

Industrial Control Relays

Relays-and-terminal module

RS type

勝特力材料 886-3-5753170
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 Http://www.100y.com.tw

Relays-and-terminal module RS4□, 6N

A very compact, space-saving terminal module containing four or six relays with one NO contact.

■ Features

- The RS series relays-and-terminal module consists of four or six plug-in relays (RB105, 1NO contact or RB011, 1NC contact) and a terminal module with screw terminals. This relays-and-terminal module is ideal for interfacing electronic control devices (such as PLCs or photoelectric sensors) with output devices (such as solenoid valves and magnetic contactors).
- The use of ultra-small, high-sensitive relays has realized a compact size of

34mm wide and 69mm long, including screw terminals (RS4N type).

- Input terminals are located in the upper part and output terminals in the lower part of the module to separate them from each other, thereby making wiring easy.
- The terminal module uses RB105 or RB101 card relays. For replacement, please specify the card relay type and coil voltage.
- Built-in coil-surge suppression diodes and operation indicator LEDs simplify circuit design and maintenance.
- The module is quickly-mountable on a DIN 35mm rail.
- The RS4N module includes two standard accessory jumper plates, which are convenient for common wiring of terminals.

■ Specifications

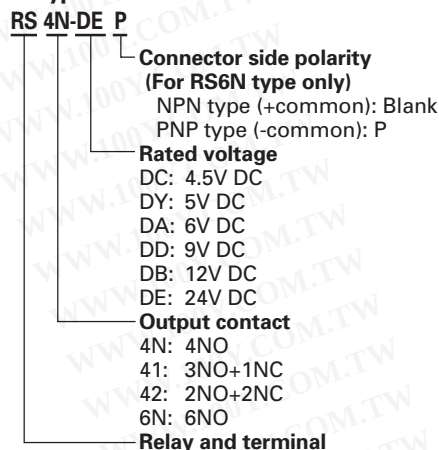
Type	RS4N, RS41, RS42, RS6N, RS6NP	
Contact	1NO	1NC
Contact resistance	30mΩ or less (before use)	
Contact material	Silver alloy (Au-plated)	
Min. operating voltage and current	0.1V DC, 1mA	1V DC, 1mA
Rated thermal current	5A	
Max. make/break current	250V AC, 5A 30V DC, 5A	250V AC, 1A 30V DC, 1A
Operating time	10ms. or less at rated voltage	
Release time	10ms. or less at rated voltage	
Insulation resistance	100MΩ (at 500V DC megger)	
Dielectric strength:		
Between contact and coil	2000V AC 1 minute	
Between contacts of same pole	750V AC 1 minute	
Between contacts of different pole	2000V AC 1 minute	
Between coils of different pole	500V AC 1 minute	
Vibration: Malfunction durability	10 to 55Hz, 1mm double amplitude	
Mechanical durability	10 to 55Hz, 1.5mm double amplitude	
Shock: Malfunction durability	100m/s ²	
Mechanical durability	1000m/s ²	
Durability: Mechanical	20 million operations	
Electrical	See page 03/17	
Ambient temperature	-25 to +55°C (no icing)	

■ Operating coil of card relays

Relay	Coil voltage	Pick-up voltage	Drop-out voltage	Power consumption	Coil resistance
RB105 (1NO)	4.5V DC	70% or less of rated coil voltage	5% or more of rated coil voltage	200mW	100Ω
	5V DC				125Ω
	6V DC				180Ω
	9V DC				405Ω
	12V DC				720Ω
	24V DC				2880Ω
RB011 (1NC)	4.5V DC			360mW	56Ω
	5V DC				70Ω
	6V DC				100Ω
	9V DC				225Ω
	12V DC				400Ω
	24V DC				1600Ω



■ Type number nomenclature



■ Relay remover

To remove a relay from the terminal module, use the type TY3 relay remover sold separately. Pull the relay in a direction perpendicular to the terminal module surface. Incorrectly removing or mounting a relay may damage the relay pins and pin jacks of the module.



TY3(RZ3A)

AF93-206

■ Ordering information

Specify the following:
 1. Type number

■ Electrical durability
● NO output contact

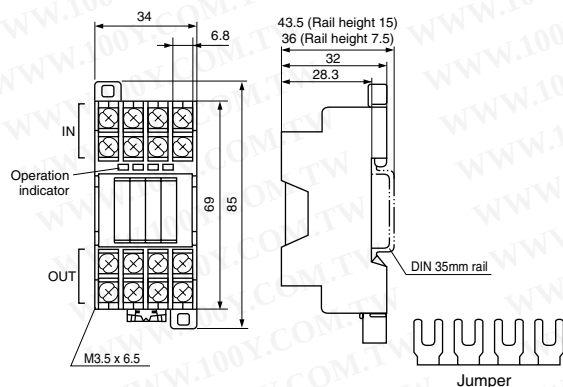
Voltage	Make current (A)	Break current (A)	Operations
220V AC (inductive load)	20 ($\cos \phi = 0.7$)	2 ($\cos \phi = 0.3-0.4$)	100,000
220V AC (resistive load)	3 ($\cos \phi = 1.0$)	3 ($\cos \phi = 1.0$)	130,000
24V DC (inductive load)	1 ($T = 15\text{ms}$)	1 ($T = 15\text{ms}$)	150,000
24V DC (resistive load)	5 ($T = 1\text{ms or less}$)	5 ($T = 1\text{ms or less}$)	100,000

● NC output contact

Voltage	Make current (A)	Break current (A)	Operations
220V AC (resistive load)	1 ($\cos \phi = 1$)	1 ($\cos \phi = 1$)	100,000
24V DC (resistive load)	1 ($L/R = 0\text{ms}$)	1 ($L/R = 0\text{ms}$)	120,000

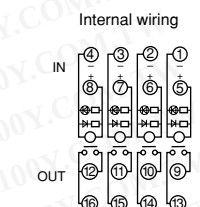
■ Dimensions, mm

● RS4N
(RS4A, RS4D)



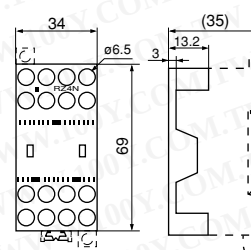
■ Wiring diagrams

● RS4N



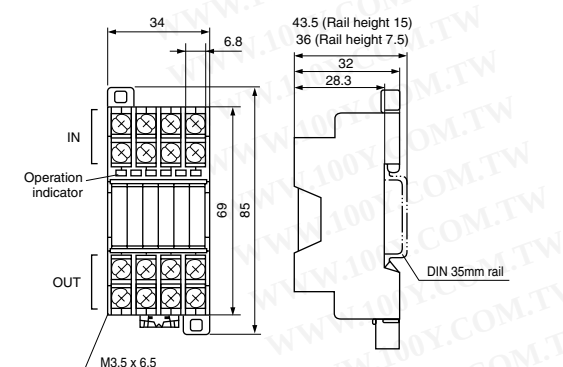
■ Finger protection cover

● RZ4N

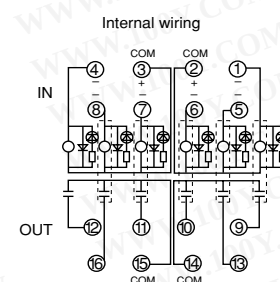


See page 03/23.

● RS6N
(RS6A, RS6D)



● RS6N



Industrial Control Relays

Relays-and-terminal module

RS type

Relays-and-terminal module RS16

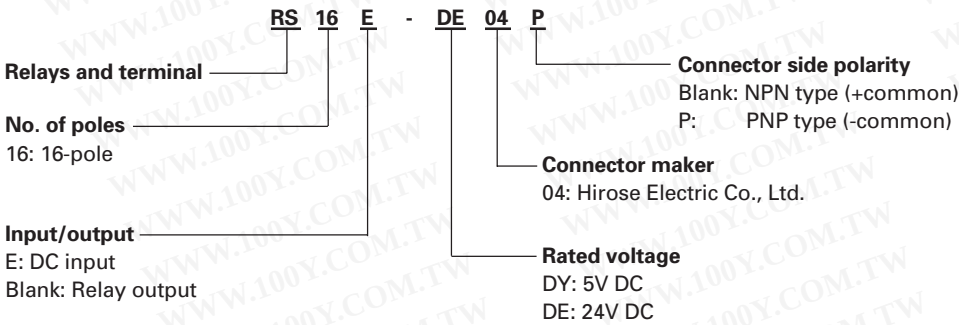
16-point relays-and-terminal module with the smallest width in its class

■ Features

- Most compact in its class
Outside dimensions are 110mm (W), 52mm (D), and 37mm (H).
The width is the smallest in this class.
- Push-to-set (quick-connect) terminals for easy wire connection
A unique terminal structure enables quick and easy crimp terminal connections without removal of screws. (No more lost screws)
- Clear LEDs indicate relay output status.
Each relay has an LED to indicate its ON/OFF status.
- A surge suppressing diode is provided for each relay coil.
- Terminal cover with label for marking device Nos.
- Built-in relay remover
- DIN rail quick mount and panel-surface mount using screws



■ Type number nomenclature



■ Ordering information

Specify the following:

1. Type number

■ Types

Type	Input/output	No. of poles	Rated voltage	Connector side polarity
RS16-□04	Output	16(1NO×16)	5V DC	NPN type (+common)
RS16-□04P			24V DC	PNP type (-common)
RS16E-□04	Input			NPN type (+common)

Note: Enter the rated voltage code in the □ mark as follow. 5V DC: DY, 24V DC: DE

■ Ratings

● Operating coil

Rated voltage	Rated operational current (mA)	Coil resistance (Ω)	Pick-up voltage	Drop-out voltage	Power consumption (W)
24V DC	8.3	2,880±10%	70% or less of coil rated voltage	10% or more of coil rated voltage	0.2/1NO contact
5V DC	40	125±10%			3.2/16NO contacts

Note: An LED flows approx. 1mA. To calculate the power requirements, calculate the total coil and LED currents of all relays installed in the terminal module.

● Contact

Terminal relay type		RS16 (output)	RS16E (input)
Rated current	220V AC (Res. load)	2A	—
	220V AC (Ind. load)	2A	—
	24V DC (Res. load)	2A	1A
	24V DC (Ind. load)	2A	1A
Rated thermal current*		2A	1A
Electrical durability (operations)		200,000 at 200V AC, 2A 300,000 at 24V DC, 2A	
Mechanical durability (operations)		20,000,000	

Note * The contact current rating of the RB105 relay used in this module is 5A. The thermal current rating of this terminal module, however, is 2A or 1A due to limitations of the terminal module (RS16) rating.

■ Performance data

Operating time		10ms or less
Release time		10ms or less
Vibration	Malfunctions durability	10-55Hz 1mm double amplitude
	Mechanical durability	10-55Hz 1mm double amplitude
Operating ambient temperature		-25-55°C(no icing)
Operating ambient humidity		35-85%RH
Terminal screw size		M3
Tightening torque		0.5-0.7N・m
Mounting		Rail mounting (screw mounting also available)
Applicable crimp terminal		R1.25-3 (Max. 6mm wide)
Applicable wire size		Max. φ1.4
LED color	Operation indication	Red
	Power source indication	Green
Coil surge suppressor		Diode
Insulation resistance (before use)		100MΩ (500V DC megger)
Dielectric strength	Between contact and coil	2000V AC, 1 minutes
	Between open contacts	750V AC, 1 minutes
	Between contacts of opposite polarity	2000V AC, 1 minutes
Mass		200g

■ Cable types

Type		Cable length	Type (Ordering code)
Cable with applicable crimp terminal (ring)		1,000mm	RS910B1-0104
		2,000mm	RS910B1-0204
		3,000mm	RS910B1-0304
Cable with connectors (1:2)	FUJI ELECTRIC FA PLC	1,000mm	RS910F2-0104
		2,000mm	RS910F2-0204
		3,000mm	RS910F2-0304
	Mitsubishi electric Corp. PLC	1,000mm	RS910M2-0104
		2,000mm	RS910M2-0204
		3,000mm	RS910M2-0304
	OMRON PLC	1,000mm	RS910T2-0104
		2,000mm	RS910T2-0204
		3,000mm	RS910T2-0304
Cable with connectors (1:1)	Multicore cable	1,000mm	AUX014-201(LP914-201)
		2,000mm	AUX014-202(LP914-202)
		3,000mm	AUX014-203(LP914-203)
	Flat cable	1,000mm	AUX024-201(LP924-201)
		2,000mm	AUX024-202(LP924-202)
		3,000mm	AUX024-203(LP924-203)

Note: The ordering codes of the cables with connectors (1:1) differ from the type.
The ordering codes are in parentheses.

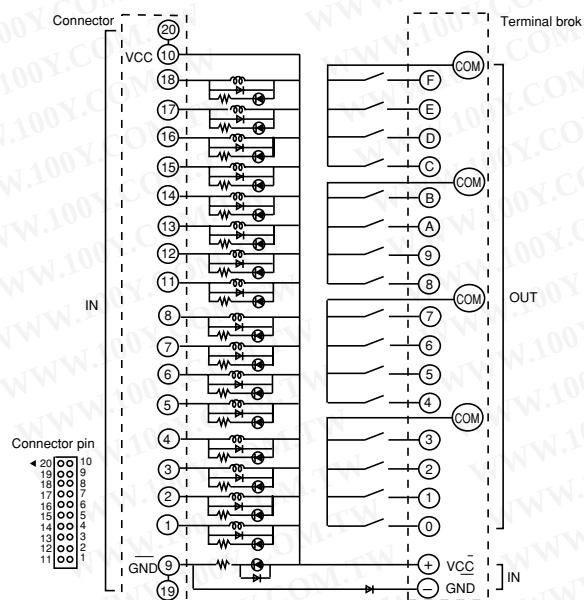
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Relays-and-terminal module

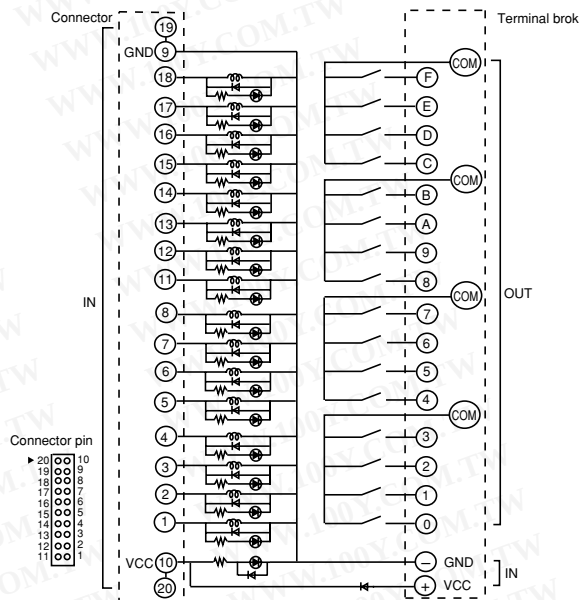
RS type

■ Wiring diagrams

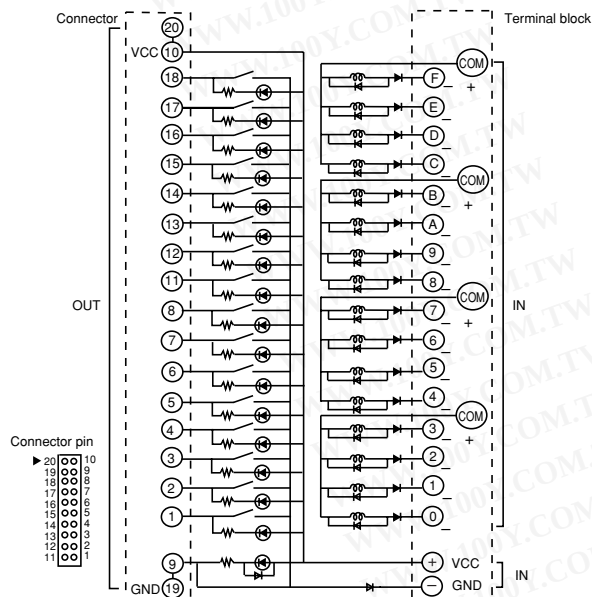
● RS16-DE04 (Output, NPN type)



● RS16-DE04P (Output, PNP type)



● RS16E-DE04 (Input, NPN type)



■ How to use a push-to-set terminal (Quick-connect terminal)

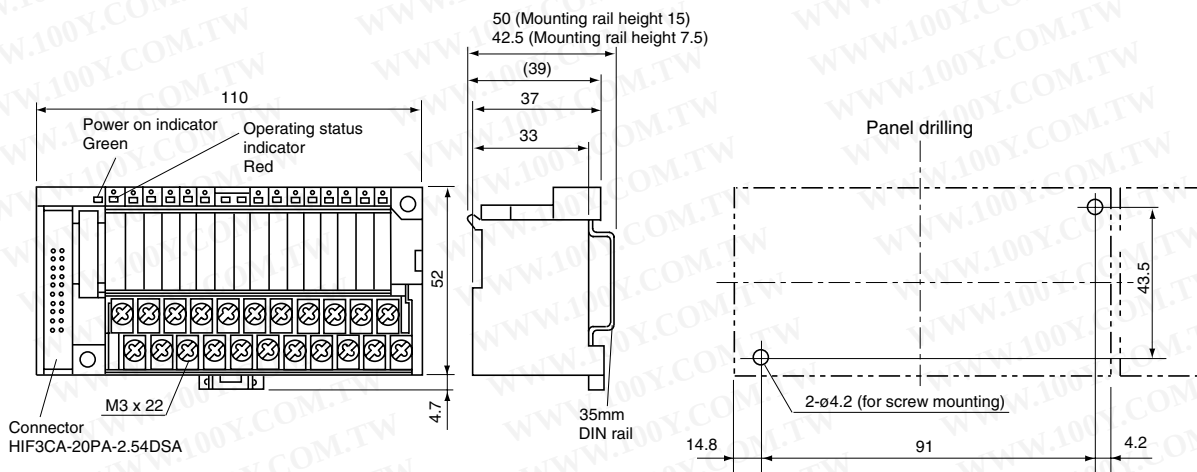
Lift the screw head up with a screw driver tip.

Insert the crimp terminal of the wire into the slot under the screw.

Use a screwdriver to tighten the screw.



■ Dimensions, mm



Industrial Control Relays

Relays-and-terminal module

RS type

Relays-and-terminal module with SSR output

■ Features

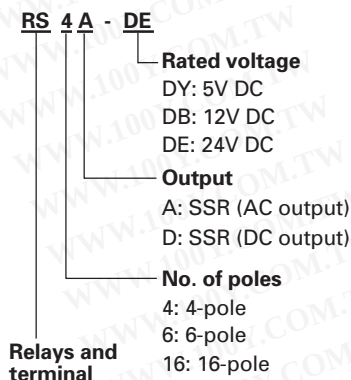
- SSR output (AC and DC)
Provided with a miniature SSR with the same dimensions as the RB-series miniature card relay resulting in a longer service life and making it ideal for highly frequent switching.
- Slim 34-mm body
Slim 34-mm design for all models up

to 16-pole models allowing significant space savings within the panel.

- Both surface mounting and DIN rail mounting are possible
- Provided with operation indicators
- Easy relay maintenance with special socket (type TP04)
- RZ4N finger protector also available. (Sold separately.)



■ Type number nomenclature



■ Types

Type (Ordering code)	Replace the □ mark by the rated voltage (code)	Output
RS4A-□	5V DC: DY, 12V DC: DB	SSR (AC output)
RS4D-□	24V DC: DE	SSR (DC output)
RS6A-□		SSR (AC output)
RS6D-□		SSR (DC output)
RS16A-□		SSR (AC output)
RS16D-□		SSR (DC output)

■ Ordering information

Specify the following:

1. Type number

■ Specifications

Type		RS4A, RS6A		RS16A	RS4D, RS6D		RS16D
		DC input-AC output			DC input-DC output		
Main circuit (output)	Rated insulation voltage	250V			250V		
	Rated voltage V _n	100–240V AC			24V DC		
	Operating voltage range	70–250V AC			16.8–26.4V DC		
	Rated frequency	50/60Hz			-		
	Rated thermal current	0.3A		0.15A	0.3A		0.15A
	Leakage current at OFF state (max)	1mA or less			0.1mA or less		
	Minimum load current	20mA			1mA		
	Voltage drop at ON state (max)	1.6V or less			1V or less		
	Zero-cross function	-			-		
	Surge-on current	15A (20ms, 1 shot)			3A (10ms, 1 shot)		
Control circuit (input)	Isolation method	Phototriac			Photocoupler		
	Rated voltage V _n	5V DC	12V DC	24V DC	5V DC	12V DC	24V DC
	Operating voltage range	3.5–5.5V DC	8.4–13.2V DC	16.8–26.4V DC	3.5–5.5V DC	8.4–13.2V DC	16.8–26.4V DC
	Pick-up voltage	70%V _n or less			70%V _n or less		
	Drop-out voltage	10%V _n or more			10%V _n or more		
	Input impedance	Approx.390Ω	Approx.1kΩ	Approx.2.7kΩ	Approx.390Ω	Approx.1kΩ	Approx.2.7kΩ
General specification	Ambient temperature (operate)	-25 – +55°C (no icing)			-25 – +55°C (no icing)		
	Ambient temperature (storage)	-25 – +80°C (no condensation)			-25 – +80°C (no condensation)		
	Relative humidity	35 – 85%RH			35 – 85%RH		
	Dielectric strength	Between input and output terminals 2000V AC 1 min.			Between input and output terminals 2000V AC 1 min.		
	Insulation resistance	Over 100MΩ at 500V DC megger			Over 100MΩ at 500V DC megger		
	Operating time	1ms or less			1ms or less		
	Release time	1/2 cycle +1ms or less			1ms or less		
	Vibration resistance	10 – 55Hz, 1.5mm double amplitude		1mm	10 – 55Hz, 1.5mm double amplitude		1mm
	Shock resistance	100m/s ²			100m/s ²		
	Mass	Approx. 64g		Approx. 200g	Approx. 64g		Approx. 200g

■ Dimensions, mm

● RS4A, 4D

Same as RS6N
See page 03/17

● RS6A, 6D

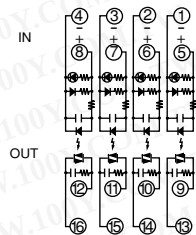
Same as RS16
See page 03/17

● RS16A, 16D

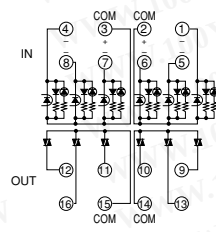
Same as RS4N
See page 03/21

■ Wiring diagrams

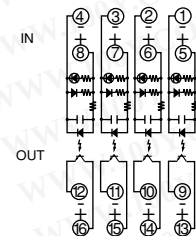
● RS4A



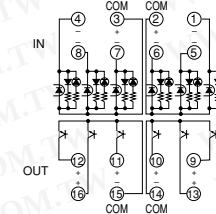
● RS6A



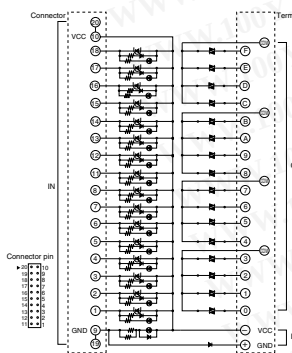
● RS4D



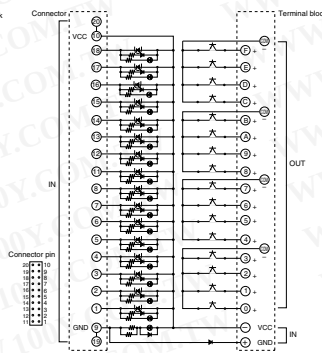
● RS6D



● RS16A



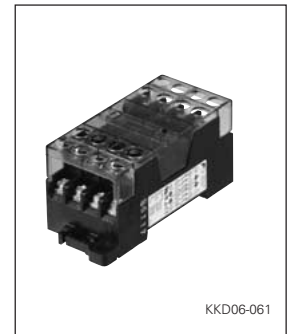
● RS16D



RZ finger protection cover for RS series relays-and-terminal module

■ Features

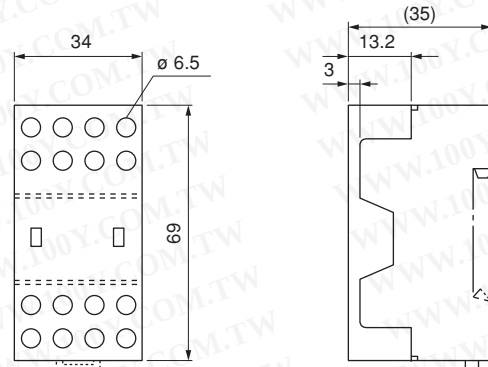
- Ensures safety and prevent dust
This cover prevent persons from touching, by mistake, live conductor parts of the terminal module and receiving an electric shock. The cover also protect relays from dust.
- Hold the relay remover
The cover surface has two holes to hold the type TY3 relay remover. When the remover is not being used, it can be attached to the cover so that it is not lost.
- The cover is quick-mount
The cover can be quickly mounted on or removed from the TP04 socket used with RS series relays-and-terminal module.
- The cover can be mounted at any time
The cover can be mounted on or removed from the socket at any time before or after wiring the terminals.
- Crimp terminal is also available
It is possible to use a crimp terminal as well as terminal jumper for wiring.



■ Type

Type	Used with
RZ4N	RS4N, 4-pole relays-and-terminal module RS6N, 6-pole relays-and-terminal module

■ Dimensions, mm



Mass: Approx. 3.2g

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Relays-and-terminal module

RS type

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■ Notes on use

● Mounting direction

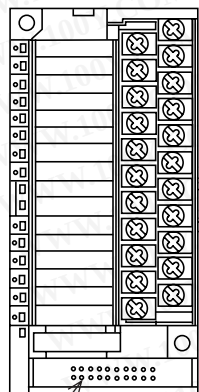
This product can be mounted in any direction. However, to mount the product in a direction which each relay is horizontal, it is recommended that the product will be mounted so that the cable connector is positioned at the bottom. This position ensures the optimal vibration resistance of the relay.

Use optional end clamps (TS-XT) as needed to prevent the relays-and-terminal module from failing off and to ensure correct positioning of the relays.

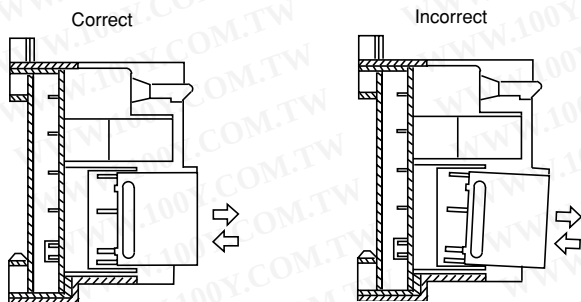
● Installing and removing a relay

Installing a relay: While holding the relay perpendicular to the socket, insert the relay into the socket as shown below. Incorrect insertion may bend the relay terminals or damage the socket.

Removing a relay: Use the accessory remover to remove the relay from the socket.



Connector side



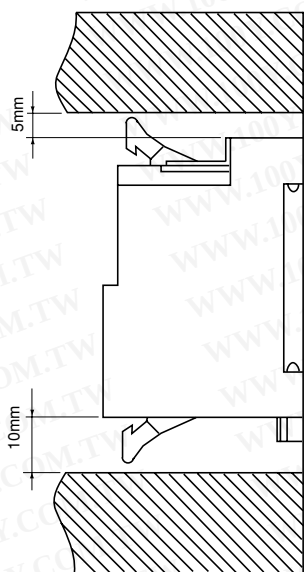
● Component relay

This product uses the RB105 series of card relays as components. When replacing a relay, use a relay of the same type with the same voltage rating as that of the original.

● Make spaces between nearby devices

When mounting this product on a panel, be sure there is adequate space between the product and nearby devices and cable ducts, as shown in the figure at right.

This space enables operation of the connector-ejecting levers.



● Applicable cable connectors

Use Fuji Electric's connectors for cable connections (optional). Use of any other connector may damage the module connector or cause faulty connections.