



□: channel number

F22E.ai

● SWD2D

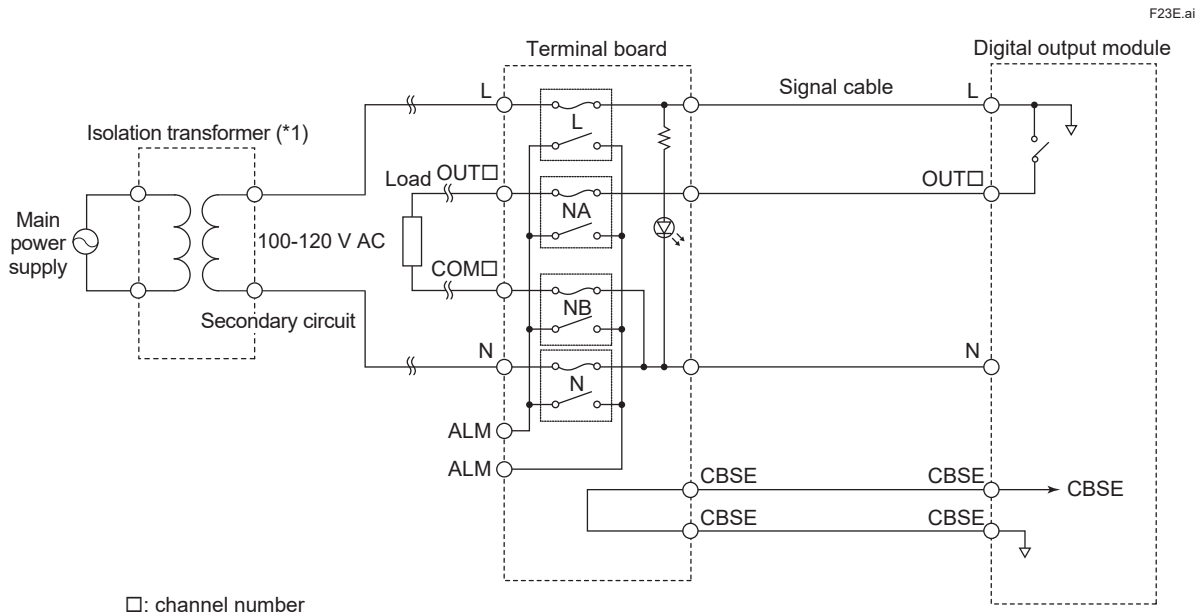


When connecting SDV526

Signal name		OUT1	OUT2	OUT3	OUT4	N.C.	L	N.C.	ALM	N.C.	OUT1	OUT2	OUT3	OUT4	N.C.	L	N.C.	ALM	N.C.
Terminal No.		1A	2A	3A	4A						1A	2A	3A	4A					
		1B	2B	3B	4B						1B	2B	3B	4B					
		COM1	COM2	COM3	COM4	N.C.	N	N.C.	ALM	N.C.	COM1	COM2	COM3	COM4	N.C.	N	N.C.	ALM	N.C.
		Signal name																	
		TM1										TM2							

N.C. : Not used

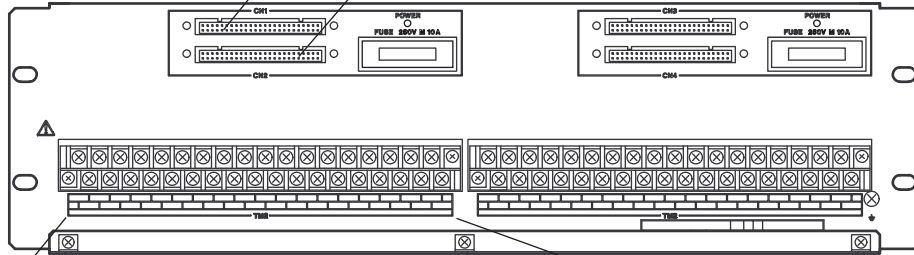
ALM: Contact output of fuse state
 When all the fuses (1A to 4A, 1B to 4B, L and N) of the terminal group are normal, the contact of the two ALM terminals will be kept open.
 When any fuse of the terminal group is blown, the contact of the two ALM terminals becomes closed.



*1: In order to comply with safety standards, the external power supply connected to the terminal board is supplied from a secondary circuit. The secondary circuit is insulated by a transformer and the primary circuit is MAINS CIRCUITS of overvoltage category II up to 300 V. The insulation must be REINFORCED INSULATION or DOUBLE INSULATION.

● SED4D

When duplexing the I/O module, connect it to both of the CN1 and CN2 connectors or both the CN3 and CN4 connectors.

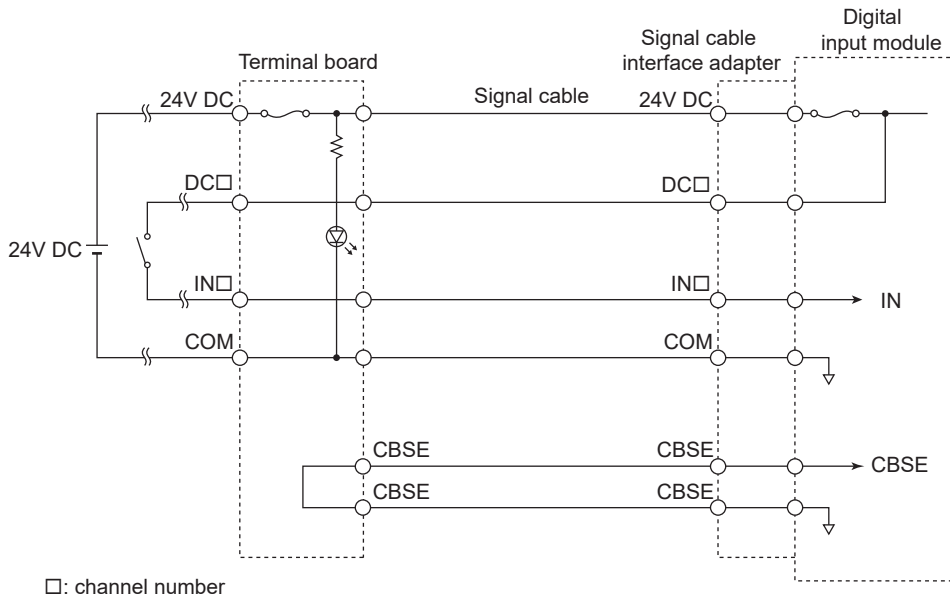


When connecting SDV144

Signal name		DC1	DC2	DC3	DC4	DC5	DC6	DC7	DC8	DC9	DC10	DC11	DC12	DC13	DC14	DC15	DC16	N.C.	24VDC
Terminal No.		1A	2A	3A	4A	5A	6A	7A	8A	9A	10A	11A	12A	13A	14A	15A	16A	17A	+
		1B	2B	3B	4B	5B	6B	7B	8B	9B	10B	11B	12B	13B	14B	15B	16B	17B	-
	Signal name	IN1	IN2	IN3	IN4	IN5	IN6	IN7	IN8	IN9	IN10	IN11	IN12	IN13	IN14	IN15	IN16	N.C.	COM

N.C. : Not used

F25E.ai



F26E.ai

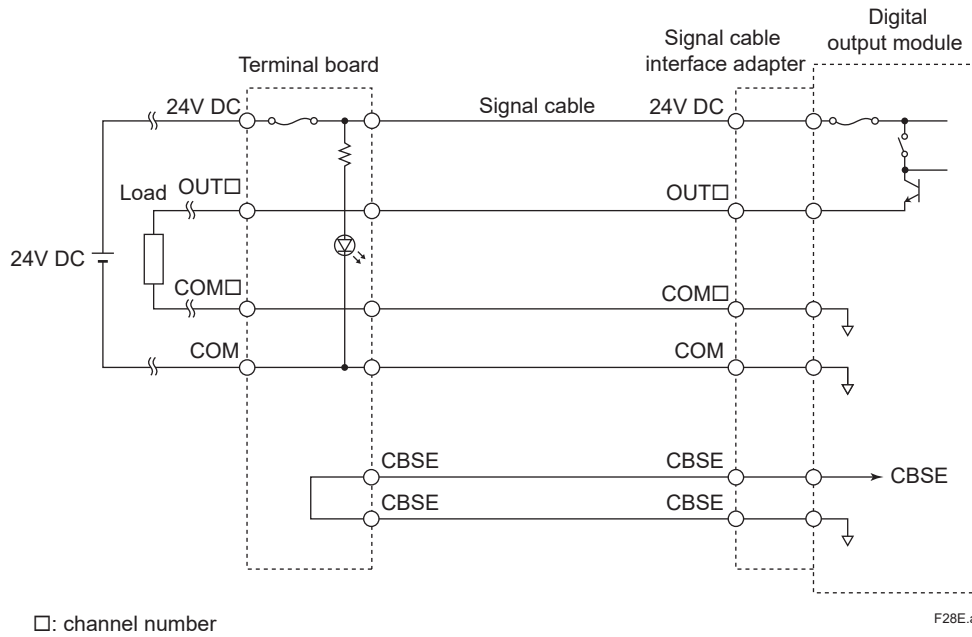
*1: Shows the internal circuitry of the TM1 terminal block. This internal circuitry is the same as that of the TM2 terminal block.

When connecting SDV531

	Signal name																	24 V DC							
	OU1	OU2	OU3	OUT4	OUT5	OUT6	OUT7	OUT8	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	24 V DC
Terminal No.	1A	2A	3A	4A	5A	6A	7A	8A	9A	10A	11A	12A	13A	14A	15A	16A	17A	+							
TM1, TM2	1B	2B	3B	4B	5B	6B	7B	8B	9B	10B	11B	12B	13B	14B	15B	16B	17B	-							
	COM1	COM2	COM3	COM4	COM5	COM6	COM7	COM8	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	COM
	Signal name																								

N.C.: Not used.

F27E.ai



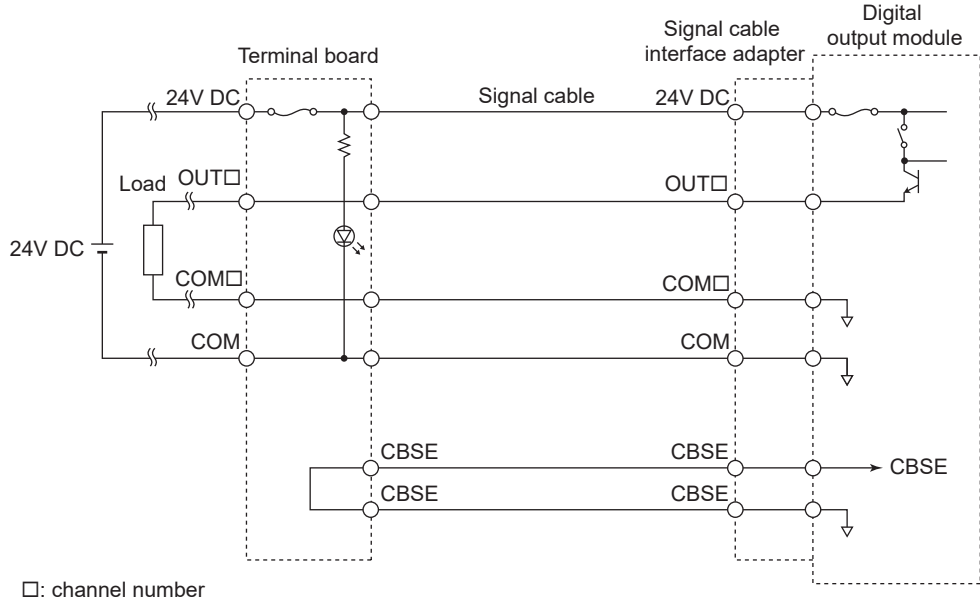
F28E.ai

- *1: Shows the internal circuitry of the TM1 terminal block (for 8 terminals). This internal circuitry is the same as that of the TM2 terminal block. This connection requires the supply of additional DC power to the external load.

When connecting SDV541

		Signal name									OUT 10	OUT 11	OUT 12	OUT 13	OUT 14	OUT 15	OUT 16	N.C.	24VDC
TM1, TM2	Terminal No.	1A	2A	3A	4A	5A	6A	7A	8A	9A	10A	11A	12A	13A	14A	15A	16A	17A	+
		1B	2B	3B	4B	5B	6B	7B	8B	9B	10B	11B	12B	13B	14B	15B	16B	17B	-
		COM1	COM2	COM3	COM4	COM5	COM6	COM7	COM8	COM9	COM 10	COM 11	COM 12	COM 13	COM 14	COM 15	COM 16	N.C.	COM
		Signal name																	

N.C. : Not used
F29E.ai

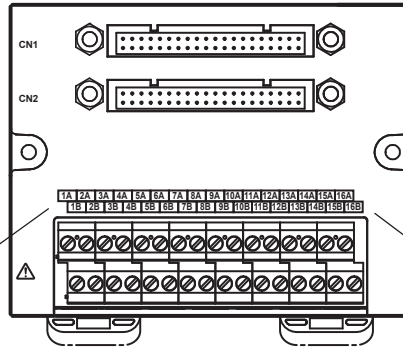


F30E.ai

*1: This connection requires the supply of additional DC power to the external load.

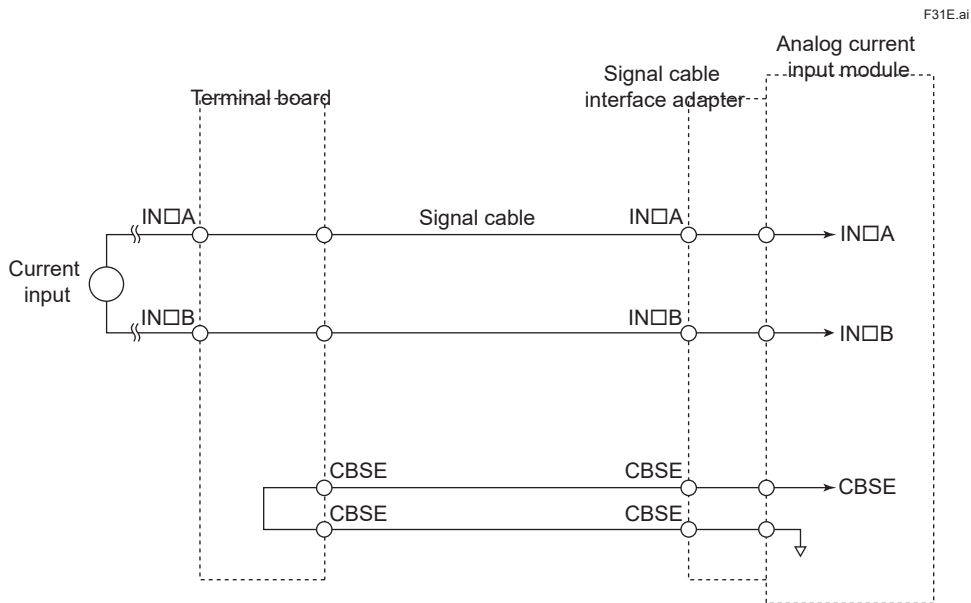
● **SBA4D**

When duplex the I/O module, connect to both CN1 and CN2.

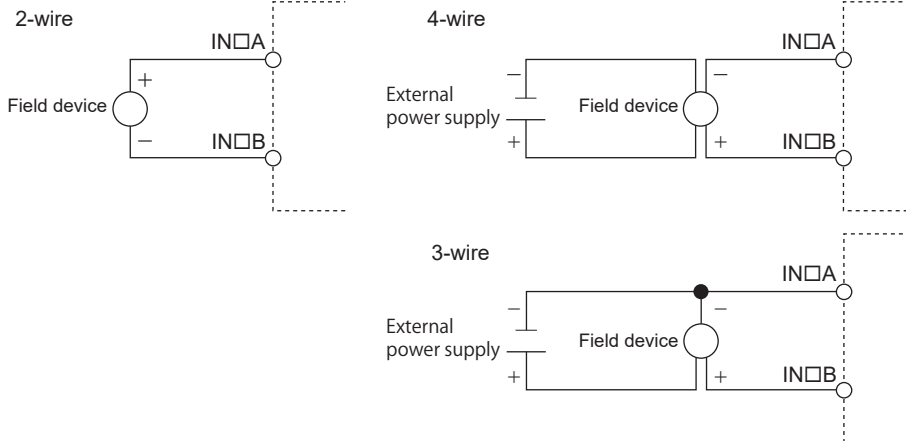


When connecting SAI143

	Signal name															
	IN1A	IN2A	IN3A	IN4A	IN5A	IN6A	IN7A	IN8A	IN9A	IN10A	IN11A	IN12A	IN13A	IN14A	IN15A	IN16A
Terminal No.	1A	2A	3A	4A	5A	6A	7A	8A	9A	10A	11A	12A	13A	14A	15A	16A
	1B	2B	3B	4B	5B	6B	7B	8B	9B	10B	11B	12B	13B	14B	15B	16B
	Signal name															
	IN1B	IN2B	IN3B	IN4B	IN5B	IN6B	IN7B	IN8B	IN9B	IN10B	IN11B	IN12B	IN13B	IN14B	IN15B	IN16B



Field device type:



□: channel number

F32E.ai

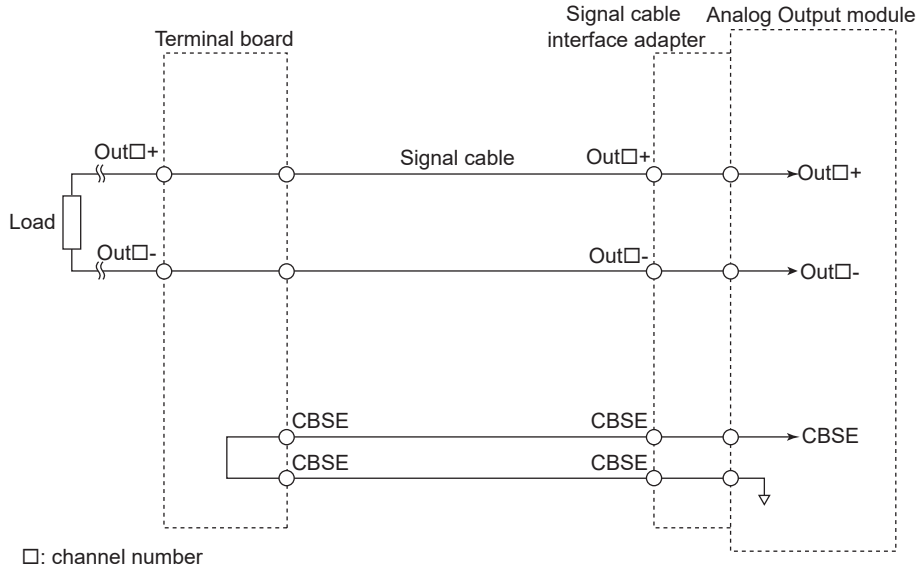
When connecting SAI533

Signal name

OUT1+	N.C.	OUT2+	N.C.	OUT3+	N.C.	OUT4+	N.C.	OUT5+	N.C.	OUT6+	N.C.	OUT7+	N.C.	OUT8+	N.C.
1A	2A	3A	4A	5A	6A	7A	8A	9A	10A	11A	12A	13A	14A	15A	16A
1B	2B	3B	4B	5B	6B	7B	8B	9B	10B	11B	12B	13B	14B	15B	16B
OUT1-	N.C.	OUT2-	N.C.	OUT3-	N.C.	OUT4-	N.C.	OUT5-	N.C.	OUT6-	N.C.	OUT7-	N.C.	OUT8-	N.C.

Signal name

N.C.: Not used



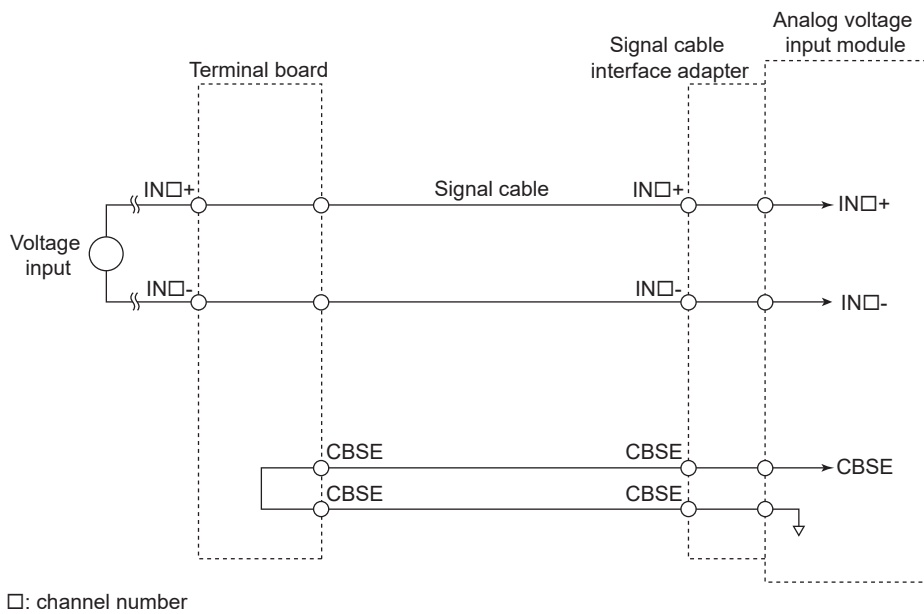
F33E.ai

When connecting SAV144

Signal name

IN1+	IN2+	IN3+	IN4+	IN5+	IN6+	IN7+	IN8+	IN9+	IN10+	IN11+	IN12+	IN13+	IN14+	IN15+	IN16+
1A	2A	3A	4A	5A	6A	7A	8A	9A	10A	11A	12A	13A	14A	15A	16A
1B	2B	3B	4B	5B	6B	7B	8B	9B	10B	11B	12B	13B	14B	15B	16B
IN1-	IN2-	IN3-	IN4-	IN5-	IN6-	IN7-	IN8-	IN9-	IN10-	IN11-	IN12-	IN13-	IN14-	IN15-	IN16-

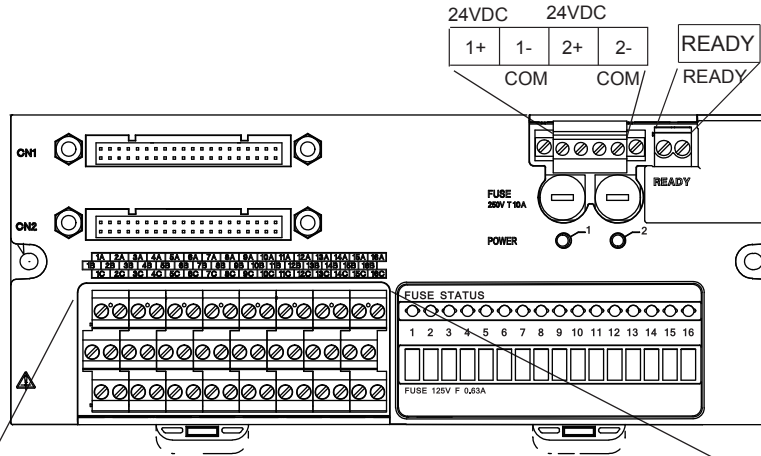
Signal name



F34E.ai

● S1BB4D

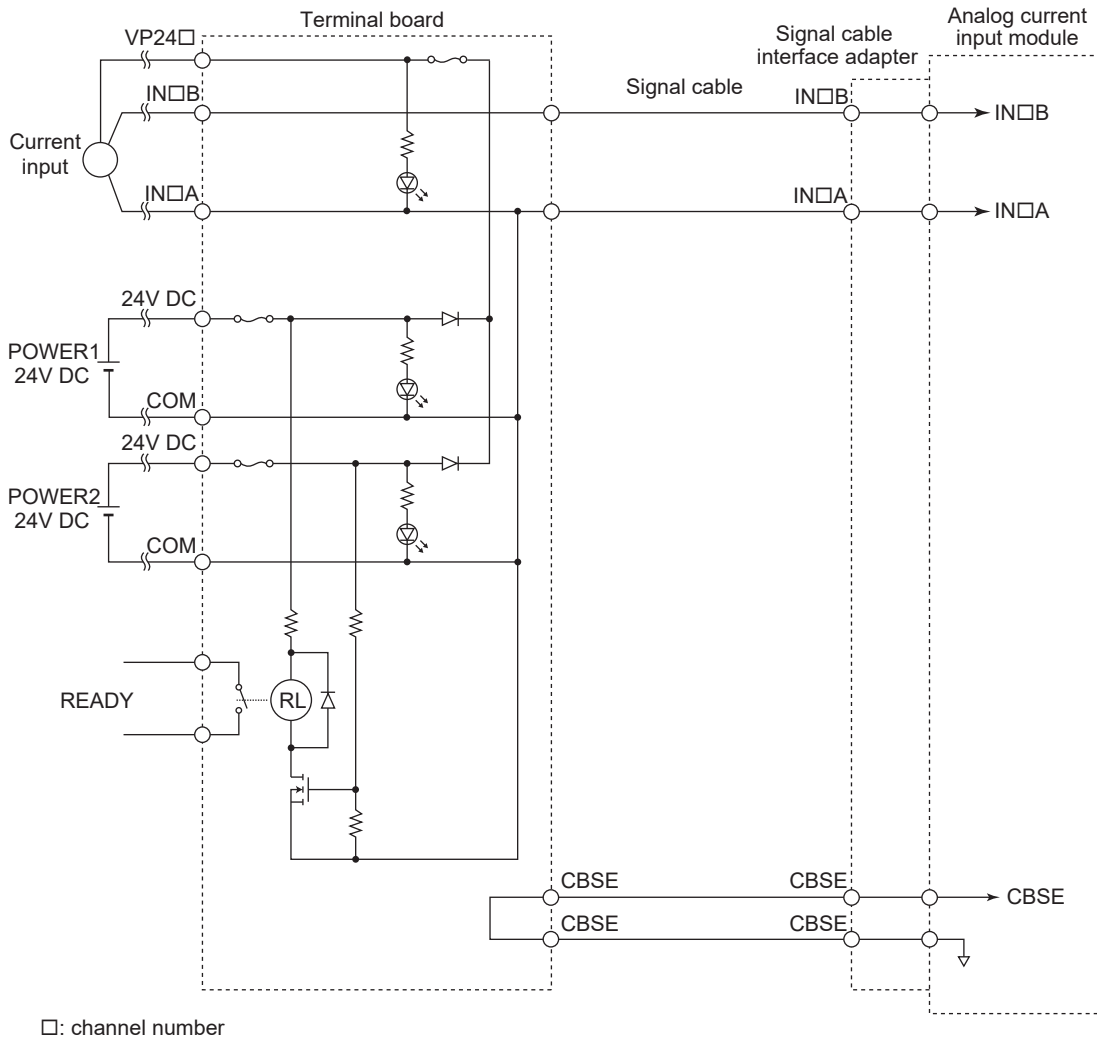
When duplex the I/O module, connect to both CN1 and CN2.



When connecting SAI143

Signal name	VP24 1	VP24 2	VP24 3	VP24 4	VP24 5	VP24 6	VP24 7	VP24 8	VP24 9	VP24 10	VP24 11	VP24 12	VP24 13	VP24 14	VP24 15	VP24 16
	1A	2A	3A	4A	5A	6A	7A	8A	9A	10A	11A	12A	13A	14A	15A	16A
Terminal No.	1B	2B	3B	4B	5B	6B	7B	8B	9B	10B	11B	12B	13B	14B	15B	16B
	1C	2C	3C	4C	5C	6C	7C	8C	9C	10C	11C	12C	13C	14C	15C	16C
Signal name	IN1A	IN2A	IN3A	IN4A	IN5A	IN6A	IN7A	IN8A	IN9A	IN10A	IN11A	IN12A	IN13A	IN14A	IN15A	IN16A
Signal name	IN1B	IN2B	IN3B	IN4B	IN5B	IN6B	IN7B	IN8B	IN9B	IN10B	IN11B	IN12B	IN13B	IN14B	IN15B	IN16B

F56E.ai

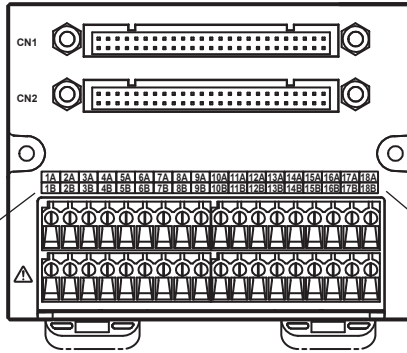


F57E.ai

Note: When connecting SAI143, setting of a wire type must be 4-wire type.

● **SBT4D**

When duplex the I/O module, connect to both CN1 and CN2.

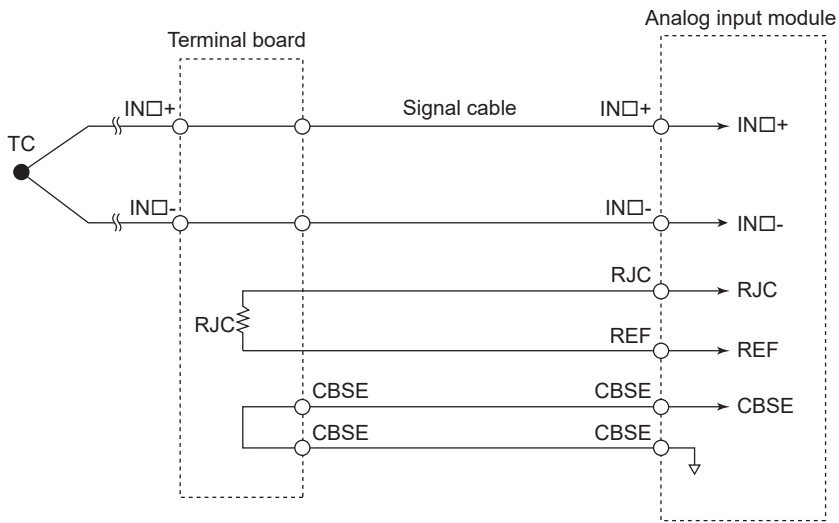


When connecting SAT145

Signal name	IN1+	IN2+	IN3+	IN4+	IN5+	IN6+	IN7+	IN8+	IN9+	IN10+	IN11+	IN12+	IN13+	IN14+	IN15+	IN16+	N.C.	N.C.
Terminal No.	1A	2A	3A	4A	5A	6A	7A	8A	9A	10A	11A	12A	13A	14A	15A	16A	17A	18A
	1B	2B	3B	4B	5B	6B	7B	8B	9B	10B	11B	12B	13B	14B	15B	16B	17B	18B
Signal name	IN1-	IN2-	IN3-	IN4-	IN5-	IN6-	IN7-	IN8-	IN9-	IN10-	IN11-	IN12-	IN13-	IN14-	IN15-	IN16-	N.C.	N.C.

N.C.:Not used

F35E.ai

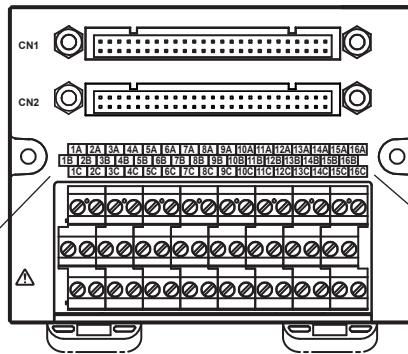


□: channel number

F36E.ai

● **SBR4D**

When duplex the I/O module, connect to both CN1 and CN2.



When connecting SAR145

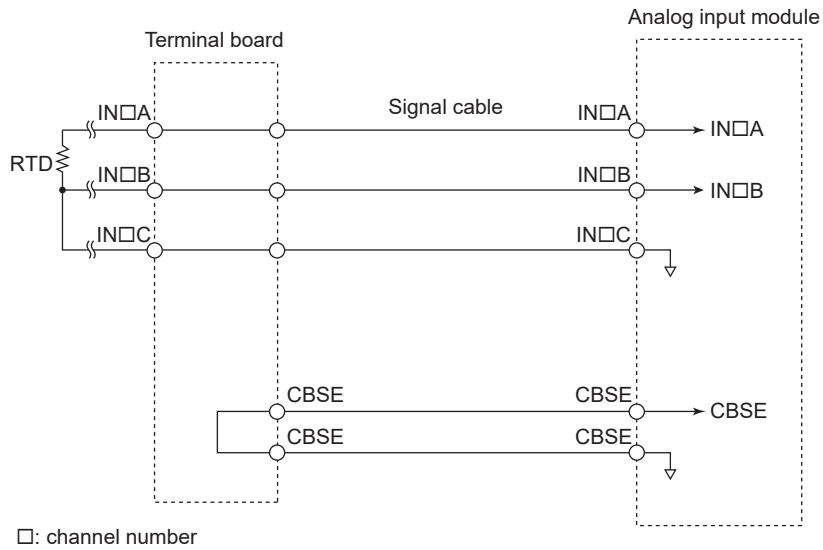
Signal name

IN1A	IN2A	IN3A	IN4A	IN5A	IN6A	IN7A	IN8A	IN9A	IN10A	IN11A	IN12A	IN13A	IN14A	IN15A	IN16A
1A	2A	3A	4A	5A	6A	7A	8A	9A	10A	11A	12A	13A	14A	15A	16A
1B	2B	3B	4B	5B	6B	7B	8B	9B	10B	11B	12B	13B	14B	15B	16B
1C	2C	3C	4C	5C	6C	7C	8C	9C	10C	11C	12C	13C	14C	15C	16C
IN1C	IN2C	IN3C	IN4C	IN5C	IN6C	IN7C	IN8C	IN9C	IN10C	IN11C	IN12C	IN13C	IN14C	IN15C	IN16C
IN1B	IN2B	IN3B	IN4B	IN5B	IN6B	IN7B	IN8B	IN9B	IN10B	IN11B	IN12B	IN13B	IN14B	IN15B	IN16B

Terminal No.

Signal name

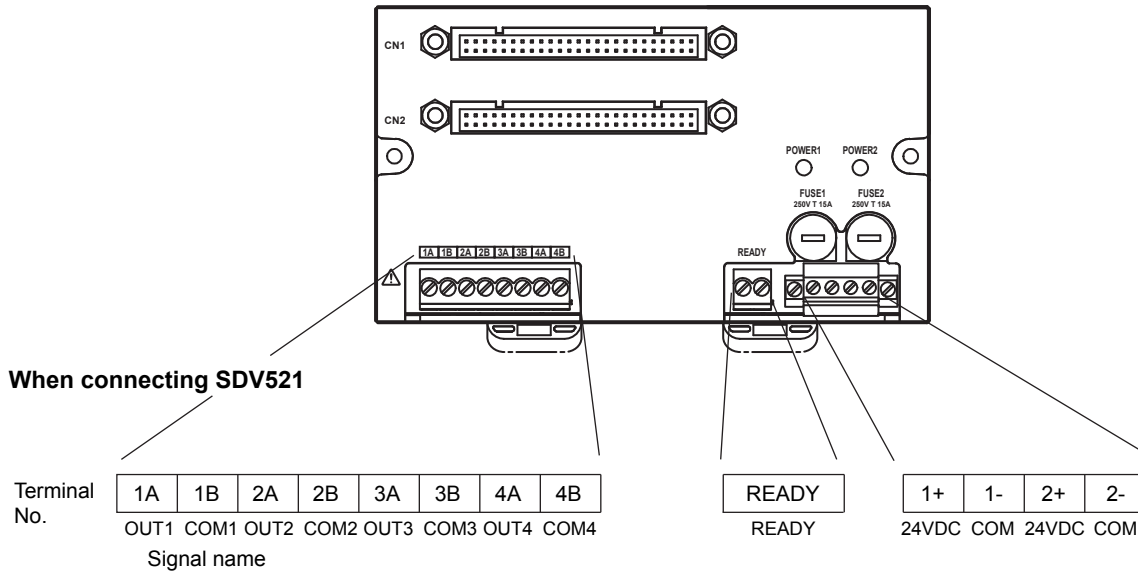
F37E.ai



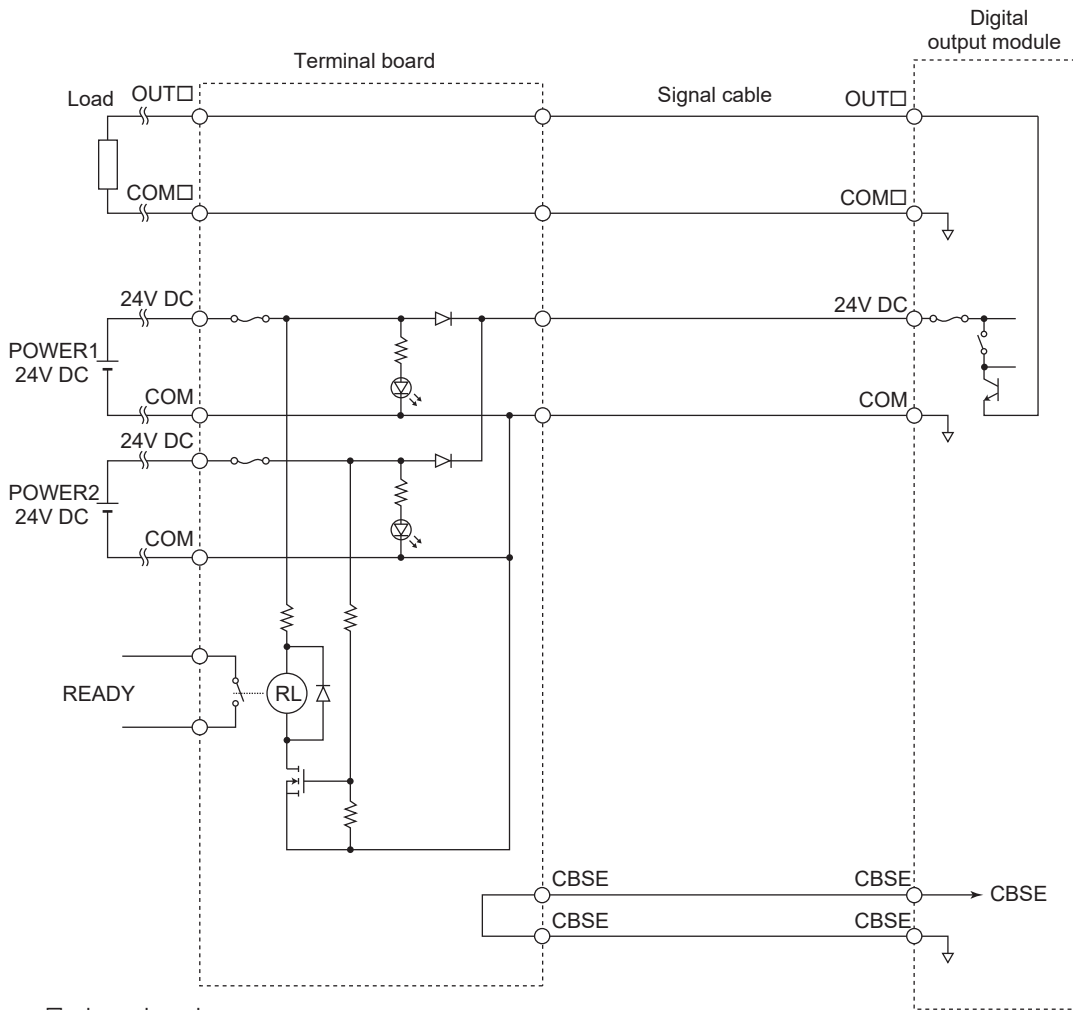
F38E.ai

● **SBD2D**

When duplex the I/O module, connect to both CN1 and CN2.



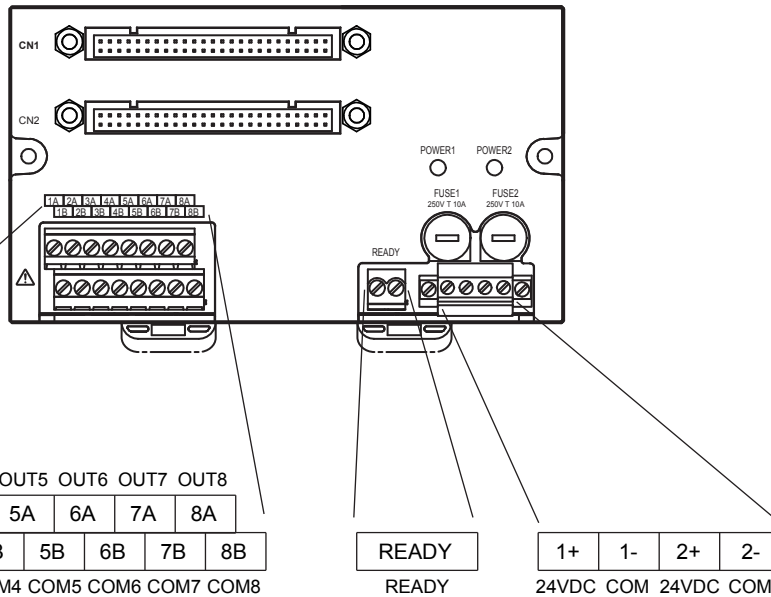
F39E.ai



F40E.ai

● **SBD3D**

When duplex the I/O module, connect to both CN1 and CN2.

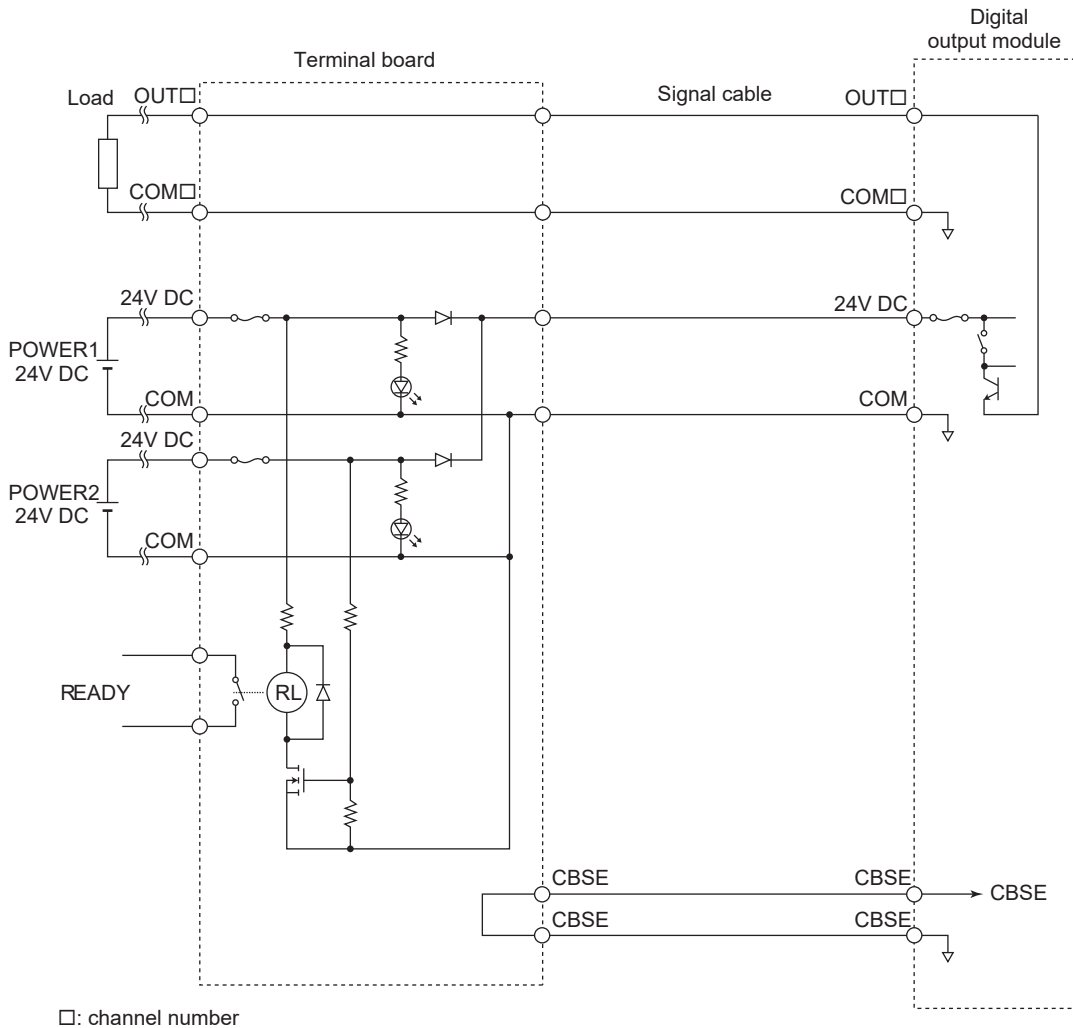


SBD3D-01
When connecting SDV531

	Signal name							
	OUT1	OUT2	OUT3	OUT4	OUT5	OUT6	OUT7	OUT8
Terminal No.	1A	2A	3A	4A	5A	6A	7A	8A
	1B	2B	3B	4B	5B	6B	7B	8B
	COM1	COM2	COM3	COM4	COM5	COM6	COM7	COM8
	Signal name							

READY	1+	1-	2+	2-
READY	24VDC	COM	24VDC	COM

F41E.ai



□: channel number

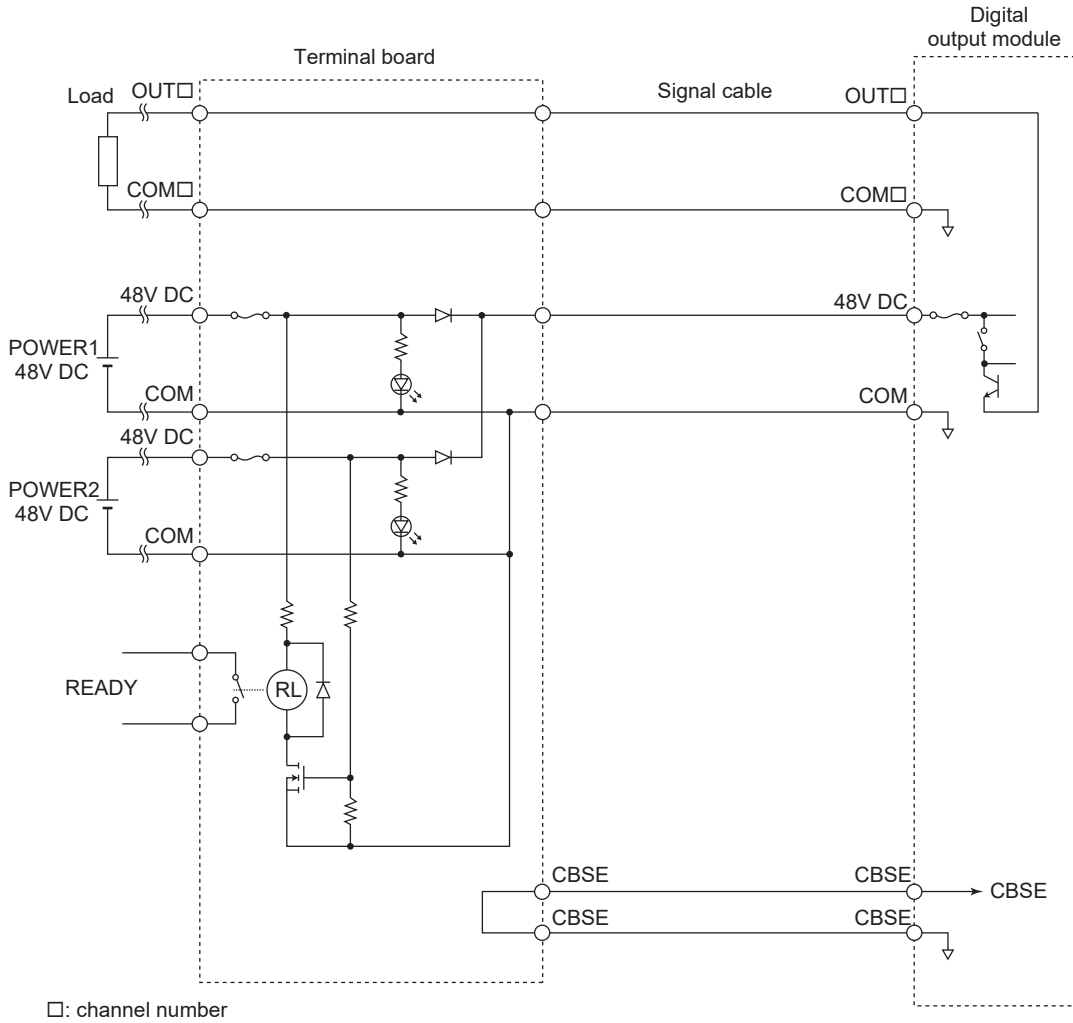
F42E.ai

SBD3D-A1

When connecting SDV53A

	Signal name													
	OUT1	OUT2	OUT3	OUT4	OUT5	OUT6	OUT7	OUT8						
Terminal No.	1A	2A	3A	4A	5A	6A	7A	8A		READY	1+	1-	2+	2-
	1B	2B	3B	4B	5B	6B	7B	8B		READY	48VDC	COM	48VDC	COM
	COM1 COM2 COM3 COM4 COM5 COM6 COM7 COM8													
	Signal name													

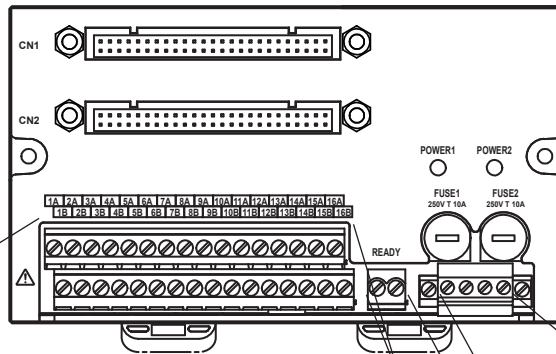
F43E.ai



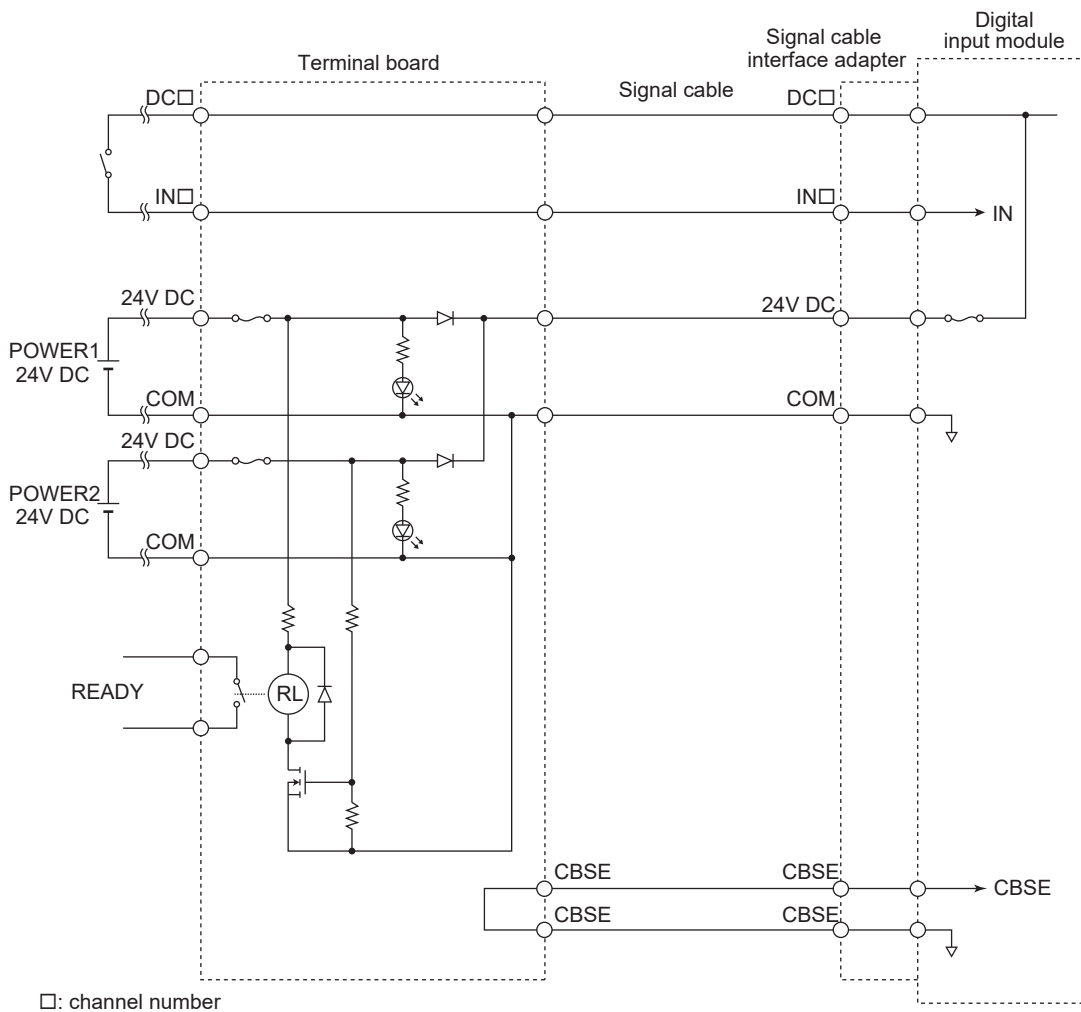
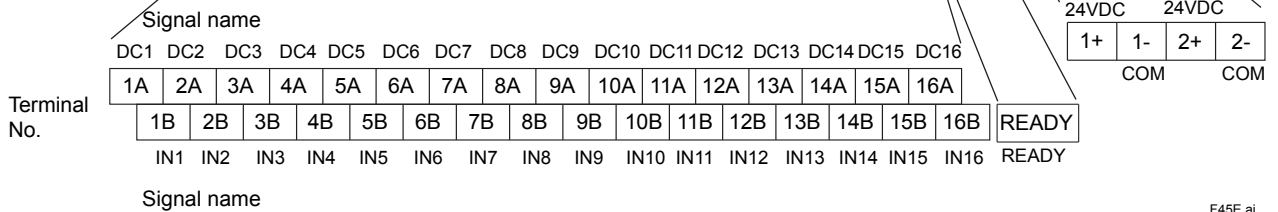
F44E.ai

● SBD4D

When duplex the I/O module, connect to both CN1 and CN2.



When connecting SDV144



□: channel number

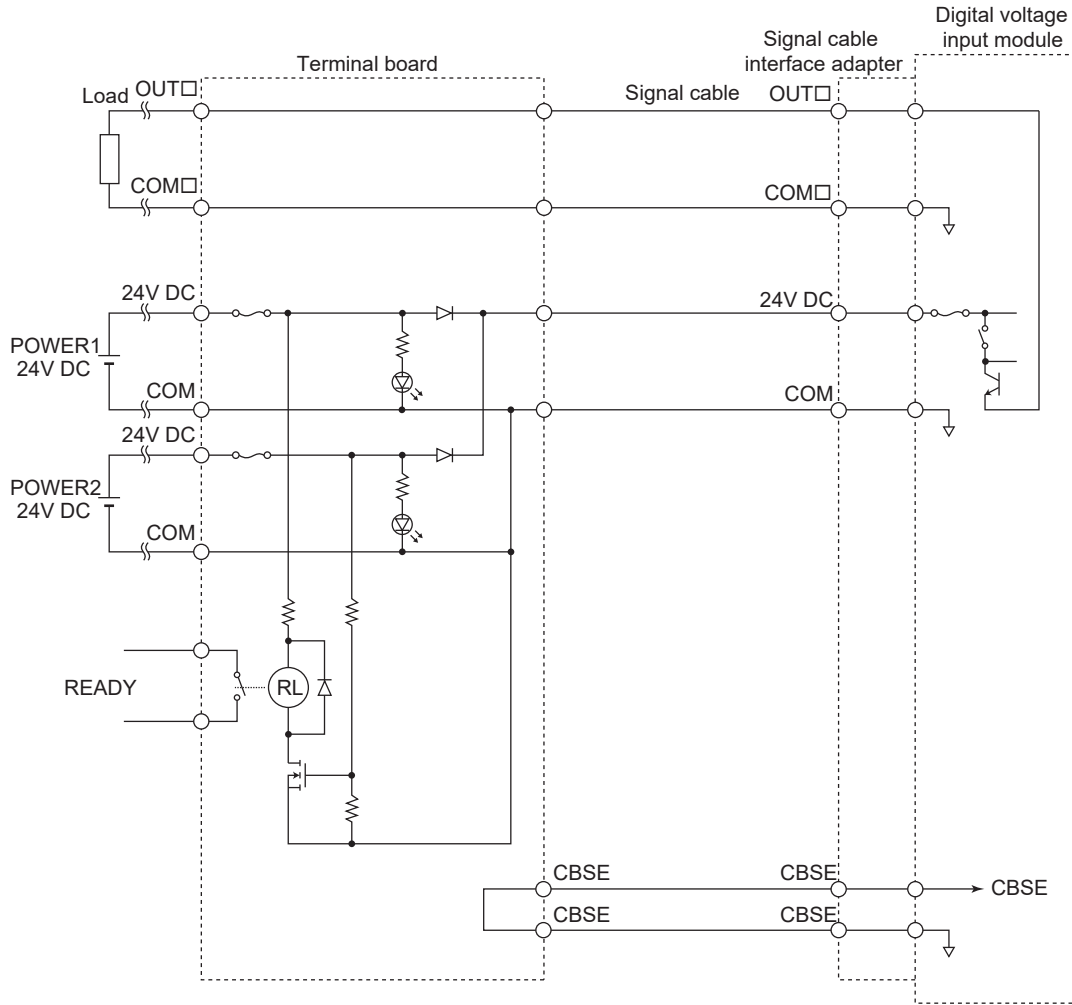
F46E.ai

When connecting SDV541

	Signal name																			
	OUT1	OUT2	OUT3	OUT4	OUT5	OUT6	OUT7	OUT8	OUT9	OUT10	OUT11	OUT12	OUT13	OUT14	OUT15	OUT16	24VDC	24VDC		
	1A	2A	3A	4A	5A	6A	7A	8A	9A	10A	11A	12A	13A	14A	15A	16A	1+	1-	2+	2-
Terminal No.	1B	2B	3B	4B	5B	6B	7B	8B	9B	10B	11B	12B	13B	14B	15B	16B	COM		COM	
	COM1	COM2	COM3	COM4	COM5	COM6	COM7	COM8	COM9	COM10	COM11	COM12	COM13	COM14	COM15	COM16	READY			

Signal name

F47E.ai

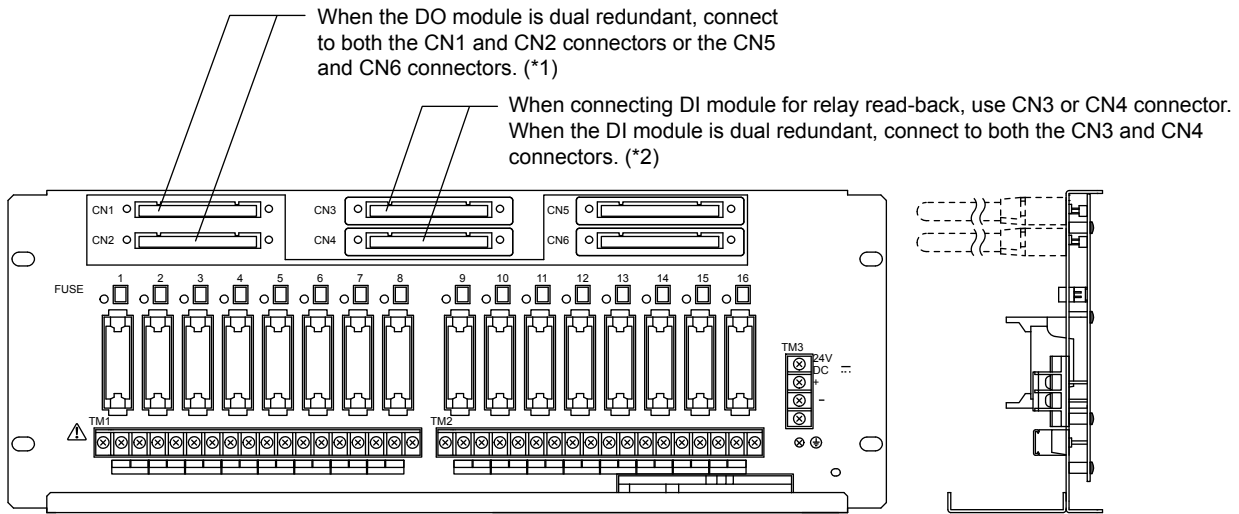


□: channel number

F48E.ai

■ RELAY BOARD

● SRM53D



F49E.ai

Relay number	Output terminal		SDV531/SDV144 channel number					
			CN1	CN2	CN3	CN4	CN5	CN6
			SDV531	SDV531	SDV144	SDV144	SDV531	SDV531
1	TM1	1A/1B	ch1	ch1	ch1	ch1	-	-
2	TM1	2A/2B	ch2	ch2	ch2	ch2	-	-
3	TM1	3A/3B	ch3	ch3	ch3	ch3	-	-
4	TM1	4A/4B	ch4	ch4	ch4	ch4	-	-
5	TM1	5A/5B	ch5	ch5	ch5	ch5	-	-
6	TM1	6A/6B	ch6	ch6	ch6	ch6	-	-
7	TM1	7A/7B	ch7	ch7	ch7	ch7	-	-
8	TM1	8A/8B	ch8	ch8	ch8	ch8	-	-
9	TM2	1A/1B	-	-	ch9	ch9	ch1	ch1
10	TM2	2A/2B	-	-	ch10	ch10	ch2	ch2
11	TM2	3A/3B	-	-	ch11	ch11	ch3	ch3
12	TM2	4A/4B	-	-	ch12	ch12	ch4	ch4
13	TM2	5A/5B	-	-	ch13	ch13	ch5	ch5
14	TM2	6A/6B	-	-	ch14	ch14	ch6	ch6
15	TM2	7A/7B	-	-	ch15	ch15	ch7	ch7
16	TM2	8A/8B	-	-	ch16	ch16	ch8	ch8

Note: Relay numbers are indicated at the upper part of the SRM53D plate.

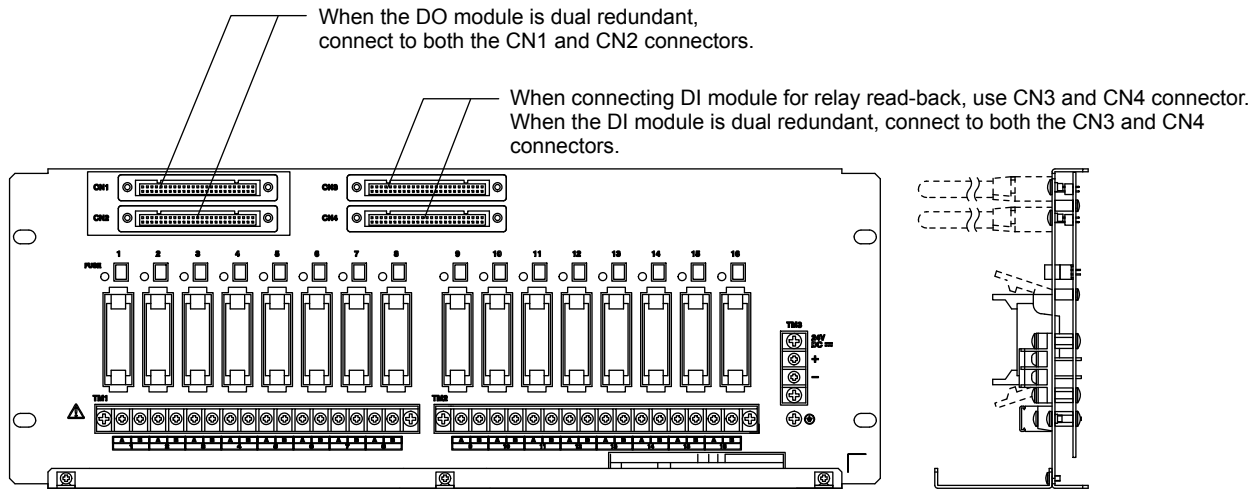
*1: Relay numbers 1 to 8 are through ch1 (channel 1) to ch8 on connectors CN1 and CN2. Relay numbers 9 to 16 are through ch1 to ch8 on connectors CN5 and CN6.

*2: From ch1 to ch8 of CN3 and CN4 connector can read read-back data of CN1 and CN2, from ch9 to ch16 can read that of CN5 and CN6.

Signal name		OUT1A	OUT2A	OUT3A	OUT4A	OUT5A	OUT6A	OUT7A	OUT8A								
TM1, TM2	Terminal No.	1A	1B	2A	2B	3A	3B	4A	4B	5A	5B	6A	6B	7A	7B	8A	8B
		OUT1B	OUT2B	OUT3B	OUT4B	OUT5B	OUT6B	OUT7B	OUT8B								
Signal name																	
TM3	Terminal No.	1															
		+24V DC															
TM3	Terminal No.	2															
		-COM															

F50E.ai

● SRM54D



F51E.ai

Relay number	Output terminal		SDV541/SDV144 channel number			
			CN1	CN2	CN3	CN4
			SDV541	SDV541	SDV144	SDV144
1	TM1	1A/1B	ch1	ch1	ch1	ch1
2	TM1	2A/2B	ch2	ch2	ch2	ch2
3	TM1	3A/3B	ch3	ch3	ch3	ch3
4	TM1	4A/4B	ch4	ch4	ch4	ch4
5	TM1	5A/5B	ch5	ch5	ch5	ch5
6	TM1	6A/6B	ch6	ch6	ch6	ch6
7	TM1	7A/7B	ch7	ch7	ch7	ch7
8	TM1	8A/8B	ch8	ch8	ch8	ch8
9	TM2	9A/9B	ch9	ch9	ch9	ch9
10	TM2	10A/10B	ch10	ch10	ch10	ch10
11	TM2	11A/11B	ch11	ch11	ch11	ch11
12	TM2	12A/12B	ch12	ch12	ch12	ch12
13	TM2	13A/13B	ch13	ch13	ch13	ch13
14	TM2	14A/14B	ch14	ch14	ch14	ch14
15	TM2	15A/15B	ch15	ch15	ch15	ch15
16	TM2	16A/16B	ch16	ch16	ch16	ch16

Note: Relay numbers are indicated at the upper part of the SRM54D plate.

Signal name

	OUT1A	OUT2A	OUT3A	OUT4A	OUT5A	OUT6A	OUT7A	OUT8A
TM1	1A	1B	2A	2B	3A	3B	4A	4B
Terminal No.	OUT1B	OUT2B	OUT3B	OUT4B	OUT5B	OUT6B	OUT7B	OUT8B

Signal name

	OUT9A	OUT10A	OUT11A	OUT12A	OUT13A	OUT14A	OUT15A	OUT16A
TM2	9A	9B	10A	10B	11A	11B	12A	12B
Terminal No.	OUT9B	OUT10B	OUT11B	OUT12B	OUT13B	OUT14B	OUT15B	OUT16B

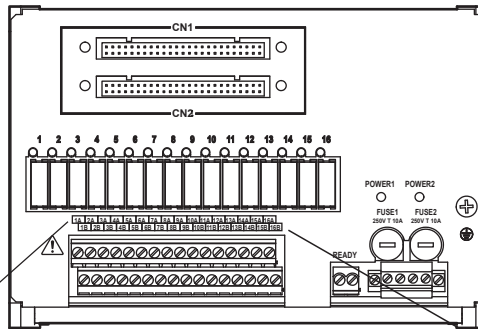
Signal name

TM3	
1	+24V DC
2	-COM

F52E.ai

● **SBM54D**

When duplex the I/O module, connect to both CN1 and CN2.



Signal name

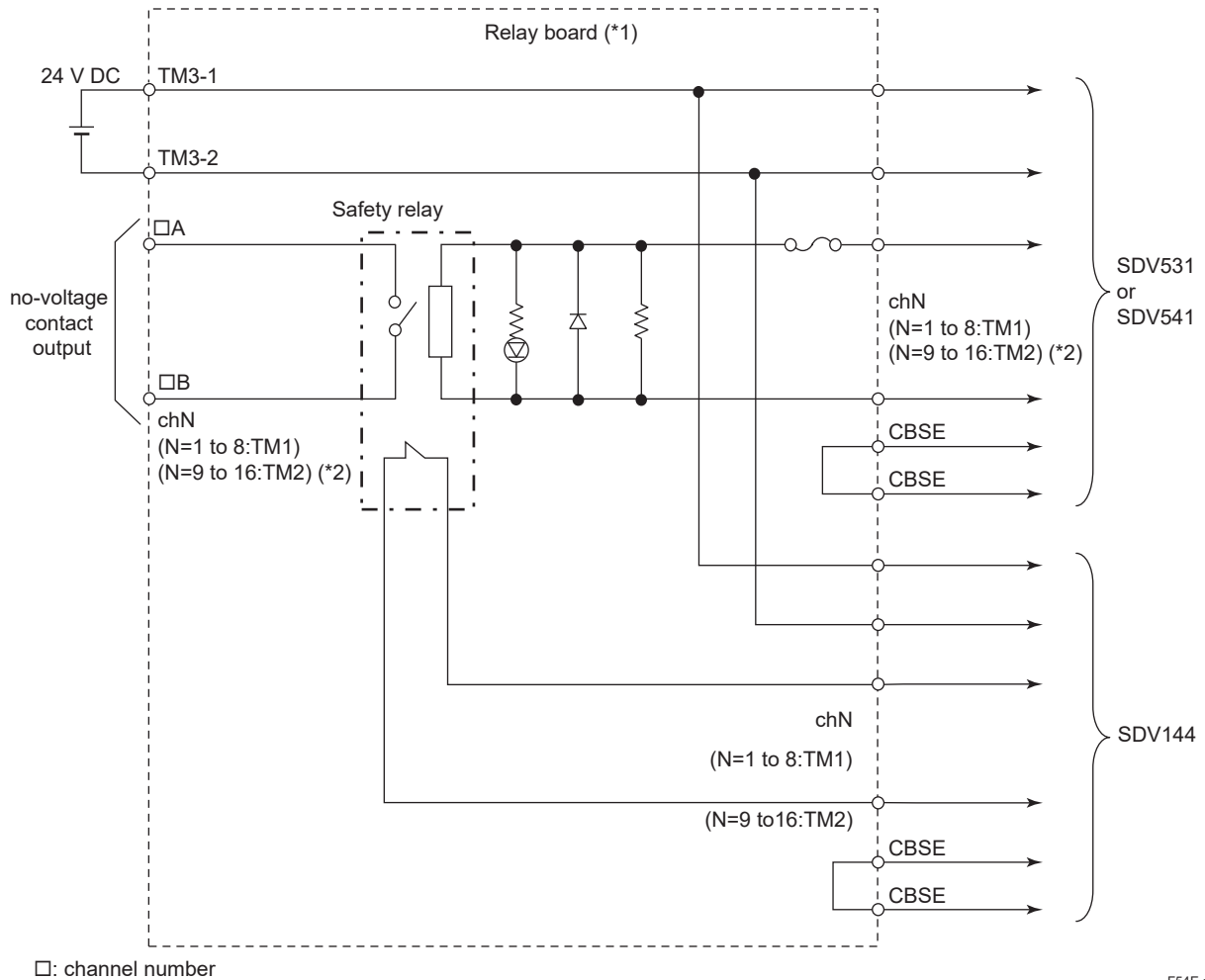
OUT1	OUT2	OUT3	OUT4	OUT5	OUT6	OUT7	OUT8	OUT9	OUT10	OUT11	OUT12	OUT13	OUT14	OUT15	OUT16
1A	2A	3A	4A	5A	6A	7A	8A	9A	10A	11A	12A	13A	14A	15A	16A
1B	2B	3B	4B	5B	6B	7B	8B	9B	10B	11B	12B	13B	14B	15B	16B
COM1	COM2	COM3	COM4	COM5	COM6	COM7	COM8	COM9	COM10	COM11	COM12	COM13	COM14	COM15	COM16

READY	Signal name	24V DC	COM	24V DC	COM
READY	Terminal No.	1+	1-	2+	2-

F53E.ai

■ RELAY OUTPUT CONNECTION

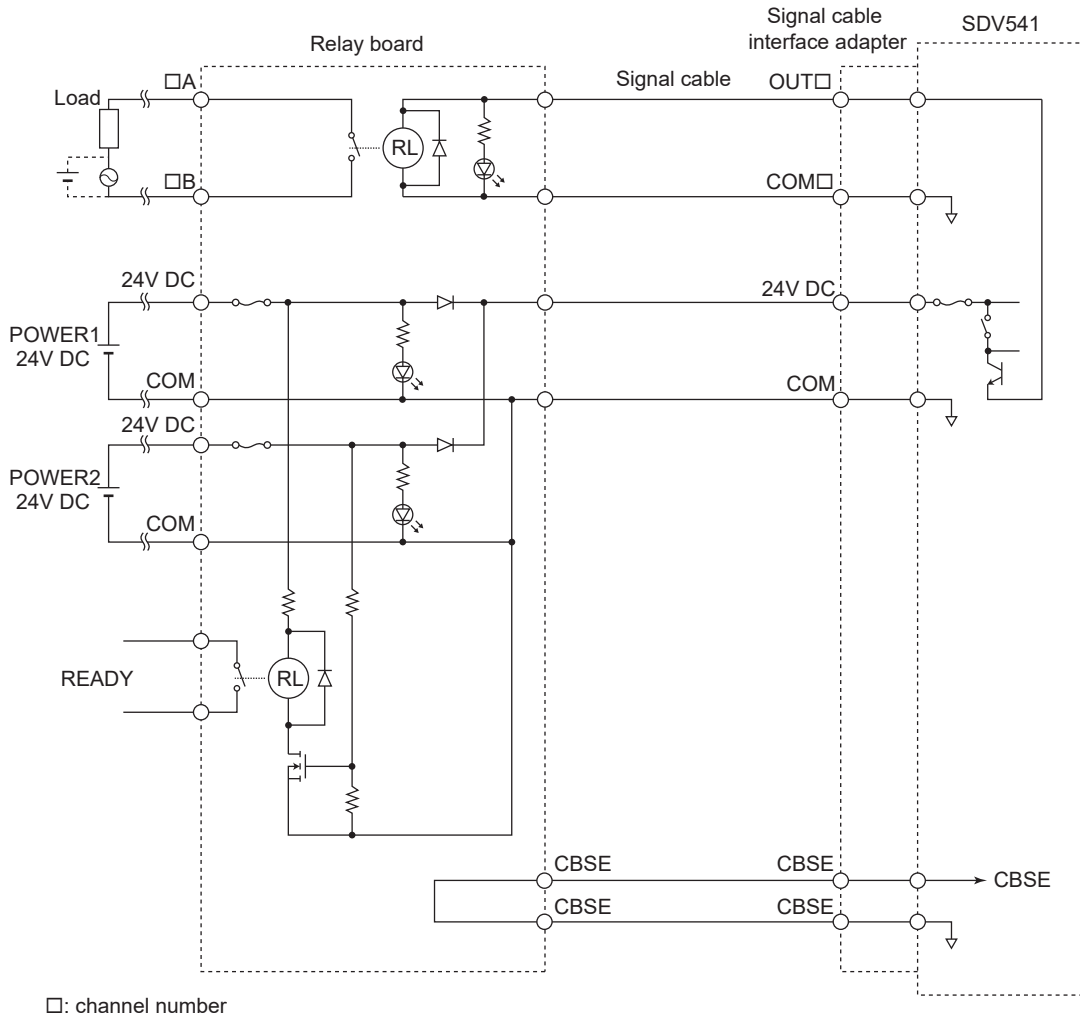
● SRM53D, SRM54D



F54E.ai

*1: It shows an internal circuit diagram of ch1. Ch2 – 16 are like this.
 *2: (N=1-8 : TM2) for SDV531

● SBM54D



F55E.ai

■ TRADEMARK ACKNOWLEDGMENT

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