








PRODUCT SUMMARY

Macromatic offers Single or Dual Channel Seal Leakage Relays and Over Temperature & Seal Leakage Relays. Seal Leakage Relays monitor the shaft seals of submersible pumps for leakage.

Over Temperature & Seal Leakage Relays protect submersible pump motors against damage from both over temperature and seal leakage.

Product Series	Protects Against	Leakage Detection Method	Mounting Configuration	Sensitivity Ranges	Control Voltages
 SFP Series	Seal Leakage Single or Dual Channel	Resistance Sensing	Plug-in	4.7K to 100KΩ 1K to 250KΩ	24V AC, 120V AC, 240V AC, 24V AC/DC
 SFF Series	Seal Leakage Single or Dual Channel	Resistance Sensing	Flange (Door Mounted) ▲	4.7K to 100KΩ 1K to 250KΩ	24V AC, 120V AC, 240V AC, 24V AC/DC
 TCP Series	Over Temperature & Seal Leakage	Resistance Sensing	Plug-in	4.7K to 100KΩ 1K to 250KΩ	24V AC, 120V AC, 240V AC, 24V AC/DC
 TCF Series	Over Temperature & Seal Leakage	Resistance Sensing	Flange (Door Mounted) ▲	4.7K to 100KΩ 1K to 250KΩ	24V AC, 120V AC, 240V AC, 24V AC/DC
 TCF-A Series	Over Temperature & Seal Leakage	Resistance Sensing	Flange (Door Mounted) ▲	4.7K to 100KΩ	120V AC, 24V AC/DC
 TCF-E Series	Over Temperature & Seal Leakage	Float Type Sensor	Flange (Door Mounted) ▲	N/A	24V AC, 120V AC, 240V AC, 24V AC/DC
 TCF-F Series	Over Temperature & Seal Leakage	CLS or FLS Sensors	Flange (Door Mounted) ▲	N/A	24V AC, 120V AC, 24V AC/DC

▲ These products can also be used with plug-in sockets for back-panel or DIN-rail mounting.



SEAL LEAKAGE

SINGLE & DUAL CHANNEL | SFP SERIES



Single Channel

Dual Channel

- ◆ Monitors Submersible Pump Seals for Leakage
- ◆ Works with Pumps using Resistance Sensing Leakage Detection
- ◆ Single or Dual Channel for Monitoring 1 or 2 Pumps
- ◆ Two Adjustable Sensitivity Ranges
- ◆ Full Status Indication on Top of Unit for Easy Troubleshooting
- ◆ Low-Profile Adjustment Knob
- ◆ Uses Industry-Standard 8 & 11 Pin Octal Sockets



with appropriate socket



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SFP Series Seal Leakage Relays are designed to monitor the shaft seals of submersible pumps for leakage. LED status indication and low-profile sensitivity knob are on top for easy setup and troubleshooting. These products utilize a plug-in enclosure for panel or DIN-rail mounting with a socket.

Three output configurations are offered: an 8 pin SPDT single channel relay and an 11 pin DPDT single channel relay to monitor a single pump, and an 8 pin dual channel relay (with 2 SPNO contacts) to monitor two pumps. Probes are pulsed with a DC voltage to prevent electroplating issues.

Operation: Two wires from the relay are connected to a resistance-sensing probe in the pump seal cavity and the grounded motor housing or across two probes to monitor for seal leakage using a low-voltage DC signal. If the seal starts to leak, contaminating fluid enters the seal cavity. This lowers the resistance between the internal probe and the common connection.

When the resistance drops below the user-adjustable sensitivity set-point of the relay, the output relay energizes and the LED turns Red ON. The relay output can be used to give an alarm indication of a leaking seal.

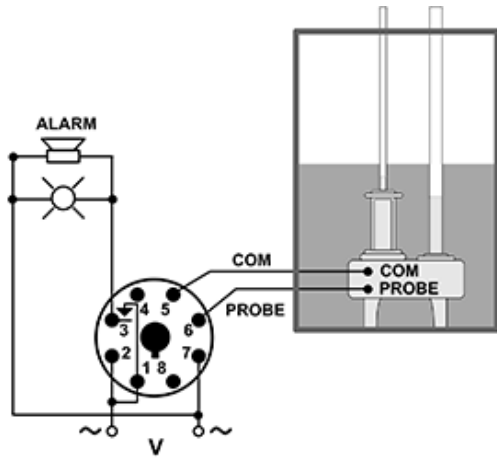
CONFIGURATION	CONTROL VOLTAGE	SENSITIVITY RANGE	CATALOG NUMBER	WIRING/SOCKET
SINGLE CHANNEL 8 Pin SPDT	24V AC	4.7K to 100KΩ 1K to 250KΩ	SFP024A100 SFP024A250	<p>DIAGRAM 234</p>
	24V AC/DC	4.7K to 100KΩ 1K to 250KΩ	SFPAD7A100 SFPAD7A250	
	120V AC	4.7K to 100KΩ 1K to 250KΩ	SFP120A100 SFP120A250	
	240V AC	4.7K to 100KΩ 1K to 250KΩ	SFP240A100 SFP240A250	
SINGLE CHANNEL 11 Pin DPDT	24V AC	4.7K to 100KΩ 1K to 250KΩ	SFP024B100 SFP024B250	<p>DIAGRAM 236</p>
	24V AC/DC	4.7K to 100KΩ 1K to 250KΩ	SFPAD7B100 SFPAD7B250	
	120V AC	4.7K to 100KΩ 1K to 250KΩ	SFP120B100 SFP120B250	
	240V AC	4.7K to 100KΩ 1K to 250KΩ	SFP240B100 SFP240B250	
DUAL CHANNEL 8 Pin (2) SPNO	24V AC	4.7K to 100KΩ 1K to 250KΩ	SFP024C100 SFP024C250	<p>DIAGRAM 235</p>
	24V AC/DC	4.7K to 100KΩ 1K to 250KΩ	SFPAD7C100 SFPAD7C250	
	120V AC	4.7K to 100KΩ 1K to 250KΩ	SFP120C100 SFP120C250	
	240V AC	4.7K to 100KΩ 1K to 250KΩ	SFP240C100 SFP240C250	

See page 18 for available Sockets & Accessories

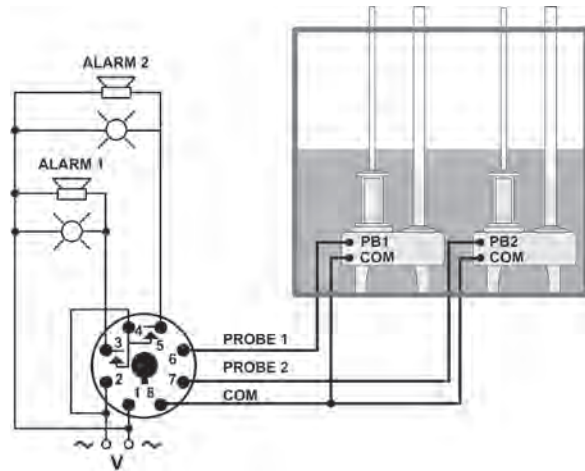
SEAL LEAKAGE

SINGLE & DUAL CHANNEL | SFP SERIES

APPLICATION DATA



Single Channel (8 Pin SPDT Shown)



Dual Channel

Voltage Tolerance:

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

Load (Burden):

3 VA

Probe Voltage:

5V DC Pulsed

Response Time:

Pick-up: 1 Second

Drop-out: 1 Second

LED Indicator:

Green ON with input voltage applied; Red ON when seal leak detected and relay energized

Temperature:

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

Storage: -40° to 85°C (-40° to 185°F)

Output Contacts:

Single Channel Relays:

8 Pin SPDT: 10A @ 240V AC / 7A @ 28V DC, 1/4HP @ 120V AC (N.O.)

11 Pin DPDT: 7A @ 240V AC / 7A @ 28V DC, 1/4HP @ 120V AC (N.O.)

Dual Channel Relays:

(2) 5A @ 240V AC / 5A @ 28V DC, 1/4HP @ 120V AC (N.O.)

Life:

Mechanical: 10,000,000 operations

Full Load: 100,000 operations

Mounting:

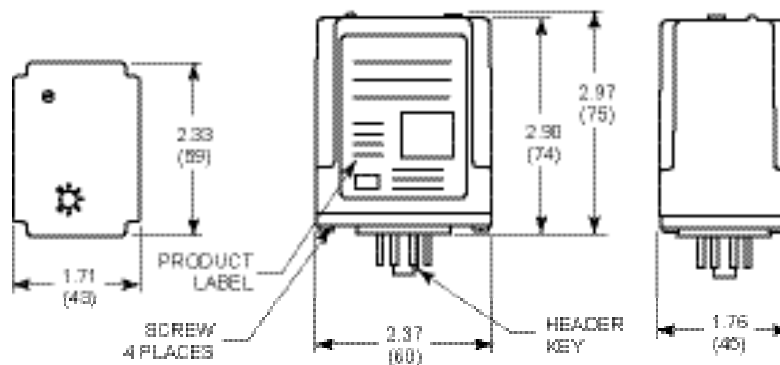
Requires industry-standard 8 Pin Octal Socket (Macromatic 70169-D or equivalent) or 11 Pin Octal Socket (Macromatic 70170-D or equivalent)

Approvals:



with appropriate socket

DIMENSIONS



All Dimensions in Inches (Millimeters)