

Model AS-TE

Temperature Elements



FCI Temperature Measurement Solutions

FCI Aerospace provides a complete line of temperature measurement solutions for on-board aircraft applications. The products include temperature sensors and elements (AS-TE models), temperature switches (AS-TS models) and temperature transmitters (AS-TT models).

FCI temperature measuring products utilize precision resistance temperature detectors (RTDs). RTDs provide superior accuracy, repeatability and long-life making them the ideal choice for demanding aerospace applications. FCI sensors typically use Platinum RTD or MIL-T-7990 Nickel RTD sensors. The Platinum RTDs are available in several R_0 (ice point resistance) values and in either 2, 3, or 4 wire configurations to ensure optimal performance and system compatibility.

FCI's Temperature Element Applications

- Environmental cooling systems
- Bleed air
- PACK air
- Coolant
- Hydraulic oil
- Transmissions
- Gearboxes
- Fuel
- Cabin air thermostat
- Refrigerant

FCI's Temperature Element Features

- High accuracy RTDs
- High reliability
- Wide range
- Simple installation
- Rugged, durable packaging
- Military standard connectors and connections
- Exceptional corrosion and abrasion resistance

Model AS-TE Temperature Sensing Elements

FCI Aerospace Model AS-TE temperature elements are designed to meet the demanding requirements of commercial and military aircraft customers. Whether for use in fixed wing or rotary aircraft, FCI has sensors fully qualified to comply with high vibration, severe shock, and high acceleration environments and specifications. FCI AS-TE sensors have been fully tested to perform after exposure to more than 100,000 temperature cycles from -40°F to $+300^{\circ}\text{F}$ [-40°C to $+150^{\circ}\text{C}$]. Standard temperature measuring ranges are -80°F to 450°F [-62°C to 232°C] and high temperature elements up 800°F [427°C] can be special ordered.

The temperature element can be tailored to meet a variety of insertion lengths and applications. The temperature elements are typically packaged in AISI 300 series stainless steel bodies with either single or dual elements, and can be designed to support a variety of installation techniques. Custom designs can provide sensors made from titanium or other thermally conductive materials. Temperature elements can be provided with a flange or threaded mounting connection. The threaded mounting connection includes straight military or aerospace style fittings that seal with O-rings or gaskets. The flanged mounting is available in a number of arrangements that will mate with virtually any customer's process connection.

FCI supplies Model AS-TE with variable length flying leads (pigtail cable) or with a wide variety of commercial or military connectors. The connectors and leads may be specified for two, three and four wire lead sensing schemes. The customer may specify the material and style of the leads or connectors.

FCI Aerospace's engineering team utilizes the latest tools in areas like CAD and fluid dynamics modeling, RFI and EMI testing, temperature test chambers to fully test and validate both design and production products. FCI is well qualified to design special versions or variations on the AS-TE presented here and welcome the opportunity to discuss your specific needs.

Model AS-TE Temperature Element General Specifications

- **Service:** Temperature monitoring of liquids or gases

Temperature Sensor Types and Measuring Performance

RTD Type	Resistance@ 0°C (R ₀)	Alpha (α)	Class
Platinum	100 ohms	0.00385 ohms/°C	Class B per IEC 60751 *
Platinum	500 ohms	0.00385 ohms/°C	Class B per IEC 60751 *
Platinum	1000 ohms	0.00385 ohms/°C	Class B per IEC 60751 *
Nickel	90.38 ohms	per MIL-T-7990	

Other (α) such as 0.00392 or 0.00375, or Class A or AA RTDs available on special request

Measuring Range

-80 °F to 450 °F [-62 °C to 232 °C] depending on sensor selected
Wider temperature range optionally available

- **Accuracy:** ±0.03 °C, ±0.005 °C/°C For platinum RTDs

- **Repeatability:** ±0.05% of reading

Response Time

Air/Gas: 10 seconds
Water/Liquid: 3 seconds

- **Insertion Length:** 0.2 inch to 1.0 inch

- **Weight:** 1 ounce to 2.25 ounces [28 grams to 64 grams]

- **Proof Pressure:** Up to 1500 psig [103 bar(g)] as required by application

- **Material of Construction:** All welded, 300 series stainless steel; titanium or other alloys optional

- **Electrical Connection:** Military or commercial electrical connector; pigtail cable of customer specified type and length

- **Process Connection:** Threaded or flanged

Typical threaded process connection:
AS 930-05 0.5000-20 UNJF-3A
Consult factory for other connections

- **Ambient Operating Temperature (Electronics/Housing)**

-80 °F to +400 °F [-62 °C to 204 °C]

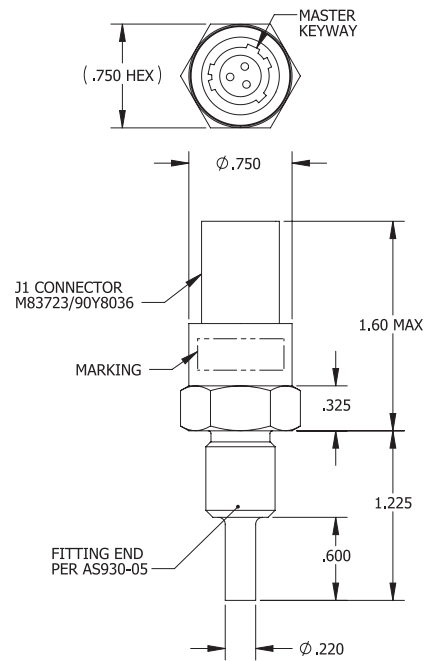
- **Storage Temperature:** -80 °F to +400 °F [-62 °C to 204 °C]

Qualifications

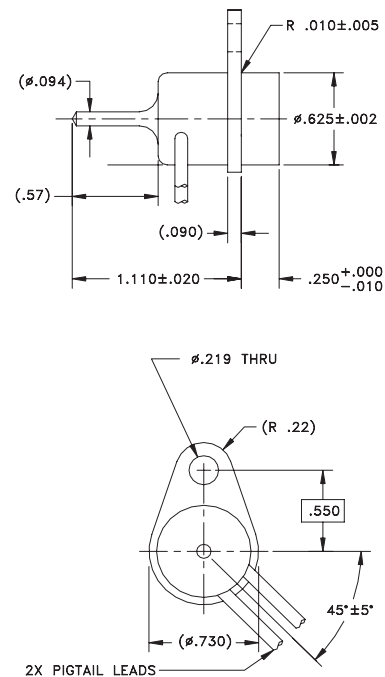
MIL-STD-130	Markings
MIL-STD-810	Environmental testing
MIL-STD-7990	Temp transmitter

- **Quality Systems Approval:** ISO 9001, AS 9100

Temperature Sensor With Welded Connector



Temperature Sensor With Pigtail Cable



Visit FCI online at www.FCIAerospace.com | FCI is ISO 9001:2000 and AS9100 Certified

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