



# INSTALLATION INSTRUCTIONS TCF-A SERIES OVER TEMPERATURE & SEAL LEAKAGE RELAYS

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901-0000-349

**Potentially hazardous voltages are present. Electrical shock can cause death or serious injury. Installation should be done by qualified personnel following all National, State & Local Codes.**

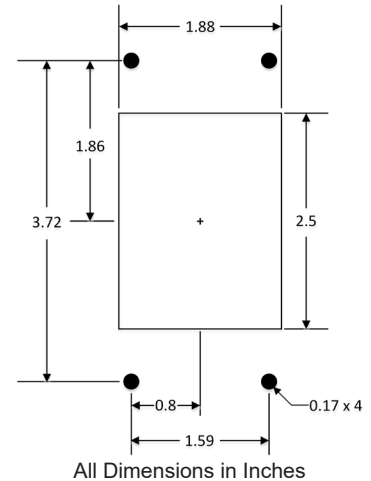
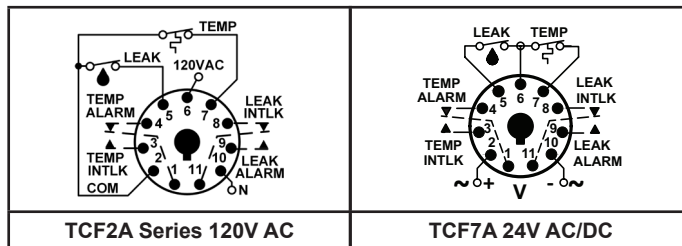
*Présence de tensions potentiellement dangereuses. Une décharge électrique peut causer la mort ou des blessures graves. L'installation devrait être effectuée par du personnel qualifié suivant tous les codes nationaux, provinciaux et locaux.*

**BE SURE TO REMOVE ALL POWER SUPPLYING THIS EQUIPMENT BEFORE CONNECTING OR DISCONNECTING WIRING. READ INSTRUCTIONS BEFORE INSTALLING OR OPERATING THIS DEVICE. KEEP FOR FUTURE REFERENCE.**

### Installation & Setup

TCF-A Series Flange-Mounted: First, use the Cutout Drawing at right to cut the appropriate size hole in the door and drill the four mounting holes. After mounting the relay, use the appropriate 11 pin back-mounted socket (IDEC SR6P-M11G included with relay).

Wire the socket per the wiring diagram on the side of the relay or as shown below. **Make sure to match the terminal numbers on the socket to the ones shown on the wiring diagram (the wiring diagram on the relay is the view looking towards the bottom of the relay vs. the top of the socket).** Use one or two #12-22 solid or stranded copper or copper-clad aluminum conductors with terminals of the above sockets—a terminal tightening torque of 10 in-lbs (SR6P-M11G) should be used. Plug the relay into the socket, making sure the key on the center post is in the proper orientation before insertion. **If the relay must be removed from the socket, do NOT rock the relay back & forth excessively—the center post could be damaged.**



### Setting the Seal Leakage Sensitivity

All TCF-A Series products come with a fixed 5KΩ sensitivity for over temperature protection and an adjustable sensitivity range for the seal leak as indicated on the nameplate and by the Catalog Number. Use the sensitivity setting specified by the pump manufacturer. For more accurate setting, isolate the leakage probe from the appropriate terminals as shown on the wiring diagram. Connect a resistor with the desired trip value across these two terminals. Slowly adjust the potentiometer to the point where the SEAL LED turns from Green to Red. Then remove the resistor and reconnect the probe wires. **Note: The tick marks are for reference only.**

### Operation

A normally closed thermal switch in the windings of the pump motor is connected to the TEMP input to monitor for overheating of the pump. A low-voltage DC signal is applied to monitor the thermal switch. The pump seal leakage sensor(probes) are connected to the LEAK input to monitor for seal leakage using a low-voltage DC signal. Isolated output contact relays are provided, one for over temperature and one for seal leakage. The over temperature trip point is fixed at 5K ohms. Adjustable seal leakage sensitivity range is 4.7K-100K ohms.

With input voltage applied, normal temperature condition (thermal switch closed) and seal leakage above the sensitivity set-point, 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 motor temperature rises and the N.C. thermal switch opens, the over temperature relay is de-energized opening the contact that had been closed turning off the pump motor. The TEMP LED turns Red. If the over temperature condition is cleared, the unit will reset based on the setting of the AUTO-MANUAL RESET 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. (Note: If fault still exists when the Over Temp Reset button is depressed, it will not reset.)

If the shaft seals start to leak, contaminating fluid enters the pump motor cavity. This lowers the resistance of the lubricant inside the pump. When the resistance drops below the user-adjustable sensitivity set-point of the relay, the output relay energizes and closes a contact, which can be used to give an alarm indication of a leaking seal. The LEAK LED turns Red. If the seal leak condition is cleared, the unit will reset automatically.

If either a TEMP or SEAL leak alarm has been automatically cleared, a cleared fault indication is displayed by flashing the corresponding Red TEMP LED or Red SEAL LED after the alarm state has been cleared. The flashing indication may be reset by pressing the Over Temp Reset button.

### Troubleshooting

If the unit fails to operate properly, check that all connections are correct per the appropriate wiring diagram above. If problems continue, contact Macromatic via e-mail at [tech-support@macromatic.com](mailto:tech-support@macromatic.com) for assistance.

### Warranty

All catalog-listed TCF-A Series products manufactured by Macromatic are warranted to be free from defects in workmanship or material under normal service and use for a period of five (5) years from date of manufacture.