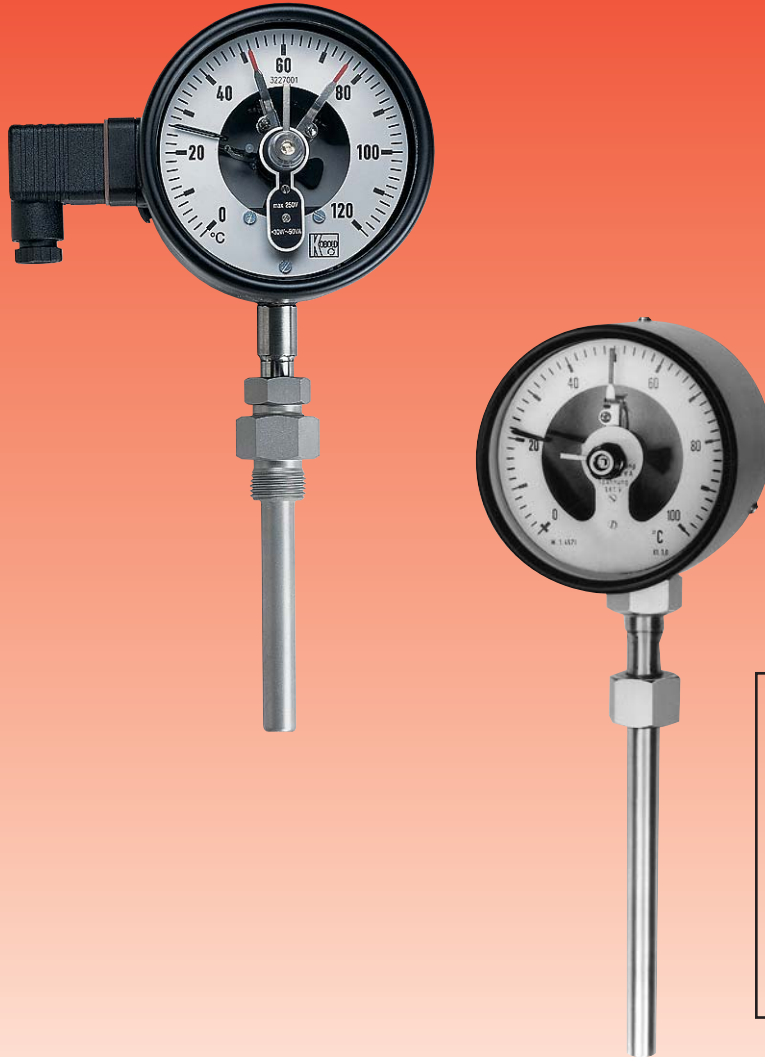


TNS RIGID STEM THERMOMETERS



Flow
Pressure
Level
Temperature
measurement
monitoring
control



T2

- Gas Filled Rigid Stem Thermometer
- Dial Sizes: 2.5", 3", 4", 6" and 10"
- All Stainless Steel Wetted Parts
- Ranges: -40 to 100°F Through 32° to 1100°F
- Available w/ Up to Four Switches



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Model:
TNS



The KOBOLD TNS series rigid stem thermometers are highly versatile and rugged gas filled thermometers for industrial applications. The TNS is available as a simple temperature indicating device or as a controller with un to four adjustable setpoints. The thermometer operates on the nitrogen gas principle. The sensing bulb is filled with inert nitrogen. Any temperature change at the bulb will result in a change in nitrogen pressure. This pressure is sensed in the indicating mechanism and displayed as a change in temperature.

The TNS is available with glycerin filling for applications in which vibration is present. The TNS is also available with dial sizes ranging from 2.5 to 10 inches. A variety of fittings are available to suit almost any application.

Specifications

Available Ranges

- Celsius:** -20 to +40 through 0 to +600°C
- Fahrenheit:** -40 to +100 through 32 to +1100°F

- Over-range Limit:** 1.3X Full Scale
- Max. Pressure:** 350 PSIG
- Available Dial Sizes:** 2.5", 3", 4", 6", 10"

- Accuracy:**
- 2.5" and 3":** ±1.6% of full scale @ 70°F ambient
- 4", 6" and 10":** ±1% of full scale @ 70°F ambient

Materials of Construction

- Measuring Probe 2.5", 3" and 10" Dial:** 304 stainless steel
- 4" and 6" Dial:** 316-Ti stainless steel

Housing

- 2.5", 3" and 10" Dial:** painted steel or stainless steel
- 4" and 6" Dial:** aluminum or stainless steel

Indicator Movement:

- 304 and 316-Ti stainless steel**
- Dial & Pointer:** Aluminum



TNS Series Rigid Stem Thermometers

Protection

- Aluminum & SS Housing:** NEMA 4X/IP 65
- Painted Steel Housing:** NEMA 3R/IP 54

Switch Specifications (optional)

- Available Switch Types:** Sliding contact, magnetic spring contact, inductive

Sliding Contact

- Ratings:** 250 VAC/VDC, 10 watts, 0.6 amps Max

Magnetic Spring

- Contact Ratings:** 250 VAC/VDC, 30 watts, 0.6 amps. Max

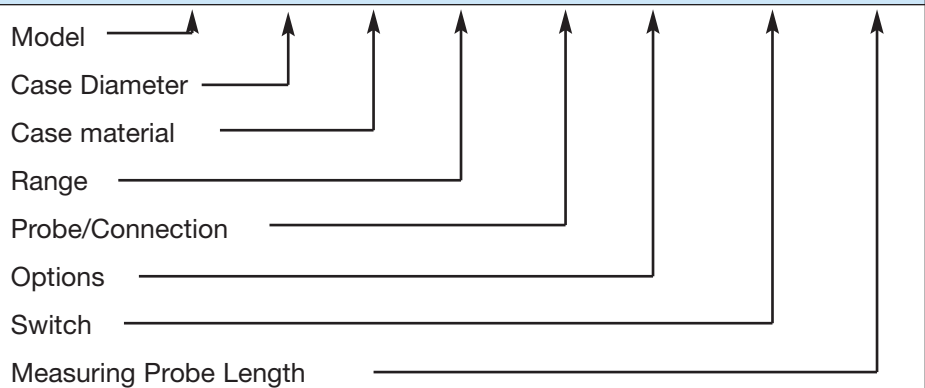
Inductive Contact

- Ratings:** NAMUR according to DIN 19234

Note: switches available for 4" and 6" housings only

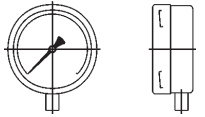
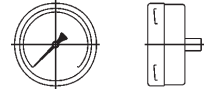
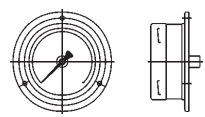
TNS Model Code Key

TNS - 1 - D - 1 - 24 - 0CB - K - M11 L=XXX



Use Table 1 through 6 on the following pages to completely specify your model number.

Table 1: Housing Style

Style	Housing Diameter				
	2.5" (63mm)	3" (80 mm)	4" (100 mm)	6" (160 mm)	10" (250 mm)
	TNS-0D...	TNS-0E...	TNS-0F...	TNS-0G...	TNS-0I...
	TNS-1D...	TNS-1E...	TNS-1F...	TNS-1G...	TNS-1I...
	TNS-8D...	TNS-8E...	TNS-8F...	TNS-8G...	TNS-8I...

T2

Table 2: Housing Material

1... = Black painted steel (for 2.5", 3" and 10" housing only)	A... = Aluminum (for 4" and 6" housing only)
2... = Stainless steel	

Table 3: Measuring Ranges

41... = -40 to +100°F	28... = -20 to +85°F	31... = 32 to 140°F	21... = 32 to 210°F
32... = 32 to 250°F	33... = 32 to 320°F	23... = 32 to 390°F	34... = 32 to 480°F
57... = 32 to 570°F	37... = 32 to 750°F	39... = 32 to 925°F	11... = 32 to 1100°F
24... = -20 to +40°C	26... = -20 to +60°C	35... = -30 to +50°C	44... = -40 to +40°C
46... = -40 to +60°C	06... = 0 to 60°C	08... = 0 to 80°C	10... = 0 to 100°C
12... = 0 to 120°C	16... = 0 to 160°C	20... = 0 to 200°C	25... = 0 to 250°C
30... = 0 to 300°C	40... = 0 to 400°C	50... = 0 to 500°C	60... = 0 to 600°C

E... = Special Scale (low end to high end of range must be >140°F)

**Table 4: Probe/Fitting Style
(Specify probe length "L" when ordering)**

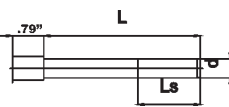
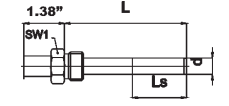
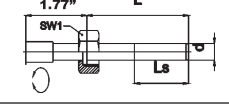
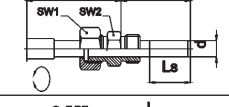
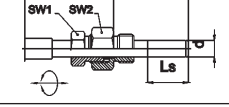










	Description	Thread	Order Code
	Smooth bore probe 12 mm diameter standard (9 or 10 mm optional)	none	...0A0
	Simple rigid nipple	1/2" NPT 3/4" NPT 1" NPT	...0CA ...0CB ...0CC
	Union nut, for insertion into TSH series thermowell. Allows indicator to rotate	1/2" BSP 3/4" BSP 1" BSP	...0B1 ...0B2 ...0B3
	Union nut and shoulder nipple, allows indicator to rotate when thermowell not used	1/2" NPT 3/4" NPT 1" NPT	...01A ...01B ...01C
	Bore through compression nut, allows indicator rotation and adjustment of probe insertion depth	1/2" NPT 3/4" NPT 1" NPT	...0SA ...0SB ...0SC

Table 5: Options

Option Code	Description
...D	Glycerin filled indicator housing (Stainless Steel Housings Only)
...K	Max. temperature pointer (Not for 10" Housing Diameter)
...G	Max. temperature pointer and glycerin fill (Not for 10" Housing Diameter)
...R	Adjustable temperature pointer (4" and 6" Housings without Switches Only)
...V	Adjustable temperature pointer and glycerin fill (4" and 6" Housings Only)

Table 6: Switches

Switching Options			
Functional Description		Contact Type	
		Sliding	Magnetic
Sliding and Magnetic Contacts with 2 Switches			
	Both contacts closed when temperature above setpoint	S11	M11
	First contact closed when temperature above setpoint Second contact open when temperature above setpoint	S12	M12
	First contact open when temperature above setpoint Second contact closed when temperature above setpoint	S21	M21
	First contact open when temperature above setpoint Second contact open when temperature above setpoint	S22	M22
Sliding and Magnetic Contacts with 3 and 4 Switches			
	First contact open when temperature above setpoint Second contact open when temperature above setpoint Third contact closed when temperature above setpoint	S221	M221
	First contact closed when temperature above setpoint Second contact open when value above setpoint Third contact closed when temperature above setpoint Fourth contact open when temperature above setpoint	S1212	M1212
Inductive Contacts with 2 Switches			
	Both contacts conducting when temperature above setpoint	I11	
	First contact conducting when temperature above setpoint Second contact non-conducting when temperature above setpoint	I12	
	First contact non-conducting when temperature above setpoint Second contact conducting when temperature above setpoint	I21	
	Both contacts non-conducting when temperature above setpoint	I22	