

Thank you for purchasing the JUXTA R series.  
Please read through this manual before use for correct handling.

### CAUTIONARY NOTES FOR SAFE USE OF THE PRODUCT

This User's Manual should be carefully read before installing and operating the product. Please keep this User's Manual for future reference.

The related manuals and general specifications are shown in the table below.

Document Name	Document Number
R Series Nest and Relay I/O card User's Manual	IM JR200-01E (This manual)

General Specifications

Document Name	Document Number
RY1 Relay Input Card	GS 77J06B01-01EN
RY2 Wet Contact Relay Input Card	GS 77J06B02-01EN
RY0 Relay Output Card	GS 77J06B10-01EN
RY8 Relay Output Card for motor start-stop	GS 77J06B18-01EN
RYH Relay I/O Cards Nest (Horizontal Mounting Type)	GS 77J06Y51-01EN
RYV Relay I/O Cards Nest (Vertical Mounting Type)	GS 77J06Y61-01EN

User's manuals in the above table are essential parts of the product. This manual is intended for the following personnel; Engineers responsible for installation, wiring, and maintenance of the equipment.

Personnel responsible for normal daily operation of the equipment.

The following symbol is used on the product and in this manual to ensure safe usage.



#### WARNING

**Calls attention to actions or conditions that could cause serious or fatal injury to the user, and indicates precautions that should be taken to prevent such occurrences.**



#### CAUTION

**Calls attention to actions or conditions that could cause injury to the user or damage to the instrument or property and indicates precautions that should be taken to prevent such occurrences.**

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You can download the latest manuals from the following website:

<http://www.yokogawa.com/ns/juxta/im/>

### CHECKING PRODUCT SPECIFICATIONS AND PACKAGE

#### (1) Checking the Model and Product Specifications

Check that the model and specifications indicated on the nameplate attached to the main unit are as ordered.

#### (2) Accessories

Check that the package contains the following items:

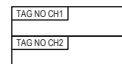
##### Nest

- Nest tag number label: 1
  - Relay I/O card tag number label: 16
  - Mounting bracket (RYH only): 1 pair  
Mounting Screw: M3 screw x 4
  - Plate: 16  
Mounting Screw: M3 screw x 32
- The plates corresponding to the unused slots are included only if the optional specification "/AS" (card embedded type) is ordered. (The plates are attached on the unused slots.)

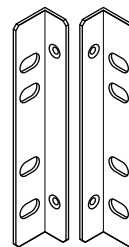
Nest tag number label



Relay I/O card tag number label

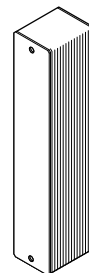


Nest mounting brackets



Mounting screws

Plate



Mounting screws

##### Card

- Relay I/O card tag number label: 1 sheet/card

### GENERAL

The JUXTA-R series consists of relay I/O card and its storing nest.

The relay input card receives digital signal from the field and outputs isolated and amplified contact signal to DCS etc. Relay output card receives status signal from DCS or PLC through relay and outputs isolated and amplified contact signal to the field side.

One relay I/O card can handle two points (two channels).

# 1. JUXTA R SERIES NEST

## RYH Relay I/O Cards Nest (Horizontal Mounting Type)

### 1.1 Model and Suffix Codes

Model	Suffix codes	Description
<b>RYH</b>	-3 □ /□□	Relay I/O Cards Nest (Horizontal Mounting Type) (Apply JIS / EIA standard rack mount dimensions)
Power Supply	-3	24 V DC±10%
DCS connection	1	YOKOGAWA DCS Status Card ST2, ST3, ST4 connection
	2	YOKOGAWA DCS Status Card ST5, ST6, ST7 connection
Option	/AS	Card embedded type

## Relay I/O Cards Nest (Vertical Mounting Type)

Model	Suffix codes	Description
<b>RYV</b>	-□ □ /□□	Relay I/O Cards Nest (Vertical Mounting Type) (Conforms to the mounting dimensions of the CENTUM dedicated cabinet (for SC))
Power Supply	-1	85 to 132 V AC
	-2	170 to 264 V AC
	-3	24 V DC±10%
DCS connection	1	YOKOGAWA DCS Status Card ST2, ST3, ST4, ST5, ST6, ST7 connection
Option	/AS	Card embedded type

### 1.2 Main Specifications of Nest

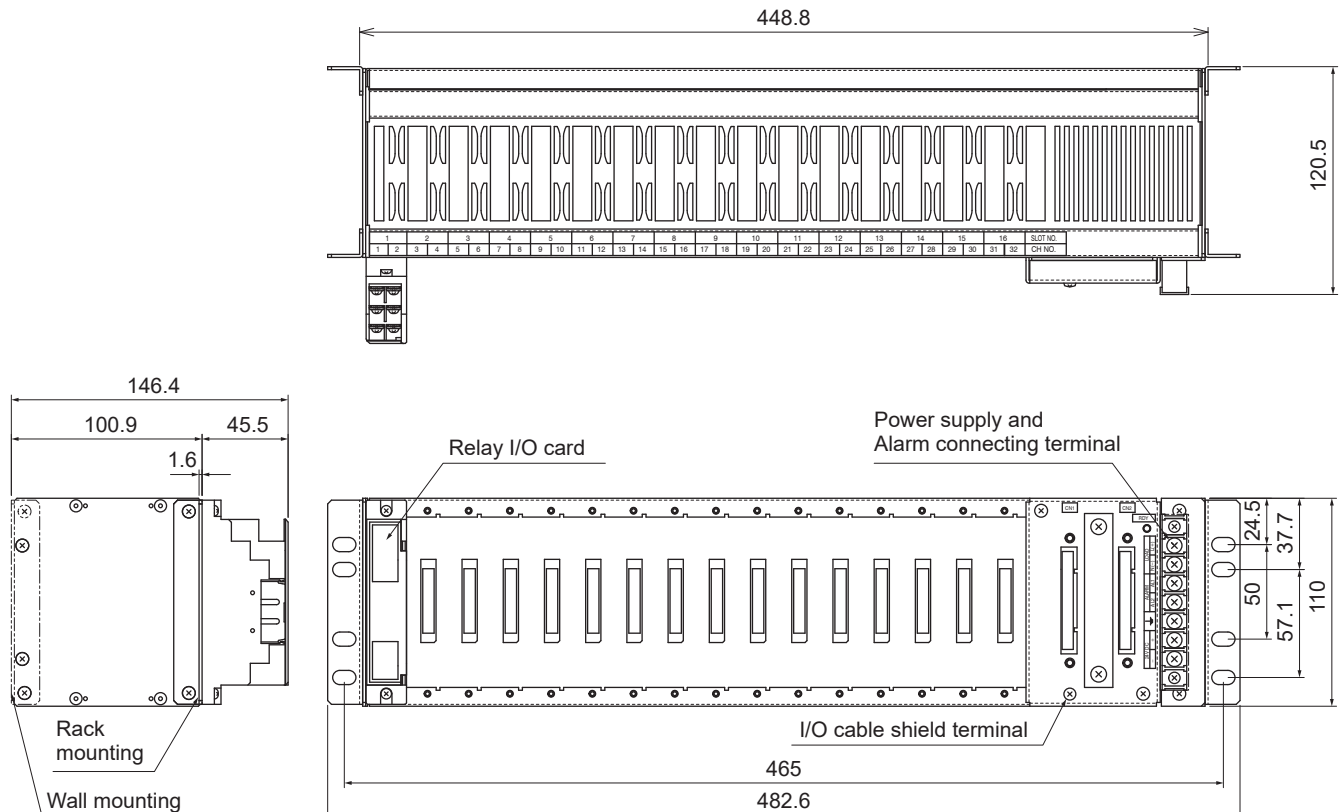
Storing quantity of Relay I/O Card	Relay input card: 16 (Up to 32 channels) Relay output card: 16 (Up to 32 channels) When relay input card and relay output card are mixed Relay input card: 8 Relay output card: 8
Signal connection	Direct connection between nest and DCS (or PLC) by connector.
Alarm output	When fuse break of Relay I/O card, non-voltage contact outputs from alarm terminal.
Power supply for voltage contact output	Maximum voltage: 125 V AC or 125 V DC External load drive current: maximum 10 A at 32 points

### 1.3 External Dimension and Part Names

#### 1.3.1 Relay I/O Cards Nest (Horizontal Mounting Type)

The RYH can be mounted on a standard instrumentation panel, with JIS / EIA standard 19-inch standard rack mounting or wall mounting.

Unit: mm



Normal Allowable Deviation = ± (Value of JIS B 0401-2016 tolerance grade IT18) / 2

### RYP Power supply, Alarm Connecting Terminal Assignments



Terminal no.	Terminal symbol	RYP-31 and RYP-32
1	L (+)	Voltage contact output power supply 125 V AC/DC or less
2	N (-)	
3	AL1	Relay I/O card fuse break alarm Non-voltage contact 30 V DC, 300 mA MAX
4	AL2	
5	⏏	Relay I/O card power supply 24 V DC±10%, 1.5 A
6	+	
7	-	

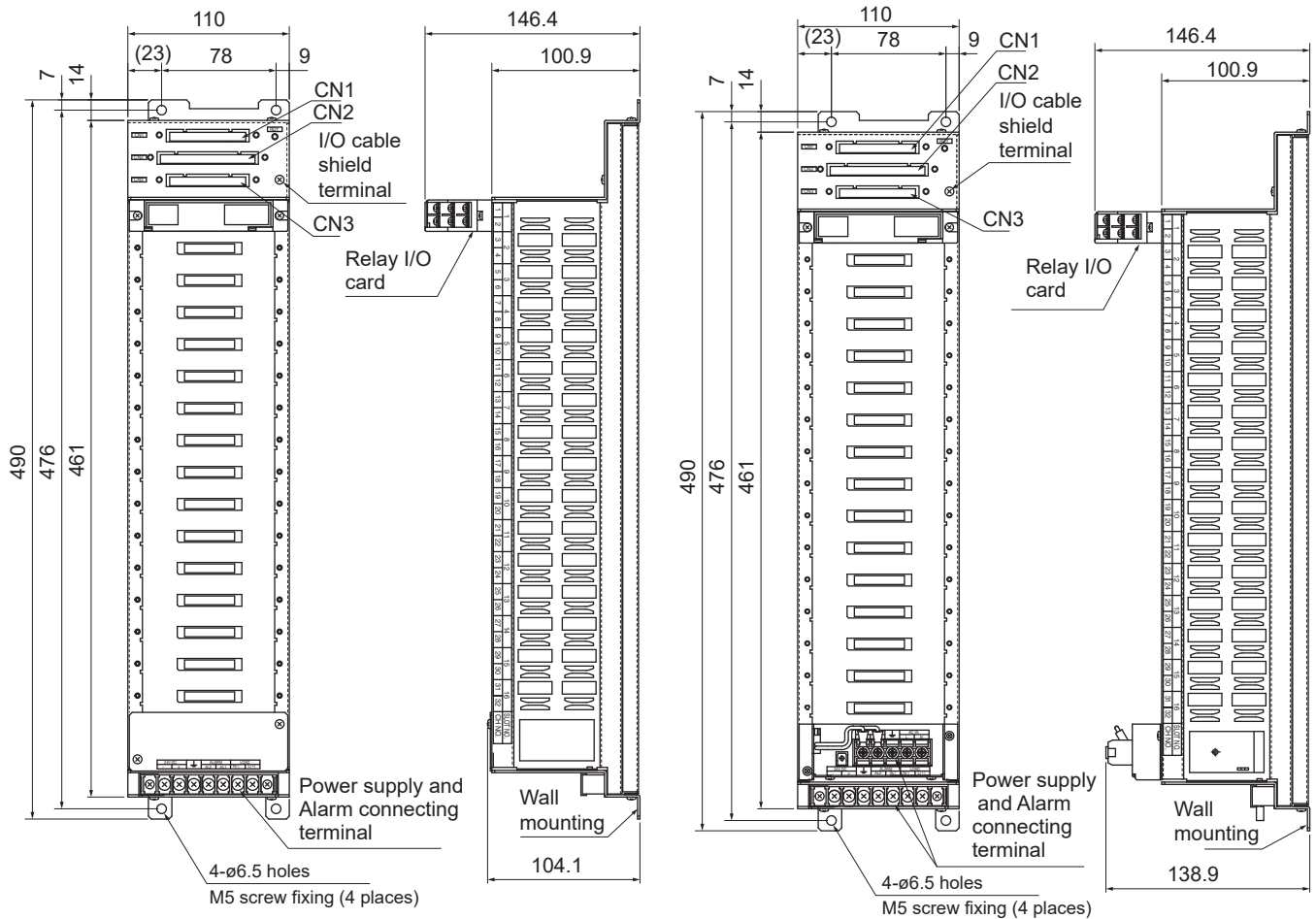
### 1.3.2 Relay I/O Cards Nest (Vertical Mounting Type)

RYP is a vertical nest that can be mounted on a Yokogawa's CENTUM dedicated cabinet.

Unit: mm

#### DC Power Supply (RYP-31)

#### AC Power Supply (RYP-11, RYP-21)



Normal Allowable Deviation= ± (Value of JIS B 0401-2016 tolerance grade IT18) / 2

**RYV Power Supply, Alarm Connecting Terminal Assignments**

**DC Power Supply (RYV-31)**

**AC Power Supply (RYV-11, RYV-21) (Style S2.0)**

(Screw: M4)



Upper  
(Screw: M3.5)



Lower  
(Screw: M4)



Terminal no.	Terminal symbol	RYV-31
1	L (+)	Voltage contact output power supply 125 V AC/DC or less
2	N (-)	
3	AL1	Relay I/O card fuse break alarm
4	AL2	
5	⏏	Relay I/O card power supply 24 V DC±10%, 1.5 A
6	+	
7	-	

Terminal no.		Terminal symbol	RYV-11	RYV-21
Upper	Lower			
	1	L (+)	Voltage contact output power supply 125 V AC/DC or less	
	2	N (-)		
	3	AL1	Relay I/O card fuse break alarm	
	4	AL2		
	5	⏏	100-120 V AC (-15%,+10%) 50 / 60 Hz 1.0 A	200-240 V AC (-15%,+10%) 50 / 60 Hz 0.5 A
6		N		
7		L		
8		⏏		

**Note: For style S1.0, the specifications of the upper terminal are different as shown below.**

- Screw: M4
- Terminal Assignment

Terminal no.	Terminal symbol
6	L
7	N

For the style, check the nameplate attached to RYV.

**1.4 Relay I/O Card Mounting Position**

**(1) RYH-31**

Slot No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	DCS side connector		
Channel No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	CN1		CN2
Relay I/O card to be stored	Output	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	ST2 (CN1)		ST2 (CN2)
	Output	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	ST3 (CN1)		ST3 (CN2)
	Input	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	ST4 (CN1)		ST4 (CN2)

**(2) RYH-32**

Slot No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	DCS side connector		
Channel No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	CN1		CN2
Relay I/O card to be stored	Output	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		ST5 (CN1)	
	Output	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		ST6 (CN1) (CN2)	
	Input	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		ST5 (CN2) ST7 (CN1) (CN2)	
Slot No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	FA500 side connector		
Channel No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	CN2		
Relay I/O card to be stored	Output	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		XD64-6N	
	Input	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→		YD64-1A	

(3) RYV-□□

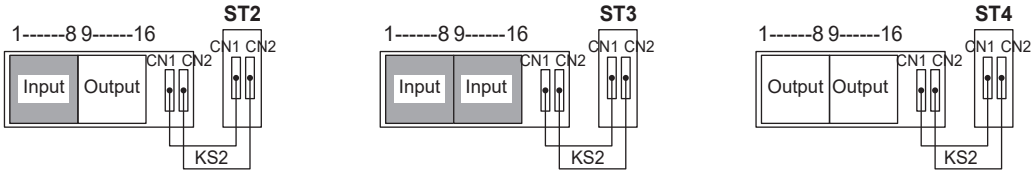
DCS side connector	CN1	ST2 (CN1)	ST3 (CN1)	SR4 (CN1)
	CN2			
	CN3	ST2 (CN2)	ST3 (CN2)	SR4 (CN2)
Slot No.	Ch. No.	Relay I/O card to be stored		
1	1	Output	Output	Input
	2			
2	3	↓	↓	↓
	4			
3	5	↓	↓	↓
	6			
4	7	↓	↓	↓
	8			
5	9	↓	↓	↓
	10			
6	11	↓	↓	↓
	12			
7	13	↓	↓	↓
	14			
8	15	↓	↓	↓
	16			
9	17	Input	↓	↓
	18			
10	19	↓	↓	↓
	20			
11	21	↓	↓	↓
	22			
12	23	↓	↓	↓
	24			
13	25	↓	↓	↓
	26			
14	27	↓	↓	↓
	28			
15	29	↓	↓	↓
	30			
16	31	↓	↓	↓
	32			

DCS side connector	CN1			
	CN2	ST5 (CN1)	ST6 (CN1) (CN2)	SR5 (CN2) ST7 (CN1) CN2)
	CN3			
Slot No.	Ch. No.	Relay I/O card to be stored		
1	1	Output	Output	Input
	2			
2	3	↓	↓	↓
	4			
3	5	↓	↓	↓
	6			
4	7	↓	↓	↓
	8			
5	9	↓	↓	↓
	10			
6	11	↓	↓	↓
	12			
7	13	↓	↓	↓
	14			
8	15	↓	↓	↓
	16			
9	17	↓	↓	↓
	18			
10	19	↓	↓	↓
	20			
11	21	↓	↓	↓
	22			
12	23	↓	↓	↓
	24			
13	25	↓	↓	↓
	26			
14	27	↓	↓	↓
	28			
15	29	↓	↓	↓
	30			
16	31	↓	↓	↓
	32			

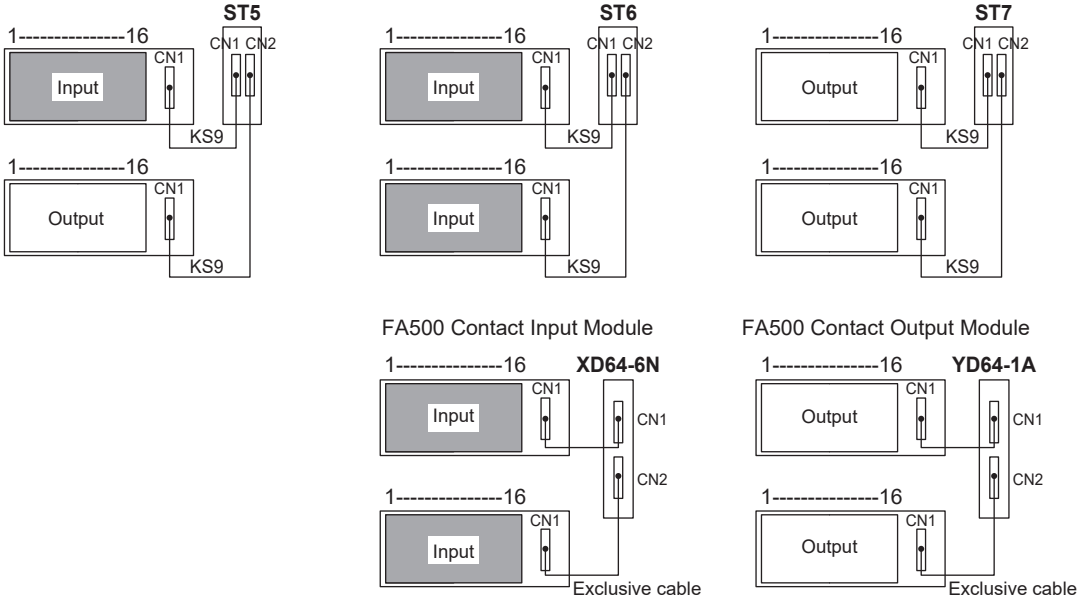
FA500 side connector	CN1		
	CN2	XD64 -6N	YD64 -1A
	CN3		
Slot No.	Ch. No.	Relay I/O card to be stored	
1	1	Output	Input
	2		
2	3	↓	↓
	4		
3	5	↓	↓
	6		
4	7	↓	↓
	8		
5	9	↓	↓
	10		
6	11	↓	↓
	12		
7	13	↓	↓
	14		
8	15	↓	↓
	16		
9	17	↓	↓
	18		
10	19	↓	↓
	20		
11	21	↓	↓
	22		
12	23	↓	↓
	24		
13	25	↓	↓
	26		
14	27	↓	↓
	28		
15	29	↓	↓
	30		
16	31	↓	↓
	32		

## 1.5 Connection between Multipoint Status I / O Card and R Series Nest

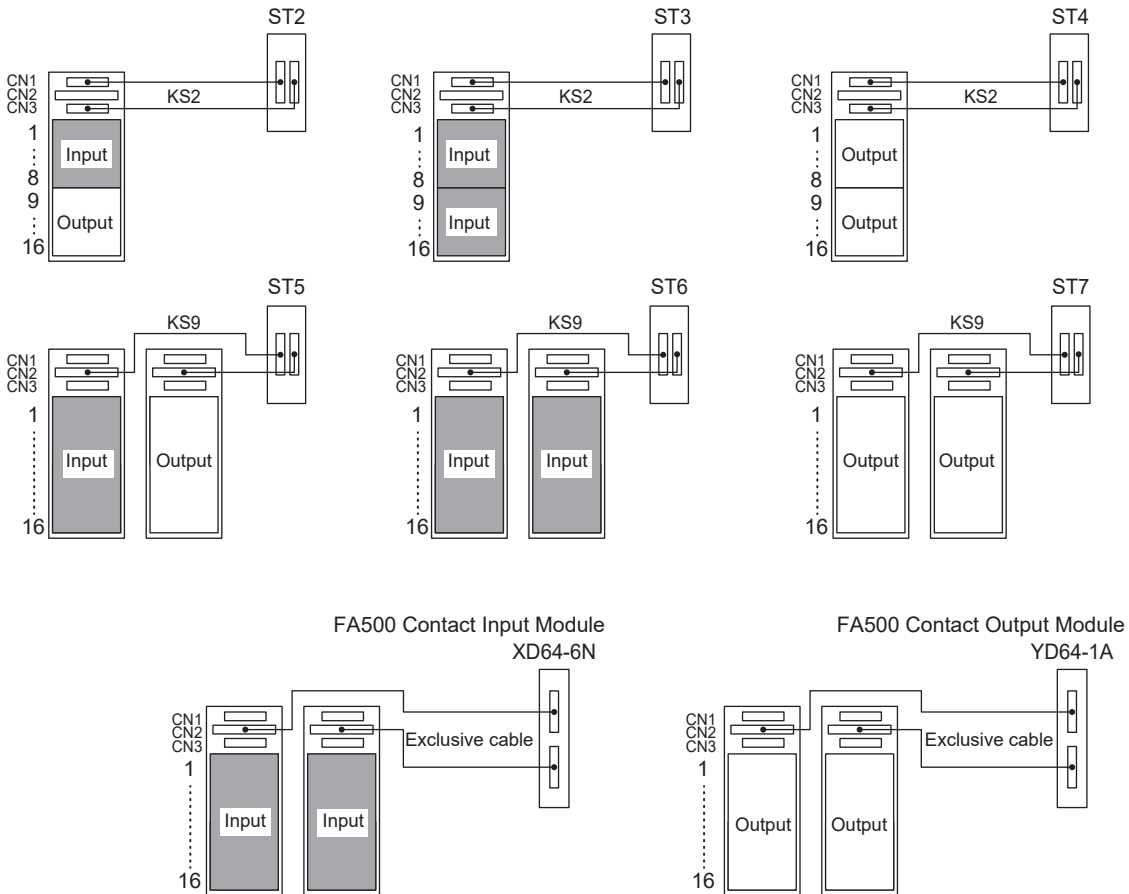
### (1) RYH-31



### (2) RYH-32



### (3) RYV-□□



## 2. RELAY I/O CARD

### 2.1 Model and Suffix Codes

#### RY1 Relay Input Card

Model	Suffix code			Description
<b>RY1</b>	-1	□	/□□	Relay input card (2 channels/card) (input signal: non-voltage contact or open collector)
Relay output type	-1			Output-1: a-contact (output thru connector) Output-2: Transfer contact (re-transmit output)
Test switch		0		Without test switch
		1		With test switch
Optional code			/□□	-----

#### RY2 Wet Contact Relay Input Card

Model	Suffix codes			Description
<b>RY2</b>	-□	□	/□□	Wet Contact Relay Input Card (2 channels/card)
Input signal type	-1			100 V AC voltage contacts (85 to 132 V AC)
	-2			200 V AC voltage contacts (170 to 264 V AC)
	-3			24 V DC voltage contacts ( 24 V DC±10%)
Test switch		0		Without test switch
		1		With test switch
Optional code			/□□	-----

#### RY0 Relay Output Card

Model	Suffix codes			Description
<b>RY0</b>	-□	□	/□□	Relay Output Card (2 channels/card) (input signal: non-voltage contact or open collector)
Relay output type	-1			Output-1: a-contact or b-contact (non-voltage contact), jumper switching Output-2: Transfer contact
	-2			Output-1: a-contact (voltage contact, with fuse) Output-2: Transfer contact
Test switch		0		Without test switch
		1		With test switch (AUT-OFF-ON)
		2		With test switch (OFF-AUT-ON) (This can only be specified for RY0-1.)
Optional code			/□□	-----

#### RY8 Relay Output Card for motor start-stop

Model	Suffix codes			Description
<b>RY8</b>	-1	□	/□□	Relay Output Card for Motor Start-Stop (2 channels/card) (input signal: non-voltage contact or open collector)
Relay output type	-1			Output-1: Output for motor start, a-contact or b-contact (non-voltage contact), jumper switching Output-2: Output for motor stop, transfer contact
Test switch		0		Without test switch
		1		With test switch
Optional code			/□□	-----

## 2.2 Main Specifications of Relay I / O Card

### 2.2.1 RY1 Relay Input Card

This unit receives contact signal from the field and outputs 2 contact signals (1 for use of DCS status card input and the other is re-transmit contact signal) isolated electrically from the field. One unit stores 2 channels.

- Output contact consists of 2 contacts; 1 for DCS contact and the other for re-transmit contact (transfer contact) of current capacity 1 A.
- Electrically isolated between field input and power supply since DC/DC converter for relay driving power supply is installed.
- Furnished with test switch convenient for debugging of DCS or checking operation and LED for status display.

Test switch position	AUT	When input contact is ON, output contact is ON (when a-contact).	
	OFF	Output contact OFF compulsorily (OPEN when a-contact)	
	ON	Output contact ON compulsorily (CLOSE when a-contact)	
LED Lamp	ON	When relay exciting (Output contact ON)	
	OFF	When relay non-exciting (Output contact OFF)	
Fuse break alarm		Alarm contact ON when break of relay circuit fuse (rating: 0.15 A) or break of DC/DC converter circuit fuse.	
Contact rating	Output-1 for the DCS	30V DC, 0.2A	
	Output-2 for the re-transmission	Maximu voltage to use: 250 V AC or 125 V DC	
		Resistance load	Inductive load
External contact rating		Non-voltage contact or open collector: 24V DC, 30 mA	

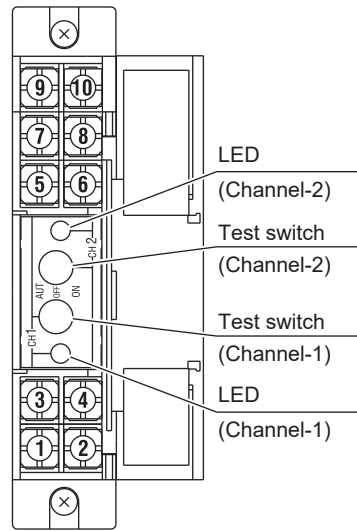


### CAUTION

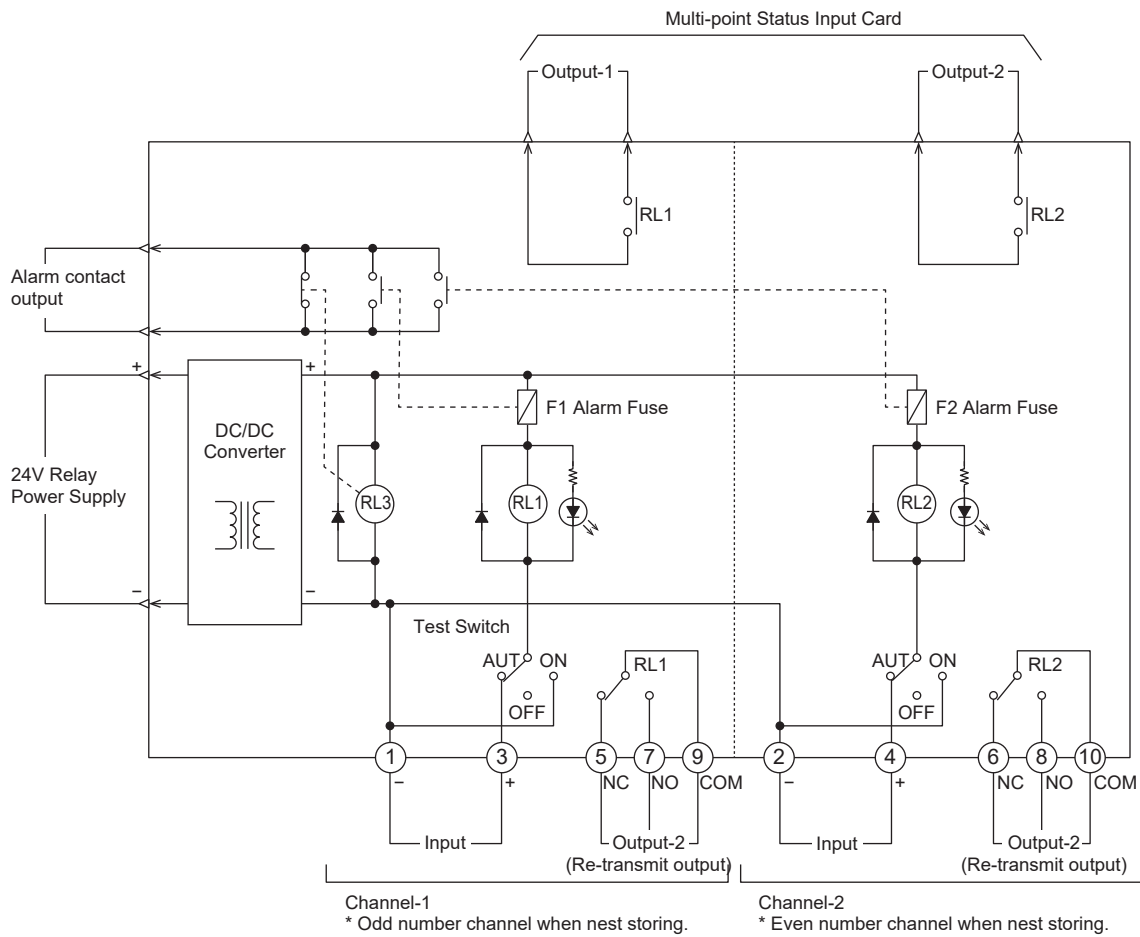
When driving Inductive load (various kinds of coils), erase noise to proteet contat.

### RY1 Terminal Assignment and Signals

Signal	
Terminal No.	Channel-1
1	Contact input (-) (Field side)
3	Contact input (+) (Field side)
5	b-contact output
7	a-contact output
9	Common
Terminal No.	Channel-2
2	Contact input (-) (Field side)
4	Contact input (+) (Field side)
6	b-contact output
8	a-contact output
10	Common



### RY1 Block Diagram





### 2.2.2 RY2 Wet Contact Relay Input Card

This unit receives wet contact signal from the field and outputs 2 contact signals (1 for use of DCS status card input and the other is re-transmit contact signal) isolated electrically from the field. One unit stores 2 channels.

- Output contact consists of 2 contacts; 1 for DCS contact and the other for re-transmit contact (transfer contact) of current capacity 1 A.
- The circuits between wet contact input signal and output signal is isolated electrically isolated by means of photo-isolator.
- Furnished with test switch convenient for debugging of DCS or checking operation and LED for status display.

#### Specification of wet voltage contact

		100V AC wet voltage contact	200 V AC wet voltage contact
Rated input voltage		100 to 120 V AC 50/60Hz	200 to 240 V AC 50/60Hz
Rated input current		10mA (100 V AC, 60Hz)	7.4mA (200 V AC, 60Hz)
Used voltage range		85 to 132 V AC, 47 to 63 Hz	170 to 264 V AC, 47 to 63Hz
Operating current / voltage	ON	80 V AC or more, 6mA or more	160 V AC or more, 5mA or more
	OFF	40 V AC or less, 4 mA or less	70 V AC or less, 3mA or less

#### Specification

Test switch position	AUT	When input contact is ON, output contact is ON (when a-contact).	
	OFF	Output contact OFF compulsorily (OPEN when a-contact)	
	ON	Output contact ON compulsorily (CLOSE when a-contact)	
LED Lamp	ON	When relay exciting (Output contact ON)	
	OFF	When relay non-exciting (Output contact OFF)	
Fuse break alarm		Alarm contact ON when break of relay circuit fuse (rating: 0.15 A) or break of DC/DC converter circuit fuse.	
Contact rating	Output-1 for the DCS	30V DC, 0.2A	
	Output-2 for the re-transmission	Maximu voltage to use: 250 V AC or 125 V DC	
		Resistance load	Inductive load
		125V AC, 0.4A	125V AC, 0.2A
		30V DC, 1.0A	30V DC, 0.5A
External contact rating		Non-voltage contact or open collector: 24V DC, 30 mA	

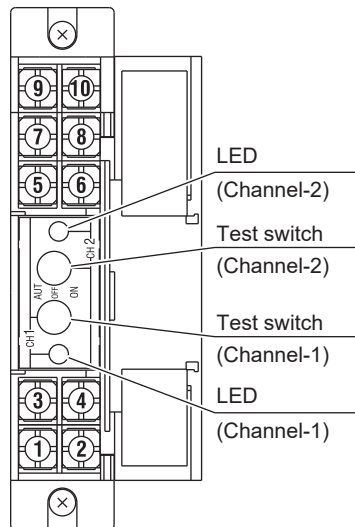


#### CAUTION

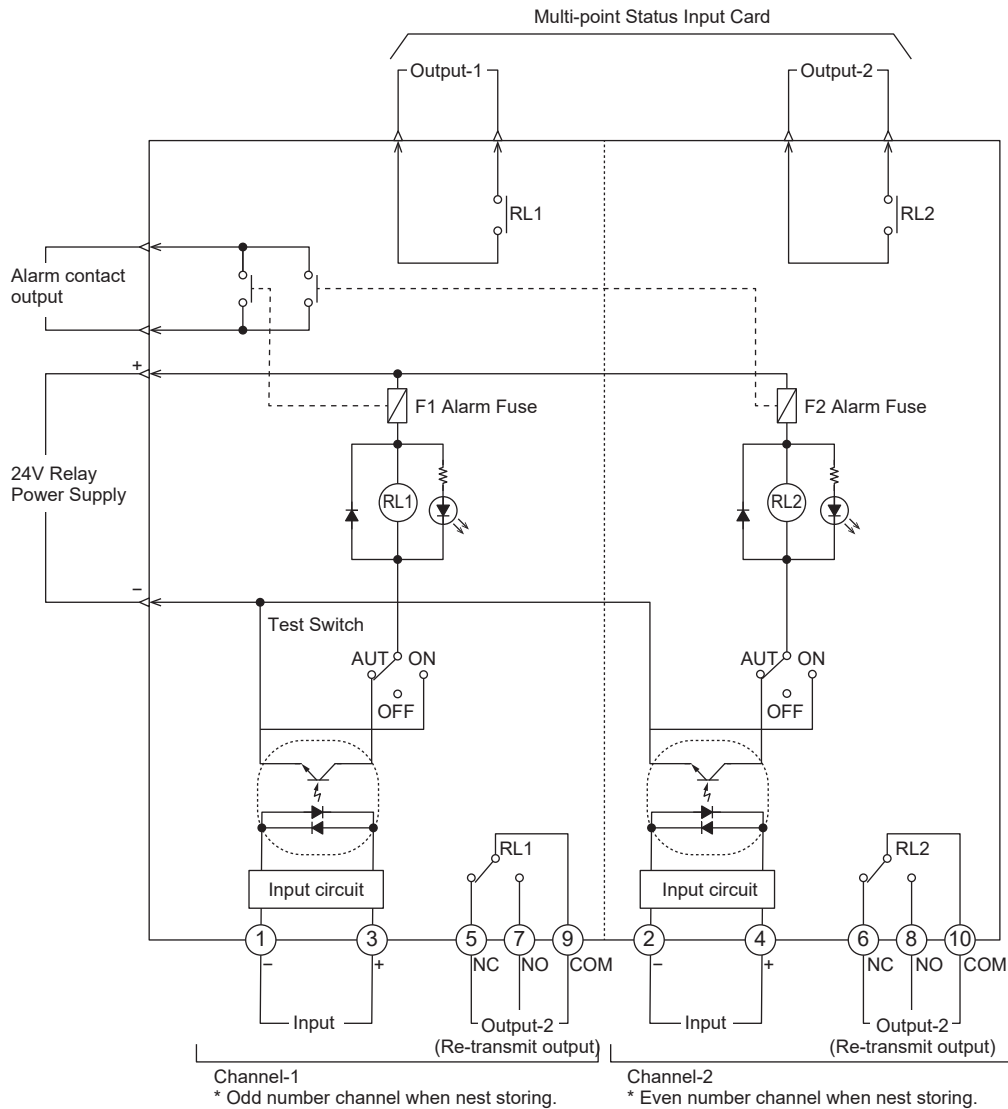
When driving Inductive load (various kinds of coils), erase noise to proteet contat.

#### RY2 Terminal Assignment and Signals

Signal	
Terminal No.	Channel-1
1	Contact input (-) (Field side)
3	Contact input (+) (Field side)
5	b-contact output
7	a-contact output
9	Common
Terminal No.	Channel-2
2	Contact input (-) (Field side)
4	Contact input (+) (Field side)
6	b-contact output
8	a-contact output
10	Common



## Ry2 Block Diagram



### 2.2.3 RY0 Relay Output Card

This unit receives status output signal of DCS status card through relay and outputs status card signal and electrically isolated contact signal to the field. One unit stores 2 channels.

- There are 2 output contacts  
 Output 1: Non-voltage contact output (a and b-contacts can be switched by jumper) or voltage contact output  
 Output 2: Non-voltage contact output (transfer contact, current capacity 3 A)
- Furnished with test switch convenient for debugging of DCS or checking operation and LED for status display.

Test switch position	AUT	When input contact ON, output contact ON (CLOSE when a-contact)	
	OFF	Output contact OFF compulsorily (OPEN when a-contact)	
	ON	Output contact ON compulsorily (CLOSE when a-contact)	
LED lamp	ON	When relay exciting (Output contact ON)	
	OFF	When relay non-exciting (Output contact OFF)	
Fuse break alarm		Fuse (rating 1 A) included in both phases when the output-1 is voltage contact output. Alarm contact is ON when fuse break.	
Contact rating	Output-1	When non-voltage contact output	Maximum voltage 250 V AC or 125 V DC
			Resistance load 250 V AC, 3.0A 30 V DC, 3.0A 125 V DC, 0.3A
	Output-2 for re-transmit	When voltage contact output	Maximum voltage 125V AC or 125 V DC
			Inductive load 125V AC, 0.6A 30V DC, 0.6A 125V DC, 0.1A
		Maximum voltage 250 V AC or 125 V DC	
		Resistance load 250 V AC, 3.0A 30 V DC, 3.0A 125 V DC, 0.3A	Inductive load 250 V AC, 1.5 A 30 V DC, 1.5 A 125 V DC, 0.1 A

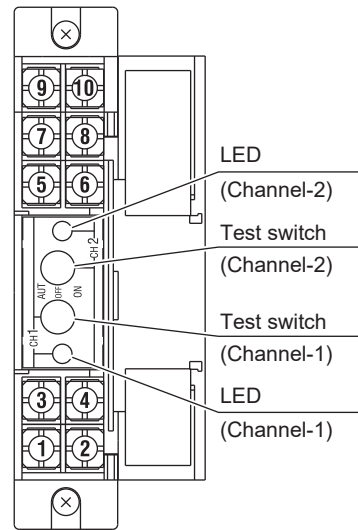


## CAUTION

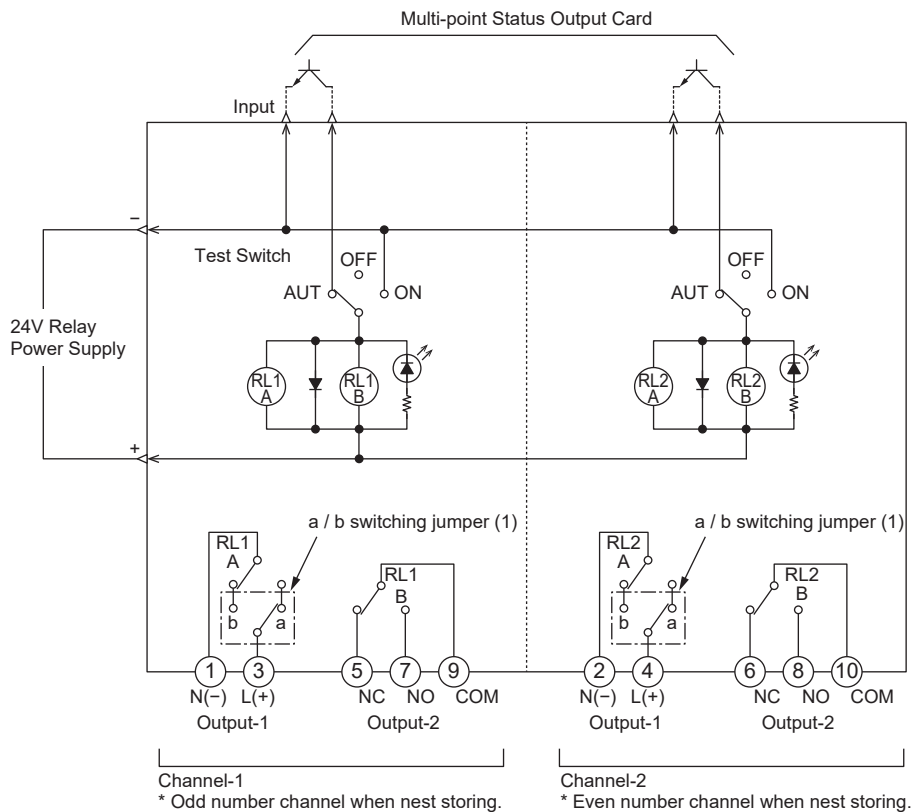
When driving Inductive load (various kinds of coils), erase noise to proteect contat.

### RY0 Terminal Assignment and Signals

Terminal No.	Signal	
	RY0-1[]	RY0-2[]
	Channel-1	
1	Common (non-voltage)	a-contact N(-) (voltage)
3	a-contact or b-contact (non-voltage)	a-contact L(+) (voltage)
5	b-contact output	
7	a-contact output	
9	Common	
	Channel-2	
2	Common (non-voltage)	a-contact N(-) (voltage)
4	a-contact or b-contact (non-voltage)	a-contact L(+) (voltage)
6	b-contact output	
8	a-contact output	
10	Common	

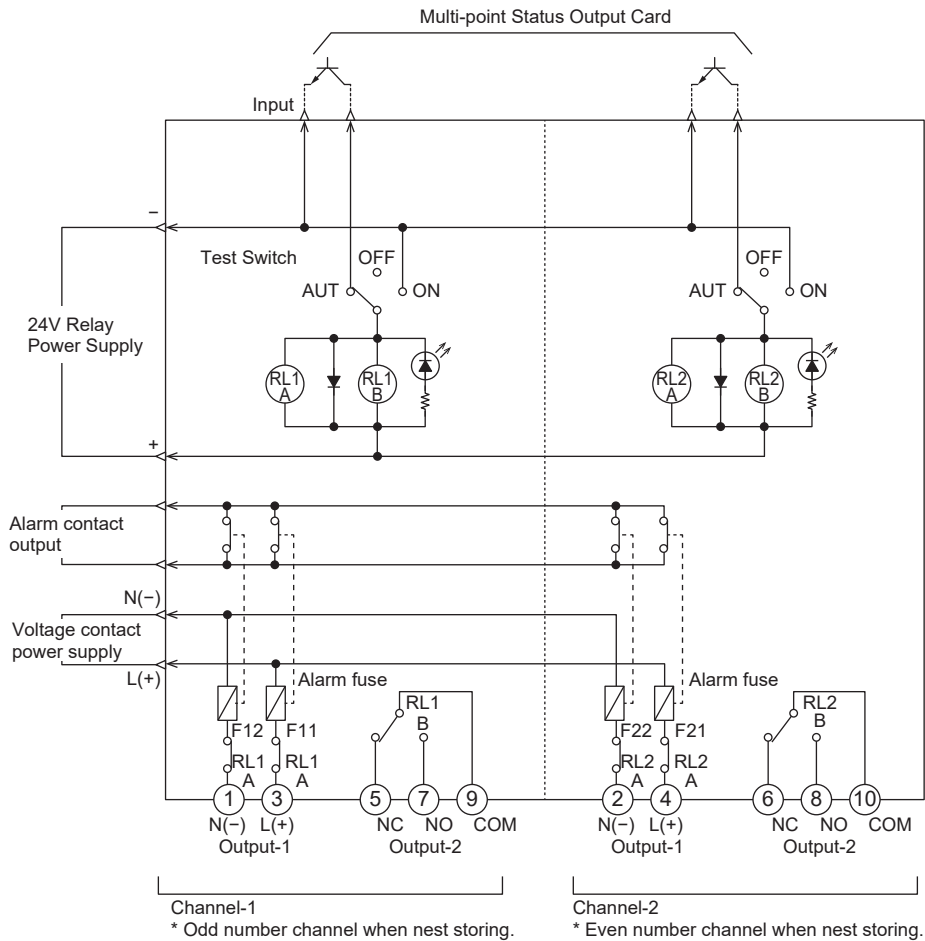


### RY0-1[] Block Diagram



(1) When shipped from the factory, output 1 a / b switching jumper is set to a-contact.

## RY0-2[] Block Diagram



### 2.2.4 RY8 Relay Output Card for Motor Start-Stop

This nest storing type relay output card insulates DCS status output card and motor driving circuit and connects them through the relay. This card receives contact signal from DCS and at switching time when OFF→ON of contact signal, motor start relay contact (Output-1) should be set at ON for certain period of time. And at switching time when ON→OFF of contact signal, motor stop relay contact (Output-2) should be set at ON for certain period of time. Since one card stores 2 channels, start-stop of 2 motors can be done by one card.

- Output contact points consist of 2 contacts: 1 for motor start and the other for motor stop.  
Output 1: Dry voltage contact point output for motor start (a-contact and b-contact points change-over through jumper)  
Output 2: Dry voltage contact point output for motor start (transfer contact point)
- Furnished with test switch convenient for debugging of DCS or operation checking and LED for status display.
- Provided with jumper to connect internally both commons of motor start-stop relay contacts to simplify wiring. When common use is not needed, commons can easily be separated through internal jumper pin.

Test switch position	AUT	Output contact ON / OFF by input contact (certain time)	
	OFF	Output contact OFF compulsorily (OPEN when a-contact)	
LED lamp	ON	Output contact ON compulsorily (CLOSE when a-contact)	
	OFF	When relay exciting (Output contact ON) When relay non-exciting (Output contact OFF)	
Contact rating	Non-voltage contact output	Maximum voltage 250 V AC or 125 V DC	
		Resistance load 250 V AC, 3.0A 30 V DC, 3.0A 125 V DC, 0.3A	Inductive load 250 V AC, 1.5 A 30 V DC, 1.5 A 125 V DC, 0.1 A

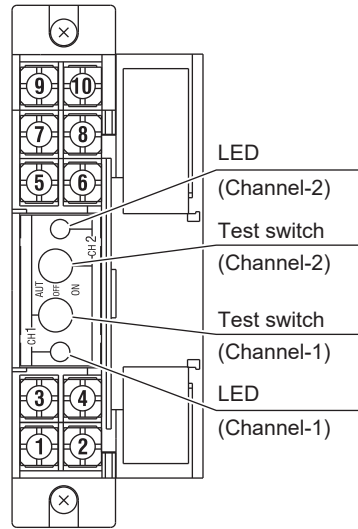


### CAUTION

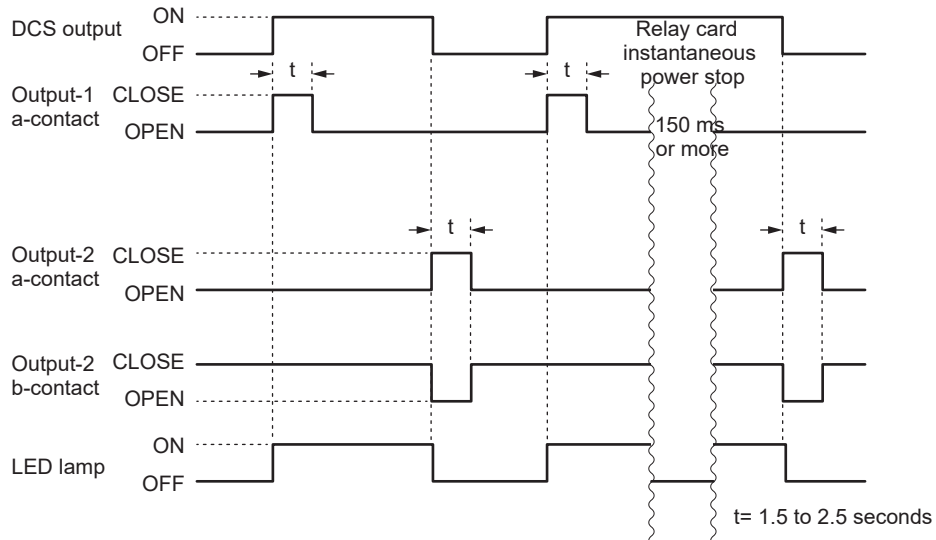
When driving Inductive load (various kinds of coils), erase noise to proteet contat.

### RY8 Terminal Assignment and Signals

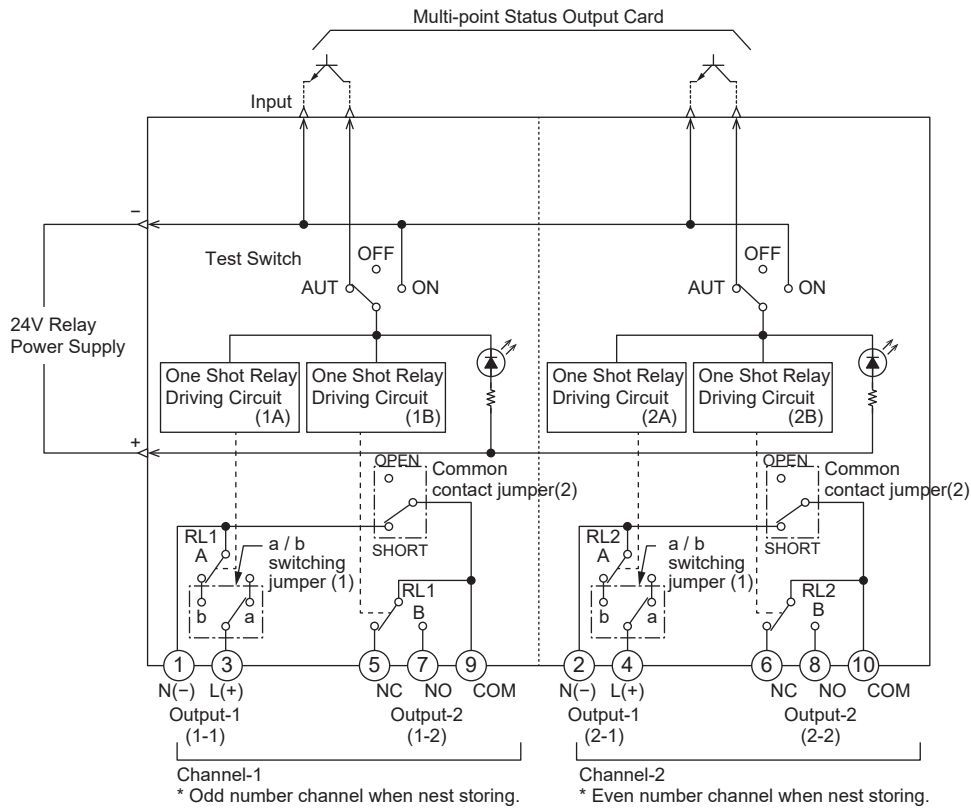
		Signal	
Terminal No.	Channel-1		
1	Output-1 (output for motor start):	Common	
3		a-contact or b-contact	
5	Output-2 (output for motor start):	b-contact	
7		a-contact	
9		Common	
Terminal No.	Channel-2		
2	Output-1 (output for motor start):	Common	
4		a-contact or b-contact	
6	Output-2 (output for motor start):	b-contact	
8		a-contact	
10		Common	



### Action



## RY8 Block Diagram



- (1) When shipment from factory, Output-1 a/b change-over jumper is in a contact point  
 (2) When shipment from factory, common connect jumper is in a connecting status

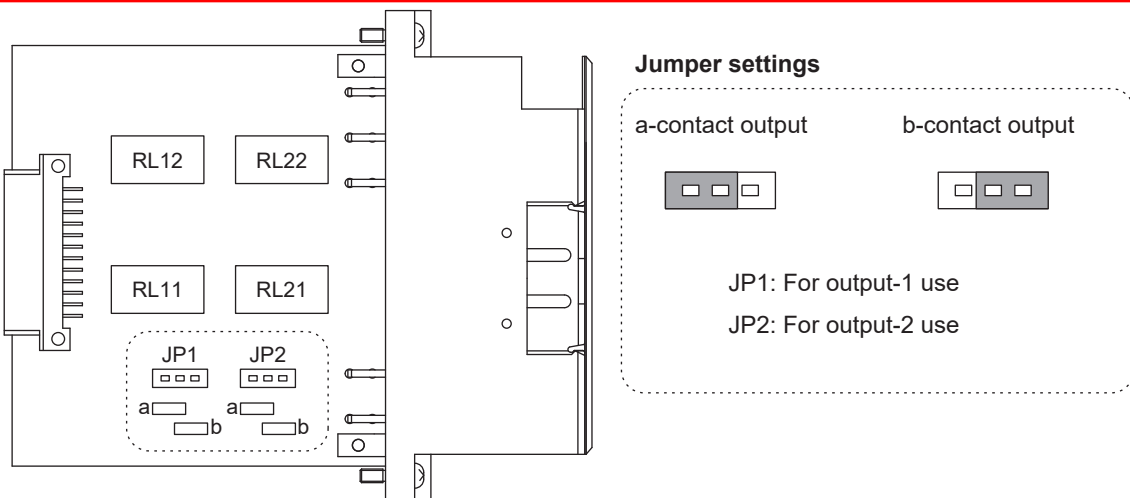
### 2.3 Relay output card jumper settings

For contact output of the RY0-1[] and RY8, a-contact or b-contact is selectable for output-1 only.



#### CAUTION

The card will be shipped from factory at status of a-contact output. Set jumper socket in the card at a-contact or b-contact according to outer (field side) specifications.



## 2.4 Contact Protection Circuit

When driving inductive load (various coils) through Relay I/O Cards, the following countermeasure should be taken to erase noise to protect contact. Contact protection circuit is used to strengthen contact's life, to erase noise and to diminish carbide produce by arcing. However, its incorrect use may bring a reverse effect. Beware of somewhat delay of returning time when use of contact protection circuit. The following table shows typical example of contact protection circuit.

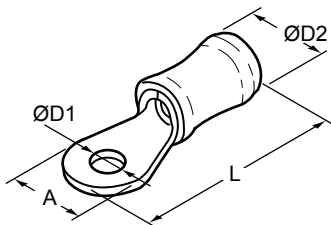
Method	Example circuit	Application		Remarks
		AC	DC	
Using CR	<p>Relay card</p> <p>AC power supply</p>	✓	✓	When the load is a relay or solenoid, reset time will be delayed. It is effective to connect CR across the load for 24 to 48 V DC power supply and across the contacts for 100 to 200 V AC as shown in the left figure. Use C and R of the following ranges. C: 0.5 to 1 $\mu$ F for contact current of 1 A R: 0.5 to 1 $\Omega$ for contact voltage of 1 V Use C for AC (no polarity) with a withstand voltage of double the operating voltage or more.
Using diode	<p>Relay card</p> <p>DC power supply</p>	N/A	✓	By connecting a diode in parallel, the energy stored in the coil flows in the form of a current through the coil and is consumed as Joule heat commensurate with the inductive load's resistance. With this method, reset time will be delayed longer than with the CR method. Inverse withstand voltage of the diode must be 10 times that of the circuit voltage or more.
Using varistor	<p>Relay card</p> <p>AC power supply</p>	✓	✓	By making use of varistor's voltage regulating characteristic, the voltage across the contacts is kept from being too high. Reset time will be somewhat delayed. It is effective to connect a varistor across the load for 24 to 48 V DC power supply and across the contacts for 100 to 200 V AC.

## 3. FIELD SIDE WIRING AND POWER SUPPLY AND GROUND WIRING

Flexible twisted wire and good contact of durable round crimp-on terminal (JIS C2805) are recommended to be used.

Terminal position	Screw	Crimp terminal dimensions				Nominal cross section of wire used	Recommended crimp terminal JIS symbol
		$\phi$ D1 Hole diameter (mm)	A Terminal diameter (mm)	L Terminal length (mm)	$\phi$ D2 Insulating cover (mm)		
Card, RYV power terminal (upper) <sup>(*)</sup>	M3.5	3.7 or more	6.6 or less	About 19	3.2 or less	0.75 to 1.25 mm <sup>2</sup>	RAC 1.25-3.5
						2 mm <sup>2</sup>	RAC 2-3.5
Power supply, alarm terminal	M4	4.3 or more	8.7 or less	About 21	3.2 or less	0.75 to 1.25 mm <sup>2</sup>	RAB 1.25-4
						2 mm <sup>2</sup>	RAB 2-4

\*1 For style S1.0, the screw on the RYV power terminal (upper) is M4.  
For the style, check the nameplate attached to RYV.



### (1) Signal wiring cable

Nominal cross-sectional area of conductor: 0.75 to 2 mm<sup>2</sup>

Example of applicable cable: Polyvinyl chloride insulated flexible cords (HVSF) (JIS C 3306)

### (2) Power supply wiring cable

Nominal cross-sectional area of conductor: 0.75 to 2 mm<sup>2</sup>

Example of applicable cable: 600 V Heat-resistance polyvinyl chloride insulated wires (HIV) (JIS C 3317)  
Heat-resistance polyvinyl chloride insulated wires for electrical apparatus (HKIV) (JIS C 3316)

### (3) Ground wiring cable

Nominal cross-sectional area of conductor: 2 mm<sup>2</sup>

Example of applicable cable: 600 V Heat-resistance polyvinyl chloride insulated wires (HIV) (JIS C 3317)  
Heat-resistance polyvinyl chloride insulated wires for electrical apparatus (HKIV) (JIS C 3316)

## 4. INSTALLATION

The RYH nest can be mounted horizontally on an EIA/JIS standard 19-inch rack or on the wall. Maximum 5 nests can be mounted on one side of the cabinet on the installation conditions mentioned in section 4.2.

The RYV nest can be mounted on a CENTUM cabinet.

### 4.1 Environmental Conditions

#### (1) Ambient temperature and humidity

The following ambient temperature and humidity ranges are applied during operation of the units.

Ambient temperature: 0 to 50 °C, Ambient humidity: 5 to 90% RH (no condensation)

#### (2) Vibration condition

Desirable vibration of installation location is 2 m/s<sup>2</sup> (about 0.2 G) or less at 10 to 150 Hz.

#### (3) Air purity

Desirable indoor dust is 0.2 mg/m<sup>3</sup> or less. Especially, corrosive gases and conductive dusts, such as, for example, a hydrogen sulfide, sulfuric acid gas, chlorine, iron, and carbon should not be present.

### 4.2 Installation Conditions

#### (1) Secure spaces above and below the nest for heat protection.

- Apart 100 mm or more from the floorboard.
- Apart 100 mm or more from the top of the panel. Make air vent hole and set air cooling fan at the top of the panel.
- Apart 60 mm or more from back wall for air ventilation in case of rack mounting.

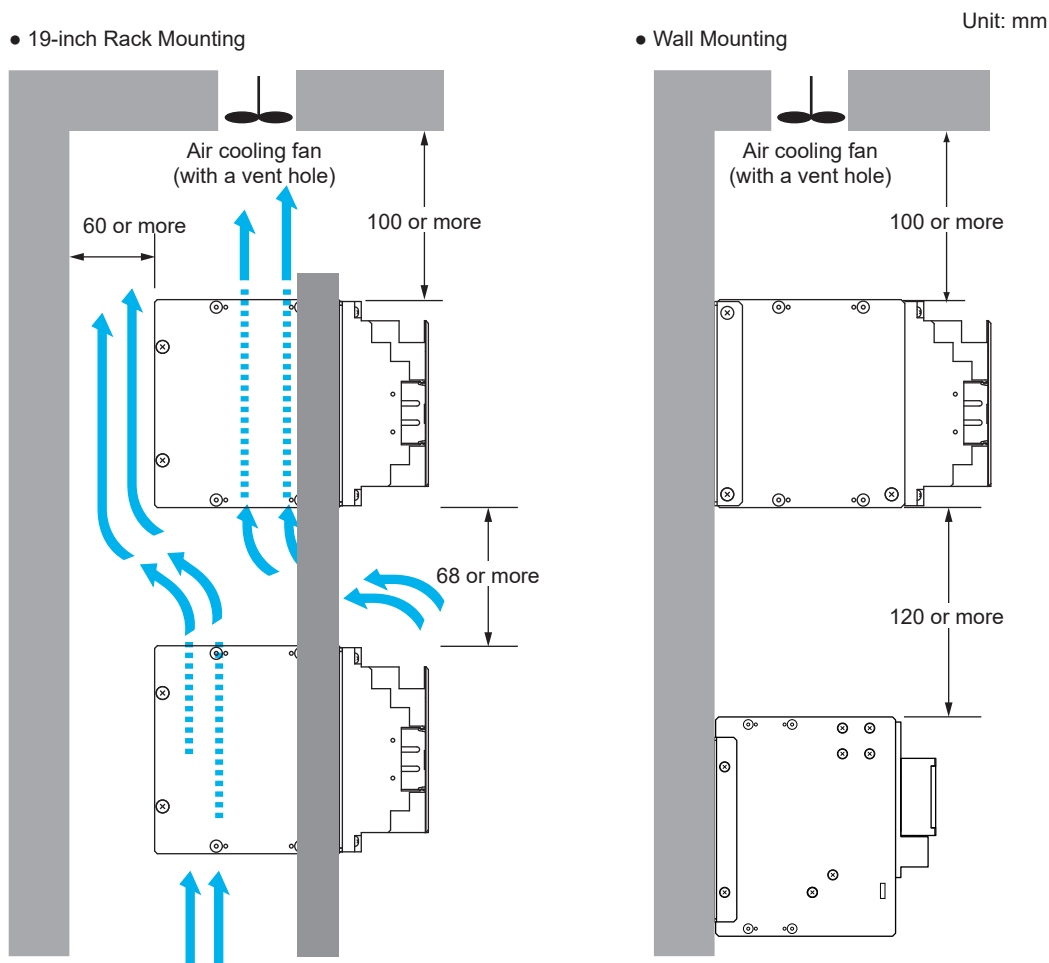
#### (2) Sufficient spaces are required for front and side of the nest since they are wiring, piping, and maintenance area.

#### (3) When storing the nest in the cabinet, make compulsory air cool to prevent raise of temperature.

#### (4) Do not place the nest on heat generation materials.

#### (5) When mounting the nest one above another, provide space above and below the nest as shown below

#### (6) For RYV, follow the mounting conditions of the CENTUM dedicated cabinet.



### 4.3 Nest mounting bracket mounting (RYH only)

Screw holes for two types of mounting places are provided on both sides of the nest. Mount the nest metal fittings in either of them according to the nest mounting place.

Refer to "1.3.1 RYH type nest (horizontal mounting type)" on page 2 for the mounting position.