

INSTRUMENTATION



Pressure Selection Guide



Type	High Accuracy Pressure Sensors	Programmable Flush Mount Pressure Sensors
Pages	M13 - M20	M21 - M22



Type	Transmitters (scaled in psi)	Transmitters (scaled in bar)
Pages	M23 - M24	M25 - M28

Pressure Sensors with Diaphragm Seals*



Type	Sanitary	General Purpose	Chemical Resistant	Flush Mount	Accessories
Pages	M29 - M30	M31 - M32	M32	M33	M34 - M35

* Sold as a complete unit with pressure sensors and pressure transmitters only

TURCK Pressure Controls Offer a Flexible Solution to Any Pressure Application

Designed with Features to Meet your Needs

The complete line of **TURCK** pressure controls present a wide range of pressure-sensing products that have been designed for versatility and efficiency in a variety of pressure monitoring applications. Our electronic pressure controls are well suited for use in pneumatic and hydraulic systems where there is a need to monitor, measure or control the pressure of both liquids and gases. If your application requires pressure monitoring, **TURCK** pressure controls are the right choice for you.

Solid State Reliability

The piezo-resistive measuring cells offer an extremely high overpressure resistance, which in turn produces a pressure control that is remarkably stable. The robust housings and ceramic piezo-resistive measuring cells combined with solid-state reliability give these controls a 10 million-cycle rating. The high shock and vibration resistance allow these devices to function safely and reliably even in the harshest of environmental conditions.

Pressure Controls from TURCK for Multiple Applications

TURCK pressure controls can be used in a wide variety of applications with either liquids or gases. Whether it's control in hydraulic systems or monitoring of pressure in welding guns, **TURCK** pressure controls are designed to provide reliable data in your harshest application.

Some common applications include:

- Air Compressors
- Hydraulic Clamping Systems
- Bad Filter Detection
- Vacuum for Pick-up and Transfer of Product
- Pneumatic Systems
- Hydraulic Accumulators
- Injection Molding Machines
- Press Machines
- Automotive Welding Pressure
- Machine Coolant
- Pump Run Dry



Implementing process control into your system should not require a redesign of your process. Why not choose a sensor that can be modified to meet your unique specifications? Robust, solid state, and available in several programmable styles - the **TURCK** Pressure Controls have the flexibility to adapt and perform in many applications.

A Pressure Sensor Designed with the Customer Applications in Mind

- **High Accuracy**

The PS400 and PS500 provide an accuracy rating of ± 0.5 percent of full scale.

- **Flexible Mounting Options**

Multiple threaded connections and a unique coupling (PS500) make them easy to mount in a variety of applications.

- **Easy to Operate**

Push buttons and enter keys for quick and easy programming.

- **Robust Design**

An environmental rating of IP 67 provide operational durability in harsh applications.



Simple Programming

The new high accuracy programmable pressure sensors combine high accuracy and performance with simple programming, resulting in an extremely user friendly sensor. The sensor is easily programmed via three controls: two push buttons for scrolling through programming features, and one recessed enter key. The push buttons are finger operated, and used to make value selections in the menu or to scroll through the various menu options. The recessed button is used to store selected values, and prevents programmed values from being inadvertently altered.

The menu is clear and concise to allow parameters such as set points, reset points, output functions, analog ranges, and a range of special options to be programmed with ease. The menu also includes an optional electronic lockout that disables the push buttons from functioning until the lockout is removed.

Stock Reduction

The PS400 and PS500 sensors are specified with an accuracy of 0.5 percent exceeding what is required by the machine engineering sector. The combination of high accuracy and flexible programming often allows a single sensor to replace several conventional sensors (with varying sensing ranges) resulting in a significant reduction in inventory. The LI2UPN8X output version allows the user to select current analog output with 1 set point or 2 set points. This allows 1 sensor to replace two part numbers.

Flexible Mounting Options

The high accuracy programmable pressure sensors feature a large, bright, 4-digit, 7-segment LCD display with a constant indication of pressure in either psi (pounds per square inch), bar, kPa (kilopascals), or MPa (megapascals). This display is tilted at a 45° angle, and can be inverted electronically for easy reading in a variety of applications. IO user selectable units include: millibar, millimeters or mercury, inches of water, feet of water, inch of #g Mercury, meter of water and kilograms per square centimeter.

The PS400 and PS500 pressure sensors are encased in a compact, 34 mm diameter housing with various threaded connections for simple, versatile installation. This allows several sensors to be mounted in close proximity to one another, and is advantageous when space is at a premium. The PS500 series also features a process connection that allows the housing to rotate 360 degrees for optimal viewing prior to locking the sensor in place. These features allow the PS400 and PS500 pressure sensors to be utilized in a wide variety of applications.



Robust Design

The innovative PS400 and PS500 pressure sensors were designed to tolerate tough applications. Stainless steel housing with an integrated stainless steel M12 **eurofast**® connector enables fast and reliable installation. The sensors also offer a variety of stainless steel pressure connections including G1/4 and 1/4-18 NPT threads.

The sensors are highly resistant to overpressure and burst pressure, yet they also incorporate a patented medium stop system that prevents leakage when these levels are exceeded. The media stop system immediately seals the sensor if the pressure cell has been damaged, and can prevent liquid leakage if burst pressure is exceeded.

Noise Immune

The PS400 and PS500 programmable sensors offer a high level of protection against interference from sources that produce high levels of EMI (such as frequency converters and stepper motors) and other plant noise. These features were incorporated to create a pressure sensor ideal for use virtually anywhere.



Tough Industrial Pressure Transmitters

TURCK's industrial pressure transmitters combine the reliability of solid-state design with the durability of Stainless Steel. The result is a pressure transmitter that provides accurate and dependable pressure measurement in demanding applications. At the heart of the transmitter is a proven ceramic component technology that provides long-term stability and a high tolerance to overpressure conditions. A patented media stop, included with devices rated over 600 bar, contains the process media in the event that the burst pressure is exceeded. The housing is constructed of Stainless Steel and provides an IP 67 level of protection. The fluid connection is a standard G 1/4 or 1/4 NPT thread that works with all of **TURCK's** existing pressure accessories. All of the transmitters include an M12x1 **eurofast**® quick disconnect, making them compatible with **TURCK's** extensive line of cordsets and junction boxes.

TURCK Pressure Sensors and Transmitters with Diaphragms Installed

Operation

In many pressure applications, there is a need to separate the pressure sensor from the media it is sensing via an isolation device. **TURCK** offers a variety of diaphragm seals that are attached either directly or remotely to the pressure device to provide this isolation. The diaphragms that **TURCK** offers are all manufactured and installed by PI Components, and are not available as a separate item. This insures that the quality of the assembly is maintained for optimum accuracy.

The **TURCK** pressure sensor is attached into the top of the diaphragm housing, which is then filled with fluid. The sensor receives the pressure hydraulically via this internal medium. The lower half of the diaphragm housing adapts to the process connection, and is designed to contain the process medium as it acts against the thin membrane located between the two housings.

Applications

TURCK offers the diaphragms in numerous wetted material options, as well as with many different fill fluids to solve any application. Typical process applications that require the use of a diaphragm include:

- Sanitary Applications
- Corrosive Processes
- Viscous Applications
- Applications Where Freezing Media Can Clog The Sensor



Pressure Transmitter with
S1605 Sanitary Diaphragm



Innovative Pressure Sensor and Diaphragm Solutions

TURCK is the market leader in providing innovative sensor solutions for industrial automation applications. **TURCK's** high quality, high performance pressure sensors and pressure transmitters can be combined with multiple styles of diaphragms to give our customers an infinite selection of unique pressure sensing solutions.

TURCK offers diaphragms in numerous wetted material options, as well as with many different fill fluids. This broad selection provides custom sensing solutions for the most diverse pressure applications. Parts numbers should be developed through your **TURCK** representative or application support. In general, the formula below illustrates how to configure a custom sensor and diaphragm assembly.



Pressure Transmitter

PT010R-11-LI3-H1131

+



Diaphragm Modifier

S1693

=



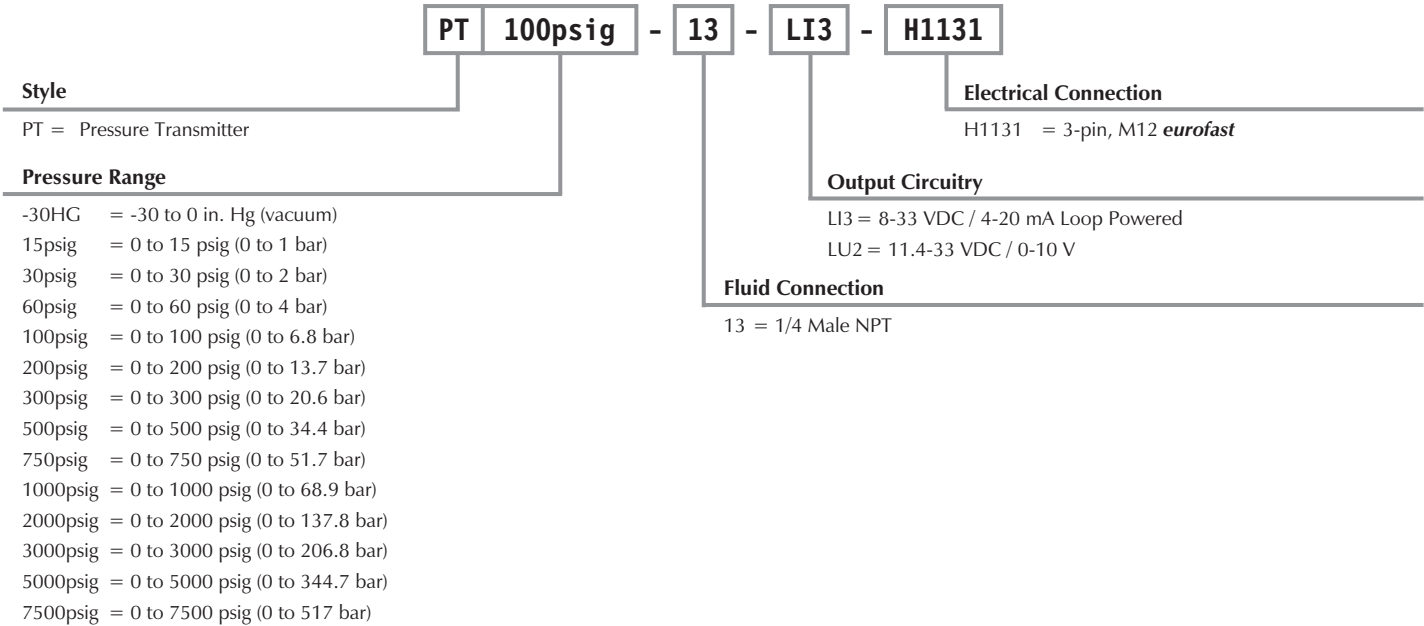
New Part Number:

PT010R-11-LI3-H1131/S1693

Pressure Part Number Key

Part Number Keys are to assist in IDENTIFICATION ONLY. Consult factory for catalog items not identified.

Pressure Transmitter (scaled in psi)



Pressure Part Number Key

Part Number Keys are to assist in IDENTIFICATION ONLY. Consult factory for catalog items not identified.

Pressure Transmitter (scaled in bar)

PT 010 R - 11 - LI3 - H1131

Style

PT = Pressure Transmitter

Pressure Range

01V = -1 to 0 bar (-14.5 to 0 psi) (vacuum)
 0.5 = 0 to 0.5 bar (0 to 7.25 psi)
 001 = 0 to 1 bar (0 to 14.5 psi)
 002 = 0 to 1.6 bar (0 to 23.2 psi)
 003 = 0 to 2.5 bar (0 to 36.25 psi)
 004 = 0 to 4 bar (0 to 58 psi)
 006 = 0 to 6 bar (0 to 87 psi)
 010 = 0 to 10 bar (0 to 145 psi)
 016 = 0 to 16 bar (0 to 232 psi)
 025 = 0 to 25 bar (0 to 362.5 psi)
 040 = 0 to 40 bar (0 to 580 psi)
 060 = 0 to 60 bar (0 to 860 psi)
 100 = 0 to 100 bar (0 to 1450 psi)
 160 = 0 to 160 bar (0 to 2320 psi)
 250 = 0 to 250 bar (0 to 3625 psi)
 400 = 0 to 400 bar (0 to 5800 psi)
 600 = 0 to 600 bar (0 to 8700 psi)

Electrical Connection

H1131 = 3-pin, M12 *eurofast*®

Output Circuitry

LI3 = 8-33 VDC / 4-20 mA Loop Powered
 LU2 = 11.4-33 VDC / 0-10 V

Fluid Connection

11 = G1/4 BSPP
 13 = 1/4 NPT

Measurement Type

A = Absolute
 R = Relative

High Accuracy Programmable Pressure Sensor Part Number Key

PS 010 R - 4 01 - 2UP8X - H1141

Style

PS = Pressure Sensor

Pressure Range

01V = -1 to 0 bar (-14.5 to 0 psi) (vacuum)
 001 = 0 to 1 bar (0 to 14.5 psi)
 003 = 0 to 3 bar (0 to 43.5 psi)
 010 = 0 to 10 bar (0 to 145 psi)
 016 = 0 to 16 bar (0 to 232 psi)
 025 = 0 to 25 bar (0 to 362.5 psi)
 040 = 0 to 40 bar (0 to 580 psi)
 100 = 0 to 100 bar (0 to 1450 psi)
 250 = 0 to 250 bar (0 to 3625 psi)
 400 = 0 to 400 bar (0 to 5800 psi)

Type of Pressure

R = Relative (Gauge)

Electrical Connection

H1141 = 4-pin, M12x1, *eurofast*

Output Circuitry

2UP8X = 15-30 VDC/(2) N.O./N.C. PNP
 LIUP8X = 18-30 VDC/Analog Current and (1) N.O./N.C. PNP
 LUUP8X = 18-30 VDC/Analog Voltage and (1) N.O./N.C. PNP
 LIUPN8X = 18-30 VDC/Analog Current and
 (1) N.O./N.C. PNP/NPN or (2) N.O./N.C. PNP/NPN

Fluid Connection

01 = G1/4 female thread 1/4 BSPP with DIN 3845 seal
 03 = 1/4-18 NPT male threads

Pressure Connection Style

4 = Fixed pressure connection
 5 = Rotatable pressure connection

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High Accuracy Programmable Pressure Sensor Specifications

Current Consumption ≤50 mA
Switching Frequency (Discrete) ≤180 Hz
Minimum Hysteresis ±0.5%

Display Reaction Time:

3 Selectable Modes Slow 600 ms update
Normal 200 ms update
Fast 50 ms update

Wetted Parts Stainless Steel, Viton
Al₂O₃ Ceramic

Programmable Analog:

Analog Start Point Programmable from 0-75% of measuring range
Analog End Point Programmable from 25-100% of measuring range

Time Delays:

Switching Delay Switch-on and switch-off delay adjustable from 0 to 50 seconds in
steps of 0.1 second

Power-On Effect Per IEC 947-5-2

Reverse Polarity Protection Yes

Transient Protection EN 60947-5-2

Short-Circuit Protection Yes

Temperature Ranges:

Ambient Temperature -40° to +80°C (-40° to +176°F)

Medium Temperature -25° to +85°C (-40° to +185°F)

Enclosure Rating Meets NEMA 4, 6, 12, 13 and IP 67

Shock 50 g per IEC 68-2-27

Vibration 20 g (10-200 Hz) per IEC 68-2-6

Burst Protection patented media stop

Accuracy:

Repeatability ≤±0.5% of measuring range

Zero Shift/Span Shift ≤±0.15% of measuring range/°C

LED Function/Display:

Measuring Value/Programming 4-digit 7-segment display

Status Display LEDs indicate output status and selected measuring units

EMC Information:

EN 61000-4-2 ESD: 4 KD CK/ 8 KV AD

EN 61000-4-3 HF irradiated: 15 V/m

EN 61000-4-4 Burst: 2 KV

EN 61000-4-5 Surge: 500 V, 12 Ω

EN 61000-4-6 HF conducted: 10 V

Programmable Pressure Specifications (Flush Mount)

Current Consumption	≤50 mA
Short-Circuit Protection	Yes
Reverse Polarity Protection	Yes
Hysteresis (Set-Point Models)	≤2% of measuring range
Enclosure Rating	IP 65

Analog Adjustment:

PC001

4 mA 0-12.6 psi

20 mA 2.4-15 psi

PC016

4 mA 0-198 psi

20 mA 32-230 psi

Accuracy:

Linearity	≤0.5% of measuring range
Repeatability	≤1% of measuring range
Temperature Drift	≤0.02% of measuring range / °C

Temperature Range:

Ambient -20° to +70°C (-4° to +158°F)

Medium -20° to +80°C (-4° to +176°F)

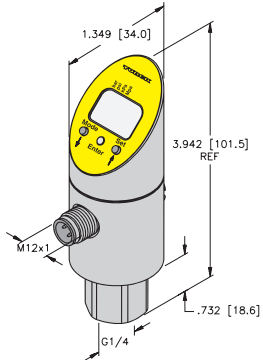
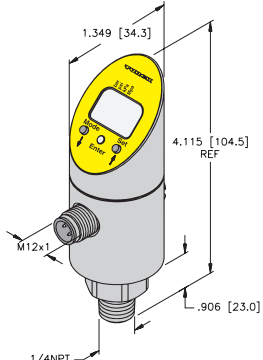
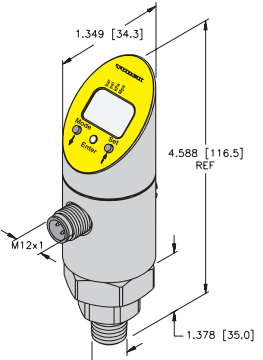
LED Function / Display:

Measuring Value / Programming	Rotatable, 3-digit, 7 segment display (psi)
Status Display	LED's indicate output status

Pressure Transmitter Specifications

Medium Temperature	-40°C to +150°C (-40°F to +302°F)
Current Consumption	≤20 mA
Dynamic Response.	<2 ms
Short-Circuit Protection	Yes
Reverse Polarity Protection	Yes
Enclosure Rating	IP 67
Housing Material	Stainless Steel 1.430 (AISI 303) / PBT
Shock Resistance.	75 G, 11 ms per IEC 68-2-27
Vibration Resistance	20 G, 15 mm per IEC 68-2-6
Wetted Parts	303 Stainless Steel (connection) AL ₂ O ₃ Ceramic (element) Viton (seal)
Zero Shift.	<±0.015% of measuring range / °C
Span Shift	<±0.015% of measuring range / °C
Voltage Output.	>10 k Ω/ <100 nF
Current Output	≤ $\frac{\text{supply voltage}}{0.02 \text{ A}}$ = Ohm



Housing	Part Number	ID Number	Pressure Range (psig)	Allowable Over Pressure (psig)	Output
4-Wire DC, G1/4 Female Connection 	PS01VR-401-LI2UPN8X-H1141	M6832100	-14.5 to 0	43.5	Programmable Current: 4-20 mA, 20-4 mA, 0-20 mA, 20 mA and 1 PNP/NPN N.O./N.C. or 2 PNP/NPN N.O./N.C.
	PS001R-401-LI2UPN8X-H1141	M6832101	0 to 14.5	43.5	
	PS003R-401-LI2UPN8X-H1141	M6832102	0 to 43.5	108.7	
	PS010R-401-LI2UPN8X-H1141	M6832103	0 to 145	362.5	
	PS016R-401-LI2UPN8X-H1141	M6832104	0 to 232	580	
	PS025R-401-LI2UPN8X-H1141	M6832105	0 to 362	942	
	PS040R-401-LI2UPN8X-H1141	M6832106	0 to 580	1450	
	PS100R-401-LI2UPN8X-H1141	M6832107	0 to 1450	3625	
	PS250R-401-LI2UPN8X-H1141	M6832108	0 to 3625	9064	
	PS400R-401-LI2UPN8X-H1141	M6832109	0 to 5800	13,053	
4-Wire DC, 1/4-18 NPT Male Connection 	PS01VR-403-LI2UPN8X-H1141	M6832180	-14.5 to 0	43.5	Programmable Current: 4-20 mA, 20-4 mA, 0-20 mA, 20 mA and 1 PNP/NPN N.O./N.C. or 2 PNP/NPN N.O./N.C.
	PS001R-403-LI2UPN8X-H1141	M6832181	0 to 14.5	43.5	
	PS003R-403-LI2UPN8X-H1141	M6832182	0 to 43.5	108.7	
	PS010R-403-LI2UPN8X-H1141	M6832183	0 to 145	362.5	
	PS016R-403-LI2UPN8X-H1141	M6832184	0 to 232	580	
	PS025R-403-LI2UPN8X-H1141	M6832185	0 to 362	942	
	PS040R-403-LI2UPN8X-H1141	M6832186	0 to 580	1450	
	PS100R-403-LI2UPN8X-H1141	M6832187	0 to 1450	3625	
	PS250R-403-LI2UPN8X-H1141	M6832188	0 to 3625	9064	
	PS400R-403-LI2UPN8X-H1141	M6832189	0 to 5800	13,053	
4-Wire DC, 1/4-18 NPT Male Connection, Rotatable Housing 	PS01VR-503-LI2UPN8X-H1141	M6832280	-14.5 to 0	43.5	Programmable Current: 4-20 mA, 20-4 mA, 0-20 mA, 20 mA and 1 PNP/NPN N.O./N.C. or 2 PNP/NPN N.O./N.C.
	PS001R-503-LI2UPN8X-H1141	M6832281	0 to 14.5	43.5	
	PS003R-503-LI2UPN8X-H1141	M6832282	0 to 43.5	108.7	
	PS010R-503-LI2UPN8X-H1141	M6832283	0 to 145	362.5	
	PS016R-503-LI2UPN8X-H1141	M6832284	0 to 232	580	
	PS025R-503-LI2UPN8X-H1141	M6832285	0 to 362	942	
	PS040R-503-LI2UPN8X-H1141	M6832286	0 to 580	1450	
	PS100R-503-LI2UPN8X-H1141	M6832287	0 to 1450	3625	
	PS250R-503-LI2UPN8X-H1141	M6832288	0 to 3625	9064	
	PS400R-503-LI2UPN8X-H1141	M6832289	0 to 5800	13,053	

Voltage	Set point Range (psig)	Re-Set point Range (psig)	Switching Current	Analog Load	Set point Accuracy (of full scale)	Analog Accuracy ** (of full scale)	Mating Cordset	Wiring Diagram #	Wiring Diagrams
18-30 VDC	-14.5 to -0.73	-14.07 to -0.29	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	Diagram 1
	0.73 to 14.5	0.29 to 14.07	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	2.17 to 43.5	0.87 to 42.2	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	7.25 to 145	2.90 to 140	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	11.6 to 232	4.64 to 225	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	18.13 to 362.5	7.25 to 351	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	29 to 580	11.6 to 562	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	72.5 to 1450	29 to 1406	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	181 to 3625	72.5 to 3516	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	290 to 5800	116 to 5626	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
18-30 VDC	-14.5 to -0.73	-14.07 to -0.29	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	0.73 to 14.5	0.29 to 14.07	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	2.17 to 43.5	0.87 to 42.2	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	7.25 to 145	2.9 to 140	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	11.6 to 232	4.64 to 225	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	18.13 to 362.5	7.25 to 351	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	29 to 580	11.6 to 562	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	72.5 to 1450	29 to 1406	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	181 to 3625	72.5 to 3516	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	290 to 5800	116 to 5626	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
18-30 VDC	-14.5 to -0.73	-14.07 to -0.29	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	0.73 to 14.5	0.29 to 14.07	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	2.17 to 43.5	0.87 to 42.2	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	7.25 to 145	2.90 to 140	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	11.60 to 232	4.64 to 225	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	18.13 to 362.5	7.25 to 351	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	29 to 580	11.6 to 562	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	72.5 to 1450	29 to 1406	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	181 to 3625	72.5 to 3516	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	
	290 to 5800	116 to 5626	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	1	

See page M10 - M12 for additional pressure specifications.

See pages M29 - M33 for diaphragm seals.

See pages M34 - M35 for pressure accessories.

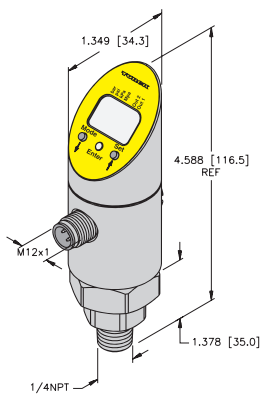
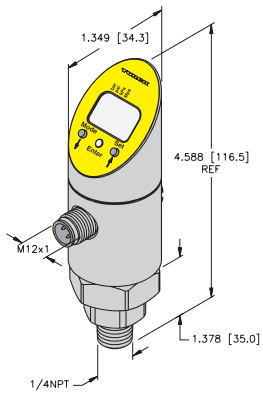
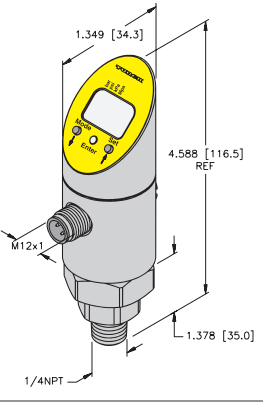
* Length in meters.

** Accuracy includes linearity, repeatability and hysteresis.

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Process Automation – Instrumentation



Housing	Part Number	ID Number	Pressure Range (psig)	Allowable Over Pressure (psig)	Output
4-Wire DC, 1/4-18 NPT Male Connection, Rotatable Housing 	PS01VR-503-2UP8X-H1141	M6831202	-14.5 to 0	43.5	Dual PNP N.O. or N.C.
	PS001R-503-2UP8X-H1141	M6831205	0 to 14.5	43.5	
	PS003R-503-2UP8X-H1141	M6831208	0 to 36.26	101.5	
	PS010R-503-2UP8X-H1141	M6831211	0 to 145	362.5	
	PS016R-503-2UP8X-H1141	M6831900	0 to 232	580	
	PS025R-503-2UP8X-H1141	M6831901	0 to 362	942	
	PS040R-503-2UP8X-H1141	M6831902	0 to 580	1450	
	PS100R-503-2UP8X-H1141	M6831220	0 to 1450	3625	
	PS250R-503-2UP8X-H1141	M6831223	0 to 3625	9064	
	PS400R-503-2UP8X-H1141	M6831903	0 to 5800	13,053	
4-Wire DC, 1/4-18 NPT Male Connection, Rotatable Housing 	PS01VR-503-LIUP8X-H1141	M6831246	-14.5 to 0	43.5	PNP N.O. or N.C and Programmable Current: 0-20 mA, 4-20 mA, 20-0 mA, 20-4 mA
	PS001R-503-LIUP8X-H1141	M6831228	0 to 14.5	43.5	
	PS003R-503-LIUP8X-H1141	M6831233	0 to 36.26	101.5	
	PS010R-503-LIUP8X-H1141	M6831239	0 to 145	362.5	
	PS016R-503-LIUP8X-H1141	M6831914	0 to 232	580	
	PS025R-503-LIUP8X-H1141	M6831915	0 to 362	942	
	PS040R-503-LIUP8X-H1141	M6831916	0 to 580	1450	
	PS100R-503-LIUP8X-H1141	M6831255	0 to 1450	3625	
	PS250R-503-LIUP8X-H1141	M6831260	0 to 3625	9064	
	PS400R-503-LIUP8X-H1141	M6831917	0 to 5800	13,053	
4-Wire DC, 1/4-18 NPT Male Connection, Rotatable Housing 	PS01VR-503-LUUP8X-H1141	M6831247	-14.5 to 0	43.5	PNP N.O. or N.C. and Programmable Voltage: 0-10 V, 0-5 V, 1-6 V, 10-0 V, 5-0 V, 6-1 V
	PS001R-503-LUUP8X-H1141	M6831229	0 to 14.5	43.5	
	PS003R-503-LUUP8X-H1141	M6831234	0 to 36.26	101.5	
	PS010R-503-LUUP8X-H1141	M6831240	0 to 145	362.5	
	PS016R-503-LUUP8X-H1141	M6831928	0 to 232	580	
	PS025R-503-LUUP8X-H1141	M6831929	0 to 362	942	
	PS040R-503-LUUP8X-H1141	M6831930	0 to 580	1450	
	PS100R-503-LUUP8X-H1141	M6831256	0 to 1450	3625	
	PS250R-503-LUUP8X-H1141	M6831261	0 to 3625	9064	
	PS400R-503-LUUP8X-H1141	M6831931	0 to 5800	13,053	

Voltage	Set point Range (psig)	Re-Set point Range (psig)	Switching Current	Analog Load	Set point Accuracy (of full scale)	Analog Accuracy ** (of full scale)	Mating Cordset	Wiring Diagram #	Wiring Diagrams
15-30 VDC	-14.5 to -0.73	-14.07 to -0.29	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	Diagram 1 Diagram 2 Diagram 3
	0.73 to 14.5	0.29 to 14.07	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	2.17 to 36.26	0.87 to 42.2	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	7.25 to 145	2.90 to 140	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	11.6 to 232	4.64 to 225	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	18.13 to 362.5	7.25 to 351	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	29 to 580	11.6 to 562	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	72.5 to 1450	29 to 1406	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	181 to 3625	72.5 to 3516	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	290 to 5800	116 to 5626	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
18-30 VDC	-14.5 to -0.73	-14.07 to -0.29	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	0.73 to 14.5	0.29 to 14.07	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	2.17 to 36.26	0.87 to 42.2	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	7.25 to 145	2.9 to 140	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	11.6 to 232	4.64 to 225	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	18.13 to 362.5	7.25 to 351	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	29 to 580	11.6 to 562	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	72.5 to 1450	29 to 1406	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	181 to 3625	72.5 to 3516	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	290 to 5800	116 to 5626	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
18-30 VDC	-14.5 to -0.73	-14.07 to -0.29	≤200 mA	≥2KΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	0.73 to 14.5	0.29 to 14.07	≤200 mA	≥2 KΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	2.17 to 36.26	0.87 to 42.2	≤200 mA	≥2 KΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	7.25 to 145	2.90 to 140	≤200 mA	≥2 KΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	11.60 to 232	4.64 to 225	≤200 mA	≥2 KΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	18.13 to 362.5	7.25 to 351	≤200 mA	≥2 KΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	29 to 580	11.6 to 562	≤200 mA	≥2 KΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	72.5 to 1450	29 to 1406	≤200 mA	≥2 KΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	181 to 3625	72.5 to 3516	≤200 mA	≥2 KΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	290 to 5800	116 to 5626	≤200 mA	≥2 KΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	

See page M10 - M12 for additional pressure specifications.

See pages M29 - M33 for diaphragm seals.

See pages M34 - M35 for pressure accessories.

* Length in meters.

** Accuracy includes linearity, repeatability and hysteresis.

TURCK

Process Automation – Instrumentation



Housing	Part Number	ID Number	Pressure Range (psig)	Allowable Over Pressure (psig)	Output
4-Wire DC, 1/4-18 NPT Male Connection, Rotatable Housing	PS01VR-403-2UP8X-H1141	M6831962	-14.5 to 0	43.5	Dual PNP N.O. or N.C.
	PS001R-403-2UP8X-H1141	M6831963	0 to 14.5	43.5	
	PS003R-403-2UP8X-H1141	M6831964	0 to 36.26	101.5	
	PS010R-403-2UP8X-H1141	M6831965	0 to 145	362.5	
	PS016R-403-2UP8X-H1141	M6831966	0 to 232	580	
	PS025R-403-2UP8X-H1141	M6831967	0 to 362	942	
	PS040R-403-2UP8X-H1141	M6831968	0 to 580	1450	
	PS100R-403-2UP8X-H1141	M6831969	0 to 1450	3625	
	PS250R-403-2UP8X-H1141	M6831970	0 to 3625	9064	
	PS400R-403-2UP8X-H1141	M6831971	0 to 5800	13,053	
4-Wire DC, 1/4-18 NPT Male Connection, Rotatable Housing	PS01VR-403-LIUP8X-H1141	M6831942	-14.5 to 0	43.5	PNP N.O. or N.C. and Programmable Current: 0-20 mA, 4-20 mA, 20-0 mA, 20-4 mA
	PS001R-403-LIUP8X-H1141	M6831943	0 to 14.5	43.5	
	PS003R-403-LIUP8X-H1141	M6831944	0 to 36.26	101.5	
	PS010R-403-LIUP8X-H1141	M6831945	0 to 145	362.5	
	PS016R-403-LIUP8X-H1141	M6831946	0 to 232	580	
	PS025R-403-LIUP8X-H1141	M6831947	0 to 362	942	
	PS040R-403-LIUP8X-H1141	M6831948	0 to 580	1450	
	PS100R-403-LIUP8X-H1141	M6831949	0 to 1450	3625	
	PS250R-403-LIUP8X-H1141	M6831950	0 to 3625	9064	
	PS400R-403-LIUP8X-H1141	M6831951	0 to 5800	13,053	
4-Wire DC, 1/4-18 NPT Male Connection, Rotatable Housing	PS01VR-403-LUUP8X-H1141	M6831952	-14.5 to 0	43.5	PNP N.O. or N.C. and Programmable Voltage: 0-10 V, 0-5 V, 1-6 V, 10-0 V, 5-0 V, 6-1 V
	PS001R-403-LUUP8X-H1141	M6831953	0 to 14.5	43.5	
	PS003R-403-LUUP8X-H1141	M6831954	0 to 36.26	101.5	
	PS010R-403-LUUP8X-H1141	M6831955	0 to 145	362.5	
	PS016R-403-LUUP8X-H1141	M6831956	0 to 232	580	
	PS025R-403-LUUP8X-H1141	M6831957	0 to 362	942	
	PS040R-403-LUUP8X-H1141	M6831958	0 to 580	1450	
	PS100R-403-LUUP8X-H1141	M6831959	0 to 1450	3625	
	PS250R-403-LUUP8X-H1141	M6831960	0 to 3625	9064	
	PS400R-403-LUUP8X-H1141	M6831961	0 to 5800	13,053	

Voltage	Set Point Range (psig)	Re-Set Point Range (psig)	Switching Current	Analog Load	Set Point Accuracy (of full scale)	Analog Accuracy ** (of full scale)	Mating Cordset	Wiring Diagram #	Wiring Diagrams
15-30 VDC	-14.5 to -0.73	-14.07 to -0.29	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	Diagram 1 Diagram 2 Diagram 3
	0.73 to 14.5	0.29 to 14.07	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	2.17 to 36.26	0.87 to 42.2	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	7.25 to 145	2.9 to 140	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	11.60 to 232	4.64 to 225	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	18.13 to 362.5	7.25 to 351	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	29 to 580	11.6 to 562	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	72.5 to 1450	29 to 1406	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	181 to 3625	72.5 to 3516	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	290 to 5800	116 to 5626	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
18-30 VDC	-14.5 to -0.73	-14.07 to -0.29	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	0.73 to 14.5	0.29 to 14.07	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	2.17 to 36.26	0.87 to 42.2	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	7.25 to 145	2.9 to 140	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	11.6 to 232	4.64 to 225	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	18.13 to 362.5	7.25 to 351	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	29 to 580	11.6 to 562	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	72.5 to 1450	29 to 1406	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	181 to 3625	72.5 to 3516	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	290 to 5800	116 to 5626	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
18-30 VDC	-14.5 to -0.73	-14.07 to -0.29	≤200 mA	≥2 kΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	0.73 to 14.50	0.29 to 14.07	≤200 mA	≥2 kΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	2.17 to 36.26	0.87 to 42.2	≤200 mA	≥2 kΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	7.25 to 145	2.9 to 140	≤200 mA	≥2 kΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	11.6 to 232	4.64 to 225	≤200 mA	≥2 kΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	18.13 to 362.5	7.25 to 351	≤200 mA	≥2 kΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	29 to 580	11.6 to 562	≤200 mA	≥2 kΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	72.5 to 1450	29 to 1406	≤200 mA	≥2 kΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	181 to 3625	72.5 to 3516	≤200 mA	≥2 kΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	290 to 5800	116 to 5626	≤200 mA	≥2 kΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	

See page M10 - M12 for additional pressure specifications.

See pages M29 - M33 for diaphragm seals.

See pages M34 - M35 for pressure accessories.

* Length in meters.

** Accuracy includes linearity, repeatability and hysteresis.



Housing	Part Number	ID Number	Pressure Range (psig)	Allowable Over Pressure (psig)	Output
4-Wire DC, G1/4 Female Connection 	PS01VR-401-2UP8X-H1141	M6831201	-14.5 to 0	43.5	Dual PNP N.O. or N.C.
	PS001R-401-2UP8X-H1141	M6831204	0 to 14.5	43.5	
	PS003R-401-2UP8X-H1141	M6831207	0 to 36.26	101.5	
	PS010R-401-2UP8X-H1141	M6831210	0 to 145	362.5	
	PS016R-401-2UP8X-H1141	M6831213	0 to 232	580	
	PS025R-401-2UP8X-H1141	M6831215	0 to 362	942	
	PS040R-401-2UP8X-H1141	M6831217	0 to 580	1450	
	PS100R-401-2UP8X-H1141	M6831219	0 to 1450	3625	
	PS250R-401-2UP8X-H1141	M6831222	0 to 3625	9064	
	PS400R-401-2UP8X-H1141	M6831225	0 to 5800	13,053	
4-Wire DC, G1/4 Female Connection 	PS01VR-401-LIUP8X-H1141	M6831245	-14.5 to 0	43.5	PNP N.O. or N.C. and Programmable Current: 0-20 mA, 4-20 mA, 20-0 mA, 20-4 mA
	PS001R-401-LIUP8X-H1141	M6831227	0 to 14.5	43.5	
	PS003R-401-LIUP8X-H1141	M6831231	0 to 36.26	101.5	
	PS010R-401-LIUP8X-H1141	M6831237	0 to 145	362.5	
	PS016R-401-LIUP8X-H1141	M6831243	0 to 232	580	
	PS025R-401-LIUP8X-H1141	M6831249	0 to 362	942	
	PS040R-401-LIUP8X-H1141	M6831251	0 to 580	1450	
	PS100R-401-LIUP8X-H1141	M6831253	0 to 1450	3625	
	PS250R-401-LIUP8X-H1141	M6831259	0 to 3625	9064	
	PS400R-401-LIUP8X-H1141	M6831263	0 to 5800	13,053	
4-Wire DC, G1/4 Female Connection 	PS01VR-401-LUUP8X-H1141	M6831828	-14.5 to 0	43.5	PNP N.O. or N.C. and Programmable Voltage: 0-10 V, 0-5 V, 1-6 V, 10-0 V, 5-0 V, 6-1 V
	PS001R-401-LUUP8X-H1141	M6831800	0 to 14.5	43.5	
	PS003R-401-LUUP8X-H1141	M6831232	0 to 36.26	101.5	
	PS010R-401-LUUP8X-H1141	M6831238	0 to 145	362.5	
	PS016R-401-LUUP8X-H1141	M6831820	0 to 232	580	
	PS025R-401-LUUP8X-H1141	M6831836	0 to 362	942	
	PS040R-401-LUUP8X-H1141	M6831844	0 to 580	1450	
	PS100R-401-LUUP8X-H1141	M6831254	0 to 1450	3625	
	PS250R-401-LUUP8X-H1141	M6831858	0 to 3625	9064	
	PS400R-401-LUUP8X-H1141	M6831264	0 to 5800	13,053	

Voltage	Set Point Range (psig)	Re-Set Point Range (psig)	Switching Current	Analog Load	Set Point Accuracy (of full scale)	Analog Accuracy ** (of full scale)	Mating Cordset	Wiring Diagram #	Wiring Diagrams
15-30 VDC	-14.5 to -0.73	-14.07 to -0.29	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	Diagram 1 Diagram 2 Diagram 3
	0.73 to 14.5	0.29 to 14.07	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	2.17 to 36.26	0.87 to 42.2	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	7.25 to 145	2.9 to 140	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	11.6 to 232	4.64 to 225	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	18.13 to 362.5	7.25 to 351	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	29 to 580	11.6 to 562	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	72.5 to 1450	29 to 1406	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	181 to 3625	72.5 to 3516	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
	290 to 5800	116 to 5626	≤200 mA	N/A	±0.5%	N/A	RK 4.4T-*	1	
18-30 VDC	-14.5 to -0.73	-14.07 to -0.29	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	0.73 to 14.5	0.29 to 14.07	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	2.17 to 36.26	0.87 to 42.2	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	7.25 to 145	2.9 to 140	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	11.6 to 232	4.64 to 225	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	18.13 to 362.5	7.25 to 351	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	29 to 580	11.6 to 562	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	72.5 to 1450	29 to 1406	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	181 to 3625	72.5 to 3516	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
	290 to 5800	116 to 5626	≤200 mA	≤500 Ω	±0.5%	≤±0.5%	RK 4.4T-*	2	
18-30 VDC	-14.5 to -0.73	-14.07 to -0.29	≤200 mA	≥2 kΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	0.73 to 14.5	0.29 to 14.07	≤200 mA	≥2 kΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	2.17 to 36.26	0.87 to 42.2	≤200 mA	≥2 kΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	7.25 to 145	2.9 to 140	≤200 mA	≥2 kΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	11.6 to 232	4.64 to 225	≤200 mA	≥2 kΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	18.13 to 362.5	7.25 to 351	≤200 mA	≥2 kΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	29 to 580	11.6 to 562	≤200 mA	≥2 kΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	72.5 to 1450	29 to 1406	≤200 mA	≥2 kΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	181 to 3625	72.5 to 3516	≤200 mA	≥2 kΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	
	290 to 5800	116 to 5626	≤200 mA	≥2 kΩ	±0.5%	≤±0.5%	RK 4.4T-*	3	

See page M10 - M12 for additional pressure specifications.

See pages M29 - M33 for diaphragm seals.

See pages M34 - M35 for pressure accessories.

* Length in meters.

** Accuracy includes linearity, repeatability and hysteresis.

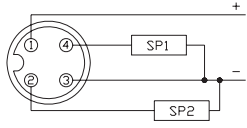
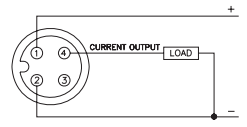


Housing Style	Part Number	ID Number	Pressure Range (psi)	Allowable Overpressure (psi)	Minimum Burst Pressure (psi)	Output
4-Wire DC, Flush Mount 	PC001-N3/4A4P-2AP8X-H1141	M6831391	0 to 14.5	72.5	72.5	Dual PNP N.O./N.C.
	PC016-N3/4A4P-2AP8X-H1141	M6831393	0 to 232	696	696	
3-Wire DC, Flush Mount 	PC001-N3/4A4P-LIX-H1141	M6831392	0 to 14.5	72.5	72.5	4-20 mA
	PC016-N3/4A4P-LIX-H1141	M6831390	0 to 232	696	696	

Conversion: 1 bar = 14.5038 psi

Material

Housing	PBT
Sensing Element	Ceramic
Cable Connector	303 Stainless Steel
Pressure Connection	316 Stainless Steel (No. 1.4305)
O-ring Seal	Viton

Voltage	Set point	Switching Current	Analog Load	Display Accuracy**	Set point Accuracy**	Analog Accuracy**	Mating Cordset	Wiring Diagram #	Wiring Diagrams
19.2-28.8 VDC	0.2 to 15	≤200 mA	N/A	≤3	≤3	N/A	RK 4.4T-*	1	Diagram 1  Diagram 2 
	2 to 230	≤200 mA	N/A	≤3	≤3	N/A	RK 4.4T-*	1	
19.2-28.8 VDC	N/A	N/A	≤500 Ω	≤3	N/A	≤0.5	RK 4.4T-*	2	
	N/A	N/A	≤500 Ω	≤3	N/A	≤0.5	RK 4.4T-*	2	
19.2-28.8 VDC	N/A	N/A	≤500 Ω	≤3	N/A	≤0.5	RK 4.4T-*	2	
	N/A	N/A	≤500 Ω	≤3	N/A	≤0.5	RK 4.4T-*	2	

See page M10 - M12 for additional pressure specifications.

See pages M29 - M33 for diaphragm seals.

See pages M34 - M35 for pressure accessories.

* Length in meters.

** % of rated overall range.

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Process Automation – Instrumentation



Housing Style	Part Number	ID Number	Scaled Pressure Range	Output
Gauge Pressure Transmitter, 1/4 Male NPT Connection	PT-30HG-13-LI3-H1131	H6831455	0 to -30 in. HG	4-20 mA Loop Powered
	PT15psig-13-LI3-H1131	H6831456	0 to 15 psi	
	PT30psig-13-LI3-H1131	H6831457	0 to 30 psi	
	PT60psig-13-LI3-H1131	H6831458	0 to 60 psi	
	PT100psig-13-LI3-H1131	H6831459	0 to 100 psi	
	PT200psig-13-LI3-H1131	H6831460	0 to 200 psi	
	PT300psig-13-LI3-H1131	H6831461	0 to 300 psi	
	PT500psig-13-LI3-H1131	H6831462	0 to 500 psi	
	PT750psig-13-LI3-H1131	H6831463	0 to 750 psi	
	PT1000psig-13-LI3-H1131	H6831464	0 to 1000 psi	
	PT2000psig-13-LI3-H1131	H6831465	0 to 2000 psi	
	PT3000psig-13-LI3-H1131	H6831466	0 to 3000 psi	
	PT5000psig-13-LI3-H1131	H6831467	0 to 5000 psi	
	PT7500psig-13-LI3-H1131	H6831468	0 to 7500 psi	
Gauge Pressure Transmitter, 1/4 Male NPT Connection	PT-30HG-13-LU2-H1131	H6831469	0 to 30 in. HG	0-10 VDC
	PT15psig-13-LU2-H1131	H6831470	0 to 15 psi	
	PT30psig-13-LU2-H1131	H6831471	0 to 30 psi	
	PT60psig-13-LU2-H1131	H6831472	0 to 60 psi	
	PT100psig-13-LU2-H1131	H6831473	0 to 100 psi	
	PT200psig-13-LU2-H1131	H6831474	0 to 200 psi	
	PT300psig-13-LU2-H1131	H6831475	0 to 300 psi	
	PT500psig-13-LU2-H1131	H6831476	0 to 500 psi	
	PT750psig-13-LU2-H1131	H6831477	0 to 750 psi	
	PT1000psig-13-LU2-H1131	H6831478	0 to 1000 psi	
	PT2000psig-13-LU2-H1131	H6831479	0 to 2000 psi	
	PT3000psig-13-LU2-H1131	H6831480	0 to 3000 psi	
	PT5000psig-13-LU2-H1131	H6831481	0 to 5000 psi	
	PT7500psig-13-LU2-H1131	H6831482	0 to 7500 psi	

Conversion: 1 bar = 14.5038 psi

Material

Housing	303 Stainless Steel
Sensing Element	AL ₂ O ₃ Ceramic
Media Stop	PPS
Cable Connector	303 Stainless Steel / PBT
Pressure Connection	303 Stainless Steel
O-ring Seal	Viton

Voltage	Allowable Over Pressure	Accuracy**	Fluid Connection Type	Mating Cordset	Wiring Diagram #	Wiring Diagrams
8-33 VDC	60 in HG	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	1	Diagram 1 Diagram 2
	45 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	90 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	150 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	250 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	500 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	750 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	1250 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	1875 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	2500 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	5000 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	7500 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	12,500 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	15,000 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	1	
11.4-33 VDC	60 in HG	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	45 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	90 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	150 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	250 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	500 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	750 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	1250 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	1875 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	2500 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	5000 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	7500 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	12,500 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	15,000 psi	≤0.5% Full Scale	1/4 NPT	RK 4T-*/S618	2	

See page M10 - M12 for additional pressure specifications.

See pages M29 - M33 for diaphragm seals.

See pages M34 - M35 for pressure accessories.

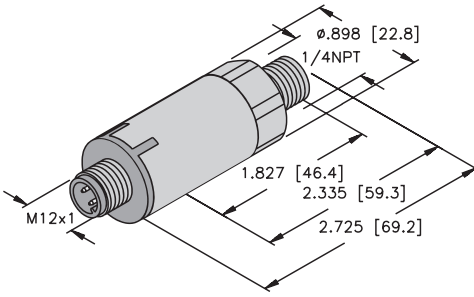
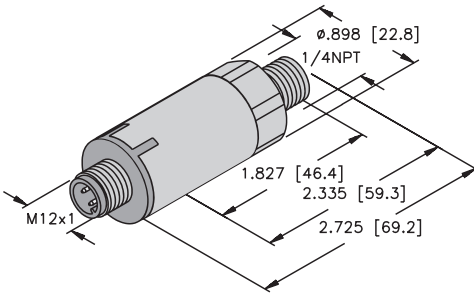
* Length in meters.

** Total of linearity, hysteresis and repeatability.

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Process Automation – Instrumentation



Housing Style	Part Number	ID Number	Scaled Pressure Range (bar)	Output
Gauge Pressure Transmitter, 4-20 mA Output, 1/4 Male NPT Connection 	PT01VR-13-LI3-H1131	H6831496	-1 to 0	4-20 mA Loop Powered
	PT001R-13-LI3-H1131	H6831497	0 to 1	
	PT002R-13-LI3-H1131	H6831498	0 to 2	
	PT003R-13-LI3-H1131	H6831499	0 to 3	
	PT004R-13-LI3-H1131	H6831500	0 to 4	
	PT006R-13-LI3-H1131	H6831501	0 to 6	
	PT010R-13-LI3-H1131	H6831502	0 to 10	
	PT016R-13-LI3-H1131	H6831503	0 to 16	
	PT025R-13-LI3-H1131	H6831504	0 to 25	
	PT040R-13-LI3-H1131	H6831505	0 to 40	
	PT060R-13-LI3-H1131	H6831506	0 to 60	
	PT100R-13-LI3-H1131	H6831507	0 to 100	
	PT160R-13-LI3-H1131	H6831508	0 to 160	
	PT250R-13-LI3-H1131	H6831509	0 to 250	
	PT400R-13-LI3-H1131	H6831510	0 to 400	
	PT600R-13-LI3-H1131	H6831511	0 to 600	
Gauge Pressure Transmitter, 0-10 V Output, 1/4 Male NPT Connection 	PT01VR-13-LU2-H1131	H6831512	-1 to 0	0-10 VDC
	PT001R-13-LU2-H1131	H6831513	0 to 1	
	PT002R-13-LU2-H1131	H6831514	0 to 2	
	PT003R-13-LU2-H1131	H6831515	0 to 3	
	PT004R-13-LU2-H1131	H6831516	0 to 4	
	PT006R-13-LU2-H1131	H6831517	0 to 6	
	PT010R-13-LU2-H1131	H6831518	0 to 10	
	PT016R-13-LU2-H1131	H6831519	0 to 16	
	PT025R-13-LU2-H1131	H6831520	0 to 25	
	PT040R-13-LU2-H1131	H6831521	0 to 40	
	PT060R-13-LU2-H1131	H6831522	0 to 60	
	PT100R-13-LU2-H1131	H6831523	0 to 100	
	PT160R-13-LU2-H1131	H6831524	0 to 160	
	PT250R-13-LU2-H1131	H6831525	0 to 250	
	PT400R-13-LU2-H1131	H6831526	0 to 400	
	PT600R-13-LU2-H1131	H6831527	0 to 600	

Conversion: 1 bar = 14.50377 psi

Material

Housing	303 Stainless Steel
Sensing Element	AL ₂ O ₃ Ceramic
Media Stop	PPS
Cable Connector	303 Stainless Steel / PBT
Pressure Connection	303 Stainless Steel
O-ring Seal	Viton

Voltage	Allowable Over Pressure (bar)	Accuracy**	Fluid Connection Type	Mating Cordset	Wiring Diagram #	Wiring Diagrams
8-33 VDC	3	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	1	Diagram 1 Diagram 2
	3	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	5	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	7	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	12	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	15	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	25	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	40	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	62	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	100	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	150	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	250	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	400	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	625	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	1000	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	1	
	1200	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	1	
11.4-33 VDC	3	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	3	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	5	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	7	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	12	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	15	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	25	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	40	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	62	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	100	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	150	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	250	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	400	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	625	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	1000	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	2	
	1200	≤0.3% Full Scale	1/4 NPT	RK 4T-*/S618	2	

See page M10 - M12 for additional pressure specifications.

See pages M29 - M33 for diaphragm seals.

See pages M34 - M35 for pressure accessories.

* Length in meters.

** Total of linearity, hysteresis and repeatability.

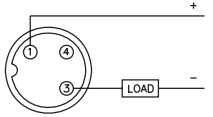
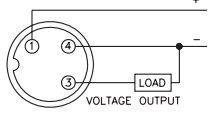


Housing Style	Part Number	ID Number	Scaled Pressure Range (bar)	Output
Gauge Pressure Transmitter, G 1/4 Female Connection 	PT01VR-11-LI3-H1131	H6831433	-1 to 0	4-20 mA Loop Powered
	PT0.5R-11-LI3-H1131	H6831495	0 to 0.5	
	PT001R-11-LI3-H1131	H6831434	0 to 1	
	PT002R-11-LI3-H1131	H6831435	0 to 2	
	PT003R-11-LI3-H1131	H6831436	0 to 3	
	PT004R-11-LI3-H1131	H6831437	0 to 4	
	PT006R-11-LI3-H1131	H6831438	0 to 6	
	PT010R-11-LI3-H1131	H6831432	0 to 10	
	PT016R-11-LI3-H1131	H6831439	0 to 16	
	PT025R-11-LI3-H1131	H6831440	0 to 25	
	PT040R-11-LI3-H1131	H6831441	0 to 40	
	PT060R-11-LI3-H1131	H6831442	0 to 60	
	PT100R-11-LI3-H1131	H6831443	0 to 100	
	PT160R-11-LI3-H1131	H6831444	0 to 160	
	PT250R-11-LI3-H1131	H6831445	0 to 250	
	PT400R-11-LI3-H1131	H6831446	0 to 400	
	PT600R-11-LI3-H1131	H6831447	0 to 600	
Gauge Pressure Transmitter, G 1/4 Female Connection 	PT01VR-11-LU2-H1131	H6831454	-1 to 0	0-10 VDC
	PT001R-11-LU2-H1131	H6831483	0 to 1	
	PT002R-11-LU2-H1131	H6831484	0 to 2	
	PT003R-11-LU2-H1131	H6831485	0 to 3	
	PT004R-11-LU2-H1131	H6831486	0 to 4	
	PT006R-11-LU2-H1131	H6831452	0 to 6	
	PT010R-11-LU2-H1131	H6831487	0 to 10	
	PT016R-11-LU2-H1131	H6831488	0 to 16	
	PT025R-11-LU2-H1131	H6831489	0 to 25	
	PT040R-11-LU2-H1131	H6831490	0 to 40	
	PT060R-11-LU2-H1131	H6831491	0 to 60	
	PT100R-11-LU2-H1131	H6831492	0 to 100	
	PT160R-11-LU2-H1131	H6831453	0 to 160	
	PT250R-11-LU2-H1131	H6831451	0 to 250	
	PT400R-11-LU2-H1131	H6831493	0 to 400	
	PT600R-11-LU2-H1131	H6831494	0 to 600	
Absolute Pressure Transmitter, G 1/4 Female Connection 	PT001A-11-LI3-H1131	H6831449	0 to 1	4-20 mA Loop Powered
	PT002A-11-LI3-H1131	H6831450	0 to 2	
	PT003A-11-LI3-H1131	H6831448	0 to 3	

Conversion: 1 bar = 14.5038 psi

Material

Housing	303 Stainless Steel
Sensing Element	AL ₂ O ₃ Ceramic
Media Stop	PPS
Cable Connector	303 Stainless Steel / PBT
Pressure Connection	303 Stainless Steel
O-ring Seal	Viton

Voltage	Allowable Over Pressure (bar)	Accuracy**	Fluid Connection Type	Mating Cordset	Wiring Diagram #	Wiring Diagrams
8-33 VDC	3	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	1	Diagram 1  Diagram 2 
	1.5	≤0.5% Full Scale	G 1/4	RK 4T-*/S618	1	
	3	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	1	
	5	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	1	
	7	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	1	
	12	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	1	
	15	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	1	
	25	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	1	
	40	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	1	
	62	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	1	
	100	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	1	
	150	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	1	
	250	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	1	
	400	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	1	
	625	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	1	
11.4-33 VDC	3	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	2	
	3	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	2	
	5	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	2	
	7	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	2	
	12	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	2	
	15	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	2	
	25	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	2	
	40	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	2	
	62	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	2	
	100	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	2	
	150	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	2	
	250	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	2	
	400	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	2	
	625	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	2	
	1000	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	2	
	1200	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	2	
8-33 VDC	3	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	1	
	5	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	1	
	7	≤0.3% Full Scale	G 1/4	RK 4T-*/S618	1	

See page M10 - M12 for additional pressure specifications.

See pages M29 - M33 for diaphragm seals.

See pages M34 - M35 for pressure accessories.

* Length in meters.

** Total of linearity, hysteresis and repeatability.



Housing Style	Part Number	Process Connection	Lower Housing	Diaphragm	Upper Housing	Fill Fluid	Maximum Working Pressure at 100°F	Standards
Sanitary Diaphragm 	PC.../S1604 PT.../S1604 PS.../S1604	1.5 in. Tri-clamp	316 L	316 L	316 L	Neobe M20	600 psi	3A 37-01
Sanitary Diaphragm 	PC.../S1605 PT.../S1605 PS.../S1605	2.0 in. Tri-clamp	316 L	316 L	316 L	Neobe M20	600 psi	3A 37-01
Sanitary Diaphragm 	PC.../S1691 PT.../S1691 PS.../S1691	1.5 in. Cherry-Burrel	316 L	316 L	316 L	Neobe M20	250 psi	3A 37-01
Sanitary Diaphragm 	PC.../S1692 PT.../S1692 PS.../S1692	2.0 in. Cherry-Burrel	316 L	316 L	316 L	Neobe M20	250 psi	3A 37-01

Diaphragm seals must be ordered factory assembled with any **TURCK** pressure sensor or pressure transmitter.
 For optional fill fluids and materials see page M36 at the end of this section.



Housing Style	Part Number	Process Connection	Lower Housing	Diaphragm	Upper Housing	Fill Fluid	Maximum Working Pressure at 100°F	Standards
Sanitary Diaphragm 	PC.../S1693 PT.../S1693 PS.../S1693	1.5 in. Bevel Seat	316 L	316 L	316 L	Neobe M20	250 psi	3A 37-01
Sanitary Diaphragm 	PC.../S1694 PT.../S1694 PS.../S1694	2.0 in. Bevel Seat	316 L	316 L	316 L	Neobe M20	250 psi	3A 37-01
Sanitary Diaphragm 	PC.../S1689 PT.../S1689 PS.../S1689	Anderson Long Shell	316 L	316 L	316 L	Neobe M20	200 psi	3A 37-01
Sanitary Diaphragm 	PC.../S1695 PT.../S1695 PS.../S1695	Anderson Short Shell	316 L	316 L	316 L	Neobe M20	200 psi	3A 37-01

Diaphragm seals must be ordered factory assembled with any **TURCK** pressure sensor or pressure transmitter.
For optional fill fluids and materials see page M36 at the end of this section.

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Housing Style	Part Number	Process Connection	Lower Housing	Diaphragm	Upper Housing	Fill Fluid	Maximum Working Pressure at 100°F
Fully Welded Diaphragm Seal 	PC.../S1685 PT.../S1685 PS.../S1685	1/4 NPT Female	316 L	316 L	316 L	Silicone DC200	2500 psi
Fully Welded Diaphragm Seal, Clean Out Port 	PC.../S1593 PT.../S1593 PS.../S1593	1/4 NPT Female	316 L	316 L	316 L	Silicone DC200	2500 psi
General Purpose, Welded Diaphragm 	PC.../S1049 PT.../S1049 PS.../S1049	1/2 NPT Female	316 L	316 L	316 L	Silicone DC200	2500 psi
General Purpose, Welded Diaphragm, Flush Port 	PC.../S1700 PT.../S1700 PS.../S1700	1/2 NPT Female	316 L	316 L	Carbon Steel	Silicone DC200	2500 psi

Diaphragm seals must be ordered factory assembled with any **TURCK** pressure sensor or pressure transmitter.
 For optional fill fluids and materials see page M36 at the end of this section.



Housing Style	Part Number	Process Connection	Lower Housing	Diaphragm	Upper Housing	Fill Fluid	Maximum Working Pressure at 100°F
General Purpose, Welded Diaphragm 	PC.../S1701 PT.../S1701 PS.../S1701	1/2 NPT Female	316 L	316 L	Carbon Steel	Silicone DC200	2500 psi
General Purpose, Welded Diaphragm, Flush Port 	PC.../S1702 PT.../S1702 PS.../S1702	1/2 NPT Female	316 L	316 L	Carbon Steel	Silicone DC200	2500 psi
Chemical Resistant, Welded Diaphragm 	PC.../S1731 PT.../S1731 PS.../S1731	1/2 NPT Female	PVC	Hastelloy C276	316 L	Silicone DC200	200 psi
Chemical Resistant, Welded Diaphragm 	PC.../S1733 PT.../S1733 PS.../S1733	1/2 NPT Female	PVC	Hastelloy C276	Carbon Steel	Silicone DC200	200 psi

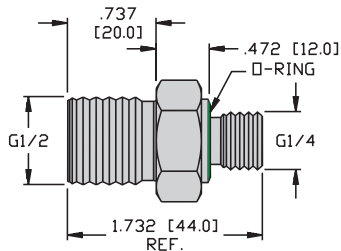
Diaphragm seals must be ordered factory assembled with any **TURCK** pressure sensor or pressure transmitter.
For optional fill fluids and materials see page M36 at the end of this section.



Housing Style	Part Number	Process Connection	Lower Housing	Diaphragm	Upper Housing	Fill Fluid	Maximum Working Pressure at 100°F
Flush Mount Diaphragm 	PC.../S1704 PT.../S1704 PS.../S1704	1-1/2 NPT Male	316 L	316 L	316 L	Silicone DC200	5000 psi
Flush Mount Diaphragm 	PC.../S1705 PT.../S1705 PS.../S1705	2 NPT Male	316 L	316 L	316 L	Silicone DC200	3000 psi

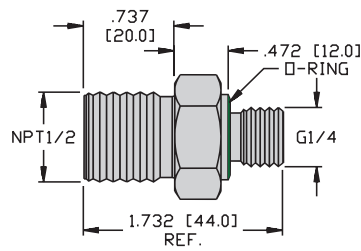
Diaphragm seals must be ordered factory assembled with any **TURCK** pressure sensor or pressure transmitter.
 For optional fill fluids and materials see page M36 at the end of this section.

**Adapter, G1/4 to G1/2
(316 Stainless Steel)
.945 [24.0] across flats**



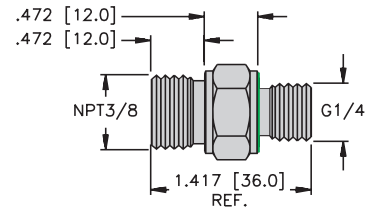
**PCV-G1/2A4
(M6835012)**

**Adapter, G1/4 to 1/2NPT
(316 Stainless Steel)
.748 [19.0] across flats**



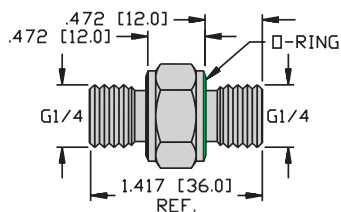
**PCV-N1/2A4
(M6835013)**

**Adapter, G1/4 to 3/8NPT
(316 Stainless Steel)
.945 [24.0] across flats**



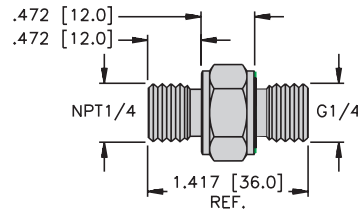
**PCV-N3/8A4
(M6835020)**

**Adapter, G1/4 to G1/4
(316 Stainless Steel)
.748 [19.0] across flats**



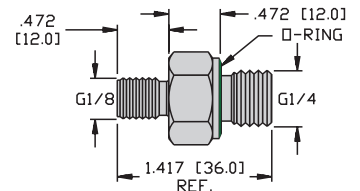
**PCV-G1/4A4
(M6835011)**

**Adapter, G1/4 to 1/4 NPT
(316 Stainless Steel)
.748 [19.0] across flats**



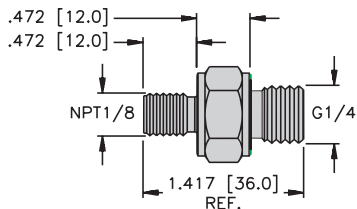
**PCV-N1/4A4
(M6835022)**

**Adapter, G1/4 to G1/8
(316 Stainless Steel)
.748 [19.0] across flats**



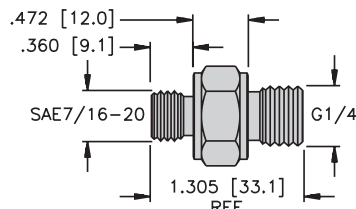
**PCV-G1/8A4
(M6835014)**

**Adapter, G1/4 to 1/8NPT(316
Stainless Steel)
.748 [19.0] across flats**



**PCV-N1/8A4
(M6835021)**

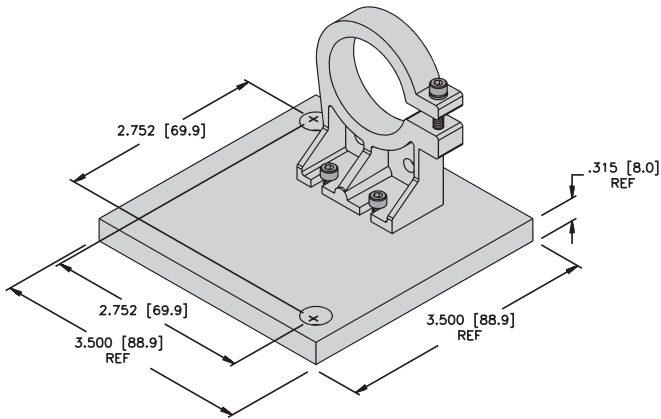
**Adapter, G1/4 to 7/16 SAE
(316 Stainless Steel)
.748 [19.0] across flats**



**PCV-S7/16A4
(A9136)**

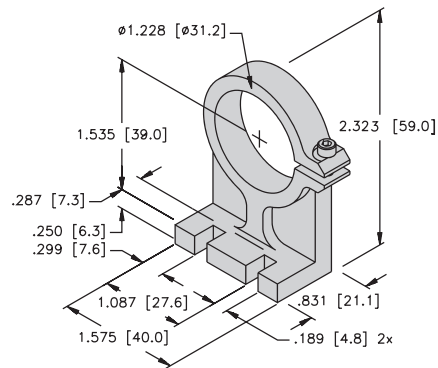
Accessories

Mounting Bracket Kit (Aluminum)



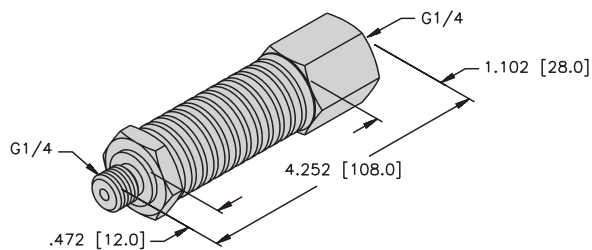
PCS-AB-KIT
(A5121)

Mounting Bracket (Aluminum)



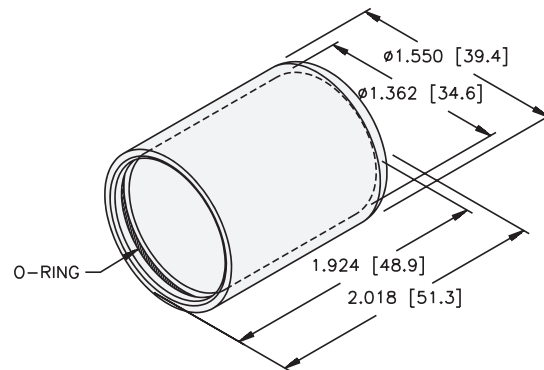
PCS-MBT
(A5120)

Heat Sink (316 Stainless Steel)



PCS-G1/4A4
(M6835015)

Clear Cap



PS-COVER
(A9232)

Diaphragm Seal Optional Materials

Optional Fill Fluids

Diaphragm Fill Fluids	Application Range (°C)	Specific Gravity at 25°C	Viscosity at 25°C
Silicone DC200-10CS	-45 to 205	0.93	10
Silicone DC 704	0 to 315	1.07	39
Silicone DC 710	5 to 345	1.11	500
Flurolube FS-5	-40 to 150	1.88	7.8
Halocarbon Oil 6.3	-40 to 235	1.88	10.6
Halocarbon Oil 4.2	-45 to 175	1.85	6.5
Neobee-20	-15 to 205	0.92	9.8

Optional Materials

Housing Material			
Wetted			Non-Wetted
304 SS (304)	Hast-C22 (HAS2)	Nickel 200 (NICK)	304 SS (304) 316 SS (316) Carbon Steel (STL) Monel 400 (MON)
304L SS (304L)	Hastelloy B-2 (HASB)	PVC	
316 SS (316)	Hastelloy C-276 (HASC)	Tantalum (TANT)	
316Ti SS	Inconel 600 (INC)	Teflon-25%GF (TFGF) (+1500°F max.)	
Carbon Steel (STL)	Inconel 625 (I625)	Titanium GR.4 (TIT)	
Carpenter 20 (C20)	Monel 400 (MON)	Zirconium 702 (ZIRC)	

Diaphragm Material			
Wetted			
304L SS (304L)	Hastelloy B-2 (HASB)	Silver (SILV)	
316L SS (316L)	Hastelloy C-276 (HASC)	Tantalum (TANT)	
321 SS (321)	Inconel 600 (INC)	Teflon Coated Metal	
Buna N (NBR) (1250 psi; +2500°F)	Kalrez 1050LF (KALR)	Teflon (TFE) (1250 psi; +3500°F)	
Carpenter 20 (C20)	Kel-F (KELF) (1250 psi; +4000°F)	Titanium GR4 (TIT)	
(for anti-stick purposes only)	Monel 400 (MON)	Viton A (VIT) (1250 psi; +3500°F)	
Gold (GOLD)	Nickel 200 (NICK)	Zirconium 702 (ZIRC)	
Hast - C22 (HAS2)	Nickel 201 (N201)		

Gasket Material			
Wetted			
	Grafoil (GRAF)	PTFE (3510) (-400°F to +2000°F)	
	Non-Asbestos (4401)	PTFE (K2) (-500°F to +4500°F)	

O-Ring Material			
Wetted			
	Buna N (NBR) (-100°F to +2500°F)	Teflon (TFE) (-400°F to +3500°F)	
	Kalrez (KALR)	Viton A (VIT) (-100°F to +3500°F)	

TURCK

Process Automation – Instrumentation

Pressure Conversion⁽¹⁾

From / To	PSI	KPA	inches ⁽²⁾ inH ₂ O	mmH ₂ O	inches ⁽³⁾ inHg	mm Hg	Bars	m Bars	Kg/cm ²	gm/cm ²
PSI	1	6.8948	27.7620	705.1500	2.0360	51.7149	0.0689	68.9470	0.0703	70.3070
KPA	0.1450	1	4.0266	102.2742	0.2953	7.5006	0.0100	10.0000	0.0102	10.197
inH₂O	0.0361	0.2483	1	25.4210	0.0734	1.8650	0.0025	2.4864	0.0025	2.5355
mmH₂O	0.0014	0.0098	0.0394	1	0.0028	0.0734	0.0001	0.0979	0.00001	0.0982
inHg	0.4912	3.3867	13.6195	345.936	1	25.4000	0.0339	33.8639	0.0345	34.532
mm Hg	0.0193	0.1331	0.5362	13.6195	0.0394	1	0.0013	1.3332	0.0014	1.3595
Bars	14.5040	100.000	402.180	10215.0	29.5300	750.060	1	1000	1.0197	1019.72
m Bars	0.0145	0.1000	0.4022	10.2150	0.0295	0.7501	0.001	1	0.0010	1.0197
Kg/cm²	14.2233	97.9047	394.408	10018.0	28.9590	735.559	0.9000	980.700	1	1000
gm/cm²	0.0142	0.0979	0.3944	10.0180	0.0290	0.7356	0.0009	0.9807	0.001	1

(1) Example:

1 mm Hg = 0.5362 inH₂O = 1.3332 mBars

97 mm Hg = 97(0.5362) = 52.0114 inH₂O

97 mm Hg = 97(1.3332) = 129.3204 mBars

(2) at 60°F

(3) at 32°F



Notes:

Flow Monitor Selection Guide



Type	Digital Readout Flow Monitor	Plastic Self Contained	Stainless Steel Self Contained
Pages	M53 - M60	M61 - M62	M63 - M64



Type	Self Contained Inline	Remote Probe	Remote Amplifier/ Signal Processors	Accessories
Pages	M65 - M66	M67 - M70	M71 - M74	M75 - M76

A Variety of Flow Sensors for All of Your Flow Applications

The rugged design and high repeatability of **TURCK** flow sensors bring a new level of reliability to flow monitoring. Many sensors have an enclosure rating of IP 67, in addition to a pressure resistance of 1450 psi, while other models are able to withstand aggressive materials such as acids and caustics. **TURCK** flow sensors are available as in-line models, self-contained devices, or probe styles (with a separate signal processor), and are able to perform in many different media, such as liquids, gases and airflow. **TURCK** flow monitors have a temperature gradient of 250°C/minute, which allows them to respond rapidly to changes in temperature and makes them especially suited to applications such as monitoring coolant flow to weld tips. Our wide range of flow products offer a solution to many flow applications.

Solid State with No Moving Parts

All **TURCK** flow sensors are solid-state devices that operate on the calorimetric principle. With this technology there are no moving parts that may break off or become lodged in the pipeline. Often in impure or "dirty" flow applications, mechanical devices tend to become frozen or stuck in the "open" position making **TURCK** electronic sensors a much better choice in these applications. No matter how demanding your application, you now have a solution that installs easily, performs dependably, and does not require expensive downtime.

Product Features

- All wetted parts are made of Stainless Steel, Titanium, Hastelloy or Teflon
- Omni-directional monitoring allows you to monitor the flow in any direction
- Automatic temperature compensation allows for sudden shifts in flow temperature within specified extremes



TURCK offers longer probe lengths for use in applications where there is a larger pipe, or long standoff, in many different probe style flow sensors. These probes are available in 20 millimeter increments with a maximum length of 220 millimeters. Consult factory for more information.

TURCK: Delivering Advanced Automation Products

As the market for automation components continues to evolve and requires smarter, smaller, more robust sensing and productivity products, **TURCK** is rising to meet these challenges with a complete offering of automation components. Established as the industry's leading brand in proximity sensors, the **TURCK** name is synonymous with high-quality, rugged sensing products. Now users can expect that same quality in an expanded offering of automation products that will help improve their processes and profits.

A Digital Read Out Flow Sensor for Your Flow Monitoring Applications

The rugged design and high repeatability of **TURCK's** Digital Read Out (DRO) flow sensor brings a new level of reliability to flow monitoring. This self-contained, fully programmable sensor allows for both flow and temperature monitoring, and features a highly visible three-digit display that can alternate between flow rate and media temperature when required.

The DRO flow monitor allows the user to program set points specific to an application, and can be programmed to perform in many different media, such as water, glycol and Galden HT110. If the fluid is a glycol/water mix, the percentage of glycol can be selected so that the monitor can adjust to each unique application without the need for factory calibration. The DRO flow monitor has an adjustable filter to smooth out a variety of erratic flow conditions, and is able to monitor changes in flow as low as 0.2 gallons per minute (GPM) or as fast as 12 GPM.

This unique flow monitor can be programmed with two different set points to reflect flow rate. It can be programmed to have one set point monitor flow and one point monitor temperature. A model with 4 set points is also available, where two points monitor flow and two points monitor temperature. And an analog current monitor is available with one set point.

The DRO flow monitor also features programmable on and off time delay functions, and allows the user to define hysteresis for both the flow and temperature set points. It is manufactured with a standard **eurofast**® M12 connector, has a pressure rating of 145 psi, and can be ordered with a number of different fluid connections; making the DRO flow monitor an economical solution for your demanding flow applications.



Typical Applications:

- Weld Tip Protection
- Transformer Cooling
- Semiconductor Chamber Cooling
- Hot Roller Coolant

Solid-State with No Intrusive or Moving Parts

The DRO flow monitor is an in-line device that approximates flow rate without disrupting the flow. Typical flow monitors often need to be installed by a specialist so that the monitor is precisely oriented to the direction of flow. These devices are also prone to material build up, which can affect the accuracy of the monitor.

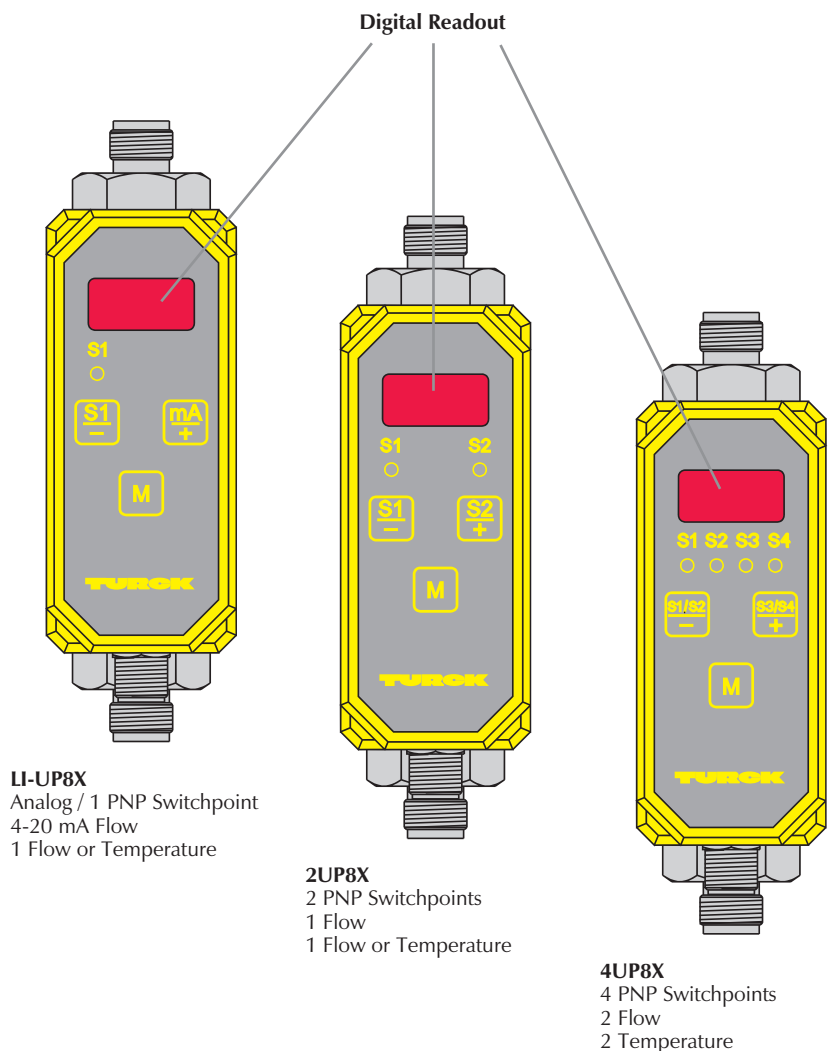
The DRO flow monitor is a solid-state device that operates on the calorimetric principle, resulting in a sensor with no moving parts that can break or become lodged in the pipeline. This technology, combined with the in-line mounting of the sensor, allows the DRO flow monitor to perform dependably in a variety of demanding applications without concern for flow restriction or expensive downtime.

Product Features

- Selectable Media Inputs
- Flow/Temperature Readout
- User Programmable Set Points
- User Programmable Keypad
- Mounts Directly Into Pipeline
- 3 Digit - Highly Visible Display
- Adjustable On and Off Delay
- Adjustable Filtering
- Low Pressure Drop
- Solid-State Device
- Stainless Steel Wetted Parts
- Password Protected Programming

Selectable Media

- Water
- Deionized Water
- Ethylene Glycol (0-70%)
- Calden® HT110
- Calden® HT135



TURCK

Process Automation – Instrumentation

Flow Monitor Part Number Key

Part Number Keys are to assist in IDENTIFICATION ONLY. Consult factory for catalog items not identified.

Insertion Probe Sensor

FCS - N1/2 A4P - AP8X - H1141 Special Option Codes	
Sensor Type	Electrical Connection
FCS = Insertion Probe Flow Sensor	H1141 = <i>eurofast</i> ®
FCTS = Flow Sensor with Temperature Alarm	H1140 = <i>eurofast</i>
	B1151 = <i>minifast</i> ®
	B3141 = <i>microfast</i> ®
	B3151 = <i>microfast</i>
Fluid Connection	Circuitry
N1/2 = 1/2 NPT	2AP8X = Dual N.O. PNP
N3/4 = 3/4 NPT	AP8X = N.O. PNP
G1/4 = G1/4 (1/4 BSPP)	AN8X = N.O. NPN
G1/2 = G1/2 (1/2 BSPP)	ARX = N.O. Relay
GL1/2 = G1/2 (1/2 BSPP with additional threading)	RRX = N.C. Relay
50 = 1.5 inch Tri-clamp	LIX = 4-20 mA
Housing	NA = Remote (requires MK or MS 96)
A4 = 316 Stainless Steel Housing and Probe	NAEX = Intrinsically Safe
A2P = 303 Stainless Steel Probe with PBT Housing	
A4P = 316 Stainless Steel Probe with PBT Housing	
AL = 303 Stainless Steel Probe	
HB = Hastelloy B	
HC22 = Hastelloy C22	
T = Dyflor (PVDF)	
TN = Titanium w/B3 Coating	

Special Option Codes

Modifier	/A
/A = Airflow	
Probe Length	/L
/L = Probe Length in mm	
D Number	/D..
/D100 = +120°C (+248°F)	
/D500 = 500 Bar Rating	

Flow Monitor Part Number Key

Part Number Keys are to assist in IDENTIFICATION ONLY. Consult factory for catalog items not identified.

Inline Flow Sensor

FCI - **TC** **D04** **A4P** - **AP8X** - **H1141** **Special Option Codes**

Sensor Type

FCI = Inline Flow Sensor

Fluid Connection

TC = Tubing Connection

N1/8 = 1/8 NPT

N1/4 = 1/4 NPT

N3/4 = 3/4 NPT

Blank = G1/4

Inline Diameter (millimeters)

D03 = 3 mm

D04 = 4 mm

D06 = 6 mm

D08 = 8 mm

D09 = 9 mm

D10 = 10 mm

D11 = 11 mm

D20 = 20 mm

Electrical Connection

H1141 = *eurofast*®, 4-pin

H1140 = *eurofast*, 4-pin

H1160 = *eurofast*, 6-pin

Circuitry

AP8X = N.O. PNP

AN8X = N.O. NPN

ARX = N.O. Relay

RRX = N.C. Relay

LIX = 4-20 mA

NA = Remote (requires MK or MS 96)

NAEX = Intrinsically Safe

2ARX = Dual N.O. Relay

Housing

A4 = 316 Stainless Steel

A4P = 316 Stainless Steel with PBT Housing

CTP = Ceramic / PTFE / PBT

HC22 = Hastelloy C22

Special Option Codes

/D..

D Number

/D038 = 3/8 in. Tubing Connection

/D201 = 3/8 in. Tubing Connection, Digital Readout, water or water/glycol mix

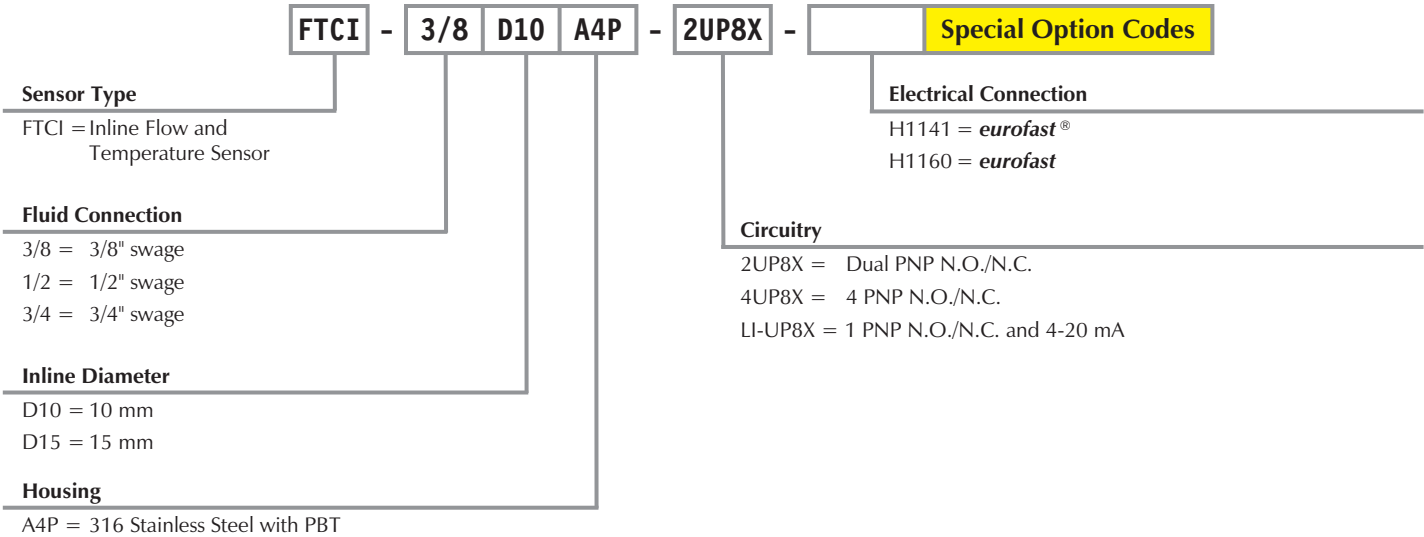
/D203 = 3/8 in. Tubing Connection, Digital Readout, water only

/D205 = 1/2 in. Tubing Connection, Digital Readout, water or water/glycol mix

/D209 = 3/4 in. Tubing Connection, Digital Readout, water or water/glycol mix

Flow Monitor Part Number Key

Part Number Keys are to assist in IDENTIFICATION ONLY. Consult factory for catalog items not identified.





DRO Flow - DC

Time Delay Before Availability 2-15 seconds (8 seconds typical)
Response Time 0.5-3 seconds
Maximum Temperature Gradient 250°C / min.



Plastic Self Contained Insertion Probe - DC

Time Delay Before Availability 2-15 seconds (8 seconds typical)
Response Time 1-15 seconds (2 seconds typical)
Maximum Temperature Gradient 250°C / min.



Stainless Steel Self Contained Insertion Probe - DC

Time Delay Before Availability 2-15 seconds (8 seconds typical)
Response Time 1-15 seconds (2 seconds typical)
Maximum Temperature Gradient 250°C / min.



Self Contained Inline - DC

Time Delay Before Availability 5-15 seconds (8 seconds typical)
Response Time 0.5-3 seconds
Maximum Temperature Gradient 400°C / min.



Remote Insertion Probe - DC

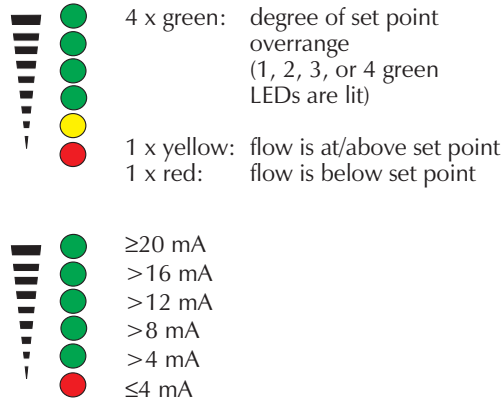
Time Delay Before Availability 2-15 seconds (8 seconds typical)
Response Time 1-13 seconds (2 seconds typical)
Maximum Temperature Gradient 250°C / min.

Set-up – Operating and Display Functions

**Self Contained
Insertion Probe**



6 LEDs for flow rate status indication:



Sealing screw (on front of device) covers the potentiometer for switch point adjustment

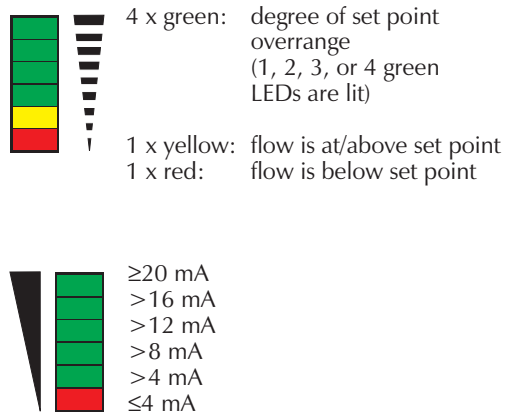


Potentiometer for adjustment of flow switch point (with analog devices the potentiometer is used to set the measuring range)

Processor MK96



LED display for flow rate status indication:



Potentiometer (coarse) for operating range adjustment



Potentiometer for fine adjustment of switch point value

Analog versions



Potentiometer for adjusting the 4 mA to the medium



Potentiometer for adjusting the span to 20 mA (not all applications may reach 20 mA)

Set-up – Operating and Display Functions

Processor MS96



6 LEDs for flow rate status indication:



4 x green: degree of set point overrange
(1, 2, 3, or 4 green LEDs are lit)

1 x yellow: flow is at/above set point
1 x red: flow is below set point



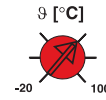
Potentiometer (coarse) for operating range adjustment



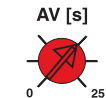
Potentiometer for fine adjustment of switch point value



Red LED illuminates when flow is at or above preset temperature



Potentiometer for temperature set-point adjustment
(from -20°C to +100°C)



Potentiometer to set switch-off delay time which affects the flow monitoring output (terminals 6 - 8)

Self Contained Inline



6 LEDs for flow rate status indication:



4 x green: degree of set point overrange
(1, 2, 3, or 4 green LEDs are lit)

1 x yellow: flow is at/above set point
1 x red: flow is below set point



≥20 mA
>16 mA
>12 mA
>8 mA
>4 mA
≤4 mA



Potentiometer for adjustment of flow switch point

Analog versions



Potentiometer for adjusting the 4 mA to the medium



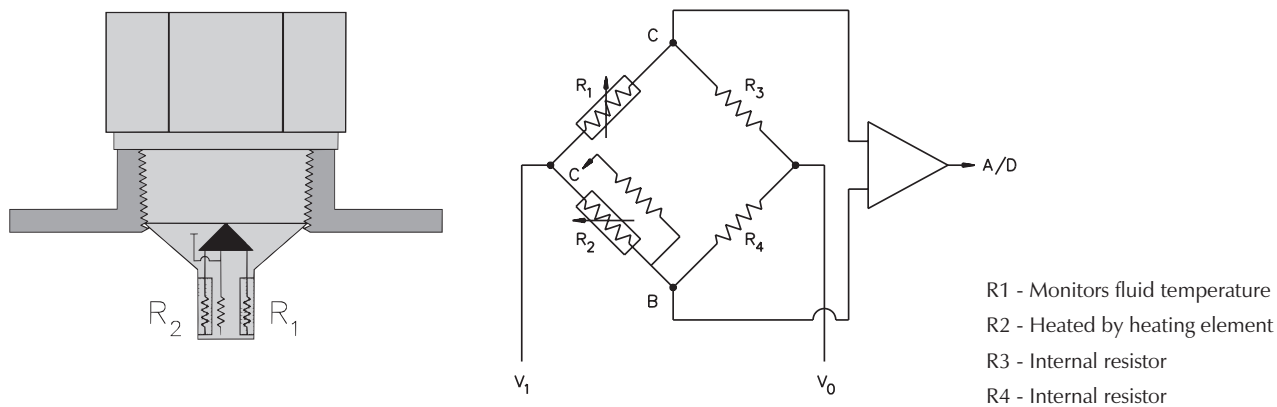
Potentiometer for adjusting the span to 20 mA
(not all applications may reach 20 mA)

Principles of Operation

TURCK flow controls use no mechanical parts to monitor the flow speed of liquids and gasses. These solid state flow switches operate on the calorimetric principle: the measure of heat transfer from an object to a fluid.

The **TURCK** solid state flow monitors use two temperature dependent resistors similar to RTDs. One of the resistors (R_1) monitors the temperature of the surrounding fluid. The other resistor (R_2) is connected to a heating element. The heating element heats R_2 to a temperature that is slightly above the surrounding fluid temperature. When there is no fluid flow, the difference in resistance between R_1 and R_2 is a fixed value. As fluid moves over the flow monitor probe, heat is conducted away from the heating element causing the temperature on R_2 to decrease. This heat loss changes the difference in resistance between R_1 and R_2 .

The resistance difference is measured by a Wheatstone bridge circuit. A change in resistance difference causes a change in the bridge voltage. The flow set point is determined by comparing the bridge voltage to a reference voltage.



Operating Range

Heat loss on the heating element will likewise determine the sensitivity of the monitor. The heat loss becomes a function of flow velocity and thermal conductivity of the fluid. The lower the thermal conductivity of the fluid, the faster the fluid has to flow to be detected.

Flow monitor operating ranges vary from one type of fluid to the other. These operating ranges are proportional to the speed of the fluid that the monitor can detect.

At the same flow rate compared to water, air can conduct away from the heating element only a fraction of the heat. For example, for A2/A4 stainless steel insertion type monitors the operating range for air flow is from 2 to 30 m/s, and for water from 1 to 150 cm/s. For oil, the range is between the 3 to 300 cm/sec.

Temperature Gradient

The temperature gradient of a fluid indicates the change in fluid temperature within a specified time (unit of measure: °C (°F)/min). The temperature gradient of a device defines the maximum temperature rise that can be compensated by the monitor without malfunction.

The monitor has the ability to compensate for sudden thermal shifts within the specified extremes. Sudden temperature changes exceeding the specified tolerances (temperature error) may cause the device to malfunction. Only when the monitor has adapted to the new temperature, will it provide an accurate measurement.

The temperature gradient for **TURCK** flow controls is 250°C/min. - 15 times higher than standard flow devices which makes for a particularly accurate switch-point stability during variations in temperature.

The sensitivity to temperature rise of **TURCK** flow monitors has been reduced to a minimum (<12 s) and can accurately be determined in advance. This characteristic is the result of the optimum calorimetric principle and special monitors construction.

Time Delay Before Availability

The availability is the time required, after power has been applied, for the flow monitor to reach a stable operating condition. The availability provides for the time needed to energize the flow monitor and the time needed for the flow monitor to stabilize at the fluid's temperature.

Response Time

The switch on time is the time required for the flow monitor to detect and indicate that the flow speed is increasing. The switch off time is the time required for the flow monitor to detect and indicate that the flow speed is decreasing.

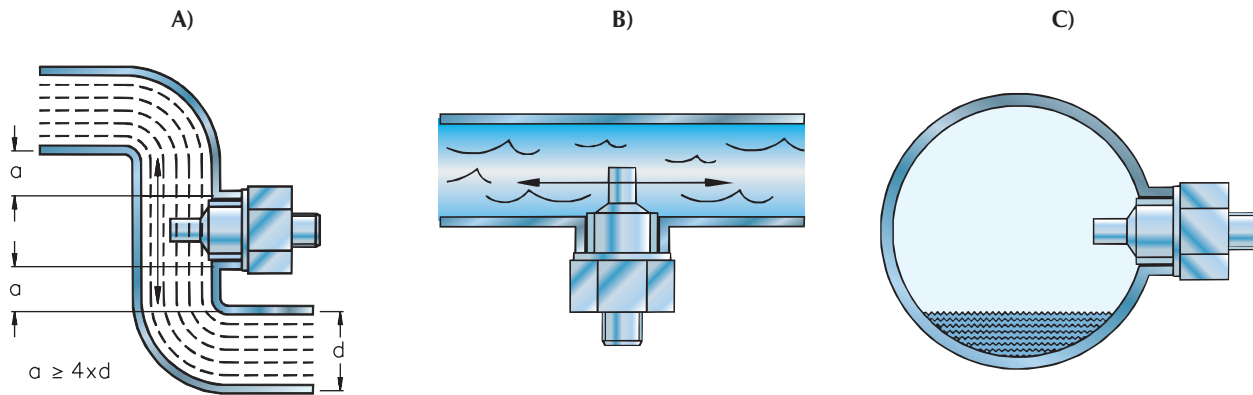
Effects of Housing Material

The switch on time, the switch off time and the temperature gradient of the flow monitor is dependent on the housing material. The Teflon® flow monitors have a low thermal conductivity causing a slower response time to fluid temperature changes and to changes in the flow speed.

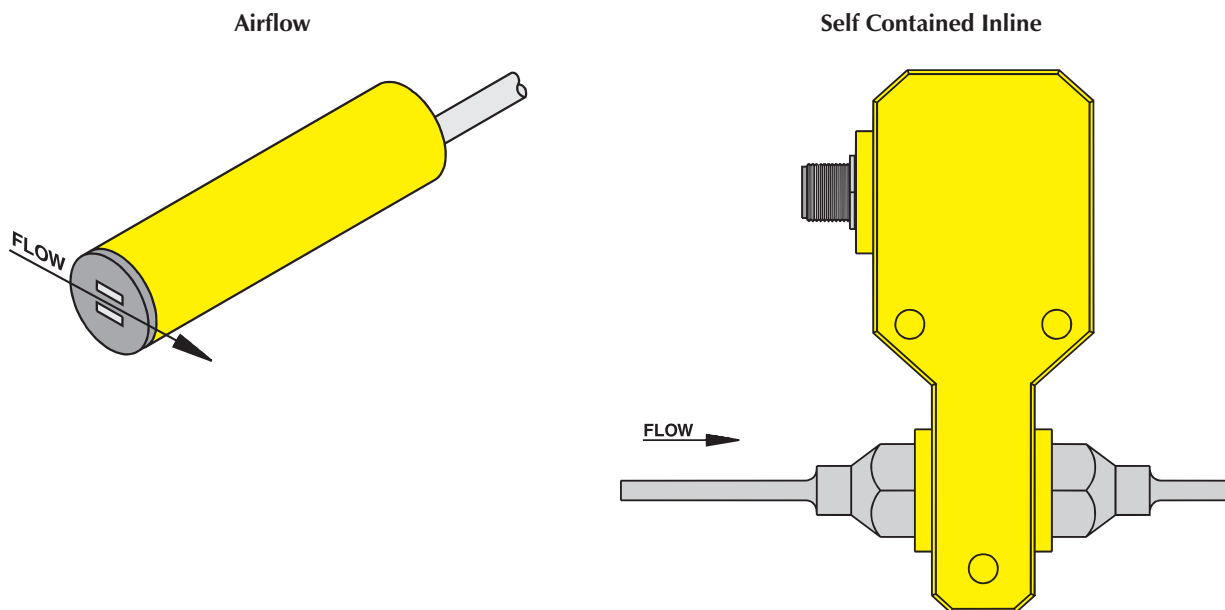
Mounting Instructions

Areas of turbulent flow occur whenever there is a change in the pipe construction (e.g. pipe inlets, pipe outlets, pipe elbows). To avoid an inaccurate output, the following guidelines should be observed:

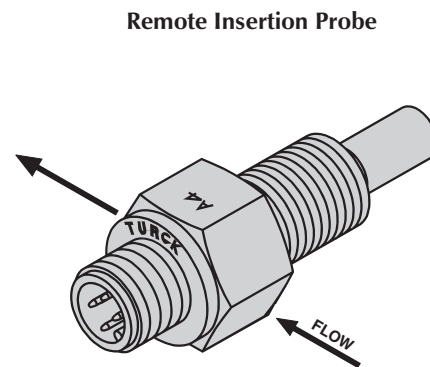
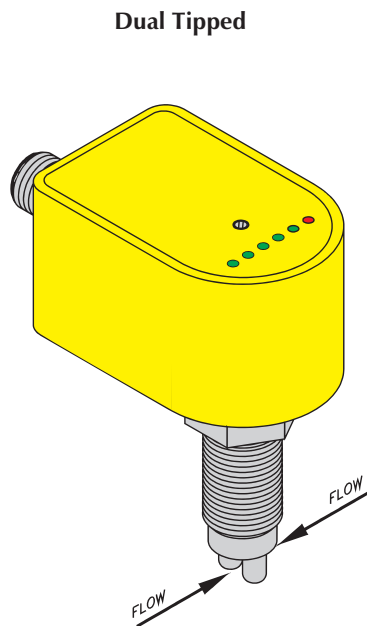
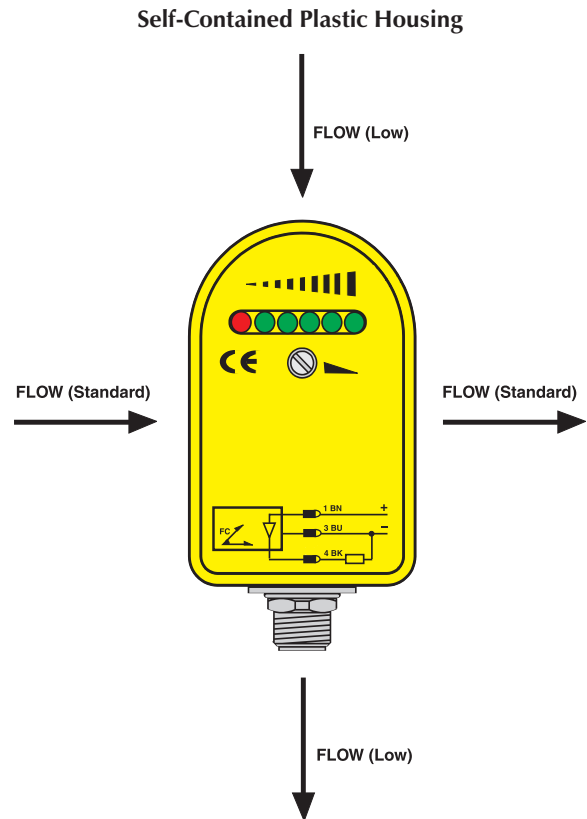
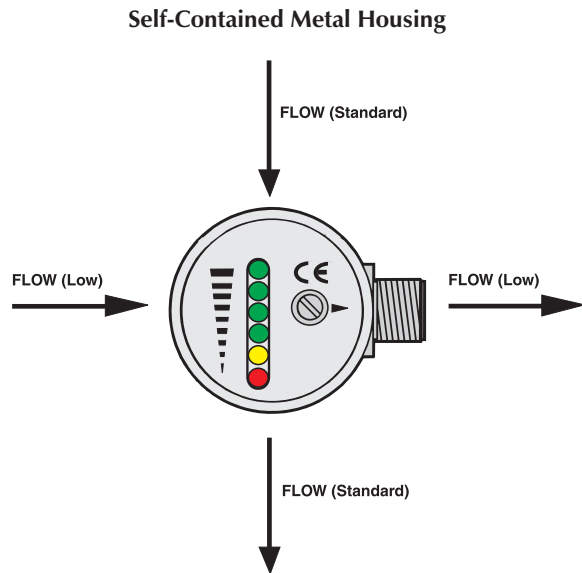
- A) Pay special attention to the minimum distance ($a \geq 4 \times d$) to tube bend and intersections.
- B) Flow monitor must be mounted from below in applications where medium does not completely fill the pipe.
- C) If a possibility of deposit build-up exists, mount the flow monitor at the side of the pipe.



Proper Orientation for TURCK Flow Monitors



Proper Orientation for TURCK Flow Monitors



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Process Automation – Instrumentation

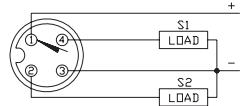


Housing Style	Part Number	ID Number	Flow Detection Range (CPM)	Temperature Monitoring Range (°F)	Output 1: Flow	Output 2: Temperature or Flow
Inline Flow Monitor, Digital Readout, 3/8" Tubing Connection	FTCI-3/8D10A4P-2UP8X-H1141	M6870806	0.2 to 4	+14 to +194	PNP N.O./N.C.	PNP N.O./N.C.
Inline Flow Monitor, Digital Readout, 1/2" Tubing Connection	FTCI-1/2D10A4P-2UP8X-H1141	M6870807	0.2 to 5	+14 to +194	PNP N.O./N.C.	PNP N.O./N.C.
Inline Flow Monitor, Digital Readout, 3/4" Tubing Connection	FTCI-3/4D15A4P-2UP8X-H1141	M6870808	1 to 12	+14 to +194	PNP N.O./N.C.	PNP N.O./N.C.

Compatible Fluids: Water, Deionized Water, Ethylene Glycol (0-70%), Galden® HT110, Galden® HT135

Material

Housing	PBT
Wetted Parts	316 Ti Stainless Steel
O-Ring	FKM

Voltage	Current Consumption (mA)	Switching Current	Pressure Rating (psi)	Fluid Connection	Operating Temp. (°C) (ambient)	Protection	Mating Cordset	Wiring Diagram #	Wiring Diagrams
21.6-26.4 VDC	≤100	200	290	3/8" swage	0 to +60	IP 65	RK 4.4T-*	1	Diagram 1 
21.6-26.4 VDC	≤100	200	290	1/2" swage	0 to +60	IP 65	RK 4.4T-*	1	
21.6-26.4 VDC	≤100	200	290	3/4" swage	0 to +60	IP 65	RK 4.4T-*	1	

* Length in Meters.

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Process Automation – Instrumentation



Housing Style	Part Number	ID Number	Flow Detection Range (CPM)	Temperature Monitoring Range (°F)	Output 1 & 2: Flow	Output 3 & 4: Temperature
Inline Flow Monitor, Digital Readout, 3/8" Tubing Connection 	FTCI-3/8D10A4P-4UP8X-H1160	M6870814	0.2 to 4	+14 to +194	PNP N.O./N.C.	PNP N.O./N.C.
Inline Flow Monitor, Digital Readout, 1/2" Tubing Connection 	FTCI-1/2D10A4P-4UP8X-H1160	M6870815	0.2 to 5	+14 to +194	PNP N.O./N.C.	PNP N.O./N.C.
Inline Flow Monitor, Digital Readout, 3/4" Tubing Connection 	FTCI-3/4D15A4P-4UP8X-H1160	M6870813	1 to 12	+14 to +194	PNP N.O./N.C.	PNP N.O./N.C.

Compatible Fluids: Water, Deionized Water, Ethylene Glycol (0-70%), Galden® HT110, Galden® HT135

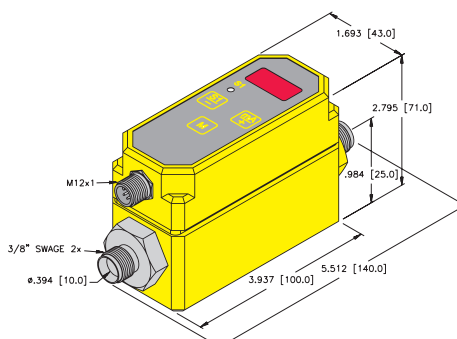
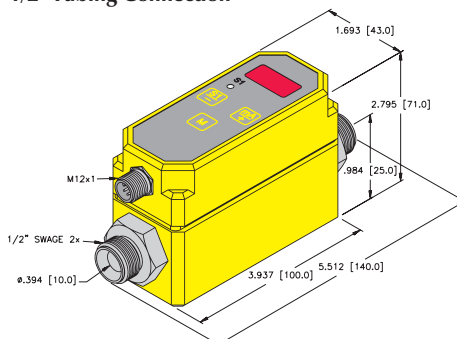
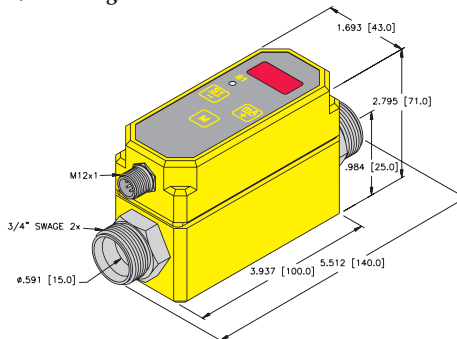
Material

Housing	PBT
Wetted Parts	316 Ti Stainless Steel
O-Ring	FKM

Voltage	Current Consumption (mA)	Switching Current	Pressure Rating (psi)	Fluid Connection	Operating Temp. (°C) (ambient)	Protection	Mating Cordset	Wiring Diagram #	Wiring Diagrams
21.6-26.4 VDC	≤100	200	290	3/8" swage	0 to +60	IP 65	RKC 6T-*	1	Diagram 1
21.6-26.4 VDC	≤100	200	290	1/2" swage	0 to +60	IP 65	RKC 6T-*	1	
21.6-26.4 VDC	≤100	200	290	3/4" swage	0 to +60	IP 65	RKC 6T-*	1	

* Length in Meters.



Housing Style	Part Number	ID Number	Flow Detection Range (GPM)	Temperature Monitoring Range (°F)	Output 1: Temperature	Output 2: Flow
Inline Flow Monitor, Digital Readout, 3/8" Tubing Connection 	FTCI-3/8D10A4P-LI-UP8X-H1141	M6870809	0.2 to 4	+14 to +194	PNP N.O./N.C.	Analog 4-20 mA
Inline Flow Monitor, Digital Readout, 1/2" Tubing Connection 	FTCI-1/2D10A4P-LI-UP8X-H1141	M6870810	0.2 to 5	+14 to +194	PNP N.O./N.C.	Analog 4-20 mA
Inline Flow Monitor, Digital Readout, 3/4" Tubing Connection 	FTCI-3/4D15A4P-LI-UP8X-H1141	M6870811	1 to 12	+14 to +194	PNP N.O./N.C.	Analog 4-20 mA

Compatible Fluids: Water, Deionized Water, Ethylene Glycol (0-70%), Galden® HT110, Galden® HT135

Material

Housing	PBT
Wetted Parts	316 Ti Stainless Steel
O-Ring	FKM

Voltage	Current Consumption (mA)	Switching Current	Pressure Rating (psi)	Fluid Connection	Operating Temp. (°C) (ambient)	Protection	Mating Cordset	Wiring Diagram #	Wiring Diagrams
21.6-26.4 VDC	≤100	200	290	3/8" swage	0 to +60	IP 65	RK 4.4T-*	1	Diagram 1
21.6-26.4 VDC	≤100	200	290	1/2" swage	0 to +60	IP 65	RK 4.4T-*	1	
21.6-26.4 VDC	≤100	200	290	3/4" swage	0 to +60	IP 65	RK 4.4T-*	1	

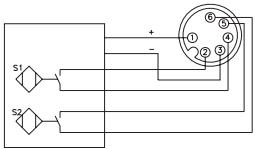
* Length in Meters.



Housing Style	Part Number	ID Number	Flow Detection Range (water)	Flow Detection Range (glycol/water)	Temperature Monitoring Range (°F)	Output
Inline Flow Monitor, Digital Readout, 3/8" Tubing Connection 	FCI-D10A4P-2ARX-H1160/D201	M6870679	0.2 - 4 GPM	0.2 - 4 GPM	0 to +212	Dual Relay N.O.
	FCI-D10A4P-2ARX-H1160/D203	M6870680	0.2 - 4 GPM	N/A (Water only)	0 to +212	Dual Relay N.O.
Inline Flow Monitor, Digital Readout, 1/2" Tubing Connection 	FCI-D10A4P-2ARX-H1160/D205	M6870681	0.2 - 5 GPM	0.2 - 5 GPM	0 to +212	Dual Relay N.O.
Inline Flow Monitor, Digital Readout, 3/4" Tubing Connection 	FCI-D15A4P-2ARX-H1160/D209	M6870684	1 - 12 GPM	1 - 12 GPM	0 to +212	Dual Relay N.O.

Material

Wetted Parts:	316 Stainless Steel
Housing:	PBT
O-ring:	FKM

Voltage	Load Current/ Analog Load	Pressure Rating (psi)	Fluid Connection	Operating Temp. (°C) (ambient)	Operating Temp. (°C) (fluid)	Protection	Mating Cordset	Wiring Diagram #	Wiring Diagrams
21.6-26.4 VDC	≤0.5 A at 30 VDC ≤1 A at 36 VAC	290	3/8" swage	0 to +60	-10 to +95	IP 65	RKC 6T-*	1	Diagram 1 
21.6-26.4 VDC	≤0.5 A at 30 VDC ≤1 A at 36 VAC	290	3/8" swage	0 to +60	0 to +80	IP 65	RKC 6T-*	1	
21.6-26.4 VDC	≤0.5 A at 30 VDC ≤1 A at 36 VAC	290	1/2" swage	0 to +60	-10 to +95	IP 65	RKC 6T-*	1	
21.6-26.4 VDC	≤0.5 A at 30 VDC ≤1 A at 36 VAC	290	3/4" swage	0 to +60	-10 to +95	IP 65	RKC 6T-*	1	

* Length in Meters.



Housing Style	Part Number	ID Number	Flow Detection Range (water)	Flow Detection Range (oil)	Output
Self-Contained Plastic Housing 	FCS-N1/2A4P-AP8X-H1141	M6871032	1-150 cm/sec.	3-300 cm/sec.	PNP N.O.
Self-Contained Plastic Housing, Dual Set points 	FCS-N1/2A4P-2AP8X-H1140	M6871009	1-150 cm/sec.	3-300 cm/sec.	Dual PNP N.O.
Self-Contained Plastic Housing, Flow and Temperature Set points 	FTCS-N1/2A4P-2AP8X-H1140	M6871036	1-150 cm/sec. Temperature 0 to +80°C	3-300 cm/sec. Temperature 0 to +80°C	Dual PNP N.O.

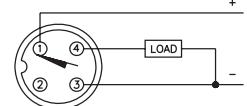
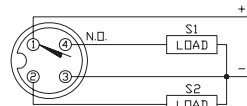
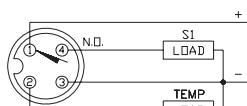
Additional specifications on pages M46.

Accessories on page M75 - M76.

Technical data on pages M77 - M79.

Material

Housing	PBT
Cable Connector	303 Stainless Steel
Wetted Parts	316 Ti Stainless Steel

Voltage	Current Consumption (mA)	Switching Current/Analog Load	Pressure Rating (psi)	Fluid Connection	Operating Temp. (°C) (ambient)	Operating Temp. (°C) (fluid)	Protection	Mating Cordset	Wiring Diagram #	Wiring Diagrams
19.2-28.8 VDC	≤60 mA	≤400 mA	1450	1/2 NPT	-25 to +70	-20 to +80	IP 65	RK 4T-*	1	Diagram 1  Diagram 2 
19.2-28.8 VDC	≤60 mA	≤400 mA	1450	1/2 NPT	-25 to +70	-20 to +80	IP 65	RK 4.4T-*	2	Diagram 3 
19.2-28.8 VDC	≤60 mA	≤400 mA	1450	1/2 NPT	-25 to +70	-20 to +80	IP 65	RK 4.4T-*	3	

* Length in meters.



Housing Style	Part Number	ID Number	Flow Detection Range (water)	Flow Detection Range (oil)	Output
Self-Contained 316 Stainless Steel Housing 	FCS-N1/2A4-AP8X-H1141	M6871004	1-150 cm/sec.	3-300 cm/sec.	PNP N.O.
	FCS-N1/2A4-AN8X-H1141	M6871010	1-150 cm/sec.	3-300 cm/sec.	NPN N.O.
	FCS-N1/2A4-ARX-H1140	M6871035	1-150 cm/sec.	3-300 cm/sec.	Relay N.O.
Self-Contained 316 Stainless Steel Housing 	FCS-G1/2A4-AP8X-H1141	M6870004	3-300 cm/sec.	3-300 cm/sec.	PNP N.O.
Self-Contained 316 Stainless Steel Housing 	FCS-G1/4A4-ARX-H1140	M6870102	3-300 cm/sec.	3-300 cm/sec.	Relay N.O.
DC Self Contained Sanitary, 316L Stainless Steel Housing 	FCS-50A4-AP8X-H1141/D014	M6872025	1-150 cm/sec.	3-300 cm/sec.	PNP N.O.

Additional specifications on pages M46.
 Accessories on page M75 - M76.
 Technical data on pages M77 - M79.

Material

Cable Connector	303 Stainless Steel
Wetted Parts	316 Ti Stainless Steel

Voltage	Current Consumption (mA)	Switching Current / Analog Load	Pressure Rating (psi)	Fluid Connection	Operating Temp. (°C) (ambient)	Operating Temp. (°C) (fluid)	Protection	Mating Cordset	Wiring Diagram #	Wiring Diagrams
19.2-28.8 VDC	≤70 mA	≤400 mA	1450	1/2 NPT	-25 to +80	-20 to +80	IP 67	RK 4T-*	1	Diagram 1
19.2-28.8 VDC	≤70 mA	≤400 mA	1450	1/2 NPT	-25 to +80	-20 to +80	IP 67	RK 4T-*	2	Diagram 2
19.2-28.8 VDC	≤70 mA	≤1 A at 60 VDC	1450	1/2 NPT	-25 to +80	-20 to +80	IP 67	RK 4.4T-*	3	Diagram 3
19.2-28.8 VDC	≤70 mA	≤400 mA	1450	G 1/2	-25 to +80	-20 to +80	IP 67	RK 4T-*	1	
19.2-28.8 VDC	≤70 mA	≤1 A at 60 VDC	1450	G 1/4	-25 to +80	-20 to +80	IP 67	RK 4.4T-*	3	
21.6-26.4 VDC	≤70 mA	≤400 mA	1450	1.5 in. Tri-clamp	-20 to +80 **(+100)	20 to +80	IP 67	RKV 4T-*	1	

* Length in meters.

** Sensor may be heated to 100°C for 10 minutes without damage.



Housing Style	Part Number	ID Number	Flow Detection Range (water)	Flow Detection Range (oil)	Output
Inline Flow Monitor, PBT Housing 	FCI-TC04A4P-ARX-H1140	M6870626	1-200 ml/min.	Consult Factory	Relay N.O.
	FCI-TC04A4P-AP8X-H1141	M6870656	1-200 ml/min.	Consult Factory	PNP N.O.
Inline Flow Monitor, PBT Housing 	FCI-D04A4P-AP8X-H1141	M6870640	15-1000 ml/min.	Consult Factory	PNP N.O.
Inline Flow Monitor, PBT Housing 	FCI-D08A4P-ARX-H1140/D038	M6870647	100-6000 ml/min.	Consult Factory	Relay N.O.
Inline Flow Monitor, PBT Housing 	FCI-D10A4P-AP8X-H1141	M6870642	100-6000 ml/min.	Consult Factory	PNP N.O.
	FCI-D10A4P-ARX-H1140	M6870644	100-6000 ml/min.	Consult Factory	Relay N.O.

Additional specifications on pages M46.
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 Technical data on pages M77 - M79.

Material

Housing	PBT
Cable Connector	303 Stainless Steel
Wetted Parts	316 Ti Stainless Steel

Voltage	Current Consumption (mA)	Switching Current/ Analog Load	Pressure Rating (psi)	Fluid Connection	Operating Temp. (°C) (ambient)	Operating Temp. (°C) (fluid)	Protection	Mating Cordset	Wiring Diagram #	Wiring Diagrams
21.6-26.4 VDC	≤50 mA	≤1 A at 30 VDC ≤1 A at 36 VAC	14.5	4 mm Tube	0 to +60	0 to +60	IP 67	RK 4.4T-*	1	Diagram 1
21.6-26.4 VDC	≤50 mA	≤200 mA	14.5	4 mm Tube	0 to +60	0 to +60	IP 67	RK 4T-*	2	Diagram 2
21.6-26.4 VDC	≤50 mA	≤200 mA	290	G 1/4	0 to +60	0 to +80	IP 67	RK 4T-*	2	Diagram 2
21.6-26.4 VDC	≤50 mA	≤1 A at 30 VDC ≤1 A at 36 VAC	290	3/8 Compression	0 to +60	0 to +80	IP 67	RK 4.4T-*	1	
21.6-26.4 VDC	≤50 mA	≤200 mA	290	G 1/4	0 to +60	0 to +80	IP 67	RK 4T-*	2	
21.6-26.4 VDC	≤50 mA	≤1 A at 30 VDC ≤1 A at 36 VAC	290	G 1/4	0 to +60	0 to +80	IP 67	RK 4.4T-*	1	

* Length in meters.

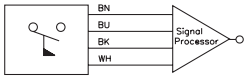
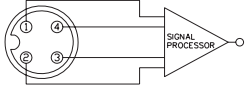


Housing Style	Part Number	ID Number	Flow Detection Range (water)	Flow Detection Range (oil)	Output
Remote Insertion Probe, Stainless Steel Housing 	FCS-N1/2A4-NA	M6871309	1-150 cm/sec.	3-300 cm/sec.	Remote Amplifier
Remote Insertion Probe, Stainless Steel Housing 	FCS-N1/2A4-NA-H1141	M6871303	1-150 cm/sec.	3-300 cm/sec.	Remote Amplifier
Remote Insertion Probe, Stainless Steel Housing 	FCS-N3/4A4-NA-H1141	M6871304	1-150 cm/sec.	3-300 cm/sec.	Remote Amplifier

Additional specifications on pages M46.
 Accessories on page M75 - M76.
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Material

Housing	316 Ti Stainless Steel
Cable Connector	303 Stainless Steel
Wetted Parts	316 Ti Stainless Steel

Voltage	Switching Current /Analog Load	Pressure Rating (psi)	Fluid Connection	Operating Temp. (°C) (ambient)	Operating Temp. (°C) (fluid)	Protection	Mating Cord, Cable Length/Jacket	Wiring Diagram #	Wiring Diagrams
Remote Amplifier	Remote Amplifier	1450	1/2 NPT	-25 to +80	-25 to +80	IP 67	2M/PVC	1	Diagram 1  Diagram 2 
Remote Amplifier	Remote Amplifier	1450	1/2 NPT	-25 to +80	-25 to +80	IP 67	RK 4.4T-*	2	
Remote Amplifier	Remote Amplifier	1450	3/4 NPT	-25 to +80	-25 to +80	IP 67	RK 4.4T-*	2	

* Length in meters.

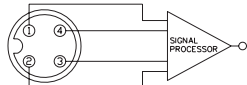
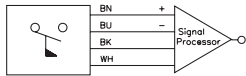


Housing Style	Part Number	ID Number	Flow Detection Range (water)	Flow Detection Range (oil)	Output
Remote Insertion Probe, Intrinsically Safe, Stainless Steel Housing 	FCS-N1/2A4-NAEX-H1141	M6871322	1-100 cm/min.	3-200 cm/min.	Remote Amplifier
Remote Insertion Probe, Intrinsically Safe, Stainless Steel Housing 	FCS-N1/2A4-NAEX	M6871423	1-100 cm/min.	3-200 cm/min.	Remote Amplifier
Remote Insertion Probe, Intrinsically Safe, Stainless Steel Housing 	FCS-G1/4A4-NAEX	M6870315	1-100 cm/min.	3-200 cm/min.	Remote Amplifier
Remote Insertion Probe, Intrinsically Safe, Stainless Steel Housing 	FCS-GL1/2A4-NAEX/D500	M6870431	1-100 cm/min.	3-200 cm/min.	Remote Amplifier

Additional specifications on pages M46.
Accessories on page M75 - M76.
Technical data on pages M77 - M79.

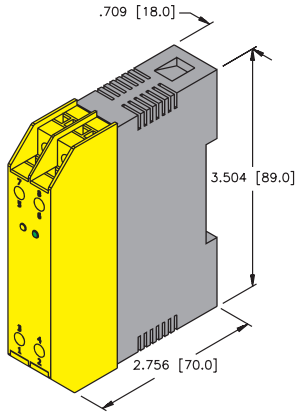
Material

Housing	316 Ti Stainless Steel
Cable Connector	303 Stainless Steel
Wetted Parts	316 Ti Stainless Steel

Voltage	Switching Current /Analog Load	Pressure Rating (psi)	Fluid Connection	Operating Temp. (°C) (ambient)	Operating Temp. (°C) (fluid)	Protection	Mating Cord, Cable Length/Jacket	Wiring Diagram #	Wiring Diagrams
Remote Amplifier	Remote Amplifier	1450	1/2 NPT	-25 to +85	-25 to +85	IP 67	RK 4.41T-*	1	Diagram 1  Diagram 2 
Remote Amplifier	Remote Amplifier	1450	1/2 NPT	-25 to +85	-25 to +85	IP 68	2M/PUR	2	
Remote Amplifier	Remote Amplifier	1450	G 1/4	-25 to +85	-25 to +85	IP 68	2M/PUR	2	
Remote Amplifier	Remote Amplifier	7250	GL 1/2	-25 to +85	-25 to +85	IP 68	2M/PUR	2	

* Length in meters.



Housing Style	Part Number	ID Number	Features	Output
Remote Amplifiers 	MK96-11-R/24VDC	M7525090	<i>N.O. Relay Outputs</i>	Relay N.O.
	MK96-VP01	M7525002	<i>Complimentary PNP Outputs Short-Circuit and Reverse Polarity Protection Dual Potentiometer</i>	Complimentary PNP
	MK96-VN01	M7525003	<i>Complimentary NPN Outputs Short-Circuit and Reverse Polarity Protection Dual Potentiometer</i>	Complimentary NPN
	MK96-LI01	M7525004	<i>Non-Linear 4-20 mA Dual Potentiometer</i>	4-20 mA Non-linear

Material

Housing

PC/ABS

Voltage	Mounting	Current Consumption	Protection	Switching Current / Analog Load	Wiring Diagram #	Wiring Diagrams
19.2-28.8 VDC	DIN 50022 or 50035	≤70 mA	IP 20	2 A at 60 VDC	1	Diagram 1
19.2-28.8 VDC	DIN 50022 or 50035	≤65 mA	IP 20	400 mA	2	Diagram 2
19.2-28.8 VDC	DIN 50022 or 50035	≤65 mA	IP 20	400 mA	3	Diagram 3
19.2-28.8 VDC	DIN 50022 or 50035	≤100 mA	IP 20	≤500 Ω	4	Diagram 4

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Process Automation – Instrumentation



Housing Style	Part Number	ID Number	Features	Output
Signal Processors 	MS96-11Ex-R/115VAC	M5231202	<i>Intrinsically Safe Zone 1 [EExib] 11C Wire-break Dual Potentiometer Off Delay</i>	Relay N.O./N.C.
	MS96-11Ex-R/24VDC	M5231207	<i>Intrinsically Safe Zone 1 [EExib] 11C Wire-break Dual Potentiometer Off Delay</i>	Relay N.O./N.C.
Signal Processors 	MS96-12R/115VAC	M5231000	<i>Flow and Temp. Control Wire-break Dual Potentiometer Off Delay</i>	Dual Relay N.O./N.C.
	MS96-12R/24VDC	M5231007	<i>Flow and Temp. Control Wire-break Dual Potentiometer Off Delay</i>	Dual Relay N.O./N.C.

Material

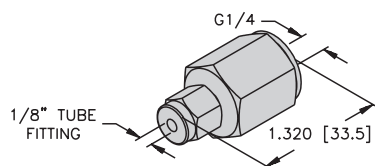
Housing

PC/ABS

Voltage	Mounting	Current Consumption	Protection	Switching Current	Wiring Diagram #	Wiring Diagrams
103.5-126.5 VAC	DIN 50022	≤75 mA	IP 20	≤4 A at 250 VAC	1	Diagram 1 Diagram 2
21.6-26.4 VDC	DIN 50022	≤125 mA	IP 20	≤4 A at 250 VAC	1	
103.5-126.5 VAC	DIN 50022	≤90 mA	IP 20	≤2 A at 60 VDC	2	
21.6-26.4 VDC	DIN 50022	≤120 mA	IP 20	≤2 A at 60 VDC	2	

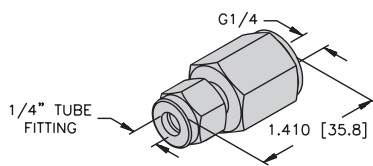
Flow Accessories

**Adapter G1/4 to 1/8 in. Tubing
(316 Stainless Steel)**



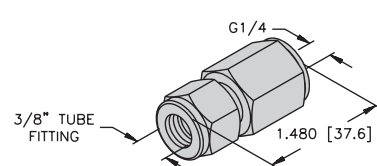
**FSV-SS-1/8X1/4
(A2535)**

**Adapter G1/4 to 1/4 in. Tubing
(316 Stainless Steel)**



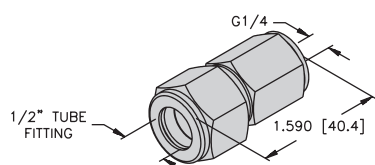
**FSV-SS-1/4X1/4
(A2534)**

**Adapter G 1/4 to 3/8 in. Tubing
(316 Stainless Steel)**



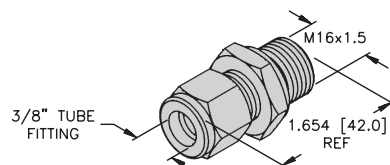
**FSV-SS-3/8X1/4
(A2533)**

**Adapter G1/4 to 1/2 in. Tubing
(316 Stainless Steel)**



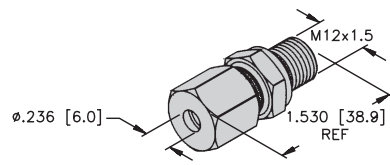
**FSV-SS-1/2X1/4
(A2536)**

**Adapter M16 to 3/8 in. Tubing
(316 Stainless Steel)**



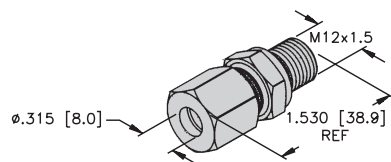
**FSV-D3/8-M16
(M6873005)**

**Adapter M12 to 6 mm Tubing
(316 Stainless Steel)**



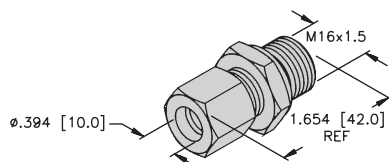
**FSV-D06/M12
(M6873002)**

**Adapter M12 to 8 mm Tubing
(316 Stainless Steel)**



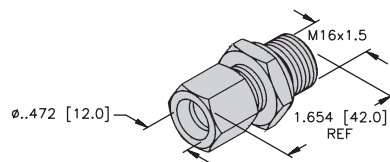
**FSV-D08/M12
(M6873004)**

**Adapter M16 to 10 mm Tubing
(316 Stainless Steel)**



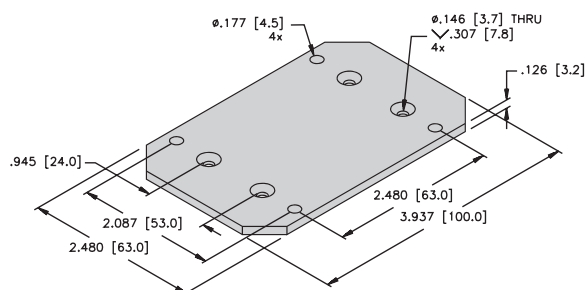
**FSV-D10/M16
(M6873001)**

**Adapter M16 to 12 mm Tubing
(316 Stainless Steel)**

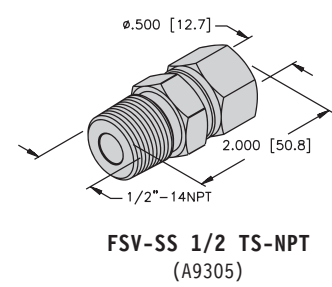
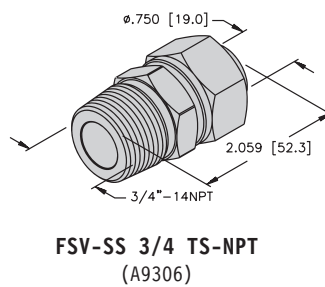
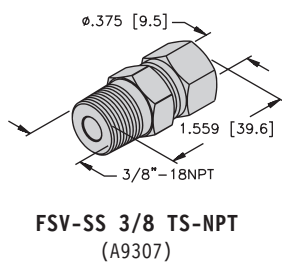
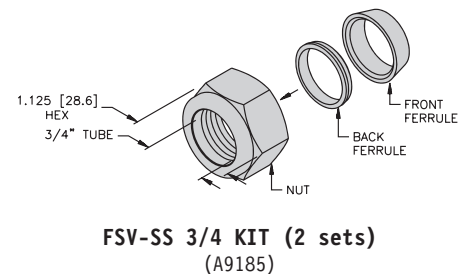
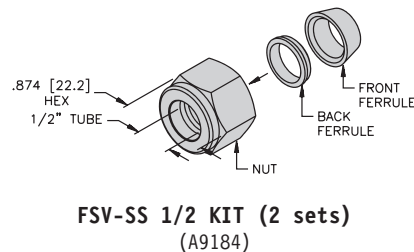
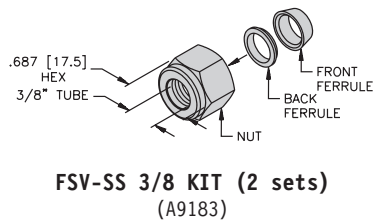
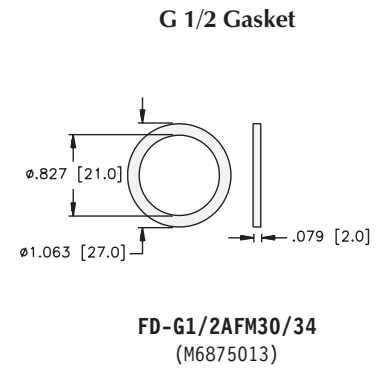
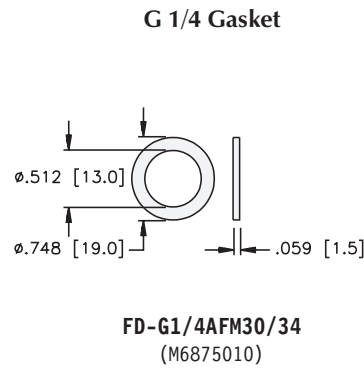
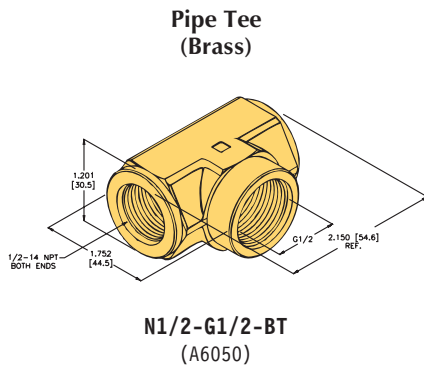
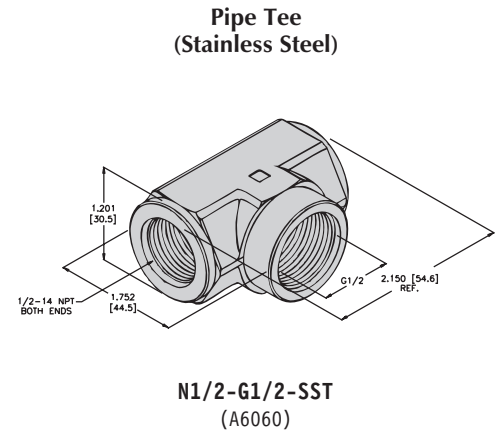
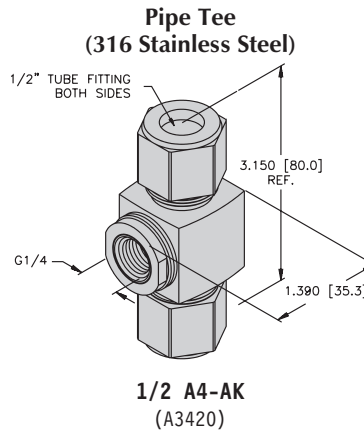
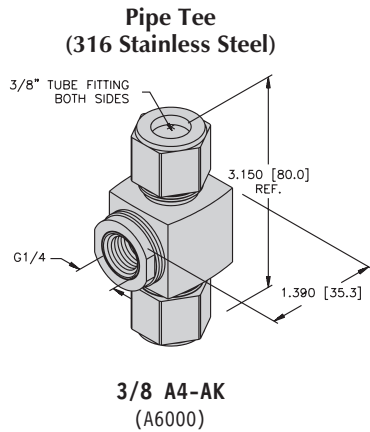


**FSV-D12/M16
(M6873003)**

Mounting Bracket

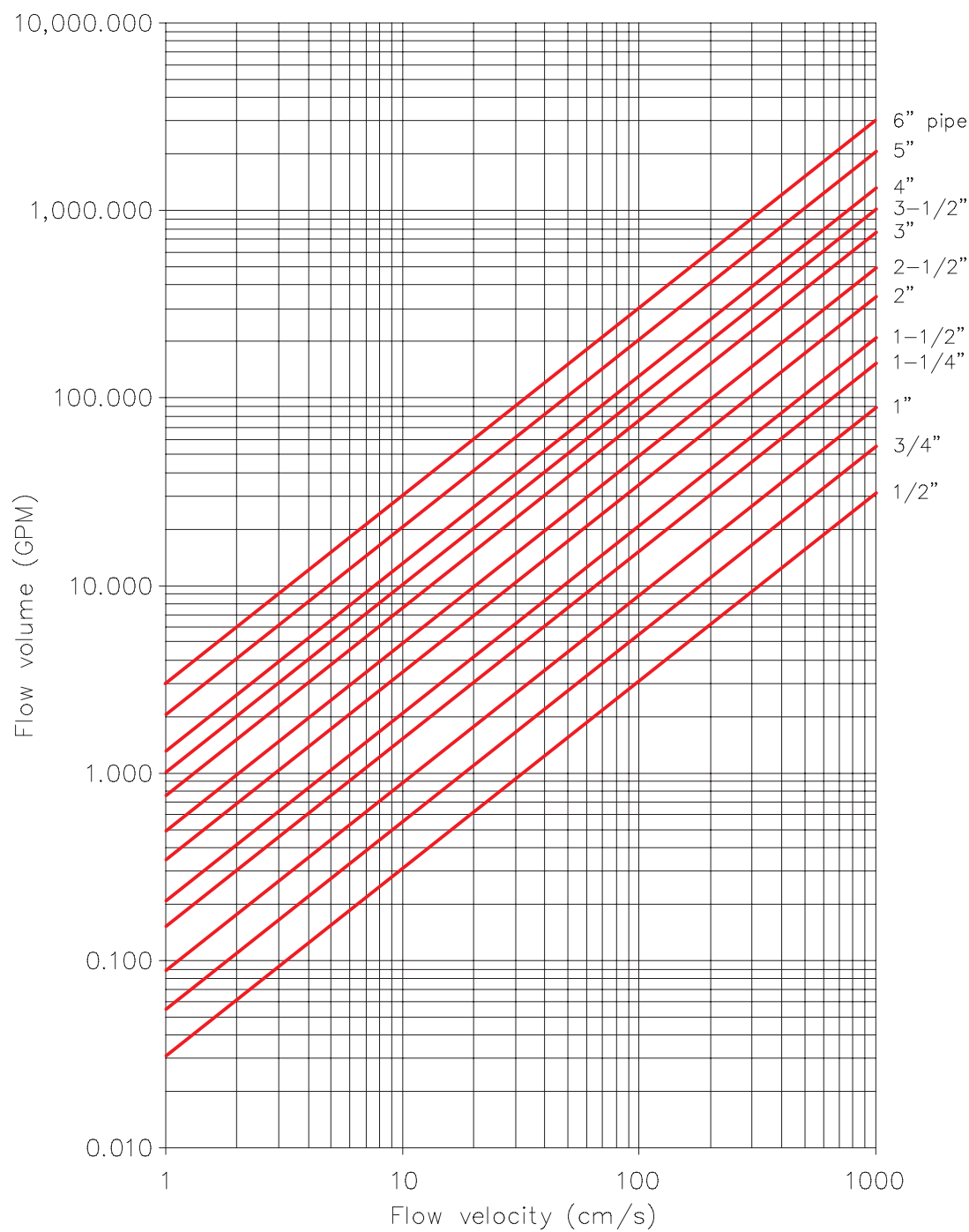


**FCI-BP
(A9181)**



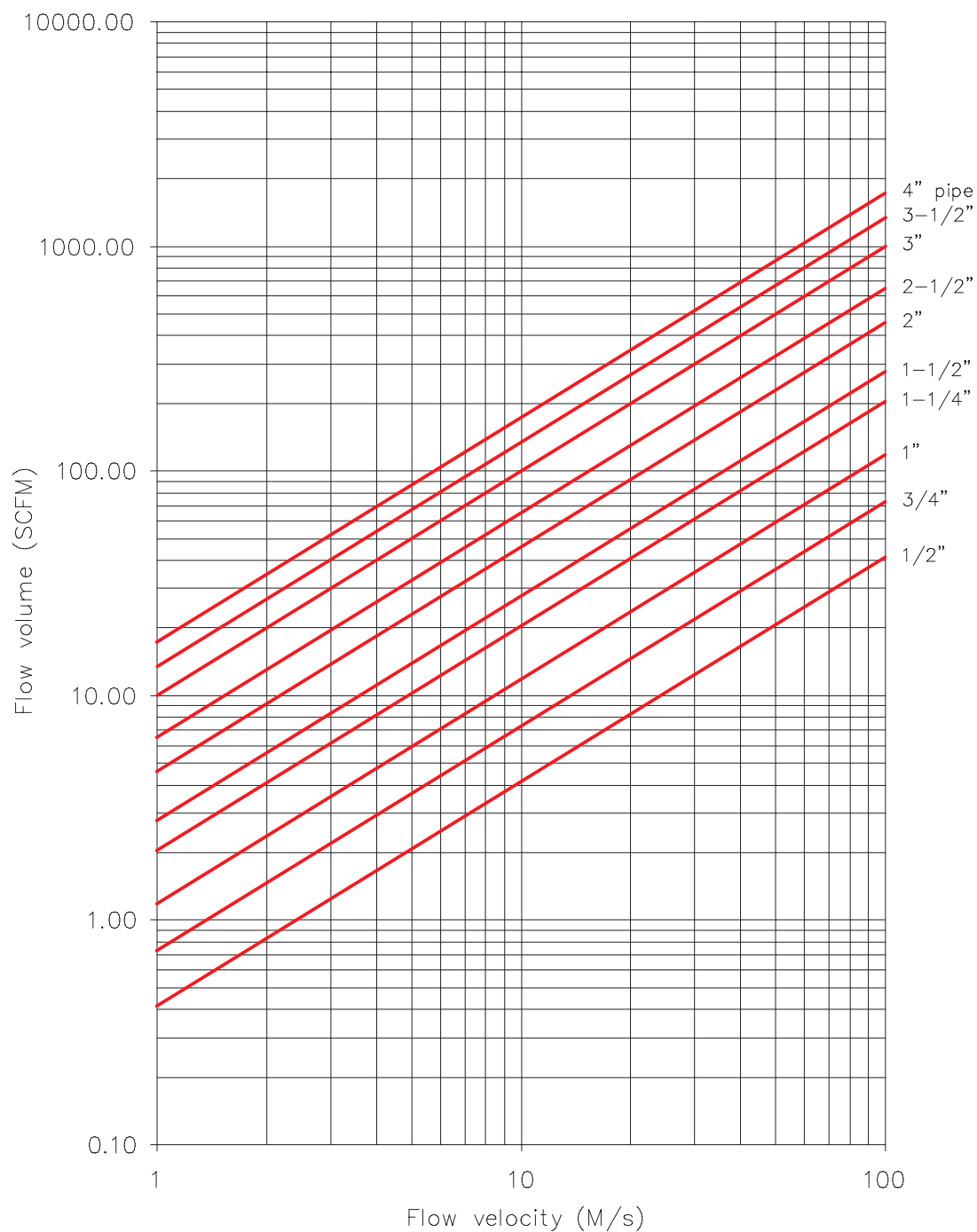
Liquid Flow Conversion Chart (Water)

Flow velocity to flow volume for schedule 40 pipes of various sizes.

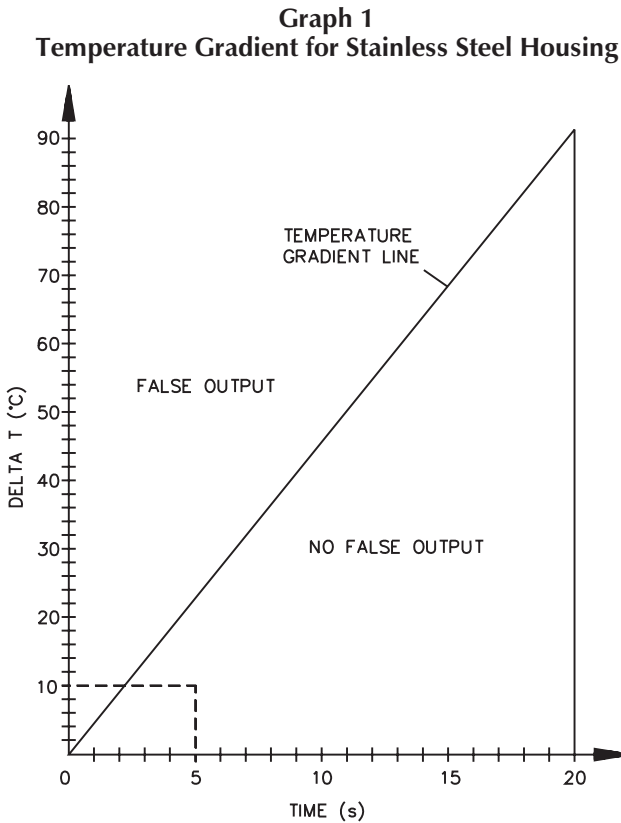


Gas Flow Conversion Chart

Flow velocity to flow volume for schedule 40 pipes of various sizes.



Response Time



Graph 1 can be used to determine if the **TURCK** flow monitor can compensate for a temperature change to a sensed medium. The dotted line in the graph indicates that a 10°C change has occurred in a time period of 5 seconds. Points (5,10) intersect in the “No False Output” region of the graph. This example illustrates an acceptable degree of temperature change in the application. As a result, the flow monitor can compensate for the fluid temperature change.

$$\text{Fahrenheit} = (1.8 \times ^\circ\text{C}) + 32$$

Flow Conversions

The calorimetric principle is dependent on the fluid speed, and not the volumetric flow rate. On the following pages are conversion charts from flow speed to volumetric flow rate.

$$\text{SCFM} = 1.0737 \times \text{ID}^2 \times \text{FSM}$$

$$\text{GPM} = 0.0803 \times \text{ID}^2 \times \text{FS}$$

$$\text{FT/S} = 0.0328 \times \text{FS}$$

$$\text{FT/S} = 3.2808 \times \text{FSM}$$

GPM: Gallons per minute

FT/S: Feet per second

ID: Inner Diameter of pipe in inches

FS: Flow Speed of fluid in cm/s

FSM: Flow Speed of fluid in m/s



Notes:

Temperature Sensors Selection Guide



Type	TS400/TS500 Temp Sensors	Temperature Probes	Thermowells	Compression Fittings
Pages	M87 - M88	M91 - M92	M94 - M95	M96



Type	TS400/TS500 Accessories	Self Contained Temperature Monitors
Pages	M97 - M98	M101 - M102

Precise, Reliable Temperature Sensors for Process Automation

Accurately determining temperature is one of the most important tasks in processing and manufacturing industries. Precision, reliability and interface flexibility are just some of the characteristics that make a great temperature sensor. **TURCK's** new TS400 and TS500 temperature sensor series provide all these traits and more, and adhere to the high standards consistent with all **TURCK** products.

TS400 and TS500 temperature sensors incorporate design elements that equate to real advantages in your applications. The TS400 and TS500 sensor series are platinum resistance temperature detectors (RTDs), commonly referred to as a Pt-100. Pt-100's are known to be highly precise, repeatable, and provide extremely short response times.

Pt-100's contain a platinum wire that is wrapped around a core or patterned as a thin film on a substrate so that it experiences minimal differential expansion or other strains. As the temperature changes, the controller measures the change in the electrical resistance of the platinum wire. Specifically, the hotter the wire becomes, the higher the value of electrical resistance. Pt-100 RTDs have a nominal resistance of 100 ohms at 0°C with an accuracy of 0.4°C at 50°C. The sensor's operating range varies from -50 to 500°C (-58 to 932°F).



Quality

TS400 and TS500 sensors were designed to handle harsh manufacturing environments.

- High immunity to electromagnetic interference
- Reliable and accurate
- Compact design
- Robust stainless steel housing
- IP 67 environmental protection to increase operational durability

User-Friendly

TS400 and TS500 sensors were designed with the user in mind.

- Simple push-button programming
- Recessed button stores selected values and helps prevent unintentional operational errors
- The entire display can be inverted electronically
- The TS500 version can be rotated 320 degrees
- Does not require regular maintenance calibration
- M12 **euromast**® connection promotes easy integration in existing applications



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Flexible

TS400 and TS500 use state of the art technology to bring you a sensor that facilitates operational efficiency.

- Remote or direct mountable
- Compact, robust housing
- 4-pin M12 **eurofast**® connection
- Compatible with 4-wire probes
- Displays output in °C, °F, K and ohms



Benefits

TS400 and TS500 temperature sensors allow you to realize immediate benefits in your application.

- May be implemented in nearly all factory or process automation applications
- Housing design permits sensors to be mounted directly next to each other or in restrictive places
- Large, bright LED display
- Versions with multiple outputs available; all are easy to program and use

How to Order TS400 and TS500 Sensors and Accessories

1. Determine your desired output and select the TS model that meets your needs.
2. Select the appropriate probe for your application.
 - a) Questions? Call 1-800-554-7769.
3. Choose remote or direct mounting.
 - a) For direct mounting with TP 203 and TP 206, order the stabilizer (STA-3 or STA-6).
 - b) For remote mounting, order a mating cordset (RK 4.4T-*-RS 4.4T).
4. Select a process connection.
 - a) For thermowells, order one length shorter than the length of probe you selected in step 2.
 - b) If no thermowell is selected, a compression fitting is needed for mounting the probe. (Note: The TP 104A does not require a process connection.)

* Length in meters.

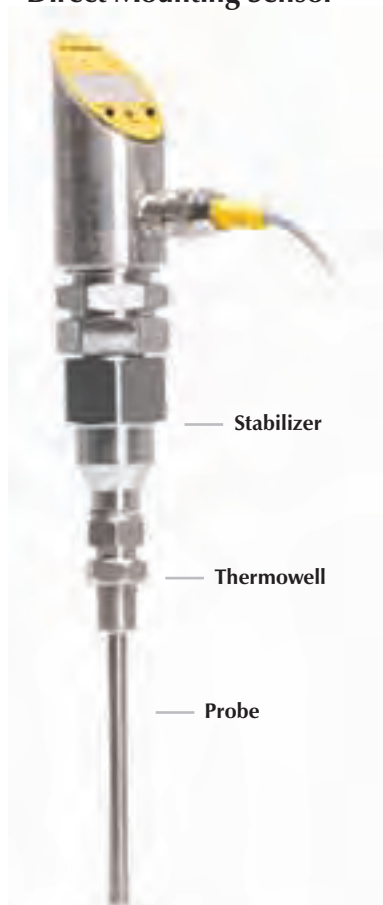


Direct Mounting



Remote Mounting

Direct Mounting Sensor



Remote Mounting Sensor



Accessories



Stabilizer
(use with TP 203A .. & TP 206A ..)



Remote Cordset
(RK 4.4T-* -RS 4.4T)

Probe Options



TP 104A ..



TP 306A ..



**TP 203A ..
or TP 206A ..**

Process Connection Options



**Compression Fitting
(CF)**



**Thermowell
THW ... TRI**

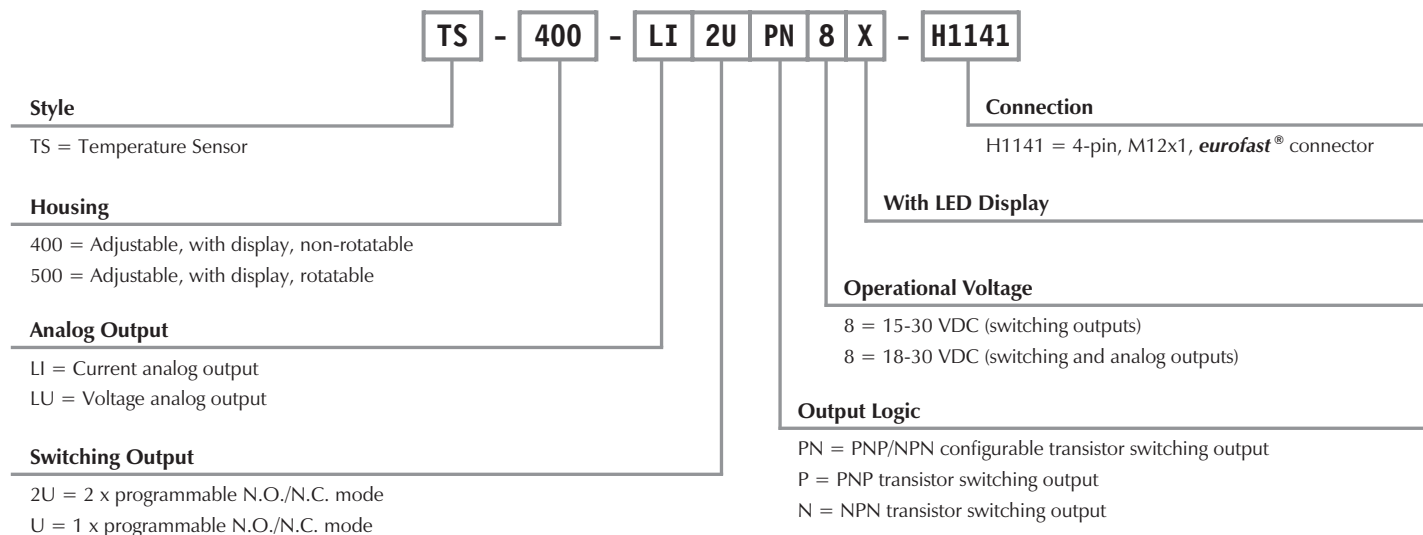


**Thermowell
THW ... N**

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TS400/TS500 Temperature Sensor Part Number Key



Operating Voltage	15-30 VDC (switching outputs) 18-30 VDC (switching and analog output)
No-Load Current	≤50 mA
SELV. PELV	According to EN 50178
Short-Circuit Protection	Yes
Reverse Polarity Protection	Yes
Insulation Class	III
Switching Output	
Switching Frequency	≤180 Hz
Output Function	2 x PNP or NPN, N.C./N.O. programmable
Voltage Drop at I_e	≤2 V
Rated Operational Current	0.2 A
Switching Point Distance	0.2 K -49.8° to +500°C (-58° to +932°F)
Reset Points	-50° to +499.8°C (-58° to +932°F)
Analog Current Output	
Current Output	4-20 mA, 0-20 mA, 20-4 mA, 20-0 mA programmable
Response Time	<100 ms
Load	≥0.5 kΩ
Analog Voltage Output	
Voltage Output	0-10 V, 0-5 V, 1-6 V, 10-0 V, 5-0 V, 6-1 V programmable
Response Time	<100 ms
Load	≥2 kΩ
Temperature Sensor Accuracy	
Switching Output	
Switching Point Accuracy	≤ ± 0.2 K
Repetition Accuracy	≤ ± 0.1 K
Analog Output Accuracy (Lin.+Hys.+Rep.)	≤ ± 0.2 K
Temperature Sensor Housing	
Housing Material	Stainless steel/plastic 1.4404 (AISI 316L)/PC
Electrical Connection	Connector M12x1 (eurofast ®), 4-pin with integrated high-speed connection technology.
Sensor Connection	Connector M12x1 (eurofast), 4-pin
Coupling Nut Size (with tightening torque)	SW 30 (max. 35 Nm)
Display	
Temperature Display	4-digit 7-segment display can be rotated by 180° and switched off
Switch State Display	2 x LED yellow
Measured Value/Programming	Switch/release points; hysteresis/window mode; N.O./N.C.; unit of display; peak value memory
Display of Temperature Unit	4 x LED green (°C, °F, K, Ω)
EMC	
EN 61000-4-2	ESD 4 kV CD / 8 kV AD
EN 61000-4-3	HF radiated: 15 V/m ²
EN 61000-4-4	Burst 2 kV
EN 61000-4-5	Surge 1 kV, 42 Ω
EN 61000-4-6	HF conducted: 10 V
Ambient Conditions	
Medium Temperature	Directly connected -50° to 150°C (otherwise see temperature probes)
Ambient Temperature	-40° to +80°C (-40° to +176°F)
Storage Temperature	-40° to +80°C (-40° to +176°F)
Degree of Protection	IP 67
Vibration Resistance	20 g (10-2000 Hz) according to IEC 68-2-6

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Process Automation – Instrumentation



Housing	Part Number	ID Number	Temperature Range – Remote	Temperature Range – Direct	Output
Temperature Sensor for 4-wire PT100 	TS-400-2UP8X-H1141	M6840001	-50° to 500°C (-58° to 932°F)	-50° to 150°C (-58° to 302°F)	Dual PNP N.O./N.C.
	TS-400-LIUP8X-H1141	M6840002			Dual NPN N.O./N.C.
	TS-400-LUUP8X-H1141	M6840003			1 PNP N.O./N.C. and Programmable Current
	TS-400-2UN8X-H1141	M6840004			1 NPN N.O./N.C. and Programmable Current
	TS-400-LIUN8X-H1141	M6840005			1 PNP N.O./N.C. and Programmable Voltage
	TS-400-LUUN8X-H1141	M6840006			1 NPN N.O./N.C. and Programmable Voltage
	TS-400-LI2UPN8X-H1141	M6840007			1 PNP/NPN N.O./N.C. and Programmable Current or 1 PNP/NPN N.O./N.C.
Temperature Sensor for 4-wire PT100, 320° Rotatable Housing 	TS-500-2UP8X-H1141	M6840009	-50° to 500°C (-58° to 932°F)	-50° to 150°C (-58° to 302°F)	Dual PNP N.O./N.C.
	TS-500-LIUP8X-H1141	M6840010			Dual NPN N.O./N.C.
	TS-500-LUUP8X-H1141	M6840011			1 PNP N.O./N.C. and Programmable Current
	TS-500-2UN8X-H1141	M6840012			1 NPN N.O./N.C. and Programmable Current
	TS-500-LIUN8X-H1141	M6840013			1 PNP N.O./N.C. and Programmable Voltage
	TS-500-LUUN8X-H1141	M6840014			1 NPN N.O./N.C. and Programmable Voltage
	TS-500-LI2UPN8X-H1141	M6840015			1 PNP/NPN N.O./N.C. and Programmable Current or 1 PNP/NPN N.O./N.C.

For remote probes use cordset RK 4.4T-*-RS 4.4T. * Length in meters.
See page M98 for additional cordset information.

Voltage	Switching Current (mA)	Analog Load	Mating Cordset	Wiring Diagram #	Wiring Diagrams
15-30 VDC	≤200	N/A	RK 4.4T-*	1	Diagram 1 Diagram 2 Diagram 3 Diagram 4
15-30 VDC	≤200	N/A	RK 4.4T-*	1	
18-30 VDC	≤200	≤500 Ω	RK 4.4T-*	2	
18-30 VDC	≤200	≤500 Ω	RK 4.4T-*	2	
18-30 VDC	≤200	≤500 Ω	RK 4.4T-*	3	
18-30 VDC	≤200	≤500 Ω	RK 4.4T-*	3	
18-30 VDC	≤200	≤500 Ω	RK 4.4T-*	4	
15-30 VDC	≤200	N/A	RK 4.4T-*	1	
15-30 VDC	≤200	N/A	RK 4.4T-*	1	
18-30 VDC	≤200	≤500 Ω	RK 4.4T-	2	
18-30 VDC	≤200	≤500 Ω	RK 4.4T-*	2	
18-30 VDC	≤200	≤500 Ω	RK 4.4T-*	3	
18-30 VDC	≤200	≤500 Ω	RK 4.4T-*	3	
18-30 VDC	≤200	≤500 Ω	RK 4.4T-*	4	

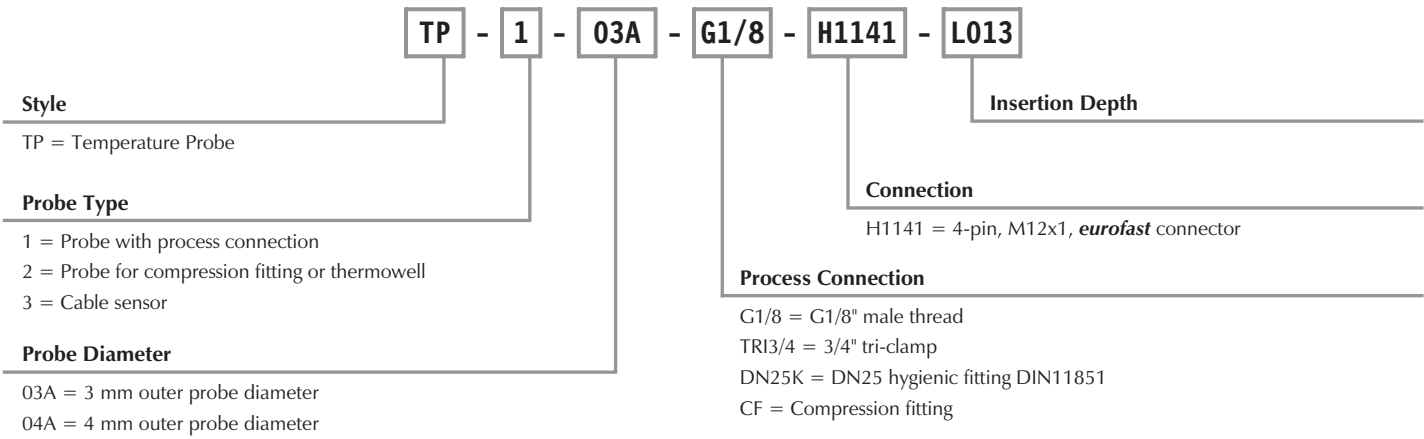
* Length in meters.

Simple Mounting

After the sensor is mounted, the actual processor unit is attached and fixed using a coupling nut. The sensor can still be rotated and aligned in all directions. TS500 shown.



Temperature Probes Part Number Key



Temperature Probes Technical Data

Probe (TP-104A ..)	
Temperature Operating Range	-50° to 120°C (-58° to +248°F)
Ambient Temperature	-20° to 90°C (-4° to +194°F)
Measuring Element	Pt100, DIN EN 60751, Class A
Response Time	t _{0.5} = 3 s; t _{0.9} = 10 s in water at 0.2 m/s
Output Function	4-wire
Reverse Polarity Protection	Yes
Degree of Protection	IP 67
Housing Material	Plastic/Stainless steel
Housing Quality	1.4404 (AISI 316L)
Sensor Material	Stainless steel
Sensor Quality	1.4404 (AISI 316L)
Pressure Rating (psi)	580.15
Connection	Connector, M12x1 (<i>eurofast</i> ®)
Mechanical Connection	Tri-Clamp 3/4"; DN25 hygienic fitting according to DIN 11851

Temperature Probes Technical Data

Probe (TP-203 .. / TP-206 ..)

Temperature Operating Range	-30° to +500°C (-22° to 932°F) ≤350°C accuracy class A (662°F) ≥350°C accuracy class B (662°F)
Ambient Temperature	-20° to 90°C (-4° to +194°F)
Measuring Element	Pt100, DIN EN 60751, Class A
Response Time	203: $t_{0.5} = 1.5$ s; $t_{0.9} = 6$ s 206: $t_{0.5} = 6$ s; $t_{0.9} = 15$ s 306: $t_{0.5} = 8$ s; $t_{0.9} = 20$ s
Output Function	4-wire
Reverse Polarity Protection	Yes
Degree of Protection	IP 67
Housing Material	Stainless steel/plastic
Housing Quality	1.4404 (AISI 316L) mineral insulated
Sensor Material	Stainless steel
Sensor Quality	1.4404 (AISI 316L)
Pressure Rating (psi)	1450.38
Connection	Connector, M12x1 (eurofast ®)
Mechanical Connection	For compression fittings or thermowells

Probe (TP-306A ..)

Temperature Operating Range	-50° to +105°C (-58° to +221°F)
Ambient Temperature	-20° to +90°C (-4° to +194°F)
Measuring Element	Pt100, DIN EN 60751, Class A
Response Time	$t_{0.5} = 8$ s; $t_{0.9} = 20$ s in water at 0.2 m/s
Output Function	4-wire
Reverse Polarity Protection	Yes
Degree of Protection	IP 67
Housing Material	Plastic/Stainless steel
Housing Quality	TPE (thermoplastic elastomer)
Sensor Material	Stainless steel
Sensor Quality	1.4404 (AISI 316L)
Pressure Rating (psi)	217.56
Connection	Connector, M12x1 (eurofast)
Mechanical Connection	For compression fittings or thermowells or for direct mounting



Temperature Probes

Housing Style	Part Number	ID Number	Temperature Range	Length (mm)
Pt100 Temperature Probe, 3/4" Tri-Clamp, Ø8 mm 	TP-104A-TRI3/4-H1141-L035	M9910429	-50° to +120°C (-58° to +248°F)	35
	TP-104A-TRI3/4-H1141-L100	M9910430		100
Pt100 Temperature Probe, Ø3 m 	TP-203A-CF-H1141-L100	M9910402	-30° to +350°C (-22° to +662°F)	100
	TP-203A-CF-H1141-L150	M9910403		150
	TP-203A-CF-H1141-L200	M9910482		200
	TP-203A-CF-H1141-L250	M9910404		250
	TP-203A-CF-H1141-L300	M9910474		300
Pt100 Temperature Probe, Ø6 mm 	TP-206A-CF-H1141-L100	M9910475		100
	TP-206A-CF-H1141-L150	M9910476		150
	TP-206A-CF-H1141-L200	M9910477		200
	TP-206A-CF-H1141-L300	M9910478		300

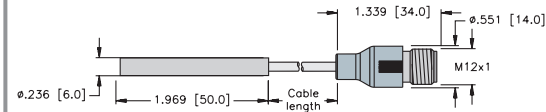
For technical data see page M89 - M90.

Mating cordset for remote connections; RK 4.4T-*-RS 4.4T. * Length in meters.

See page M97 for additional cordset information.



Temperature Probes

Housing Style	Part Number	ID Number	Temperature Range	Length (m)
Pt100 Cable Probe, 4-Pin M12x1 eurofast®, Ø8 mm 	TP-306A-CF-H1141-L1000	M9910479	-50° to 105°C (-58° to 221°F)	1
	TP-306A-CF-H1141-L2000	M9910480		2
	TP-306A-CF-H1141-L5000	M9910481		5

For technical data see page M90.

Rotatable Display

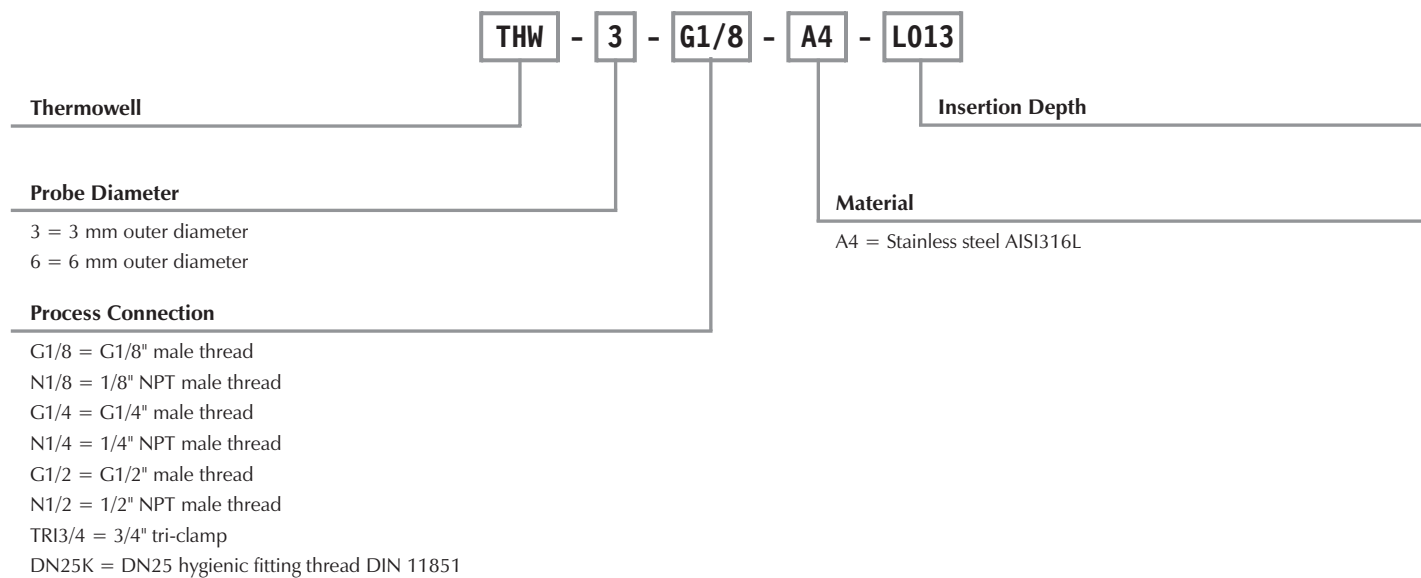
TS400 and TS500 sensors may also be installed horizontally. The display may be electronically inverted 180 degrees by software incorporated within the sensor.



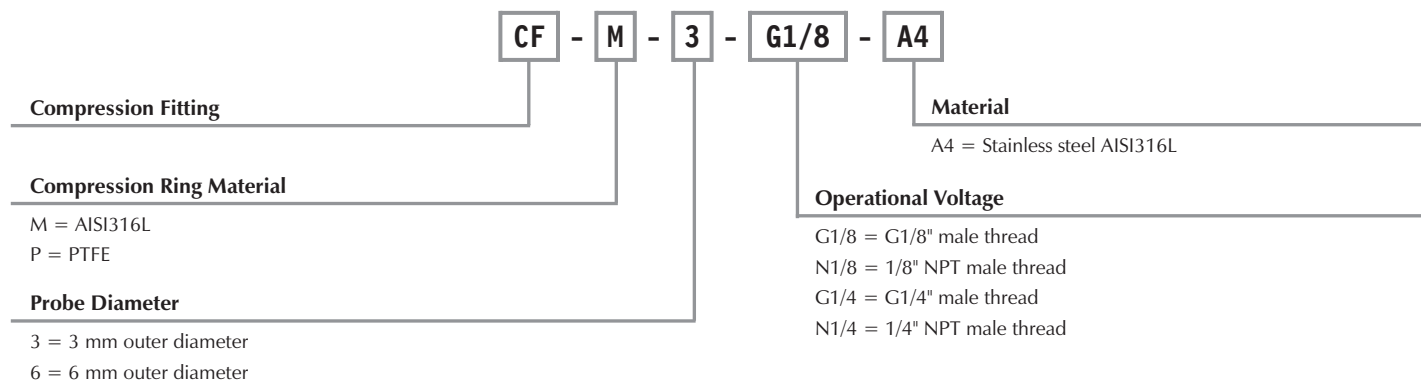
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Thermowell Part Number Key



Compression Fittings Part Number Key





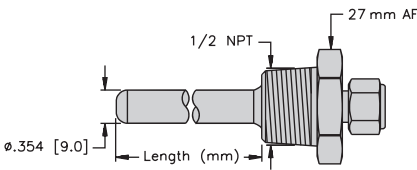
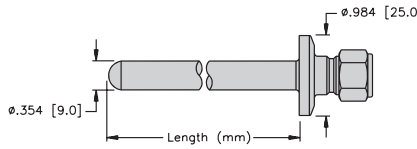
Thermowells

Housing Style	Part Number	ID Number	Process Connection	Length (mm)	Compatible Probe	Pressure Rating (psi)
Thermowell, 1/2" Male NPT 	THW-3-N1/2-A4-L050	M9910447	1/2" NPT	50	3 mm	5800
	THW-3-N1/2-A4-L100	M9910448	1/2" NPT	100	3 mm	5800
	THW-3-N1/2-A4-L150	M9910449	1/2" NPT	150	3 mm	5800
	THW-3-N1/2-A4-L250	M9910450	1/2" NPT	250	3 mm	5800
Thermowell, 1/4" Male NPT 	THW-3-N1/4-A4-L050	M9910416	1/4" NPT	50	3 mm	5800
	THW-3-N1/4-A4-L100	M9910420	1/4" NPT	100	3 mm	5800
	THW-3-N1/4-A4-L150	M9910424	1/4" NPT	150	3 mm	5800
	THW-3-N1/4-A4-L200	M9910428	1/4" NPT	200	3 mm	5800
Thermowell, 1/8" Male NPT 	THW-3-N1/8-A4-L050	M9910414	1/8" NPT	50	3 mm	5800
	THW-3-N1/8-A4-L100	M9910418	1/8" NPT	100	3 mm	5800
	THW-3-N1/8-A4-L150	M9910422	1/8" NPT	150	3 mm	5800
	THW-3-N1/8-A4-L200	M9910426	1/8" NPT	200	3 mm	5800
Thermowell, 3/4" Tri-Clamp 	THW-3-TRI3/4-A4-L035	M9910433	3/4" Tri-Clamp	35	3 mm	5800
	THW-3-TRI3/4-A4-L050	M9910451	3/4" Tri-Clamp	50	3 mm	580
	THW-3-TRI3/4-A4-L100	M9910452	3/4" Tri-Clamp	100	3 mm	580
	THW-3-TRI3/4-A4-L150	M9910453	3/4" Tri-Clamp	150	3 mm	580
	THW-3-TRI3/4-A4-L250	M9910454	3/4" Tri-Clamp	250	3 mm	580

Note: Material is AISI 316L/1.4404



Thermowells

Housing Style	Part Number	ID Number	Process Connection	Length (mm)	Compatible Probe	Pressure Rating (psi)
Thermowell, 1/2" Male NPT 	THW-6-N1/2-A4-L050	M9910463	1/2" NPT	50	6 mm	5800
	THW-6-N1/2-A4-L100	M9910464	1/2" NPT	100	6 mm	5800
	THW-6-N1/2-A4-L150	M9910465	1/2" NPT	150	6 mm	5800
	THW-6-N1/2-A4-L250	M9910466	1/2" NPT	250	6 mm	5800
Thermowell, 3/4" Tri-Clamp 	THW-6-TRI3/4-A4-L050	M9910467	3/4" Tri-Clamp	50	6 mm	5800
	THW-6-TRI3/4-A4-L100	M9910468	3/4" Tri-Clamp	100	6 mm	580
	THW-6-TRI3/4-A4-L150	M9910469	3/4" Tri-Clamp	150	6 mm	580
	THW-6-TRI3/4-A4-L250	M9910470	3/4" Tri-Clamp	200	6 mm	580

Note: Material is AISI 316L/1.4404



Compression Fittings

Housing Style	Part Number	ID Number	Compatible Probe Diameter	Compression Fitting	Temperature Range	Pressure Rating (psi)
Compression Fitting, 1/4" Male NPT 	CF-M-3-N1/4-A4	M9910408	Ø3 mm	Metal	350°C (662°F)	580
	CF-P-3-N1/4-A4	M9910412	Ø3 mm	PTFE	100°C (212°F)	87
Compression Fitting, 1/8" Male NPT 	CF-M-3-N1/8-A4	M9910406	Ø3 mm	Metal	350°C (662°F)	580
	CF-P-3-N1/8-A4	M9910410	Ø3 mm	PTFE	100°C (212°F)	87
Compression Fitting, 1/4" Male NPT 	CF-M-6-N1/4-A4	M9910484	Ø3 mm	Metal	350°C (662°F)	580
	CF-P-6-N1/4-A4	M9910486	Ø6 mm	PTFE	100°C (212°F)	87
Compression Fitting, 1/2" Male NPT 	CF-M-6-N1/2-A4	A0950	Ø6 mm	Metal	350°C (662°F)	580

Note: Material is AISI 316L/1.4404

Mounts in Compact Spaces

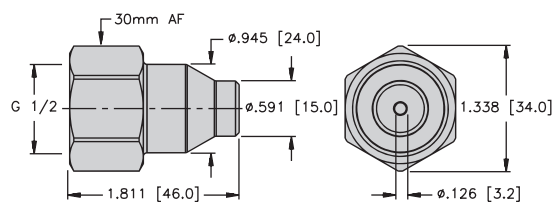
With a housing diameter of 34 mm, multiple temperature sensors can fit in tight spaces.





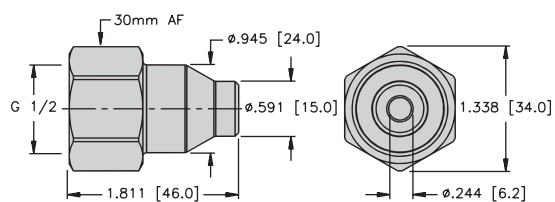
Stabilizer Accessories for Direct Mounting

Stabilizer for 3 mm Temperature Probe



STA-3
(M6835024)

Stabilizer for 6 mm Temperature Probe



STA-6
(M6830523)

4-Wire *eurofast*[®] Cordsets, Standard Plug Body

- Straight Male and Female Connectors
- NEMA 1, 3, 4, 6P and IEC IP 68 Protection
- 250 VAC/300 VDC, 4 A



Housing Style	Part Number	Cable	Features	Pinout
RK ..** 	RK 4.4T-*	AWM PVC Grey 4x22 AWG 105°C 5.2 mm OD Cable #RF50516-*M	<i>flexlife</i> [®]	1. BN 2. WH 3. BU 4. BK
RS ..** 	RK 4.4T-* - RS 4.4T			
				Female Male

* Length in meters. Standard cable lengths are 2, 4, 6, 8 and 10 meters. Consult factory for other lengths.

** Standard coupling nut material is nickel plated brass "RK .."; "RKK .." indicates nylon and "RKV .." indicates 316 stainless steel.

Extension Example:

RK

4.4T

-

2

-

RS

4.4T



RK .. - RS ..

Self-Contained Temperature Monitors

The **TURCK** temperature monitor with digital readout is a fully programmable device that is easy to set up for a wide variety of applications. The self-contained temperature-monitoring device has two independently adjustable switching points or a single switch point with a separate analog output. The monitor can be used for limit-value monitoring or window functions. The TC01 sensor has an adjustable hysteresis, and can also be programmed to measure temperature in degrees Fahrenheit or degrees Celsius. These devices feature a highly visible digital display and a sensor housing that can be rotated to allow the viewing of temperature data from any direction. The 24 VDC devices include integral circuitry that protects against Short-Circuit damage, and a G1/2 threaded fitting for easy installation. They operate in temperatures from -40° to +120°C (-40° to +248°F).

Principles of Operation

The temperature sensors employ a calorimetric principle to provide continuous and accurate temperature analysis of liquid or paste-like media. They are ideal for temperature analysis in many industries including automotive, welding, hydraulic power units, beverage/brewery, plastics, pumps, pulp/paper, and semiconductor.

Operating Modes

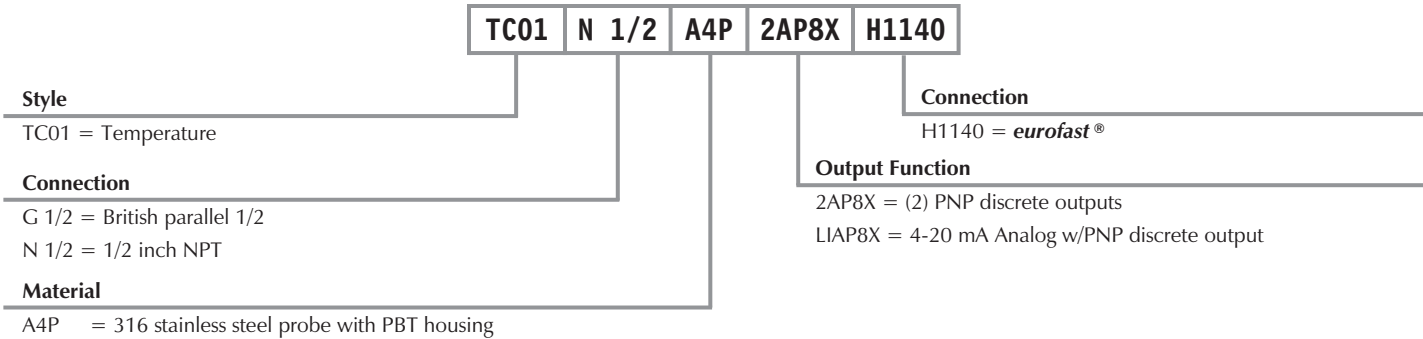
If an over-range of a certain temperature is to be monitored, select the Hysteresis-function. In this mode, a limit value must be set. If the temperature exceeds this value, the output either activates or de-activates, depending on the selected output function. A Hysteresis value is assigned to the limit value, which determines the differential between the switch-on or switch-off value. It is also possible to delay the switch-on and switch-off times. If the window-function is selected as the operating mode, the switching output activates when the adjusted limit temperature is reached (beginning of window range) and de-activates when the end value (defined by the window width value) is reached. The switch-on and switch-off delay may also be used in this operating mode.





Temperature Part Number Key

Part Number Keys are to assist in IDENTIFICATION ONLY. Consult factory for catalog items not identified.



Temperature General Specifications

Operating Voltage	21.6 - 26.4 VDC (including ripple)
Current Consumption	≤70 mA
Voltage Drop at I _{max}	≤2.5 VDC
Temperature Range	-20 to +60°C (-4 to +140°F)
Medium Temperature Range	-40 to +120°C (-40 to +248°F)
Measuring Range	-40 to +120°C (-40 to +248°F)
Tolerance Range	±2.5°C (0° to +80°C: ±1°C) ±36.5°F (+32° to +176°F: ±33.8°F)
Switch Point Accuracy	±3% of full scale
Display Resolution	0.1°C (-9.9° to +99.9°C: 0.1°C) ±36.5°F (+33.8°F +14°F to +210°F: +32°F)
Programmable Ranges	-39° to +120°C (-38° to +248°F), 0.5°C/step
Hysteresis Range	+0.5° to +99.5°C (+32.9° to +211.1°F), 0.5°C/step (0.9°F/step)
Window Range	+0.5° to +99.5°C (+32.9° to +211.1°F), 0.5°C/step (0.9°F/step)
Switch-on and Switch-off Delay Time	0 to 50 s (0.5 s/step)
LED Indications/ Display	3-digit 7-segment display
at Limit Value S1/S2.	Yellow (2x)
Display Resolution (3-digit).	+0.1°C (+32.1°F)
Protection	IP 65

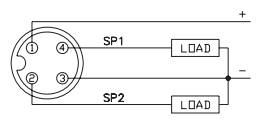
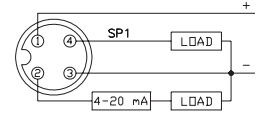


Housing Style	Part Number	ID Number	Output
Self-Contained Temperature Controls, PBT Housing 	TC01-G1/2A4P-2AP8X-H1140	M6877001	Dual PNP N.O./N.C.
	TC01-G1/2A4P-LIAP8X-H1140	M6877002	PNP N.O./N.C. and 4-20 mA
Self-Contained Temperature Controls, PBT Housing 	TC01-N1/2A4P-2AP8X-H1140	M6877005	Dual PNP N.O./N.C.
	TC01-N1/2A4P-LIAP8X-H1140	M6877004	PNP N.O./N.C. and 4-20 mA

Material

Housing
Probe

PBT
316 Ti Stainless Steel

Voltage	Pressure Rating (psi)	Switching Current /Analog Load	Operating Temperature (°C)	Temperature Measuring Range (°C)	Process Connection	Mating Cordset	Wiring Diagram #	Wiring Diagrams
21.6-26.4 VDC	1450	200 mA	-20 to +60	-40 to +120	G 1/2	RK 4.4T-*	1	Diagram 1  Diagram 2 
21.6-26.4 VDC	1450	200 mA/<500 Ω	-20 to +60	-40 to +120	G 1/2	RK 4.4T-*	2	
21.6-26.4 VDC	1450	200 mA	-20 to +60	-40 to +120	1/2 NPT	RK 4.4T-*	1	
21.6-26.4 VDC	1450	200 mA/<500 Ω	-20 to +60	-40 to +120	1/2 NPT	RK 4.4T-*	2	

* Length in meters.

Level Selection Guide



Type	levelprox®	levelprox Mounting Accessories
Pages	M107 - M108	M109



Type	EZ-track® Level Probe	Level Probe Accessories	Probe Holder	Level Control Monitor
Pages	M113 - M116	M117 - M118	M123 - M124	M125 - M128

levelprox®

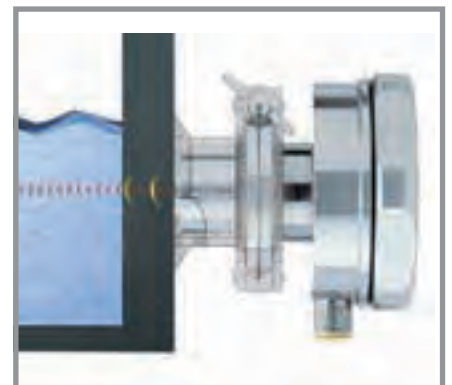
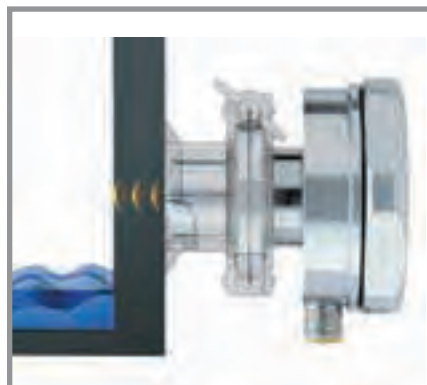
levelprox is a unique, non-invasive ultrasonic sensing solution that provides accurate media detection through metal container walls. **levelprox** mounts to the outside of a container with no compromise to structural integrity, and is ideal for high pressure, hazardous or sterile applications.

All it takes to reliably detect the presence of liquid through a metal container is to program the empty and full conditions into the **levelprox** using a simple teach button. The sensor generates a high frequency ultrasonic pulse that is transferred into the container wall through a coupling gel. As the pulse enters the container wall it is influenced by the containers contents. **levelprox** analyzes this pulse and compares it to the conditions that were programmed into the memory of the sensor.

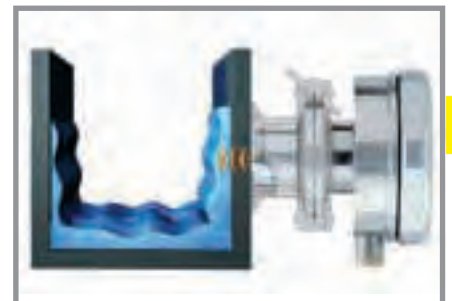
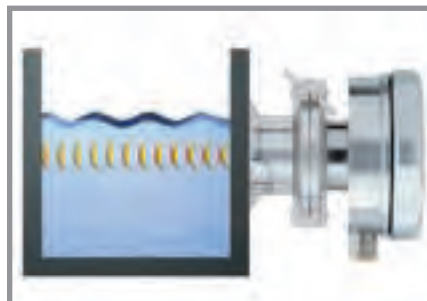
level prox®

**With Dual Operating Modes, levelprox Provides
Reliable Detection in Even the Toughest Applications:**

Reverb Mode: evaluates the ultrasonic pulse as it reverberates within the container wall. This pulse travels through the container wall until it reaches the inner wall. The reverb mode works great when the liquid to be detected has a low viscosity, leaving little or no coating on the container wall. The reverb mode should also be utilized when stirring devices are used inside the container.



Echo mode: evaluates the ultrasonic pulse as it travels through the liquid and echoes off of the opposite container wall. Highly viscous liquids can be reliably detected with the echo mode. The mode looks past the layers of product that can coat the inside of a container to give the true level of the product.



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Dual Mode T50

levelprox®

The T50 dual-mode levelprox features a robust 316L stainless steel housing with an integrated sanitary connection. The sensors construction and non-invasive operation make it the perfect choice for applications in food, beverage and pharmaceutical industries. The integrated Tri-Clamp mounting flange maintains proper orientation to the tank wall and also protects the coupling during washdown operations.



Dual Mode M30

The M30 dual-mode levelprox is ideal for level detection applications where stainless steel sanitary fittings are not required. The M30 delivers non-invasive detection without the additional expense of a sanitary housing. Its 30 mm barrel can be easily mounted using a welding adapter or a metal strap kit.



Mounting Accessories

Mounting accessories are available for the T50 and M30 sensors for welding, bonding and strapping levelprox sensors to most common containers.

Recommended Operating Mode

Table with 3 columns: Application, Reverb, Echo. Rows include various liquid conditions like 'Liquids contaminated with solids', 'Liquids that leave a film on container wall', etc.

levelprox Specifications

- Switching Delay 1-10 second (adjustable via DIP-switches)
- Rated Operational Current (DC) Ie. ≤200 mA
- No-load Current Io ≤60 mA
- Overload Trip Point >270 mA
- Max. Voltage Drop at 200 mA ≤2.5 V
- Switching Frequency 1 Hz
- Time Delay Before Availability. ≤2 s
- Protection Class IP 68
- Housing Material T50: 316L stainless (A41.4404)
M30: Chrome plated brass
- Operation Temperature -25° to +70°C (-13° to +158°F)
- Supply Voltage Indication Green LED
- Switching status indication Yellow LED
- Error Indication Red LED flashing and alarm output on
- Alarm Indication Red LED
Flashing Green LED indicates alarm off
- Approvals Class I, Division 2

Mounting the T50 *levelprox*®

Mounting

One of the most critical procedures in any *levelprox* application is the mounting of the sensor. Reliable operation of the sensor requires a mount that is rigidly fixed and properly oriented to the container wall. Below you will find some important tips for mounting a *levelprox*.

Surface Preparation

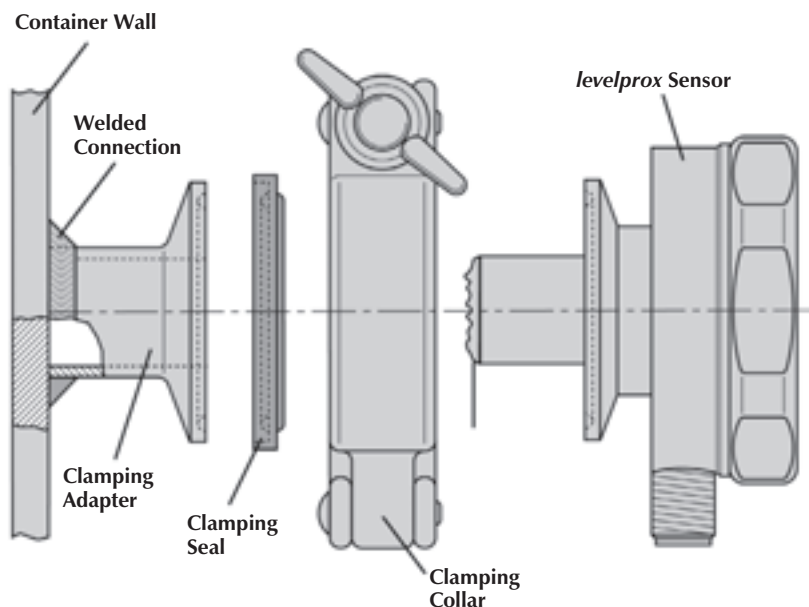
The surface of the tank plays an important role ensuring proper operation of the sensor. The surface finish and structural integrity of the container wall need to be evaluated when selecting a mounting location for the sensor. The surface finish should be smooth and free of rust, paint, and coatings that could affect the sound transmission of the sensor. The area of the tank where the sensor will mount should be in good condition, i.e. no pitting, dents, welded joints, internal structures etc. If you are using a weld-on mount, be aware that excessive heat from the welder can distort thin walled containers.

Mounting the Sensor

The *levelprox* needs to make solid contact with the container wall for proper operation. Ideally the clamping adapter should be mounted perpendicular to the container wall. In the case of a round container, the sensor should be mounted so that the transducer is pointing at the center axis. **TURCK** offers several mounting options designed to keep the sensor optimally coupled with the wall of the container.

Installation

Included with every **TURCK *levelprox*** is a small container of coupling gel. This gel is required for the sensor to efficiently pass the ultrasonic pulses into the container wall. Before installing the sensor on the container, remember to apply a generous amount of the gel to the sensors transducer surface.



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Housing Style	Part Number	ID Number	Container Wall Thickness	Min/Max Container Diameter	Programming	Output
Smooth Cylindrical T50 Style	LPRE-T50-UP6X3-H1151	M1606201	1-15 mm	100-2000 mm** Stainless Steel	Push button or external teach wire	5-Wire DC PNP
Standard M30 Style	LPRE-M30-AP6X2-H1141	M1606203	1-15 mm	100-2000 mm** Nickel Brass	VB2-SP1	4-Wire DC PNP

Additional specifications on page M105.

Accessories on page M109.

** 2000 mm (echo mode), no limit (reverberation mode).



TURCK **levelprox** sensors are FM approved for installation in Class I, Division 2 hazardous locations when installed per TURCK control drawing Ni-1.005 (www.turck.com/fmcd).

Voltage	Switching Current (mA)	Min. Repeat Accuracy (mm)	Operating Temp. (°C)	Protection Class	Housing	Short-Circuit Protection	Rev. Polarity Protection	Wire Break Protection	Mating Cord, Cable Length/Jacket	Wiring Diagram #	Wiring Diagrams
15-30 VDC	≤200	≤±5 mm	-25 to +70	IP 67	SS	Yes	Yes	Yes	RK 4.5T-*	1	Diagram 1 Diagram 2
15-30 VDC	≤200	≤±5 mm	-25 to +70	IP 67	CPB	Yes	Yes	Yes	RK 4.4T-*	2	

* Length in meters.

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Mounting Accessories for T50

Part Number	ID Number	T50 Weld Kit
LP-MS-T50-S	M6900253	 Designed to mount the T50 sensor to flat sided containers. Can also be used for mounting to large diameter round containers. Includes: Clamping Adapter, Clamp, and Gasket

Part Number	ID Number	T50 Epoxy Mounting Kit
LP-MS-T50-K	M6900255	 Designed for mounting the T50 sensor to flat sided containers. Kit is ideal for applications where welding is not possible. Includes: Clamping Adapter, General Purpose Epoxy, Clamp, Gasket, and Locator Buttons

Part Number	Clamping Adapter
LP-Clamping Adapter-*	 Custom machined weld-on clamping adapter to fit round containers. Note: Clamp and gasket need to be purchased separately, see table on right. * Indicates the container diameter in meters.

Individual Pieces		
Part Number	ID Number	Description
LP-OKS1110**	M6900296	Coupling Gel
LP-MZ-T50-SR**	A5316	Sanitary Clamp
LPMZ-T50-CS	M6900365	Clamping Adapter
LP-MZ-T50-D**	A5315	Gasket

Mounting Accessories for M30

Part Number	ID Number	Push Button
VB2-SP1	A3501-29	 The VB2-SP1 is used for programming and mode selection of the M30 <i>levelprox</i>

Part Number	ID Number	M30 Weld Mount
LP-MZ-M30-SB	A5321	 Mounting Bracket can be strapped or welded to container. Perfect for applications that don't require washdown.

Part Number	ID Number	M30 Sanitary Adapter
LP-MZ-M30-T50	A5317	 Allows the M30 to be mounted using T50 Accessories. Use with LP-Clamping Adapter-* in applications that are subjected to washdown. * Indicates the container diameter in meters.

Part Number	ID Number	M30 Straps
LP-MZ-M30-B250	A5320	
LP-MZ-M30-B500	A5319	
LP-MZ-M30-B1000	A5322	
Use with LP-MZ-M30-SB to mount the M30 using straps. Constructed of stainless steel with lengths available: 250 cm, 500 cm, and 1000 cm Includes: Two stainless steel straps		

** Accessories that can also be used on M30 style *levelprox*.

EZ-track® Liquid Level Probe

The **EZ-track** line from **TURCK** is a line of magnetostrictive linear displacement transducers. These devices detect the position of an external magnet along the active stroke of the sensor without causing any wear on the sensor parts. Because there are no parts to wear or break, the sensors can offer better performance over a longer life than competing technologies. They also offer an alternative when a continuous, absolute reading is necessary in the application.

The **EZ-track** R16 Liquid Level Sensor is a programmable, two-wire loop powered intrinsically safe probe that is ideal for continuous level monitoring in a variety of liquids and tank designs. The R16 sensor uses magnetostrictive technology to monitor the position of a magnetic float along the active stroke of the sensing tube, which is then converted into a configurable 4-20 mA output. The IP 68 rated R16 liquid level sensors are available in a rigid 316 stainless steel housing or a flexible PVDF design. The probe lengths vary between 18 and 288 inches. The stainless steel version is also available in an optional Food Grade or 3A Rated Sanitary finish probe for use in an array of food service, dairy and beverage applications. A variety of floats, fittings, and accessories are available to fit virtually any application requirement.

All of the electronics for the R16 sensor are incorporated within the 5/8 inch sensing rod, which eliminates the need for an electronics enclosure at the top of the sensor. This feature when ordered with the standard 4-pin **minifast®** quick disconnect, offers greater mounting options, and a faster, more reliable installation. The R16 liquid level sensor has a resolution of 0.02 inches of full scale, and an accuracy of 0.1% over the programmable monitoring span, making it the ideal sensor for applications where continuous level position is required.

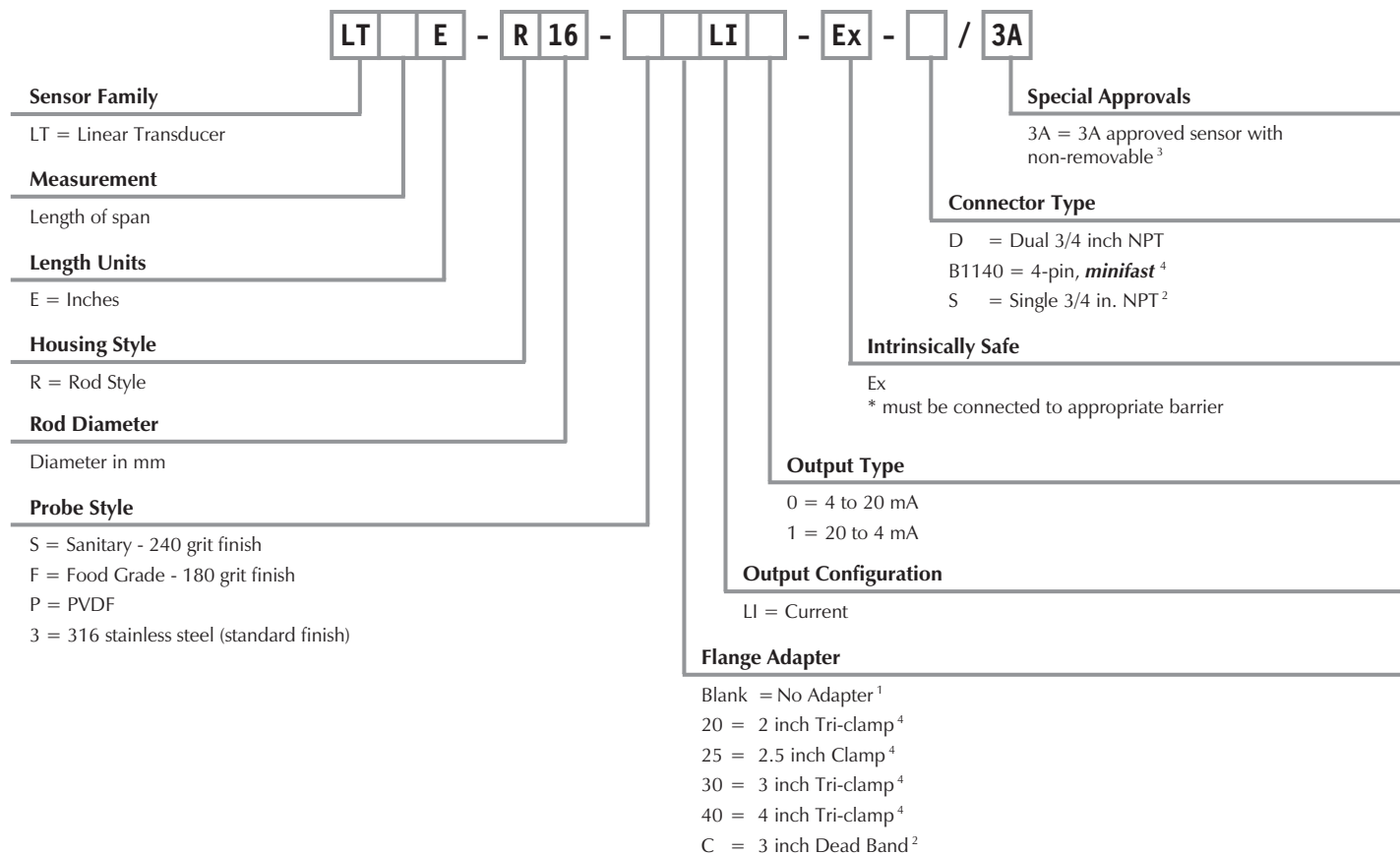


TURCK

Process Automation – Instrumentation

R16 Level Probe Part Number Key

Part Number Keys are to assist in IDENTIFICATION ONLY. Consult factory for catalog items not identified.



¹ Available on probe styles 3 or P only.

² Available on probe styles P only.

³ Available on probe styles S only.

⁴ Not available on probe style P.

PVDF Probe Specifications

Output	4 to 20 mA, 20 to 4 mA
Span	7 to 288 in.
Repeatability	0.014 in. + 0.5% of programmable span typical; max 0.014 in. + 0.4% of programmable span
Resolution	0.25% of programmable span or 0.02 in., whichever is greater
Operating Temperature	-20° to +70°C (-4° to +158°F)
Null Zone	12 in.
Dead Zone	6 to 8 in. (span 7 in. to 126 in.: 6 in.; span 127 in. to 288 in.: 8 in.)
Operational Voltage	13.5-30 VDC
Current Consumption	Loop Powered
Enclosure Rating	IP 69
Non-linearity	0.1% of programmable span
Reading Rate	40 ms
Rod Diameter	0.625 in. (15.9 mm)
Pressure	145 psi
Electronics	PVDF
Rod	PVDF
Agency Approvals	FM
FM-Approval	Class I, Div 1, Group C and D Class II, Div 1, Group E, F, and G Class I, Zone 0 or 1, Groups IIA or IIB

Stainless Steel Probe Specifications

Output	4 to 20 mA, 20 to 4 mA
Span	10 to 288 inches
Repeatability	0.014 in. + 0.5% of programmable span typical; max 0.014 in. + 0.4% of span
Resolution	0.25% of programmable span / 0.02 in., whichever is greater
Operating Temperature	-20° to +70°C (-4° to +158°F)
Null Zone	8 in.
Dead Zone	2 in.
Operational Voltage	13.5 to 30 VDC
Current Consumption	Loop Powered
Enclosure Rating	IP 69
Non-linearity	0.1% of programmable span
Reading Rate	40 ms
Rod Diameter	0.625 in. (15.9 mm)
Pressure	1015 psi
Electronics	Stainless Steel 316L
Rod	Stainless Steel 316L
Agency Approvals	FM
FM-Approval	Class I, Div 1, Group C and D Class II, Div 1, Group E, F, and G Class I, Zone 0 or 1, Groups IIA or IIB



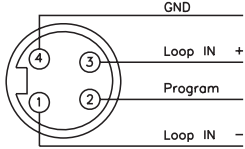
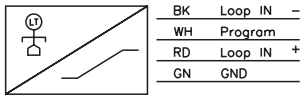
Housing Style	Part Number	Output Current
Stainless Steel Level Probe, minifast® Connection 	LT***E-R16-3LI0-EX-B1140 LT***E-R16-3LI1-EX-B1140	4-20 mA Loop Powered 20-4 mA Loop Powered
Stainless Steel Level Probe, Dual 3/4 NPT Connection 	LT***E-R16-3LI0-EX-D LT***E-R16-3LI1-EX-D	4-20 mA Loop Powered 20-4 mA Loop Powered
Stainless Steel Level Probe, minifast Connection, Tri-clamp Adapter 	LT***E-R16-3**LI0-EX-B1140 LT***E-R16-S**LI0-EX-B1140 LT***E-R16-F**LI0-EX-B1140 LT***E-R16-3**LI1-EX-B1140 LT***E-R16-S**LI1-EX-B1140 LT***E-R16-F**LI1-EX-B1140	4-20 mA Loop Powered 20-4 mA Loop Powered
Stainless Steel Level Probe, Dual 3/4 NPT Connection, Tri-clamp Adapter 	LT***E-R16-3**LI0-EX-D LT***E-R16-3**LI1-EX-D	4-20 mA Loop Powered 20-4 mA Loop Powered

* Float ordered separately, see page M118.

** For flange dimensions, see page M117.



TURCK 'R16' level probes are FM approved as intrinsically safe for installation in Class I, Division 1 hazardous locations when installed per **TURCK** control drawing IS-1.111 (www.turck.com/fmcd).

Voltage	Probe Style (Finish)	Pressure Rating (psi)	Connection Type	Agency Approval	Mating Cord, Cable Length/Jacket	Wiring Diagram #	Wiring Diagrams
13.5-30 VDC	316 Stainless Steel	1015	4-pin <i>minifast</i>	FM	RKM 46-*M	1	Diagram 1  Diagram 2 
	316 Stainless Steel	1015	4-pin <i>minifast</i>	FM	RKM 46-*M	1	
13.5-30 VDC	316 Stainless Steel	1015	Dual 3/4 NPT	FM	2M/PVC	2	
	316 Stainless Steel	1015	Dual 3/4 NPT	FM	2M/PVC	2	
13.5-30 VDC	316 Stainless Steel	1015	4-pin <i>minifast</i>	FM	RKM 46-*M	1	
	Sanitary (316 SS w/240 grit)	1015	4-pin <i>minifast</i>	FM	RKM 46-*M	1	
	Food Grade (316 SS w/180 grit)	1015	4-pin <i>minifast</i>	FM	RKM 46-*M	1	
	316 Stainless Steel	1015	4-pin <i>minifast</i>	FM	RKM 46-*M	1	
	Sanitary (316 SS w/240 grit)	1015	4-pin <i>minifast</i>	FM	RKM 46-*M	1	
	Food Grade (316 SS w/180 grit)	1015	4-pin <i>minifast</i>	FM	RKM 46-*M	1	
13.5-30 VDC	316 Stainless Steel	1015	Dual 3/4 NPT	FM	2M/PVC	2	
	316 Stainless Steel	1015	Dual 3/4 NPT	FM	2M/PVC	2	

* Length in meters.



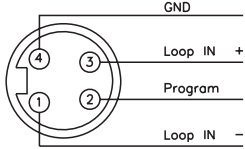
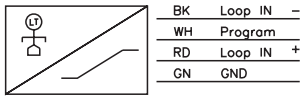
Housing Style	Part Number	Output
Stainless Steel Level Probe, minifast® Connection, Tri-clamp Adapter, Non-removable Float 	LT***E-R16-S**LI0-EX-B1140/3A	4-20 mA Loop Powered
	LT***E-R16-S**LI1-EX-B1140/3A	20-4 mA Loop Powered
PVDF Level Probe, Dual 3/4 NPT Connection 	LT***E-R16-PLI0-EX-D	4-20 mA Loop Powered
	LT***E-R16-PLI1-EX-D	20-4 mA Loop Powered
PVDF Level Probe, Single 3/4 NPT Connection 	LT***E-R16-PLI0-EX-S LT***E-R16-PCLI0-EX-S	4-20 mA Loop Powered
	LT***E-R16-PLI1-EX-S LT***E-R16-PCLI1-EX-S	20-4 mA Loop Powered

* Float ordered separately, see page M118.

** For flange dimensions, see page M117.

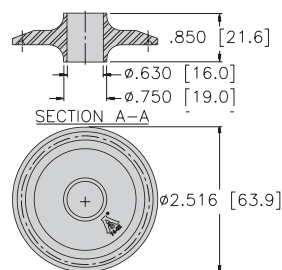


TURCK 'R16' level probes are FM approved as intrinsically safe for installation in Class I, Division 1 hazardous locations when installed per **TURCK** control drawing IS-1.111 (www.turck.com/fmcd).

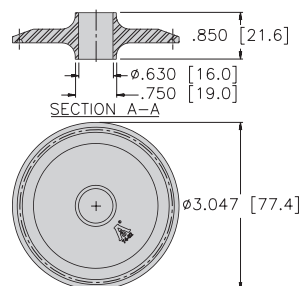
Voltage	Probe Style (Finish)	Pressure Rating (psi)	Connection Type	Agency Approval	Mating Cord, Cable Length/Jacket	Wiring Diagram #	Wiring Diagrams
13.5-30 VDC	Sanitary (316 SS w/240 grit)	1015	4-pin <i>minifast</i>	3A, FM	RKV 46-*M	1	Diagram 1  Diagram 2 
	Sanitary (316 SS w/240 grit)	1015	4-pin <i>minifast</i>	3A, FM	RKV 46-*M	1	
13.5-30 VDC	PVDF	145	Dual 3/4 NPT	FM	2M/PVC	2	
	PVDF	145	Dual 3/4 NPT	FM	2M/PVC	2	
13.5-30 VDC	PVDF	145	Single 3/4 NPT	FM	2M/PVC	2	
	PVDF	145	Single 3/4 NPT	FM	2M/PVC	2	
	PVDF	145	Single 3/4 NPT	FM	2M/PVC	2	
	PVDF	145	Single 3/4 NPT	FM	2M/PVC	2	

* Length in meters.

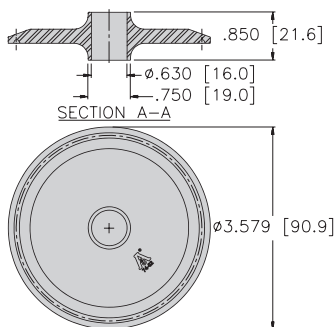
Flange Options



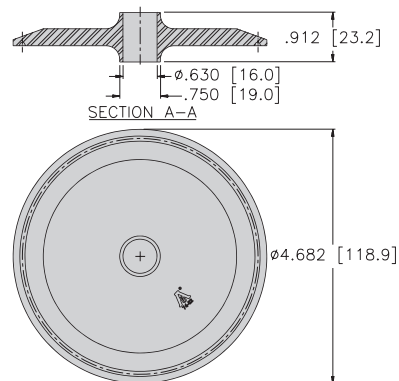
Flange, 2 inch Tri-clamp



Flange, 2.5 inch Tri-clamp



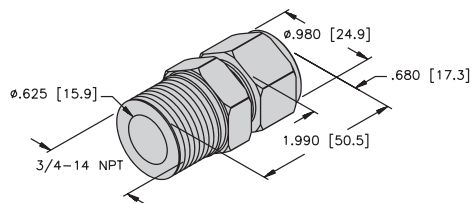
Flange, 3 inch Tri-clamp



Flange, 4 inch Tri-clamp

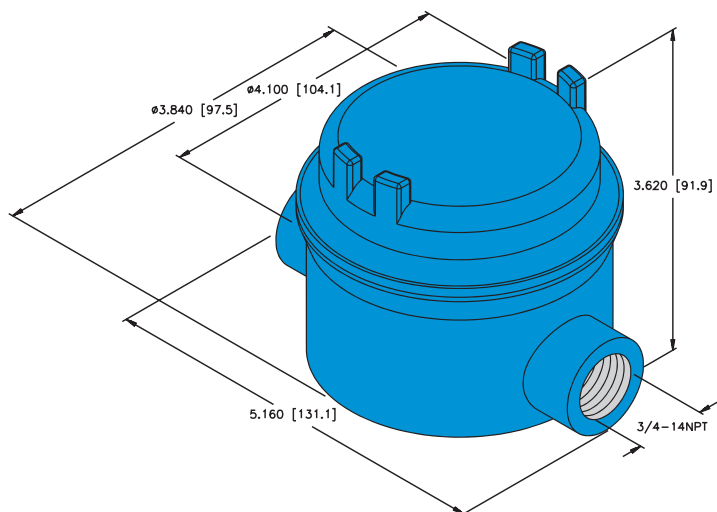
Level Probe Accessories

Tube Coupling



TC-R16-SS
(LT0305)

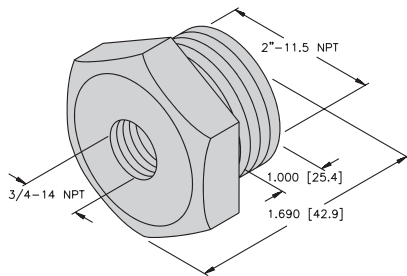
Junction Box



TB-R16S
(LT0294)

Level Probe Accessories

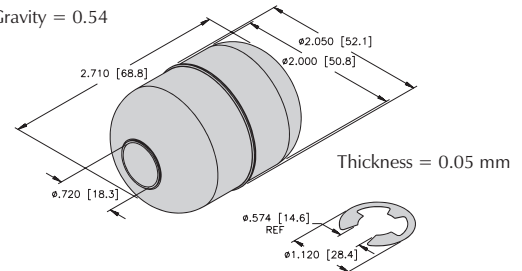
Bushing (316 Stainless Steel)



BU-R16-2x3/4 NPT-SS (LT0306)

Float Kit (316 Stainless Steel)

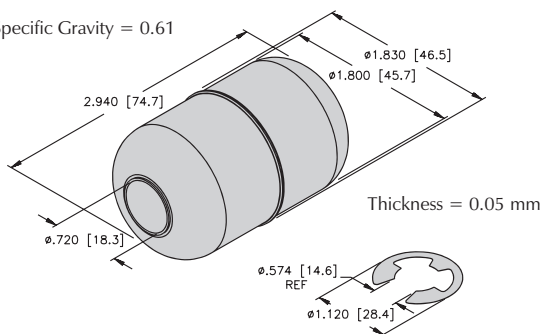
Specific Gravity = 0.54



FK-R16-205-SSES (LT0299)

Float Kit (316 Stainless Steel)

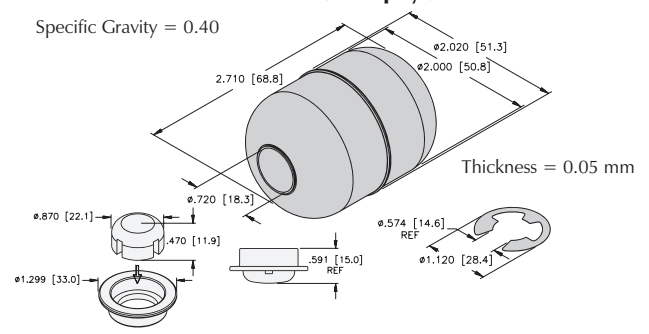
Specific Gravity = 0.61



FK-R16-183-SSES (LT0296)

Float Kit (Nitrophyl)

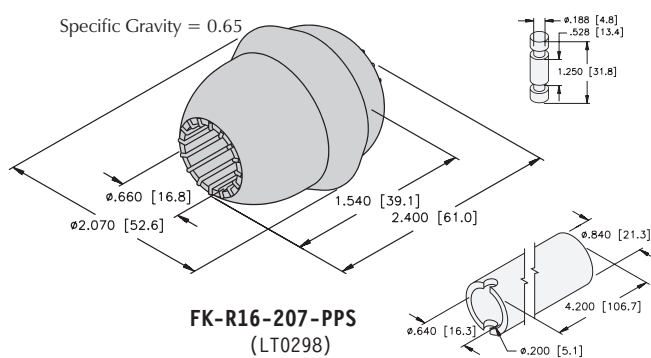
Specific Gravity = 0.40



FK-R16-202-NSH (LT0297)

Float Kit (PVDF)

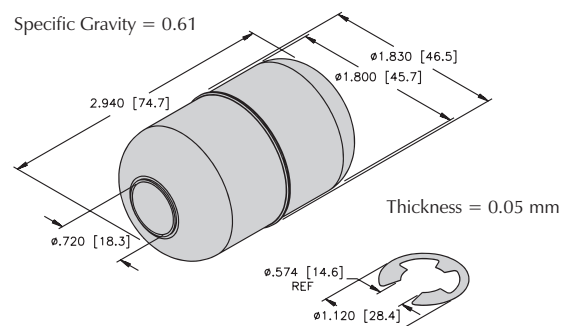
Specific Gravity = 0.65



FK-R16-207-PPS (LT0298)

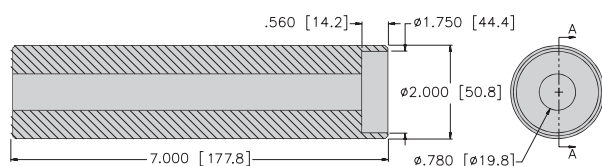
Float Kit (316 Polished Stainless Steel)

Specific Gravity = 0.61



FK-R16-183-SSFE (LT0302)

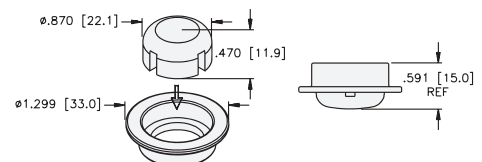
Weight Kit (316 Stainless Steel)



For use on PVDF probes 145-288 inches long.

WK-R16 Weight Kit (LT0295)

Probe Foot (ECTFE)



PF-R16 (LT0292)

TURCK

Process Automation – Instrumentation

R16 Level Probe Worksheet

Liquid to be measured _____

Fluid Properties (check all that apply)

☐ Turbulent

☐ Foam

☐ Solids

Product Build-Up Yes ☐ No ☐

Temperature Range _____ °F to _____ °F

Pressure Range _____ to _____

Viscosity Range _____ to _____

Specific Gravity _____

4 mA Starting Point Top ☐ Bottom ☐

Approvals Required

UL ☐ CSA ☐ FM ☐ 3A ☐ Food Grade ☐

Tank Location Indoors ☐ Outdoors ☐

Tank Material _____

Additional Comments _____

**Allow overhead clearance for installation and removal of sensor.*

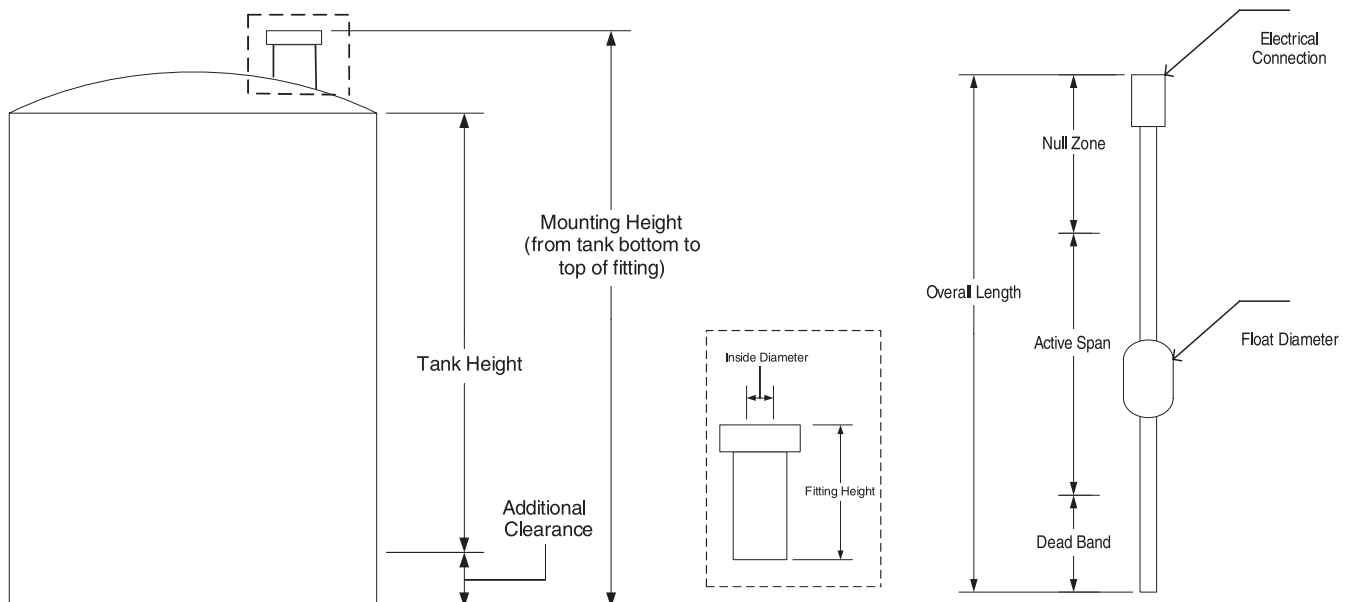
Customer

Phone Number

Date

Project

Quantity



Conductive Level Probes and Controllers

TURCK offers liquid level probes for use in conjunction with our Level control Monitors to provide a simple solution for liquid level applications. The resistance between the terminals is measured to determine the level of the medium in the tank.

Level Controllers

The level control logic is built in to the controller which offers a variety of options to fit any application.

- Adjustable Sensitivity
- Single Set-points
- Multiple Inputs
- On/Off Delay
- Programmable Outputs

These devices can be used in applications to control the filling and draining of a tank or as high and low level alarms. The level controller is able to differentiate between a variety of liquids, as well as distinguishing between liquid and foam. Many of the monitors have adjustable on and off-delays for use in turbulent liquid level applications, as well as the necessary logic to control overflow monitoring.

Level Probes and Probe Holders

TURCK also offers stainless steel probes, and stainless steel holders with ceramic insulators. The probes are used to provide single-point level control, while the holders are sealed to withstand applications up to 2500 psi at +70°F (+21°C). These parts provide reliable liquid level control in a wide variety of applications.



MK91-121-R.. and MK91-12-R.. Specifications

Galvanic Isolation	between input, output and supply circuits, test voltage 2.5 kVrms
Probe Voltage	0.02-5 V _{pp} /150 Hz (delta)
Sensitivity Ranges (Switching Thresholds)	
- Range 1	0.2-1 kΩ
- Range 2	0.8-4 kΩ
- Range 3	2.5-15 kΩ
- Range 4	10-100 kΩ
Hysteresis	approx. 10%
Switch-on Delay	0-20 s (adj.)
Switch-off Delay	0-20 s (adj.)
Contact Material	silver alloy + 3 μ Au
Switching Capacity	≤500 VA / 60 W
Protection	IP 20
Mounting.	DIN 50022 or pull-out tabs
Operating Temperature	-25° to +60°C (-13° to +140°F)
Line Frequency (AC)	48-62 Hz
Ripple (DC)	≤10%

MK91-R11.. Specifications

Galvanic Isolation	between input and output circuit, insulation test voltage 4 kV/8 mm input circuit and supply voltage galvanically connected
Switching Point Deviation in	
Supply Voltage Range	≤1%
Operating Characteristics at:	V = 24 V, R _M = 40 k
- Rectangular Signal	f = 1 Hz
- Amplitude of Electrode Voltage	±2 V
- Amplitude of Electrode Current	±50 μA
Contact Material	silver alloy + 3μ Au
Switching Capacity	≤500 VA / 60 W
Protection	IP 20
Mounting.	DIN 50022 or pull-out tabs
Operating Temperature	-25° to +60°C (-13° to +140°F)
Line Frequency (AC)	48-62 Hz
Ripple (DC)	≤10%

MS91-12-R.. Specifications

Galvanic Isolation	between input, output and supply circuits
Probe Voltage	typ. 5 V _{pp} /100 Hz (delta)
Sensitivity Ranges (Switching Thresholds)	
- Range 1	0.1-1 kΩ
- Range 2	0.5-5 kΩ
- Range 3	2-20 kΩ
- Range 4	10-100 kΩ
Hysteresis	10%
Switch-on /Switch-off Delay	0.1-15 s (adj.)
Contact Material	AgCdO
Switching Capacity	≤500 Va/60 W
Protection	IP 20
Mounting.	DIN 50022 or pull-out tabs
Operating Temperature	-25° to +60°C (-13° to +140°F)
Line Frequency (AC)	48-62 Hz
Ripple (DC)	≤10%



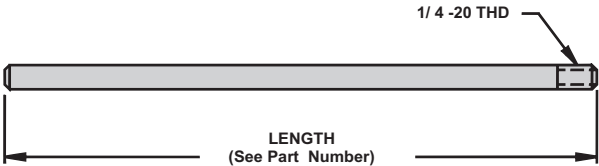
Housing Style	Part Number	ID Number	Number of Probes	Maximum Pressure (psi)	Fluid Connection
Probe Holder 	WCC-1138	A3365	1	2500	3/8 NPT
Probe Holder 	WCT-2	A3375	2	2500	1 in. NPT

For use with Amplifiers on pages M125 - M128.

Material

Probe Holders	303/304 Stainless Steel
Insulators	Ceramic
Probes	304 Stainless Steel

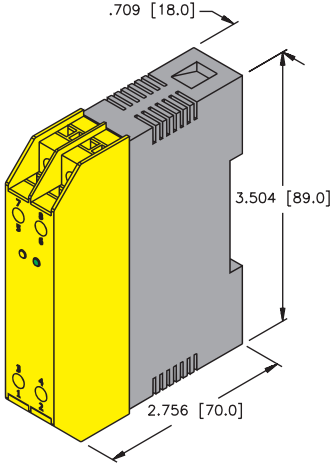
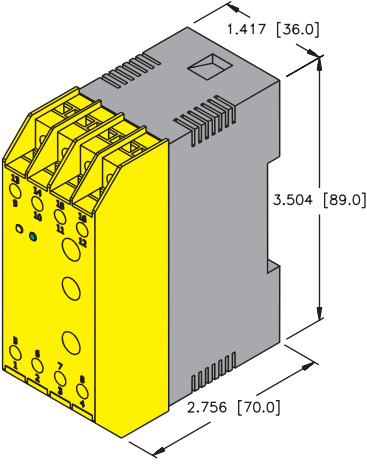


Housing Style	Part Number	ID Number	Material
Stainless Steel Probes 	91-SSP 1 Ft.	A3000	304 Stainless Steel
	91-SSP 2 Ft.	A3002	304 Stainless Steel
	91-SSP 3 Ft.	A3004	304 Stainless Steel
	91-SSP 4 Ft.	A3006	304 Stainless Steel
	91-SSP 5 Ft.	A3008	304 Stainless Steel
	91-SSP 6 Ft.	A3010	304 Stainless Steel

For use with Amplifiers on pages M125 - M128.





Housing Style	Part Number	ID Number	Features	Output
Level Control Monitor with Fixed Switch Point 	MK91-R11/24VDC	M7525202	Single Level Controller 10 second delay	(1) SPDT Relay
Level Control Monitor, Potentiometer/Jumper Programmable 	MK91-121-R/24VDC	M7545087	Dual Level Controller, Adjustable Delay	(2) SPDT Relays/Parallel
	MK91-121-R/115VAC	M7545082		
	MK91-121-R/230VAC	M7545080		

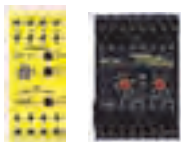
Additional specifications on pages M121.

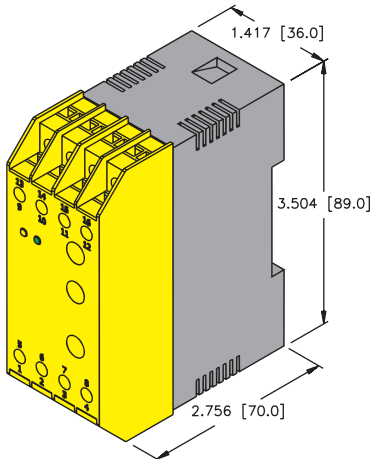
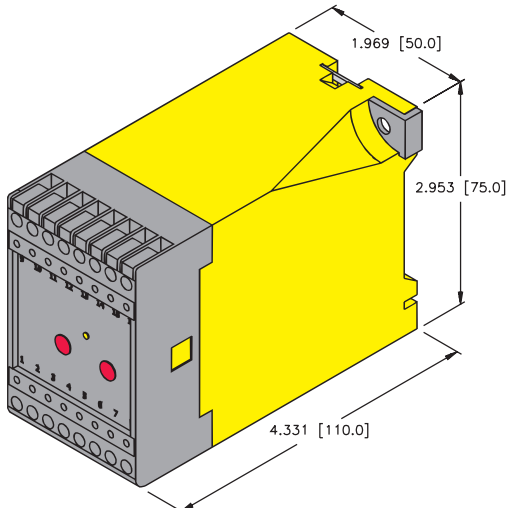
Material

Housing

PC/ABS

Voltage	Switching Current	Switch Point	Current Consumption	Hysteresis	Power LED	Output LED	Wiring Diagram #	Wiring Diagrams
19-29 VDC	≤3 A	40 kΩ Fixed	≤20 mA at 24 VDC	Approx. 5%	GN	YE	1	Diagram 1 Diagram 2
20-28 VDC	≤3 A	0.2-100 kΩ	≤1.5 W	Approx. 10%	GN	YE	2	
98-126 VAC	≤3 A	0.2-100 kΩ	3 VA/<15 mARMS	Approx. 10%	GN	YE	2	
184-264 VAC	≤3 A	0.2-100 kΩ	3 VA/<15 mARMS	Approx. 10%	GN	YE	2	



Housing Style	Part Number	ID Number	Features	Output
Level Control Monitor 24 VDC, Dip-Switch Programmable 	MK91-12-R/24VDC	M7545077	Dual Level Controller, Adjustable Time Delay	(2) SPDT Relays/Parallel
	MK91-12-R/115VAC	M7545072		
	MK91-12-R/230VAC	M7545070		
Level Control Monitor, Potentiometer/Jumper Programmable 	MS91-12-R/24VDC	M5220700	Dual Level Controller, Adjustable Time Delay	(2) SPDT Relays
	MS91-12-R/115VAC	M5221000		
	MS91-12-R/230VAC	M5220000		

Additional specifications on page M122.

Material

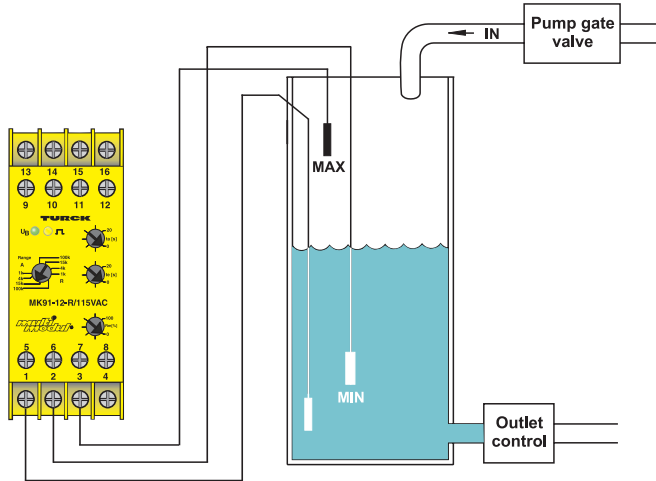
Housing

PC/ABS

Voltage	Switching Current	Switch Point	Current Consumption	Hysteresis	Power LED	Output LED	Wiring Diagram #	Wiring Diagrams
20-28 VDC	≤3 A	0.2-100 kΩ	≤1.5 W	Approx. 10%	GN	YE	1	Diagram 1 Diagram 2
98-126 VAC	≤3 A	0.2-100 kΩ	3 VA/<15 mARMS	Approx. 10%	GN	YE	1	
184-264 VAC	≤3 A	0.2-100 kΩ	3 VA/<15 mARMS	Approx. 10%	GN	YE	1	
20-28 VDC	≤4 A	0.1-100 kΩ	≤3.6 W	Approx. 10%	GN	YE	2	
98-126 VAC	≤4 A	0.1-100 kΩ	≤5 VA	Approx. 10%	GN	YE	2	
184-264 VAC	≤4 A	0.1-100 kΩ	≤5 VA	Approx. 10%	GN	YE	2	

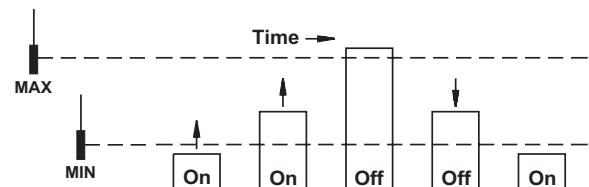
Level Detection Application Examples

Control for Pump-in "Filling" a Tank

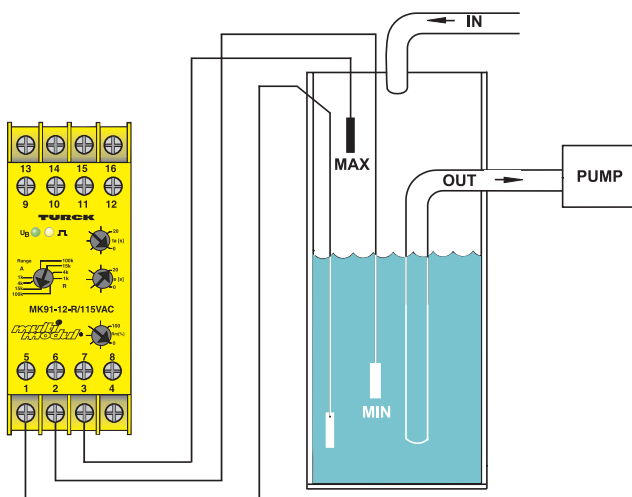


Example Application using MK91-12-R/...

The MK91-12-R will start a pump or open a fill valve when the liquid drops below the MIN level probe and will remain on until the MAX level probe is reached. The relay then de-energizes and stays off until the MIN level is reached. The pump or valve does not cycle constantly, as would be the case if only one sensor were used.



Control for Pump-out "Draining" a Tank



Example Application using MK91-12-R/...

The MK91-12-R will start a pump when the liquid reaches the MAX level probe and remain on until the MIN level probe is reached.

The relay then de-energizes and stays off until the MAX level is reached. The pump or valve does not cycle constantly, as would be the case if only one sensor were used.

