









# Relay Output Interface Card "OPC- RY"

Thank you for purchasing this relay output interface card (hereinafter called relay output card), "OPC-RY." Installing this card to your inverters allows you to convert transistor outputs at terminals [Y1] to [Y4] on the inverter to relay outputs--four 1C contacts (SPDT).

- Note**
- Configuring relay outputs of four 1C contacts requires two output relay cards since a single card has two 1C contacts.
  - When any of inverter terminals [Y1] to [Y4] is used for transistor outputs, this relay output card cannot be used.

## 1. Check that:

- (1) A relay output card and two screws (M3 × 8) are contained in the package.
- (2) The relay output card is not damaged during transportation--no defective devices, dents or warps.
- (3) The model name "OPC-RY" is printed on the relay output card. (See Figure 1.)

If you suspect the product is not working properly or if you have any questions about your product, contact the shop where you bought the product or your local Fuji branch office.

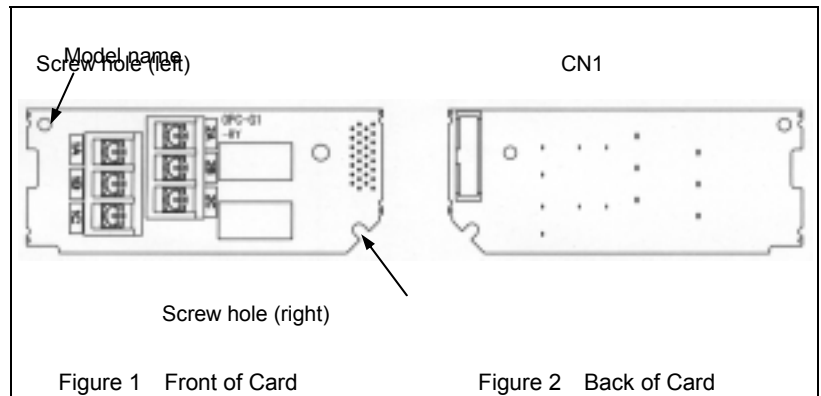


Figure 1 Front of Card

Figure 2 Back of Card

## 2. Installation

### **⚠ WARNING**

Before starting installation and wiring, turn OFF the power and wait at least 10 minutes. Further, make sure charging lamp is turned OFF and check that the DC link bus voltage between the terminals P(+) and N(-) has dropped to the safe level (+25 VDC or below) using a multimeter or a similar instrument.

**Otherwise, electric shock could occur.**

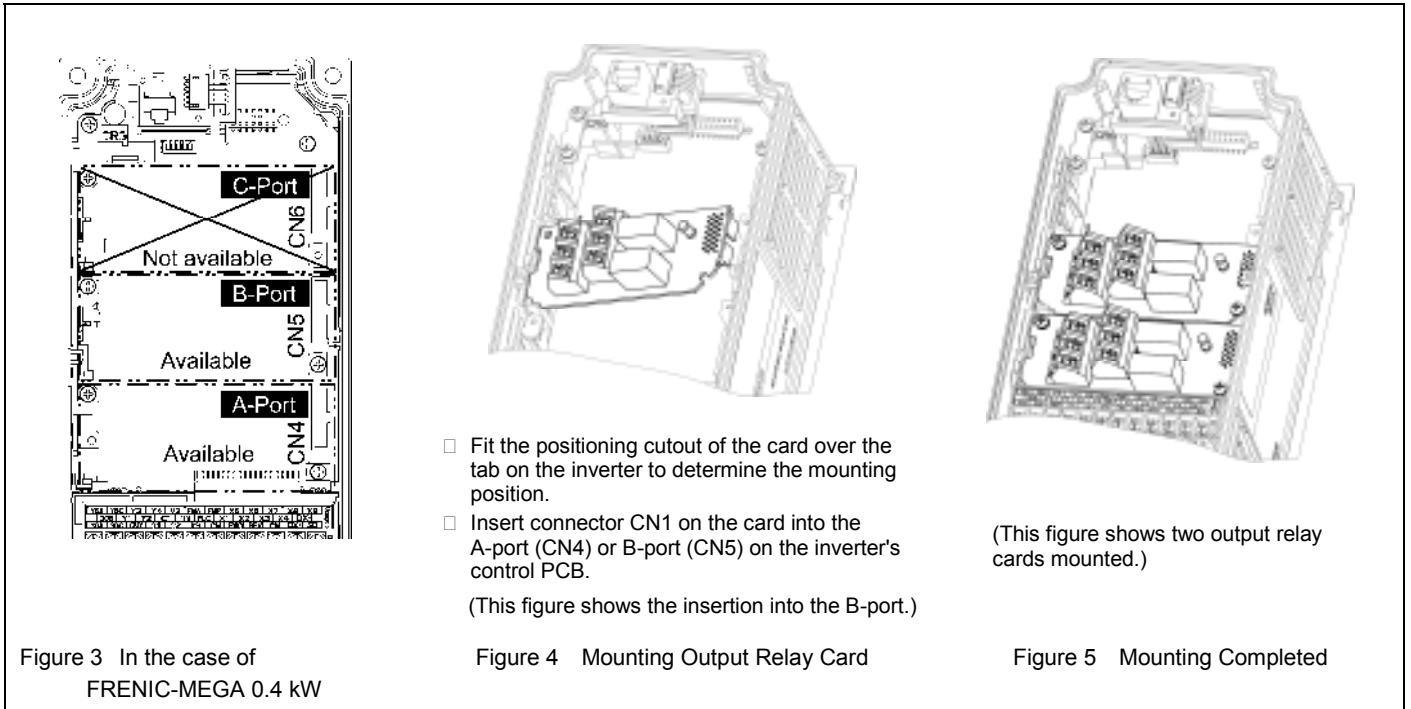
- (1) Remove the front cover from the inverter and expose the control printed circuit board (control PCB). (Figure 3)  
 To remove the front cover, refer to the inverter Instruction Manual.
- (2) Insert connector CN1 on the back of the relay output card (Figure 2) into the A-port (CN4) or B-port (CN5) on the inverter's control PCB. Then tighten the two screws that come with the card. (Figure 4)

- Note** Check that the positioning cutout (Figure 1) is fitted on the tab (ⓐ in Figure 4) and connector CN1 is fully inserted (ⓑ in Figure 4). Figure 5 shows the relay output card correctly mounted. Do not connect the relay output card to the C-port. Doing so may damage the card.

### ■ Ports available for the relay output card

Port	Output signal	Assignment	Notes
A-port	Relay contact output 1 Relay contact output 2	Function code E20 (Y1) Function code E21 (Y2)	Do not connect this card to terminal [Y1] or [Y2] of the inverter.
B-port	Relay contact output 1 Relay contact output 2	Function code E22 (Y3) Function code E23 (Y4)	Do not connect this card to terminal [Y3] or [Y4] of the inverter.
C-port	Do not connect the relay output card to this port.		

- (3) Perform wiring on the relay output card.  
 Refer to Section 3 "Wiring."
- (4) Put the front cover back into place.  
 To put back the front cover, refer to the inverter Instruction Manual "Wiring".



- Fit the positioning cutout of the card over the tab on the inverter to determine the mounting position.
  - Insert connector CN1 on the card into the A-port (CN4) or B-port (CN5) on the inverter's control PCB.
- (This figure shows the insertion into the B-port.)

(This figure shows two output relay cards mounted.)

### 3. Wiring

#### ⚠ WARNING

In general, the covers of the control signal wires are not specifically designed to withstand a high voltage (i.e., reinforced insulation is not applied). Therefore, if a control signal wire comes into direct contact with a live conductor of the main circuit, the insulation of the cover might break down, which would expose the signal wire to a high voltage of the main circuit. Make sure that the control signal wires will not come into contact with live conductors of the main circuit.

**Failure to observe this precaution could cause electric shock or an accident.**

#### ⚠ CAUTION

Noise may be emitted from the inverter, motor and wires. Take appropriate measures to prevent the nearby sensors and devices from malfunctioning due to such noise.

**An accident could occur.**

- (1) Perform wiring properly, referring to the "Terminal Allocation and Symbol Diagram," "Terminal Specifications," and "Internal Block Diagram" shown below.

Table 1 Terminal Specifications

Terminal Size	M3
Tightening Torque	0.7 N·m
Recommended Wire Gauge *	0.75 mm <sup>2</sup>

\* 600 V class of polyethylene-insulated HIV wires with allowable temperature of 75°C, at the ambient temperature of 50°C.

\* Using wires exceeding the recommended sizes may lift the front cover depending upon the number of wires used, impeding keypad normal operation.

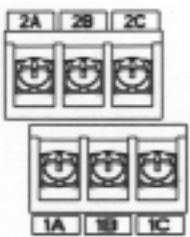
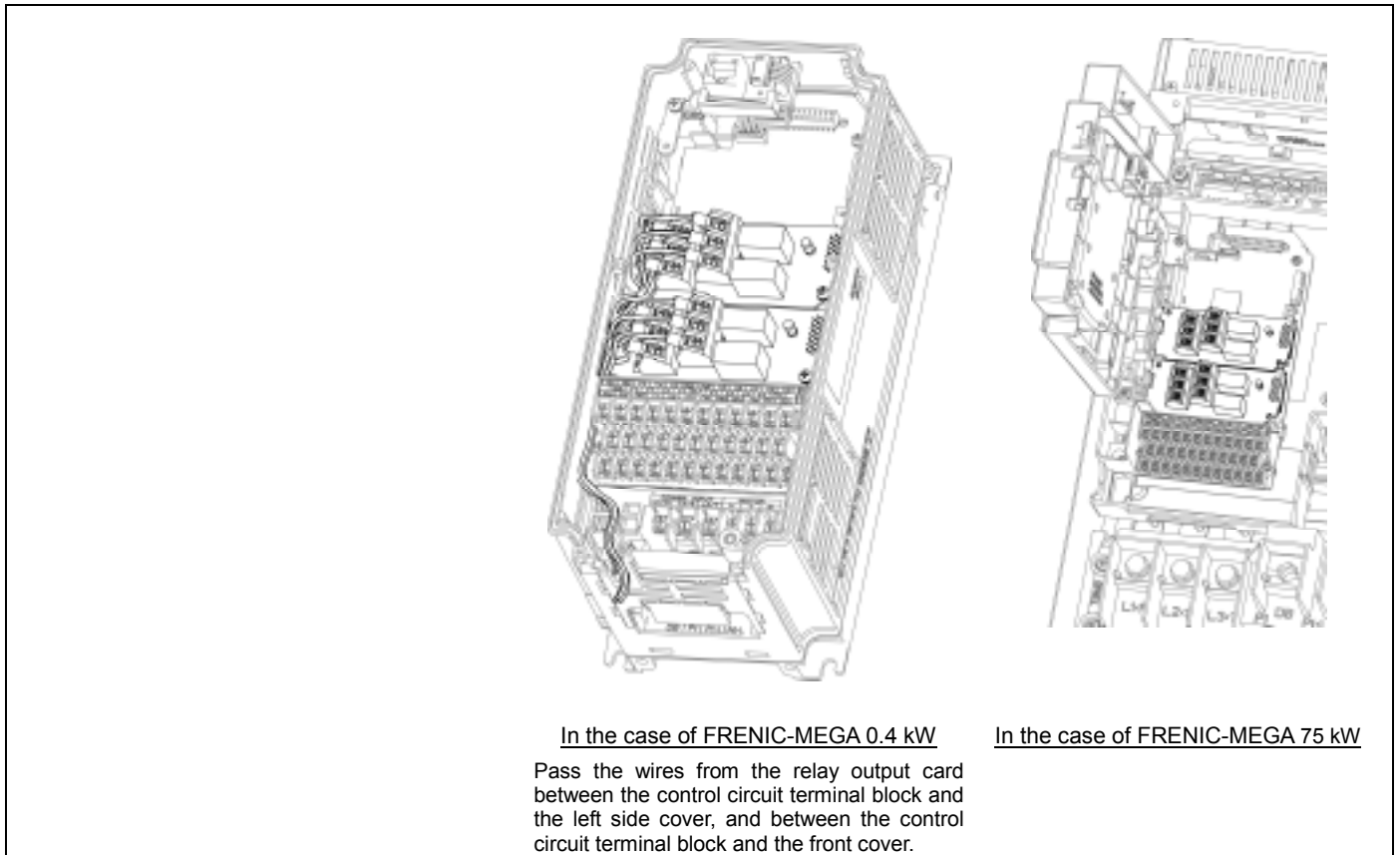


Figure 6 Terminal Allocation and Symbol Diagram

(2) Wire layout



■ Terminal Functions

Outputs from the relay output terminals on this card are dependent on function code settings specified for the transistor output terminals [Y1] to [Y4].

Symbol	Name	Descriptions
[1A]/[1B]/[1C]	Relay contact output 1	Relay contacts to output signals selected by function codes E20 and E22, such as Inverter Running, Frequency Arrival and Overload Early Warning.
[2A]/[2B]/[2C]	Relay contact output 2	Relay contacts to output signals selected by function codes E21 and E23, such as Inverter Running, Frequency Arrival and Overload Early Warning.

**Note** The relay contacts are interlocked with transistor output terminals [Y1] to [Y4]. When signals from terminals [Y1] to [Y4] are turned ON, the corresponding relays are driven (excited) so that each of 1A-1C and 2A-2C is short-circuited and each of 1B-1C and 2B-2C is opened.

When the inverter's control power is OFF, all the B-C contact pairs are short-circuited. If you are using negative logic to realize fail-safe operation, make sure that this does not cause any logic fault or confliction.

For details of relay output functions available, refer to the inverter Instruction Manual. "Details of Function Codes" or the inverter User's Manual.

■ Electrical requirements for the card

Item	Specifications
Contact capacity	250 VAC, 0.3A, $\cos\Phi = 0.3$ , or 48 VDC, 0.5A (resister load)
Contact life	200,000 times (ON/OFF every 1 second)
Safety Standards/Directives	EN61800-5-1:2007 Over Voltage Category

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