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Series TWR

Temperature Switch

Precautions

- **User's Responsibility for Safety:** KOBOLD manufactures a wide range of process sensors and technologies. While each of these technologies are designed to operate in a wide variety of applications, it is the user's responsibility to select a technology that is appropriate for the application, to install it properly, to perform tests of the installed system, and to maintain all components. The failure to do so could result in property damage or serious injury.
- **Proper Installation and Handling:** Use a proper thread sealant with all installations. Never overtighten the sensor within its fitting. Always check for leaks prior to system start-up.
- **Wiring and Electrical:** Because this is an electrically operated device, only properly trained personnel should install and maintain this product. Review the specifications for maximum electrical switch ratings. Do not exceed these ratings. Electrical wiring of the sensor should be performed in accordance with all applicable national, state and local codes.
- **Temperature and Pressure:** The TWR is designed for use in process temperatures from -30°C to +125°C. Operation outside these limitations will cause damage to the unit.
- **Material Compatibility:** The TWR's process wetted parts are nickel-plated brass or stainless steel depending on the model. Make sure that the TWR is chemically compatible with the application liquids. While the sensor's outer housing is liquid resistant when installed properly, it is not designed to be immersed. It should be mounted in such a way that it does not normally come into contact with fluid.
- **Flammable, Explosive and Hazardous Applications:**

  The TWR is considered a simple apparatus per the U.S. National Electric Code. It can be made intrinsically safe if properly installed with an intrinsic safety barrier per the requirements of the National Code.
- **Make a Fail-Safe System:** Design a fail-safe system that accommodates the possibility of sensor or power failure. In critical applications, KOBOLD recommends the use of redundant backup systems and alarms in addition to the primary system.

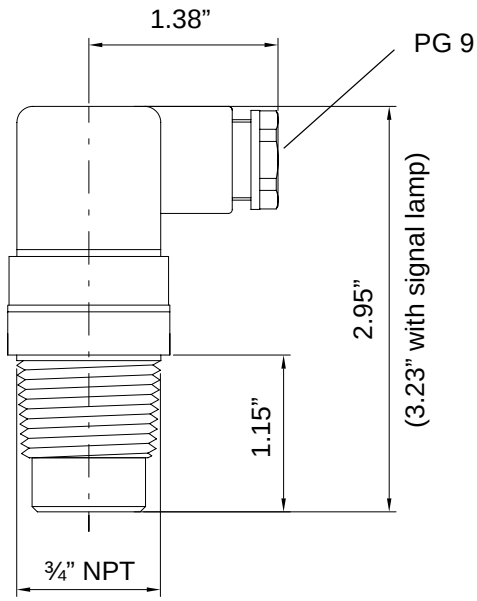
Specifications

Accuracy:	±5-7°C (±9-13°F)
Hysteresis:	Max. 20°C (36°F)
Wetted Parts:	Nickel-plated brass or 1.4301 (304) SS depending on model
Fitting:	3/4" NPT
Max. Pressure:	64 Bar (928 PSIG)
Temperature Range:	-30°C to +125°C (-22°F to +257°F)

Electrical Specifications:

Switch Type:	SPST normally open (N/O) or normally closed (N/C) based on model
Switch Rating	
Standard:	Max. 250 VAC, 30 VDC, 4 A
Option LED:	24 VDC
Option GLP:	110 VAC
Electrical Connection:	DIN 43 650
Electrical Protection:	IP 65

Dimensions



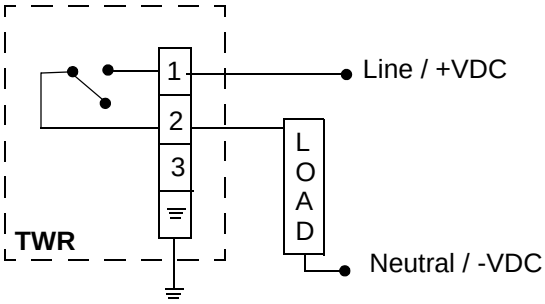
All dimensions in inches unless otherwise noted

Order Codes

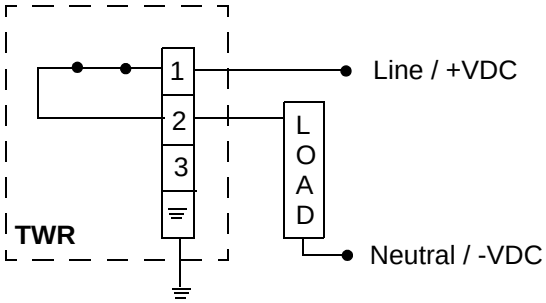
Con-tact Type	Part Number		Options (add to part number)
	Brass	Stainless	Switch status signal lamp **-LED** = 24 VDC Lamp **-GLP** = 110 VAC Lamp
N/O	**TWR-5101**	**TWR-5201**	
N/C	**TWR-5102**	**TWR-5202**	

Switch Point Options in °C (°F)
switchpoint is stamped on TWR body
(add to base p/n as suffix):
30(86), 35(95)
40(104), 45(113)
50(122), 60(140)
70(158), 80(176)
90(194), 100(212)
110(230), 120(248)

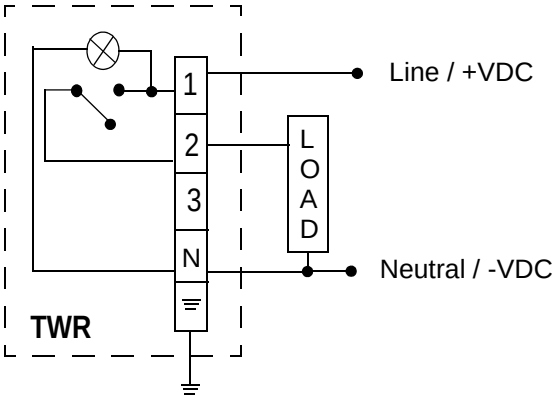
Electrical Connections



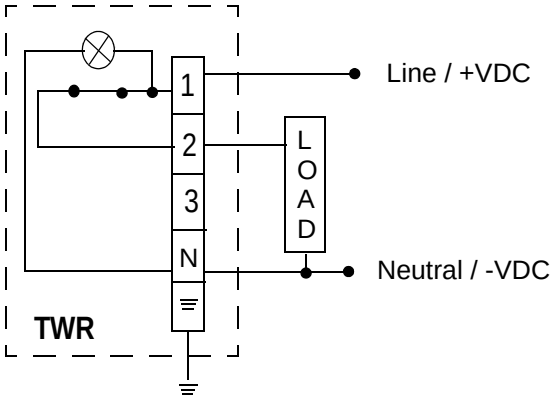
N/O Function



N/C Function



N/O Function with Lamp



N/C Function with Lamp

Note: for versions with signal lamp, the lamp is lit when switch is **open**

Mechanical Installation

1. Use a proper thread sealant to install the switch in its fitting

2. Ensure that the sensing bulb is immersed in the liquid to be monitored. If the switch is installed in an air pocket slow response or malfunction of the switch will occur.

3. If installing into a horizontal pipe, do not install at the top (12 O'clock) position on the pipe. Air bubbles which form in the top of the pipe will insulate the switch sensing bulb and result in slow operation or switch malfunction.

4. If installing into a horizontal pipe, do not install at the bottom (6 O'clock) position. Sediments may deposit on the sensing bulb causing slow response or switch malfunction.

5. Ensure that the coupling used to install the TWR is short enough to allow the sensing bulb to extend past the pipe or tank wall and into the liquid to be monitored. If the switch sensing bulb is recessed into the coupling, a stagnant liquid pocket will form around the sensing bulb. The liquid temperature in this stagnant area may not be representative of the bulk liquid temperature, resulting in errors or false switching.