



**TR1™ Series VFD  
Variable Frequency Drive**

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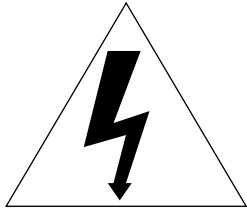
**Auxiliary Relay  
Option Card**

**Installation Instructions**

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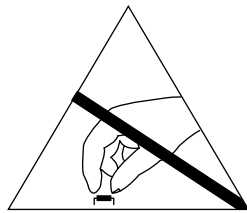
October, 2003  
175R5590

TR1-SVN02A-EN



## **⚠ DANGER**

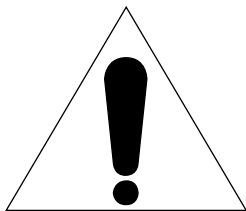
The TR1 Series VFD contains dangerous voltages when connected to line voltage. After disconnecting from the line, wait at least 15 minutes, 30 minutes for 550-600V units, before touching any electrical components. Only a competent electrician should carry out the electrical installation. Improper installation of the motor or the TR1 may cause equipment failure, serious injury or death. Follow this manual, National Electrical Codes and local safety codes.



## **⚠ WARNING**

Many electronic components of the TR1 Series VFD are sensitive to Electrostatic Discharge (ESD). Voltages so low that they cannot be felt, seen or heard, can reduce the life, affect performance, or completely destroy sensitive electronic components.

When performing service, proper ESD equipment should be used to prevent possible damage from occurring.



## **⚠ CAUTION**

It is the responsibility of the user or the person installing the TR1 Series VFD to provide proper grounding, as well as motor overload and branch circuit protection according to the National Electrical Code and local codes.



### Single Relay Option Card

The ratings of the relay contacts are the same as the standard Form C relay. Output terminals are located on the single relay option card. The terminals are 110, 111, and 112. Input to the relay is through terminals 113 and 114, also located on the option card. Input to the coil in the relay is 24 VDC, 10 mA nominal. The input to the relay is polarity sensitive. The Form C relay on the option card may be driven by either the standard Form A relay or one of the transistorized outputs.

## Specifications

### Auxiliary Relay Card Option Output

<u>Terminals</u>	<u>Function</u>	<u>Rating</u>
110-111-112	Relay output	Form C contact (n.o. and n.c.) 240 VAC, 2 amps 24 VDC 10 mA, 24 VAC 100 mA minimum
113-114	Coil	24 VDC 10 mA nominal. Polarity sensitive.

### TR1 Series VFD Standard Output

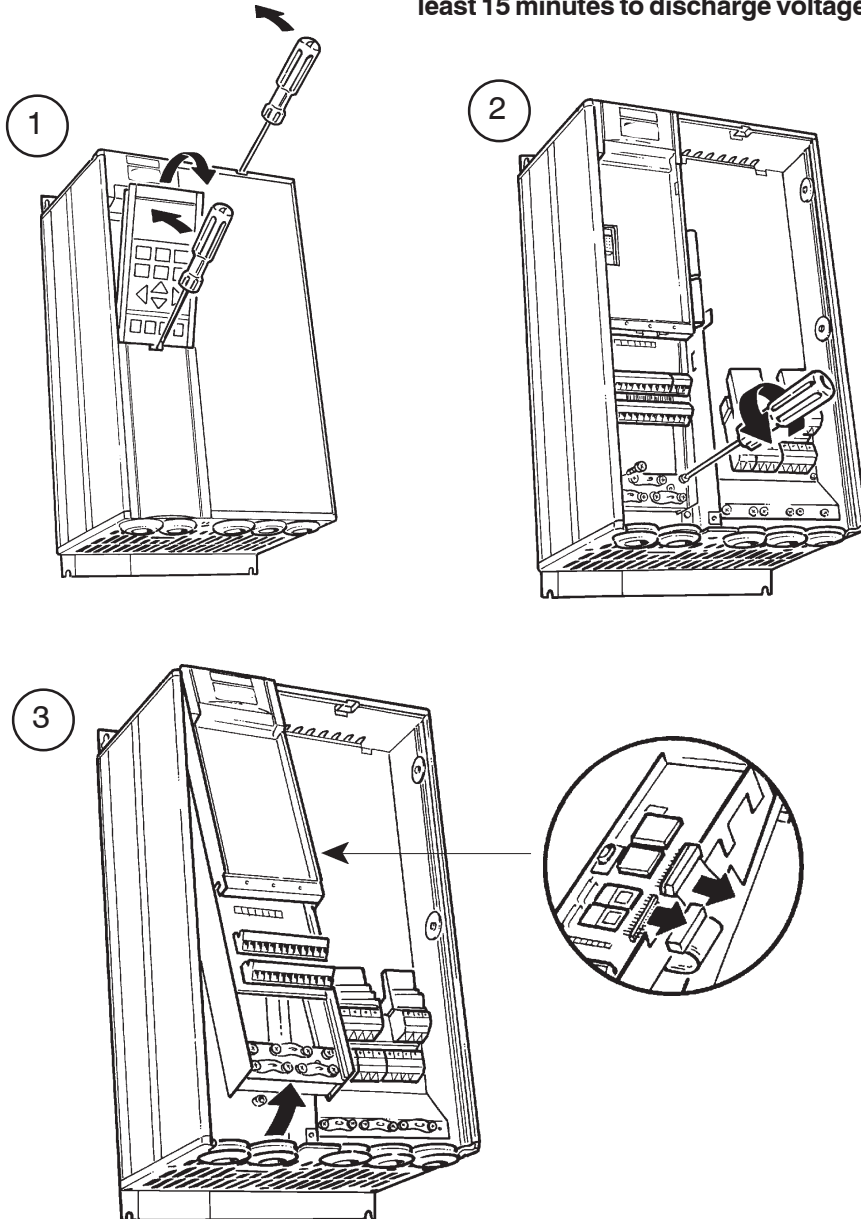
<u>Terminals</u>	<u>Function</u>	<u>Rating</u>
01-02-03	Relay output	Form C contact (n.o. and n.c.) 240 VAC, 2 amps 24 VDC 10 mA, 24 VAC 100 mA minimum
04-05	Relay output	Form A contact (n.o. contact) 50 VAC, 1 amp 75 VDC, 1 amp
42-39	Analog output	0/4-20 mA analog signal (Max. 500 ohm load) or 24 VDC logic signal (Max. 600 ohm load)
45-39	Analog output	0/4-20 mA analog signals or 24 VDC logic signals



## NEMA 1 Installation

### **⚠ DANGER**

Remove power to drive and wait at least 15 minutes to discharge voltage.

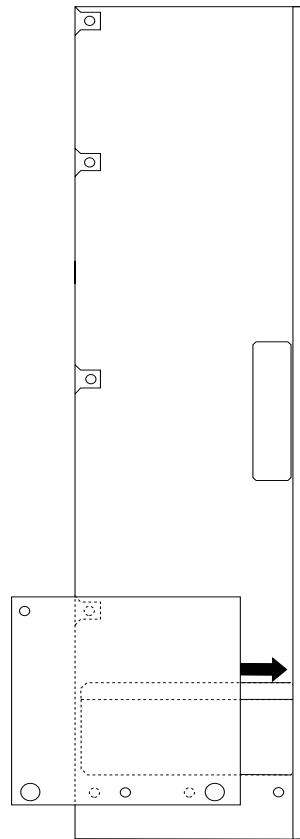




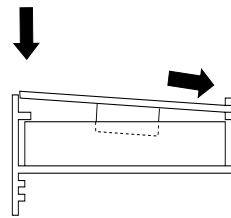
## NEMA 1 Installation (continued)

Position option card to back side of cassette. Slide edge of card into slot in side of cassette. Secure option card by pressing it flush to cassette. Insert two self-tapping screws provided in holes in upper left and bottom center of card. Tighten to 7 in-lb. (0.8 N-m).

4



Back side of cassette

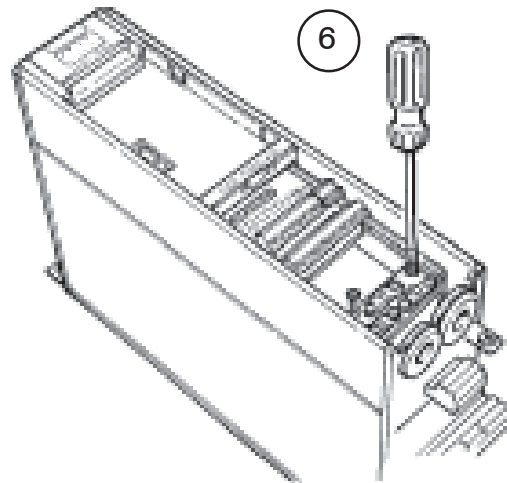
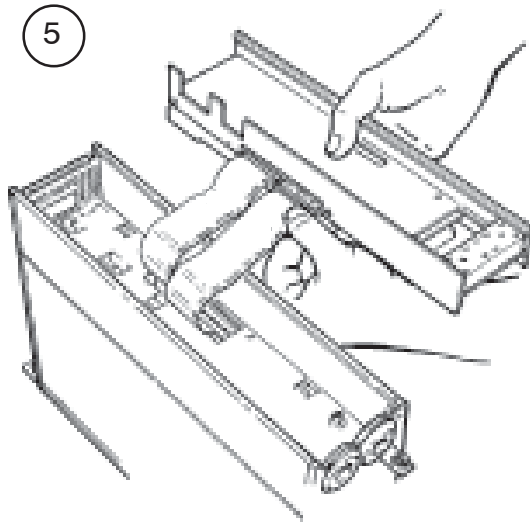


End view



## NEMA 1 Installation (continued)

Connect two ribbon cables. Hinge cassette from top. Reinsert screws and tighten to 8 in-lb. (0.9 N-m). Plug in control terminal strips. Wire option card as described in *Wiring*.

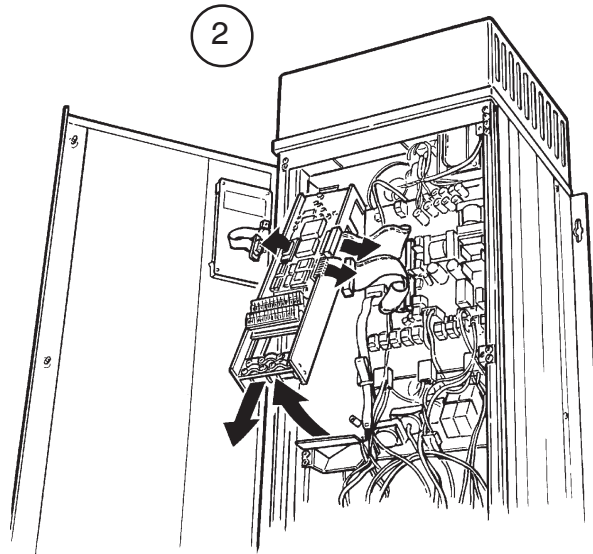
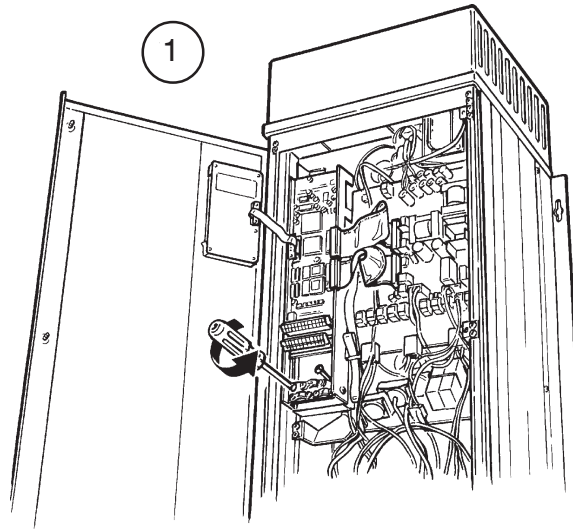




## NEMA 12 Installation

### **⚠ DANGER**

Remove power to drive and wait at least 15 minutes to discharge voltage.

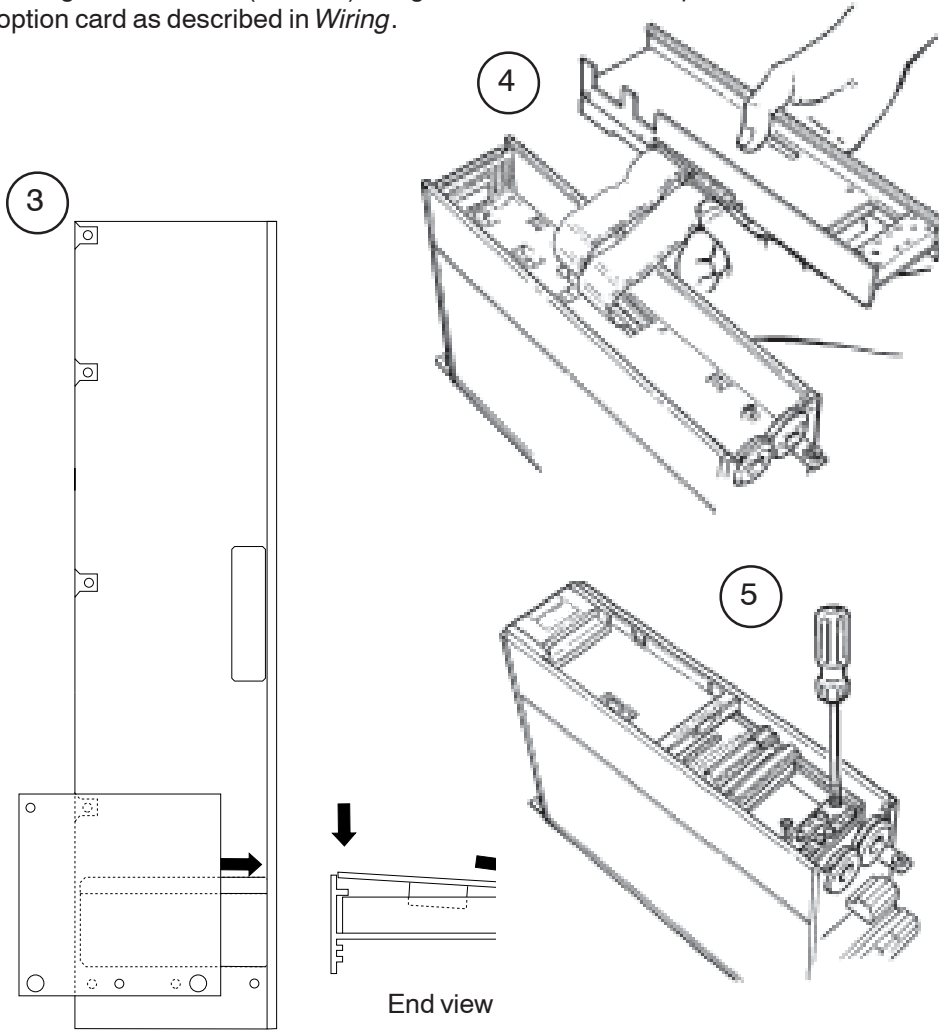




## NEMA 12 Installation (continued)

Position option card to back side of cassette. Slide edge of card into slot in side of cassette. Secure option card by pressing it flush to cassette. Insert two self-tapping screws provided in holes in upper left and bottom center of card. Tighten to 7 in-lb. (0.8 N-m).

Connect two ribbon cables. Hinge cassette from top. Reinsert screws and tighten to 8 in-lb. (0.9 N-m). Plug in control terminal strips. Wire option card as described in *Wiring*.



Back side of cassette





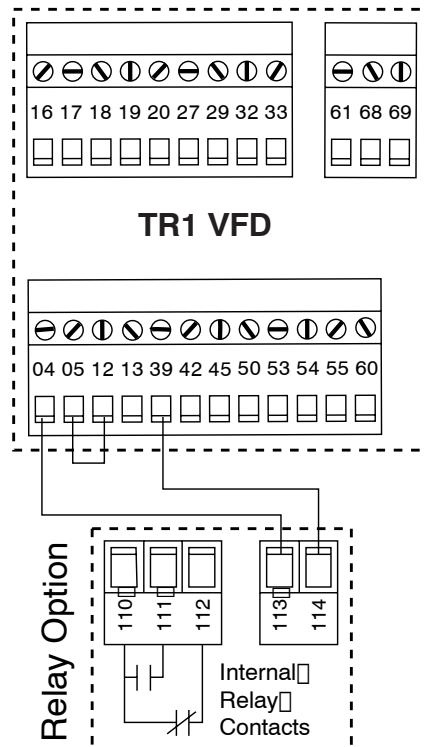
## Wiring

The single relay option card can be driven by relay 2, or by either of the two analog outputs.

### To Drive from Relay 2:

Wire as shown below. Install a jumper between terminals 5 and 12.  
Program relay using parameter 326.

### Output Relay 2



Tighten terminals on drive terminal strip to 5 in-lbs (0.6 N-m).

Tighten terminals on option card to 3.5 in-lbs (0.4 N-m).



## Wiring (continued)

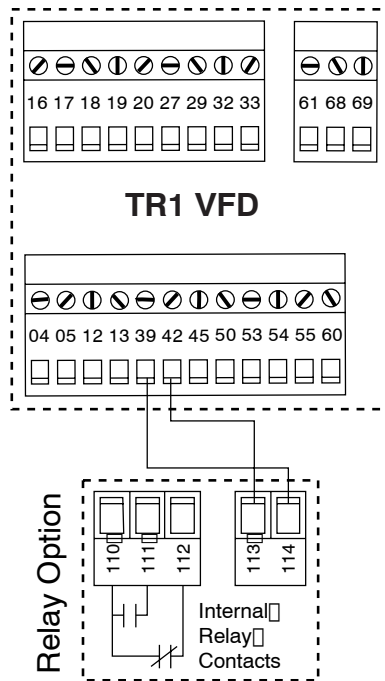
### To Drive from Analog Output 42:

Wire as shown in figure 2 below. Program the relay using parameter 319.

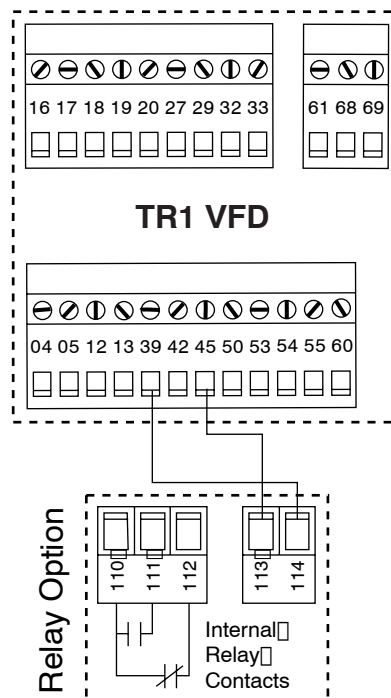
### To Drive from Analog Output 45:

Wire as shown in figure 3 below. Program the relay using parameter 321.

Output 42



Output 45



Tighten terminals on drive terminal strip to 5 in-lbs (0.6 N-m).

Tighten terminals on option card to 3.5 in-lbs (0.4 N-m).



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or e-mail us at [comfort@trane.com](mailto:comfort@trane.com)

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Literature Order Number	TR1-SVN02A-EN
File Number	SV-VEN-TR1-SVN002-EN-1003
Supersedes	New
Stocking Location	Commercial Communications, Inc.

Trane has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice.