Single-Use Temperature Sensors

PENDOTECH
Leading Process Analytics

Single-Use Temperature Sensors

For Biopharmaceutical Processes

Accuracy

Pendotech temperature sensors provide precise measurements, ensuring reliable data for various applications like filtration, chromatography, filling operations.

In-line Compatibility

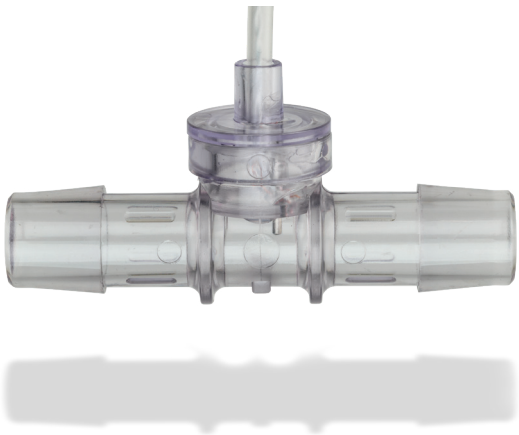
The sensors are specifically designed for in-line use, allowing seamless integration into existing processes without obstructing the fluid path, which helps to prevent pressure drops during operations.

Temperature Range

They can operate effectively across a wide range of temperatures, making them suitable for different environments and processes.

Pre-calibrated

They are designed to be ready for immediate use, eliminating the need for initial calibration and allowing users to save time and ensure accuracy right from the start.



Ensuring Accurate Measurements

By Preventing Cross-Contamination in Critical Applications

Pendotech Single-Use Temperature Sensors deliver precise temperature measurements, providing reliable data across various applications. Specifically designed for in-line use, they are perfect for filtration, chromatography, filling operations, and overall process monitoring. The sensors connect to monitors via a reusable cable and are compatible with devices such as the Pendotech TEMP-340 handheld unit and other pre-qualified systems. Available with hose-barb, 1-inch sanitary flange, or luer fittings, these sensors ensure no obstruction in the fluid path, preventing pressure drops. Featuring a thermistor element, the sensors require no calibration because the temperature versus resistance curve is well-defined within the specified accuracy range. The hose-barb and sanitary flange sensor connects to the monitor with a 10ft (3.0m) reusable cable, while the luer sensor uses a 7ft (2.1m) cable. An alignment guide on the sensor ensures proper connection to the cable. Disconnection of the sensor from the cable is quick and easy, and the monitor indicates when the sensor is disconnected.

METTLER TOLEDO

Sensor Connectivity and Features for TEMP-340 Handheld Monitor

The sensors connect to monitors using a reusable cable and are compatible with devices like the Pendotech TEMP-340 handheld unit. They come with hose-barb, 1-inch sanitary flange, or luer fittings, ensuring unobstructed fluid paths to prevent pressure drops. Featuring a thermistor element, they require no calibration due to a well-defined temperature versus resistance curve. The hose-barb and sanitary flange sensors use a 10ft (3.0m) cable, while the luer sensor uses a 7ft (2.1m) cable. An alignment guide ensures proper connection, and disconnection is quick, with the monitor indicating when the sensor is detached.

TEMP-340 - Handheld Monitor

The TEMP-340 features a rugged design with a large backlit display, built-in stand, and optional AC adapter. It includes a sealed control panel, Min/Max/hold functions, temperature display in °C/°F, and a low battery indicator. This device can manually store or automatically log up to 2000 time-stamped readings, with data easily downloadable to a PC via USB.

Thermistor Resistance Data for Pendotech Single Use Temperature Sensors*

Temp °C	Resistance Ω	Temp °C	Resistance Ω	Temp °C	Resistance Ω	Temp °C	Resistance Ω
0 (32°F)	7355	18 (64.4°F)	3081	36 (96.8°F)	1412	54 (129.2°F)	697.9
1 (33.8°F)	6989	19 (66.2°F)	2944	37 (98.6°F)	1355	55 (131°F)	672.5
2 (35.6°F)	6644	20 (68°F)	2814	38 (100.4°F)	1301	56 (132.8°F)	648.1
3 (37.4°F)	6319	21 (69.8°F)	2690	39 (102.2°F)	1249	57 (134.6°F)	624.8
4 (39.2°F)	6011	22 (71.6°F)	2572	40 (104°F)	1200	58 (136.4°F)	602.4
5 (41°F)	5719	23 (73.4°F)	2460	41 (105.8°F)	1152	59 (138.2°F)	580.9
6 (42.8°F)	5444	24 (75.2°F)	2354	42 (107.6°F)	1107	60 (140°F)	560.3
7 (44.6°F)	5183	25 (77°F)	2252	43 (109.4°F)	1064	61 (141.8°F)	540.5
8 (46.4°F)	4937	26 (78.8°F)	2156	44 (111.2°F)	1023	62 (143.6°F)	521.5
9 (48.2°F)	4703	27 (80.6°F)	2064	45 (113°F)	983.8	63 (145.4°F)	503.3
10 (50°F)	4482	28 (82.4°F)	1977	46 (114.8°F)	946.2	64 (147.2°F)	485.8
11 (51.8°F)	4273	29 (84.2°F)	1894	47 (116.6°F)	910.2	65 (149°F)	469
12 (53.6°F)	4074	30 (86°F)	1815	48 (118.4°F)	875.8	66 (150.8°F)	452.9
13 (55.4°F)	3886	31 (87.8°F)	1739	49 (120.2°F)	842.8	67 (152.6°F)	437.4
14 (57.2°F)	3708	32 (89.6°F)	1667	50 (122°F)	811.3	68 (154.4°F)	422.5
15 (59°F)	3539	33 (91.4°F)	1599	51 (123.8°F)	781.1	69 (156.2°F)	408.2
16 (60.8°F)	3378	34 (93.2°F)	1533	52 (125.6°F)	752.2	70 (158°F)	394.5
17 (62.6°F)	3226	35 (95°F)	1471	53 (127.4°F)	724.5	71 (159.8°F)	381.2

*Pendotech Transmitter available to convert temperature to a linear 4-20mA signal

Detail	Specifications
Manufacturing Testing	- Each thermistor is tested at 10°C (50°F)to confirm 4482 Ω ± 0.2°C (0.36°F) - Each thermistor is tested at 25°C (77°F) to confirm 2252 Ω ± 0.2°C (0.36°F) - Each thermistor is tested at 40°C (104°F)to confirm 1200 Ω ± 0.2°C (0.36°F) - Each product is tested to confirm 500 VDC isolation minimum between thermistor assembly and stainless steel tube - Each product is tested at room temperature to ensure proper assembly and electrical continuity - Each product is leak-tested to confirm integral assembly
Accuracy	Hose-barb and flange sensors: Better than +/- 0.2°C (0.36°F) (typical better than 0.1°C(0.18°F)) Luer: Better than +/- 0.4°C (0.72°F) (typical better than 0.2°C (0.36°F)
Temperature Range	0°C (32°F) to 70°C (158°F)
Biocompatibility	Hose-barb and flange sensors: all polymeric materials in contact with the product fluid path meet USP Class VI requirements*
Regulatory and Compliance Testing	• USP Class VI • ISO 10993-5 • ADCF • Particulates • Bioburden • Endotoxin • REACH Compliant • RoHS Compliant • Bacteriostatis and Fungistatis (B&F)
Manufacturing Environment	ISO 9001 certified facility; Class 5
Gamma Irradiation	Up to 50 kiloGrays^
X-ray Irradiation	Up to 50 kiloGrays
Resistance@25°C	2252 ohm
Connector	Custom molded 2 contact connector (different versions for luer and hose-barb versions)
Pressure Range	Up to 75 psi (5.2 bar)
Shelf Life	5 years
Monitor Cable	Hose-barb: 10 ft (3.0 m) with 1/4 inch headphone plug to connect to monitor receptacle Luer: 7 ft (2.1 m) with 1/4 inch headphone plug to connect to the monitor receptacle
Storage Temp	-25°C (-13°F) to 65°C (149°F)
Packaging	Heat sealed, individually packaged in polybag

* Luer sensors for research purposes only and not designed for use in manufacturing processes. Polycarbonate connector for luer sensors that may contact a fluid path is not tested for USP Class VI. Dip probe not tested for USP Class VI; stainless steel not applicable.

^ At this gamma dose there is a shift in the accuracy in the range of 0°C (32°F) to 2°C (35.6°F) to +/- 0.5°C (32.9°F) and in the range of 50°C (122°F) to 70°C (158°F) to +/- 0.5°C (32.9°F)

Temperature Sensor Panel Mount Connector

The sensors have an overmolded connector to reduce costs. The panel mount cable includes a receptacle for the sensor on one end and a standard panel mount connector on the other, allowing for easy connection to the control panel and direct wiring to the Pendotech Temperature Sensor Transmitter, with an option for extension if needed.

PDKT-TT1

Ordering Information

	Order Nr.
Single-Use Temperature Sensor, non-sterile, polysulfone, stainless steel sensor, 1/8 inch hose-barb	TEMPS-N-012
Single-Use Temperature Sensor, non-sterile, polysulfone, stainless steel sensor, 1/4 inch hose-barb	TEMPS-N-025
Single-Use Temperature Sensor, non-sterile, polysulfone, stainless steel sensor, 3/8 inch hose-barb	TEMPS-N-038
Single-Use Temperature Sensor, non-sterile, polysulfone, stainless steel sensor, 1/2 inch hose-barb	TEMPS-N-050
Single-Use Temperature Sensor, non-sterile, polysulfone, stainless steel sensor, 3/4 inch hose-barb	TEMPS-N-075
Single-Use Temperature Sensor, non-sterile, polysulfone, 1 inch sanitary flange	TEMPS-N-1-1
Single-Use Temperature Sensor with luer fitting	TEMPC-N-999

TEMPC-N-999

Accessories for sensors:	**Order Nr.**
3.0 m re-usable temperature sensor cable with 1/4 phone jack term. for hose-barb sensors	PDKT-650-TEMPB
7 ft re-usable temperature sensor cable with 1/4 phone jack term. for luer sensors	PDKT-650-TEMPL
Pendotech 12 inch re-usable temperature sensor cable with M8 termination for hose-barb sensors	PDKT-TEMPB-PNL
Pendotech Temperature sensor monitor for 1 sensor with built-in data logger and RS-232 data output	TM-TEMP-340
Pendotech Temperature Sensor Transmitter	TT1
Pendotech Temperature Sensor Transmitter DIN Rail Mounting Kit	TT1-DR
Pendotech Temperature Sensor Benchtop Transmitter with 4-20mA output in ABS plastic box with 24 VDC wall supply (for 1 sensor)	PDKT-TT1
Pendotech Temperature Sensor Benchtop Transmitter with 4-20 mA output in ABS plastic box with 24 VDC wall supply (for 2 sensors)	PDKT-TT2
Pendotech Temperature Sensor Benchtop Transmitter with 4-20mA output in ABS plastic box with 24 VDC wall supply (for 4 sensors)	PDKT-TT4
Cable from PDKT-TT1 temperature transmitter to PressureMAT analog input, 6 ft (2 m)	PDKT-TT1-PMAT
Cable from PDKT-TT2 temperature transmitter to PressureMAT analog input (2x), 6 ft (2 m)	PDKT-TT2-PMAT
Analog display with 4 inputs with alarm inputs and serial port for data collection	PMAT-DAQ
Analog display with 4 inputs, 4 analog outputs, alarms, and serial port for data collection	PMAT-DAQ-A
Cable from PDKT-TT4 to PMAT-DAQ, 4 analog signals, 4 ft (1.2 m)	PDKT-TT4-PDAQ
1/4 x 1/4 inch (0.64 x 0.64 cm) polycarbonate straight connector with luer port	PDKT-103-03
3/8 x 3/8 inch (0.95 x 0.95 cm) polycarbonate straight connector with luer port	PDKT-104-03
1/2 x 1/2 inch (1.27 x 1.27 cm) polycarbonate straight connector with luer port	PDKT-105-03
Male x female x female luer tee, polycarbonate	PDKT-000-03
Male x female x female luer tee, polypropylene	PDKT-000-04

TT1

PDKT-650-TEMPB

NOTICE: NOT FOR USE ABOVE 75PSIG (5.2BAR). Each prospective user must test the sensor for its proposed application to determine its suitability for the purpose intended prior to incorporating the sensor into any process or application. The sensor is not designed, intended or authorized for use as components in life support or medical devices. Product is not designed for any application in which the failure of the product could result in personal injury, death or property damage. For warranty see www.pendotech.com/warranty. ADCF Status: Hose-barb sensors compliant with EMA 410 Rev 3 Guidelines

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Process Analytics

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For more information

Subject to technical changes.
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MarCom Plainsboro, USA