

# OVER TEMPERATURE & SEAL LEAKAGE

## AUTO & MANUAL RESET | TCF-E SERIES FOR PUMPS WITH FLOAT TYPE LEAKAGE DETECTOR

OVER TEMPERATURE & SEAL LEAKAGE RELAYS | INNER DOOR MOUNTING



- ◆ Monitors Submersible Pumps for Over Temperature & Seal Leakage
- ◆ Works with Pumps Using a Float Type Leakage Detector
- ◆ Auto & Manual Reset for Over Temperature
- ◆ Flange-enclosure Designed for Deadfront Door-Mounting
- ◆ Low-Profile Adjustment Switch & Reset Button
- ◆ Full Status Indication on Top of Unit for Easy Troubleshooting
- ◆ 11 Pin Back-Mounted Socket Provided with Relay



with appropriate socket



Macromatic TCF-E Series products monitor for over temperature and seal leakage on submersible pumps using a float type leakage detector. These products come with a switch to select either automatic reset or manual reset for over temperature.

The flange-enclosure is designed to be deadfront-mounted on an inner door and used with back-mounted sockets. Everything needed for setup, use and troubleshooting is on the top of the unit: status LED, switch to choose Automatic or Manual Reset mode for temperature, and a pushbutton for Manual Reset of an over temperature condition. They are all visible so that the door need not be opened to see the status of the over temperature or seal leakage condition.

### Operation:

Two wires from the Over Temp/Seal Leakage relay are connected to a N.C. thermal switch in the windings of the pump motor to monitor for overheating. A low-voltage DC signal is applied to check the status of the thermal switch. Two additional wires are connected to a N.C. float switch in the Leakage Sensor. A separate low-voltage DC signal is applied to check the status of the Leakage Sensor. These products have isolated output contact relays, one for over temperature and one for seal leakage.

With input voltage applied, normal temperature condition (thermal switch closed) and no seal leakage (Leakage Sensor contact closed), both the over temperature relay and the seal leakage relay are energized. The TEMP & SEAL LEDs are both Green, indicating normal conditions and input voltage applied.

When the motor temperature rises and the N.C. thermal switch opens, the over temperature relay is de-energized, opening a contact that had been closed and turning off the pump contactor. The TEMP LED turns Red. If the over temperature condition is cleared, the unit will reset based on the setting of the Over Temp switch. In the AUTO mode, the unit will reset automatically. In the MANUAL mode, the Over Temp Reset button must be pushed to clear the alarm and reset the relay.

If the seal starts to leak, contaminating fluid enters the pump motor cavity. The contact in the Leakage Sensor will open and the seal leakage relay is de-energized, reclosing a contact that was opened and providing an alarm indication of a leaking seal. The LEAK LED turns Red.

INPUT VOLTAGE	CATALOG NUMBER	WIRING/SOCKET
24V AC	TCF8E	<p>11 Pin Octal <b>OR11-PC</b></p> <p><b>DIAGRAM 217</b></p>
120V AC	TCF2E	
240V AC	TCF1E	

■ 11 Pin Back-Mounted Socket Provided with Relay

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### APPLICATION DATA

**Voltage Tolerance:**

AC Operation: +10/-15% of nominal at 50/60 Hz.

**Load (Burden):**

3 VA

**Temp & Leakage Voltage:**

5V DC Pulsed

**Resistance Setting (Over Temperature):**

5KΩ

**Response Time:**

Pick-up: 1 Second

Drop-out: 1 Second

**Temperature:**

Operating: -28° to 65°C (-18° to 149°F)

Storage: -40° to 85°C (-40° to 185°F)

**Output Contacts:**

7A @ 240V AC / 5A @ 28V DC, 1/4HP @ 120V AC (N.O.)

**Life:**

Mechanical: 10,000,000 operations

Full Load: 100,000 operations

**LED Indicator:**

Temp: Green ON with input voltage applied, normal temperature condition and relay energized; Red ON when over temperature detected and relay de-energized

Seal: Green ON with input voltage applied, no seal leak and relay energized; Red ON when seal leak detected and relay de-energized

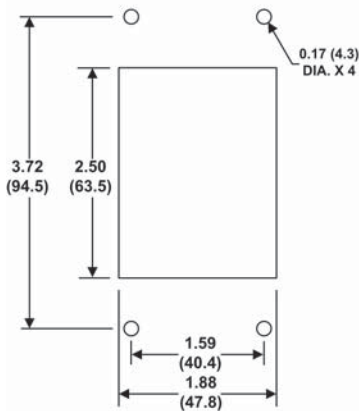
**Mounting:**

For deadfront-mounting on an inner door, use 11 Pin Back-Mounted Socket (Custom Connector OR11-PC which is provided with the relay). For panel-mounting, use industry-standard 11 Pin Octal socket (Macromatic 70170-D or equivalent).

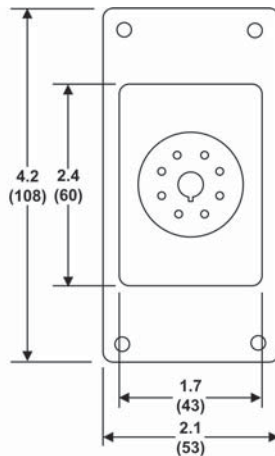
**Approvals:**



### DIMENSIONS



Panel Cutout



All Dimensions in Inches (Millimeters)

