RELIANCE ELECTRIC

INSTRUCTION SHEET D2-3168
Remote Meter Interface Card
Model 1MI4000
For use with 230 VAC, 460 VAC AND 575 VAC
GP-2000
General Purpose A-C V★S® Drive Controllers

WARNING
ONLY QUALIFIED ELECTRICAL PERSONNEL FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THIS EQUIPMENT AND THE HAZARDS INVOLVED SHOULD INSTALL, ADJUST, OPERATE, AND/OR SERVICE THIS EQUIPMENT. READ AND UNDERSTAND THIS MANUAL IN ITS ENTIRETY BEFORE PROCEEDING. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

Description

The products described in this instruction manual are manufactured by Reliance® Electric Industrial Company.

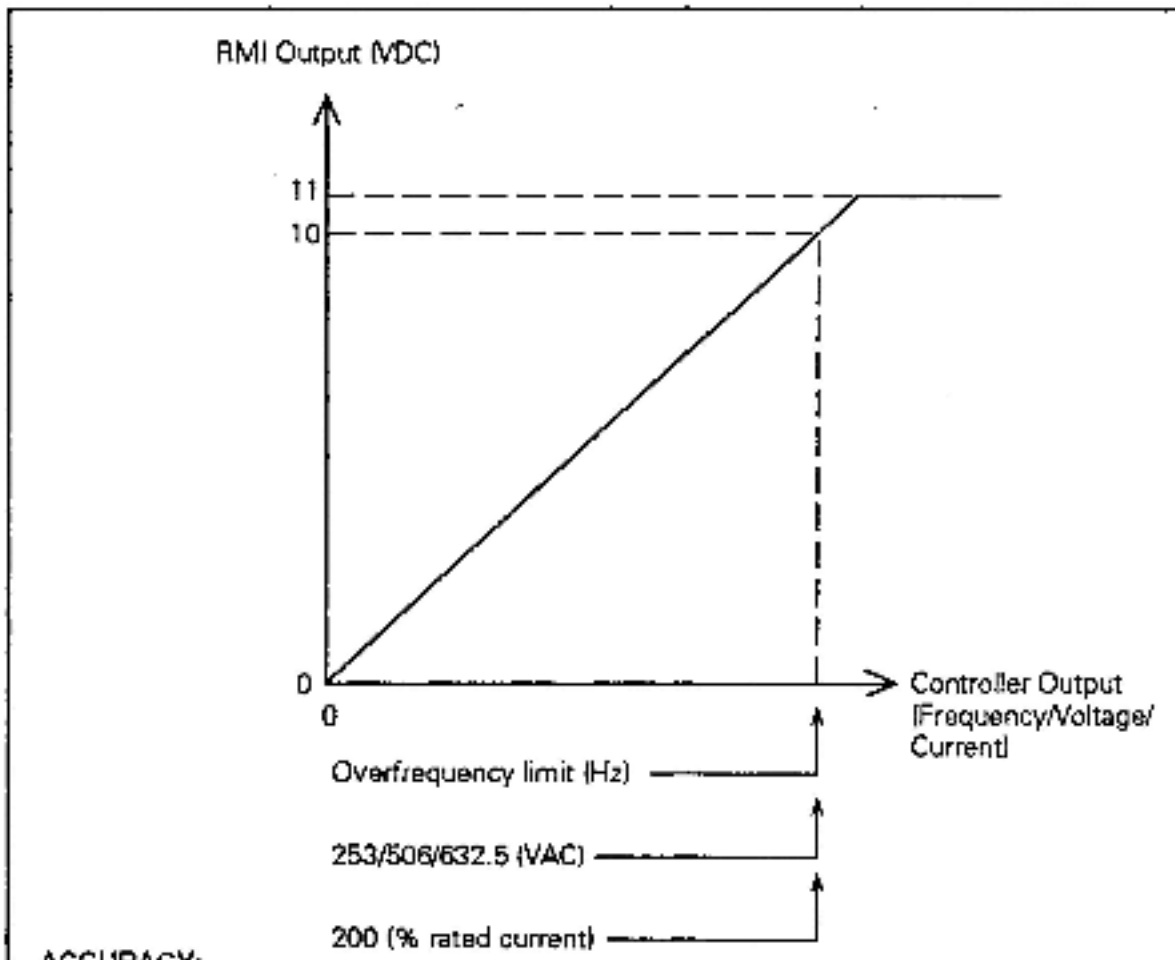
The Remote Meter Interface Card (RMI) kit has three isolated analog interface circuits for monitoring the controller output frequency, voltage and current. Each interface circuit is composed of an opto-coupler and an active filter. The output capacity of each interface circuit is a maximum of 1 mA at 10 VDC.

The monitor signals for the controller output frequency and voltage are generated through calculation without actual measuring. The signal for the controller output current is generated through actual measuring. These three signals are always provided regardless of the keypad monitor display.

When the controller output frequency reaches the overfrequency limit, the output at terminal 31 is 10 VDC.

When the controller output voltage is 253 VAC, 506 VAC, or 632.5 VAC the output at terminal 32 is 10 VDC for the controller input rating of 230 VAC, 460 VAC, or 575 VAC respectively. When the controller output current is 200% rated current, the output at terminal 33 is 10 VDC. See Figure 1. Terminal 34 is the common (OVI1) for these signals.

These monitor signals are normally used for remote analog meters or the Remote Digital Meter kit (Model 3DM4000) which has an analog to digital converter.



ACCURACY:
1. THE ERROR AT 10 VDC IS MAXIMUM +0.5, –0.3 VDC.
2. THE ERROR AT 0 VDC IS MAXIMUM +0, –0.1 VDC.
3. THE LINEALITY ERROR (DEVIATION FROM A STRAIGHT LINE) IS MAXIMUM ±0.15 VDC.

Figure 1. Output Characteristics.

The kit also has three output contacts; Run Relay, Output Relay 1 and Output Relay 2. The Run Relay is energized while the controller is in the run condition. Output Relay 1 is energized depending on the selection of Function 28 and Output Relay 2 is energized depending on the selection of Function 29. If the kit is not installed, Functions 28, 29, 33, 34 and 35 are not available. Refer to the GP-2000 instruction manual (D2-3166/1-20 HP, D2-3182/25-40 HP) for a detailed description of these functions.

The Run Relay and Output Relay 2 have normally open contacts. Output Relay 1 has a form C contact (1NO/1NC). The contact ratings are 1 ampere at 250 VDC and 2 amperes at 30 VDC.

Spacers (stubs) are provided to mount the kit on the GP-2000 regulator printed circuit board.

The Remote Meter Interface Card kit cannot be used with the Serial Communication Port Card kit (Model 1SC4000). Both kits use the same installation location on the regulator printed circuit board.

Installation

DANGER
EQUIPMENT IS AT LINE VOLTAGE WHEN A-C POWER IS CONNECTED TO THE CONTROLLER. ALL UNGROUNDED CONDUCTORS OF THE A-C POWER LINE MUST BE DISCONNECTED FROM THE CONTROLLER. AFTER POWER IS REMOVED, USE A VOLTMETER AT TERMINALS 147(+) AND 45(–) TO VERIFY THAT THE D-C BUS FILTER CAPACITORS ARE DISCHARGED BEFORE TOUCHING ANY INTERNAL PARTS OF THE CONTROLLER OR INSTALLING KITS. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

DANGER
THE USER IS RESPONSIBLE FOR CONFORMING WITH THE NATIONAL ELECTRICAL CODE AND ALL OTHER APPLICABLE LOCAL CODES. WIRING PRACTICES, GROUNDING, DISCONNECTS AND OVERCURRENT PROTECTION ARE OF PARTICULAR IMPORTANCE. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

1. Disconnect all power to the controller.
2. Loosen the four screws at the corners of the controller enclosure and remove the cover.
3. Locate the two spacers with pins as shown in Figure 3 (1).
4. Put the spacers into the two holes (A and B in Figure 2) on the regulator printed circuit board. See Figure 3 (2).
5. Press the pins slightly to temporarily maintain the spacer vertically on the regulator. See Figure 3 (3).
6. The RMI card has two connectors (C and D in Figure 2) on the back side. Fit the two connectors of the kit on the two connectors on the regulator and fit the two holes (A and B in Figure 2) in the spacers on the regulator. Press the RMI card on the regulator to connect the two connectors.
7. Press the pins firmly to lock the RMI card and the spacers on the regulator. See Figure 3 (4).
8. Install wiring for the remote meters or the customer sequence circuits. Route the wiring through either of the center openings in the bottom of the controller, so that the wires do not come in contact with uninsulated components.
9. To remove the kit for replacement or troubleshooting, grab the pin of the spacer with pliers and turn the pin 45 degrees in either direction and pull it to unlock it from the boards.

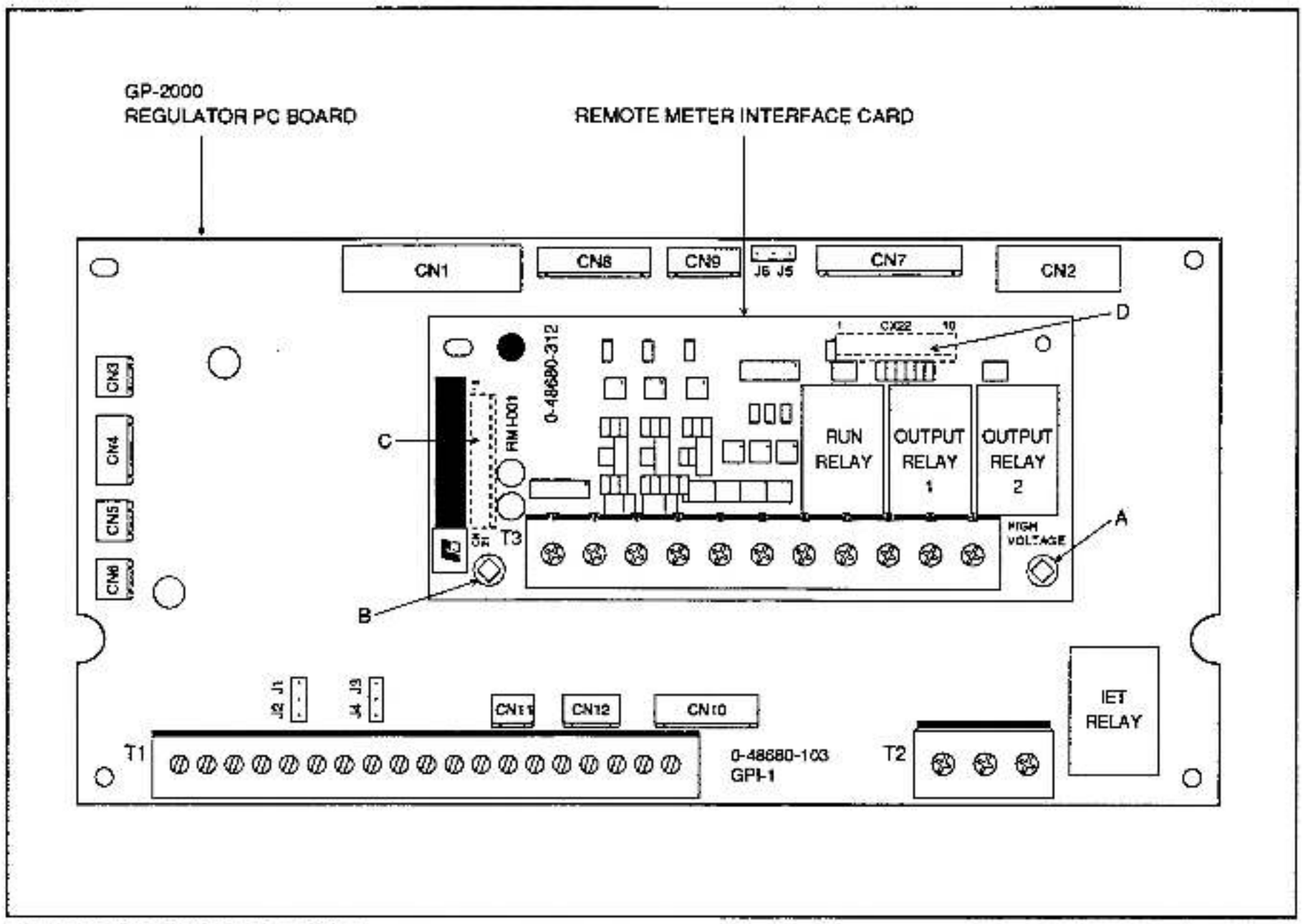


Figure 2. Installation Location.

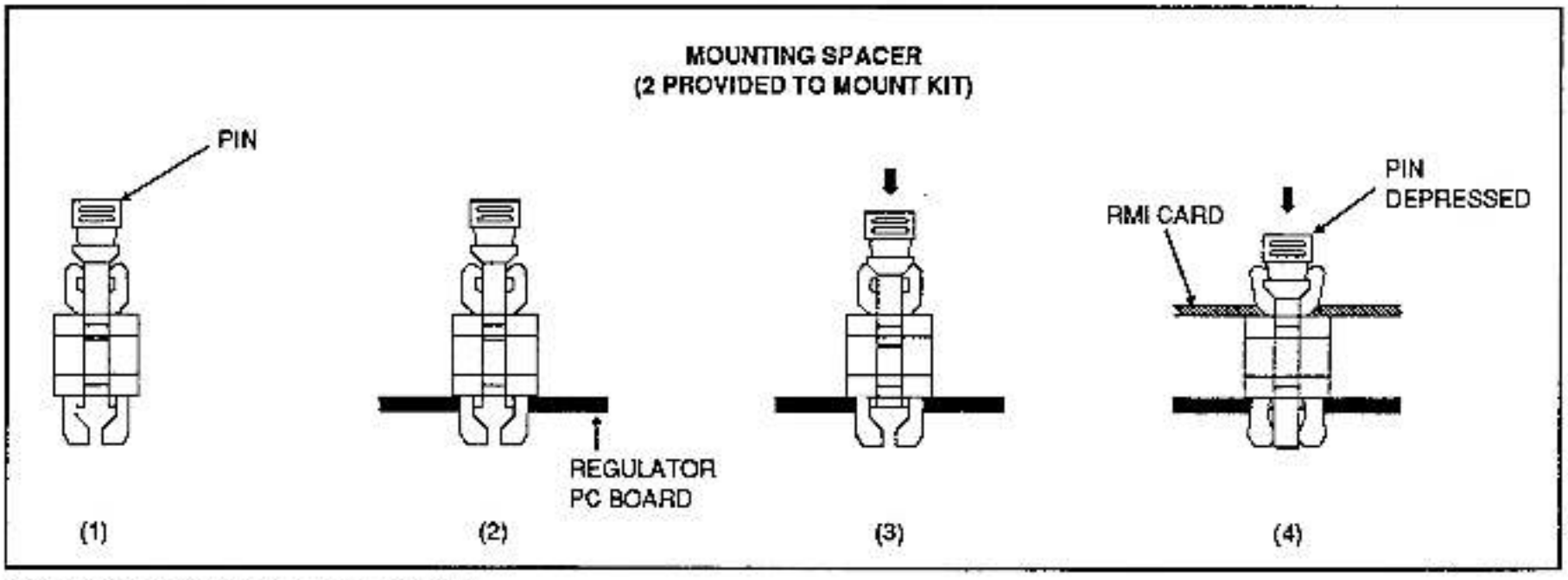


Figure 3. Installation for Spacers.

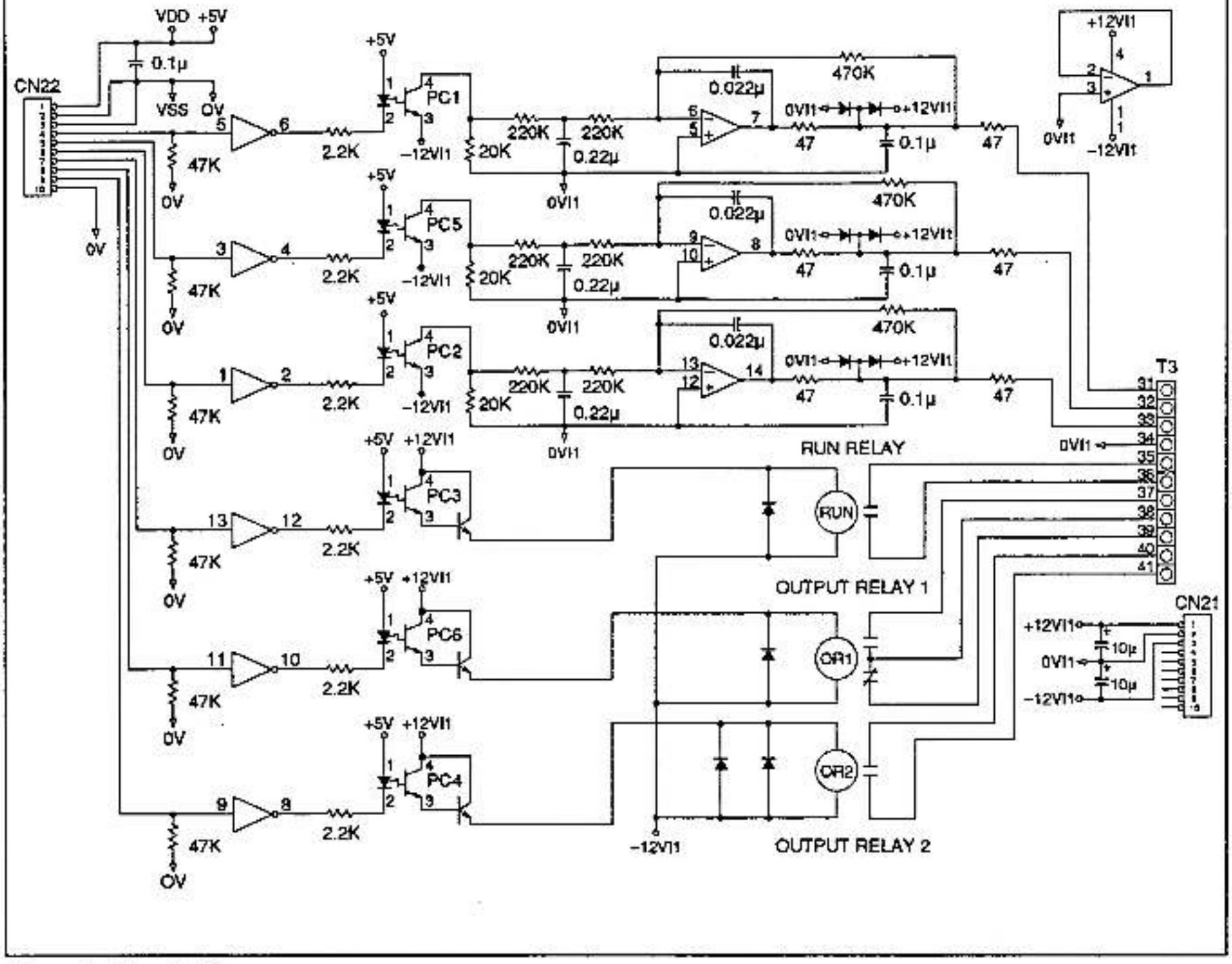


Figure 4. Circuit Diagram.