

T H E R M O M E T R I C S
A COMMITMENT TO EXCELLENCE

Temperature and Pressure Sensors for Catheters

Thermometrics is the leading supplier of sensors for catheter applications, where reliable real-time measurements are required.

Thermometrics NTC Thermistor Temperature Sensors are widely used in thermodilution catheters for measurement of cardiac output. They also control and monitor temperature exposures during RF and laser ablation procedures. Our chip-in-glass technology provides unsurpassed accuracy and reliability.

Amphenol's NovaSensor MEMS based piezo-resistive pressure sensors provide fast, accurate pressure measurements for both intra-cardial and intra-cranial procedures. Amphenol's silicon fusion bonding technology enables production of some of the smallest piezo-resistive sensors in the world.



Features & Benefits

Temperature

- Small packages to fit standard lumens
- Very fast response time
- Excellent point isolation of measurement
- Tight resistance-temperature ($\pm 0.5\%$) characteristics
- Various lead lengths available
- Extensive qualification & validation data available

Pressure

- Real time pressure monitoring
- Very small, fits standard catheter sizes
- Fast response optimized for catheter applications
- Stable, accurate pressure measurement
- AC or DC excitation
- Gage (P161) and Absolute (P165) versions
- Custom multi-sensor design capabilities

Typical Applications

Temperature

- Continuous Cardiac Output
- Thermodilution
- Foley
- Esophageal
- Disposable catheters

Pressure

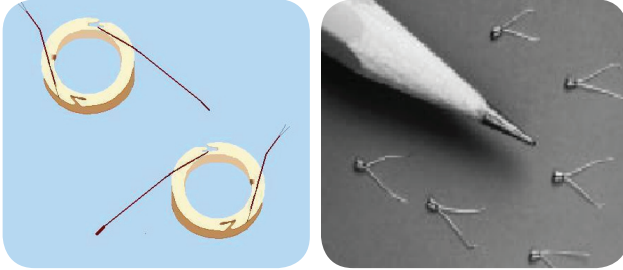
- Intracranial
- Intrauterine
- Disposable catheters
- Urinary catheters
- Ablation
- Research

Amphenol
Advanced Sensors

Temperature Sensors

Thermometrics' catheter temperature sensors are NTC thermistors sealed in glass and packaged to provide very fast response time and excellent point isolation of the temperature measurement.

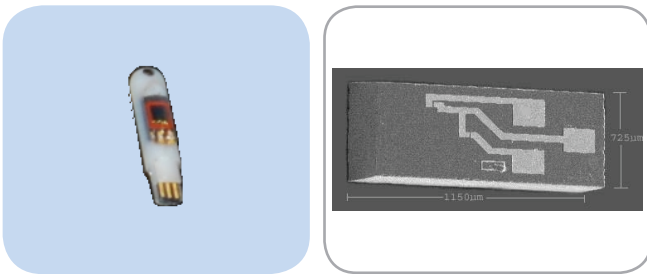
The sensors are provided in fully insulated sub assemblies supplied on bobbins ready to be installed into customer catheter devices.



Tiny GC chip in glass thermistors

Pressure Sensors

Thermometrics' catheter pressure sensors offer custom package designs, providing fast response, ultra-stable and accurate piezo-resistive MEMS-based devices specifically designed to provide excellent pressure measurement within the very small space and harsh environments of catheter applications.



MEMS pressure sensor

Technical Specifications

Temperature	
Resistance at 37°C	4004 Ω ±0.5%
Beta	3482 ±5%
Ratio R(298°K)/R(310°K)	1.572 ±0.036
Time Constant (still air)	1.2 seconds
Time Constant (H ₂ O)	16 mS
Sleeve Diameter	0.020" ±0.002"
Sleeve Material	Kapton (polyimide)
Max. Power Rating	15mW
Bead Dissipation:	
Still Air @ 25°C	0.12 mW/°C
Still H ₂ O @ 25°C	0.60 mW/°C

Pressure	
Pressure Range	-50 to 300 mmHg
Operating Temperature	10°C to 50°C
Excitation	1 to 8 Volts AC or DC
Zero Offset	±12.5 mV/V
Sensitivity	12 to 24 µV/V/mmHg
Linearity	±1mmHg
TcZ	±40 µV/V/°C
Bridge Resistance	800 ±20% Ohms
Burst Pressure	4000 mmHg