

Relay Output Card "OPC-F1-RY"

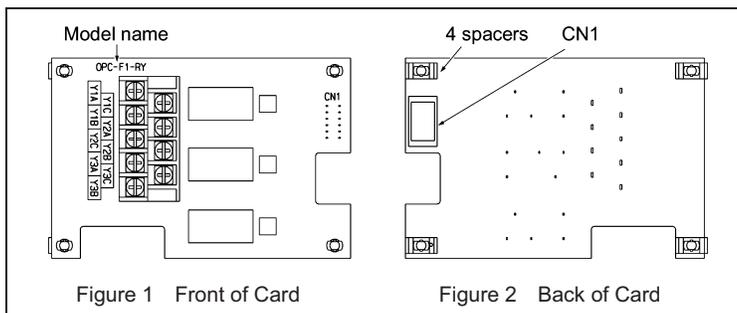
Thank you for purchasing the Relay Output Card OPC-F1-RY. Installing this card on your FRENIC-Eco series of inverters allows you to convert transistor outputs at Y1 to Y3 on the inverter to relay outputs--three pairs of transfer contacts (SPDT).

Note The option card "OPC-F1-RY" cannot occupy the transistor outputs Y1 to Y3 selectively but all, so that if you have assigned any terminal function to either one of them you cannot install the option card.

1. Check that:

- (1) A Relay Output Card is contained in the package.
- (2) The Relay Output Card is not damaged during transportation--no defective electronic devices, dents or warps.
- (3) The model name "OPC-F1-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 your Fuji Electric representative.



2. Installation

⚠ WARNING

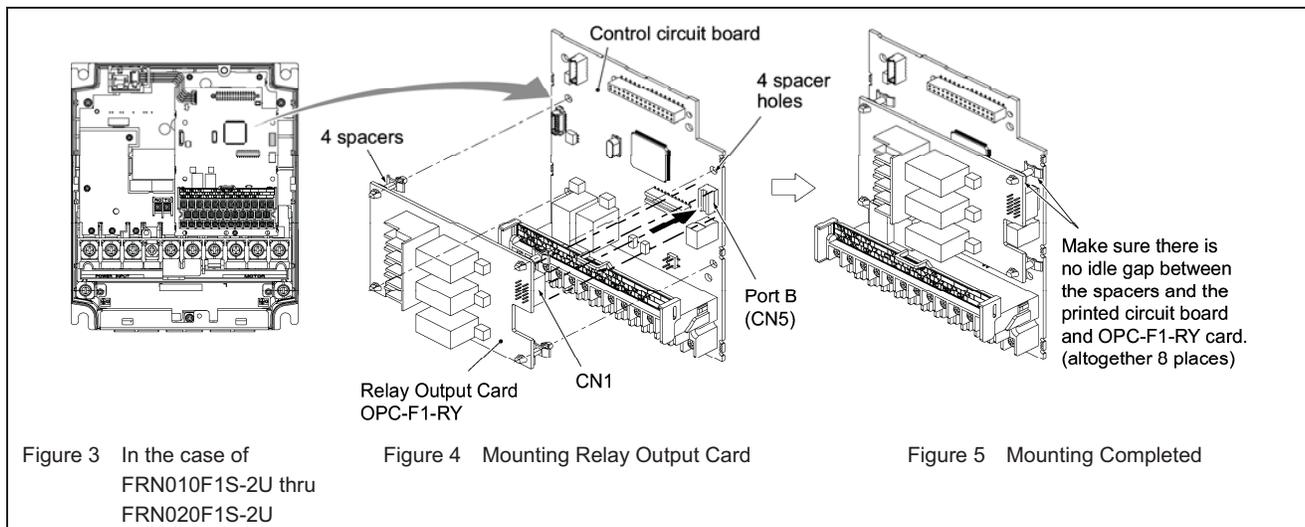
Turn the power off and wait for at least five minutes for models of 40 HP or below, or ten minutes for models of 50 HP or above, before starting installation. Further, check that the LED monitor is unlit, and check the DC link circuit voltage between the P (+) and N (-) terminals to be lower than 25 VDC.

Otherwise, electric shock could occur.

- (1) Remove the cover from the inverter and expose the control circuit board (See Figure 3.).
 📖 To remove the inverter cover, refer to Section 2.3 "Wiring" of FRENIC-Eco Instruction Manual (INR-SI47-1225-E). For capacities of 50 HP or above, open also the keypad enclosure.
- (2) Insert the four spacers and CN1 on the back of the OPC-F1-RY (as shown in Figure 2) into the spacer holes and Port B (CN5) on the control circuit board in the inverter (Figure 4).

Note Visually check that the spacers and CN1 are firmly inserted (See Figure 5.).

- (3) Wire on OPC-F1-RY.
 📖 Refer to Section 3 "Wiring."
- (4) Put the cover back to the inverter.
 📖 To put back the inverter cover, refer to Section 2.3 "Wiring" of FRENIC-Eco Instruction Manual (INR-SI47-1225-E). For capacities of 50 HP or above, close also the keypad enclosure.



3. Wiring

⚠ WARNING

In general, sheaths and covers of the control signal cables and wires are not specifically designed to withstand a high electric field (i.e., reinforced insulation is not applied). Therefore, if a control signal cable or wire comes into direct contact with a live conductor of the main circuit, the insulation of the sheath or 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 cables and wires will not come into contact with live conductors of the main circuit.

Failure to observe these precautions could cause electric shock and/or an accident.

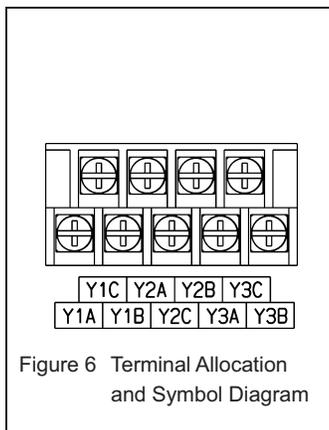
⚠ CAUTION

Noise may be emitted from the inverter, motor and wires.

Implement appropriate measure to prevent the nearby sensors and devices from malfunctioning due to such noise.

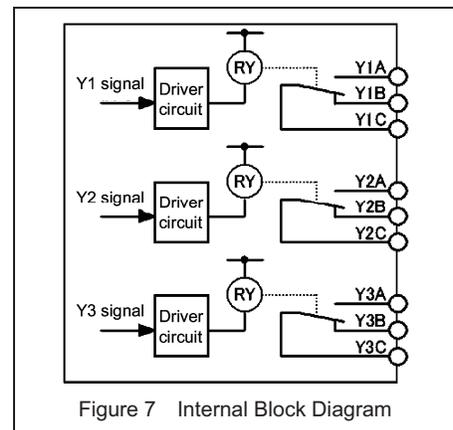
An accident could occur.

Wire properly, referring to the terminal allocation and symbol diagram, the internal block diagram, and the terminal and wiring specification table shown below.



Terminal Size & Recommended Wire Gauge	
Terminal Size	M3
Tightening Torque	0.7 N·m (0.52 lbf·ft)
Recommended Wire Gauge*	AWG 18 (0.75 mm ²)

* A 600 V HIV insulated wire with allowable temperature of 75°C(167°F) is recommended. An ambient temperature of 50°C(122°F) is assumed.



Note To prevent noise from causing malfunctioning, separate signal wires for the control circuit as far apart as possible from those for the main circuits. Also, inside the inverter, bundle and fix the wires for the control circuit so that they do not come into direct contact with live parts of the main circuits (for example, the main circuit terminal block).

■ Terminal Assignment

The relay output terminals are assigned as shown below. Basically, the meaning of the relay outputs follows that of the transistor outputs Y1 to Y3, which is determined by their corresponding function codes.

Terminal Symbol	Terminal Name	Description
Y1A/Y1B/Y1C	Relay Output 1	Relay outputs directly linked to transistor outputs Y1 to Y3. Each relay is excited when its corresponding signal (Y1, Y2, or Y3) is ON. When excited, its output Y1A - Y1C, Y2A - Y2C, or Y3A - Y3C is made, and Y1B - Y1C, Y2B - Y2C, or Y3B - Y3C is broken, respectively. In this manner, the signals corresponding to function codes E20 - E22 (inverter running, speed/frequency equivalence, and motor overload early warning) can be output as contact
Y2A/Y2B/Y2C	Relay Output 2	
Y3A/Y3B/Y3C	Relay Output 3	

Note 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 conflict.

■ Electrical Specifications

Item	Specification
Contact capacity	250 VAC, 0.3 A (cos φ = 0.3) or 48 VDC, 0.5 A (resistive load)
Contact life	200,000 operations (with ON/OFF intervals of 1 second)

Note If you anticipate frequent operations (ON/OFF switching) of relays (for example, if you deliberately use a signal for limiting the inverter's output to control the main current), be sure to use the transistor signals at terminals Y1 through Y3.

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Information subject to change without notice.