OVER TEMPERATURE & SEAL LEAKAGE

AUTO & MANUAL RESET | TCF-F SERIES FOR PUMPS WITH FLS OR CLS LEAKAGE SENSOR

- Monitors Submersible Pumps for Over Temperature & Seal Leakage
- Works with Pumps Using a FLS or CLS Leakage Sensor
- 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

c UL us

c UL us with appropriate socket

MACROMATIC

Better. By Design.

800.238.7474

WWW.MACROMATIC.COM

SALES@MACROMATIC.COM

Macromatic TCF-F Series products monitor for over temperature and seal leakage on submersible pumps using either FLS or CLS leakage sensors. These units come with a switch to select either automatic reset or manual reset for an over temperature condition.

The flange-enclosure is designed to be deadfront-mounted on an inner door and used with a back-mounted socket (included). Everything needed for setup, use and troubleshooting is on the top of the unit: status LEDs, 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 relay are connected to the FLS or CLS sensor which is in series with the pump over temperature switch. A low-voltage DC signal is applied to measure the current flow through the sensor and over temperature switch. The sensor controls the current in this circuit. These products have isolated output contact relays, one for over temperature and one for seal leakage.

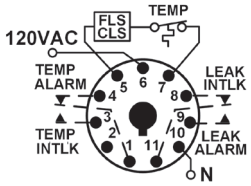
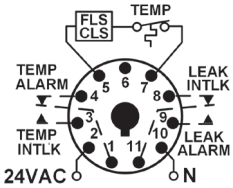
With input voltage applied, normal temperature condition (thermal switch closed) and no seal leakage, the sensor current will be in the normal range. The over temperature relay is energized and the seal leak relay is de-energized. Both LEDs are Green, indicating normal conditions and input voltage applied.

When the motor temperature rises and the N.C. thermal switch opens, the sensor current drops to zero. 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.

In a seal leakage condition, contaminating fluid enters the pump motor cavity. The sensor lowers its resistance, increasing the sensor circuit current above the trip point. The seal leakage output relay energizes and closes a contact, which can be used to give an alarm indication of a leaking seal. The SEAL LED turns Red.

Cleared Fault Condition
If either an Over Temp fault condition when the Over Temp switch is set to AUTO or a Seal Leakage fault has been automatically cleared, a cleared fault indication is displayed by flashing the corresponding Red TEMP LED or Red SEAL LED. The flashing indication may be manually reset by pressing the Over Temp Reset button. Note: if either fault still exists when the Over Temp Reset button is depressed, it is ignored.

Shorted Sensor
If the sensor wires are shorted, the unit will display a Shorted Sensor condition by alternately flashing the Red SEAL LED and the Red TEMP LED. If the short is removed, the fault will automatically reset within 30 seconds.

INPUT VOLTAGE	CATALOG NUMBER	WIRING/SOCKET
120V AC	TCF2F	11 Pin Octal **SR6P-M11G**  **DIAGRAM 219**
24V AC	TCF8F	11 Pin Octal **SR6P-M11G**  **DIAGRAM 218**

■ 11 Pin Back-Mounted Socket Provided with Relay

OVER TEMPERATURE & SEAL LEAKAGE

Auto & Manual Reset | TCF-F Series for Pumps with FLS or CLS Leakage Sensor

Application Data

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

Load (Burden):
3 VA

Response Time:

Power-up/Restart Delay (Over Temp Relay Energize)	3 seconds
Over Temp Fault (Relay De-energize)	3 seconds
Over Temp Fault Clears-Auto Reset (Relay Energize)	3 seconds
Over Temp Fault Clears-Manual Reset (Relay Energize)	500ms
Seal Leakage Fault (Relay Energize)	3 seconds
Seal Leakage Fault Clears (Relay De-energize)	3 seconds
Cleared Fault Indication	500ms
Shorted Sensor—Auto Reset	30 seconds

Temperature:
Operating: -28° to 65°C (-18° to 149°F)
Storage: -40° to 85°C (-40° to 185°F)

Output Contacts:
7A @ 240V AC / 7A @ 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; Red Flashing when over temperature condition has been cleared in AUTO mode

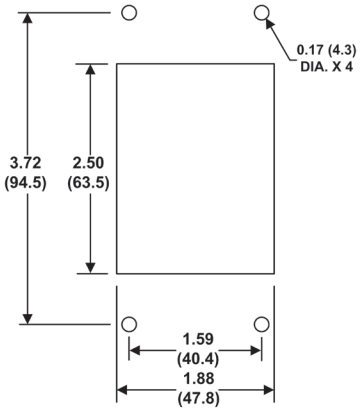
Seal: Green ON with input voltage applied, no seal leak and relay de-energized; Red ON when seal leak detected and relay energized; Red Flashing when seal leakage condition has been cleared

Shorted Sensor: If sensor wires are shorted, TEMP & SEAL LEDs will alternately flash Red

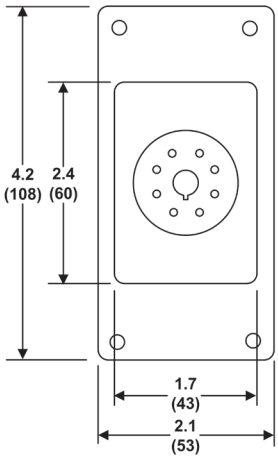
Mounting:
For deadfront-mounting on an inner door, use 11 Pin Back-Mounted Socket (IDEC SR6P-M11G which is provided with the relay). For panel-mounting, use industry-standard 11 Pin Octal socket (Macromatic 70170-D or equivalent).

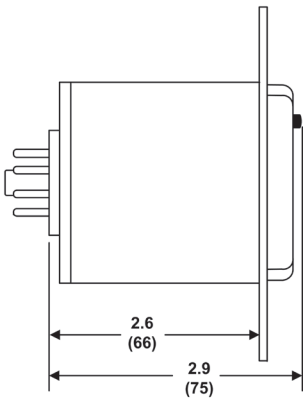
Approvals: c UL us
File #E109466

Dimensions



Panel Cutout





All Dimensions in
Inches (Millimeters)