

Total Air Probe™

DESCRIPTION

AMETEK Aerospace & Defense launches a major improvement in aircraft air data sensing – the Total Air Probe™. The uniquely designed (patent pending) Total Air Probe™ replaces a number of traditional, separate and redundantly installed, air data sensors/probes. These include mechanical angle of attack sensors, total air temperature sensors, pitot probes, and static air ports. Through a single ARINC 429 connection, the Total Air Probe™ provides measurements for total and static pressure (millibars), temperature (°C), angle of attack (degrees), and BIT (built-in test) status.

MULTIPLE ADVANTAGES

The Total Air Probe™ delivers many advantages. Combining multiple functions into one instrument, saving time and expense for sensor installation. Connectors are a historical weak point for instrument reliability. The Total Air Probe™ provides increased reliability due to a reduced number of connectors vs. traditional methods for air data systems. Further, the unit contains a heater power control for better heating efficiency and increased reliability due to lower duty cycle.

The Total Air Probe™ utilizes highly accurate, highly reliable air data pressure sensors within its housing. By locating the pressure sensors closer to the measurement source, the readings are more accurate than those provided by systems with remotely located pressure sensors which add pneumatic pressure delays. This enables more accurate air data measurements. The same pressure sensors are utilized in monitoring angle of attack, or angle of side slip, depending on location of the unit's pressure ports relative to air flow.

EXTENSIVE AIRCRAFT SENSOR EXPERIENCE

AMETEK Aerospace & Defense has a reputation for supplying innovative products for the commercial and military aviation industry. The Total Air Probe™ builds on AMETEK's experience with total temperature sensors for aircraft engines, a critical instrument operating in a difficult environment. It also capitalizes on over thirty years of experience with aircraft angle of attack sensors and stall protection computers. This broad base of experience enables the highly reliable Total Air Probe™ to provide many advantages for the aircraft air data systems.



FEATURES

- ✓ *Single unit replaces multiple sensors*
 - Angle of Attack
 - Total Air Temperature
 - Pitot Pressure Probe
 - Static Air Port
- ✓ *Lower weight and easier OEM installation*
- ✓ *One connectors mean increased reliability*
- ✓ *Heater controller lowers power consumption*
- ✓ *No moving parts for higher MTBF than traditional vane style AOA's*
- ✓ *Unique patent pending design*

Total Air Probe™

SPECIFICATIONS

PERFORMANCE CHARACTERISTICS

Total Pressure Sensor Range: 135.5 to 1,354.5 hPa

Total Pressure Sensor Accuracy: ± 0.25 hPa over operating range

Static Pressure/Altitude Measurement Accuracy:

± 10 ft from -2,000 ft. to Sea Level

± 15 ft from Sea Level to 10,000 ft

± 30 ft from 10,000 ft. to 30,000 ft

± 70 ft from 30,000 ft. to 60,000 ft

Pressure Sensor Time Response: < 50 millisecond/ft

Total Air Temperature Accuracy: $\pm .75^\circ\text{F}$ ($\pm .40^\circ\text{C}$)

Total Air Temperature Time Response: $t = 6$ sec max

Angle of Attack Range: Range $\pm 30^\circ$

Angle of Attack Accuracy: $\pm 0.25^\circ$

Angle of Attack Time Response: 50 millisecond

Power Input: DO-160E section 16 category Z

Nominal: 28 VDC

Normal Operating Range: 18 VDC to 32.2 VDC

Temperature Range:

Outside Airframe: -67° to 212°F (-55° to 100°C)

Inside Airframe (Electronics): -67° to 158°F (-55° to 70°C)

Air Speed: 0.1 to 1.0 Mach

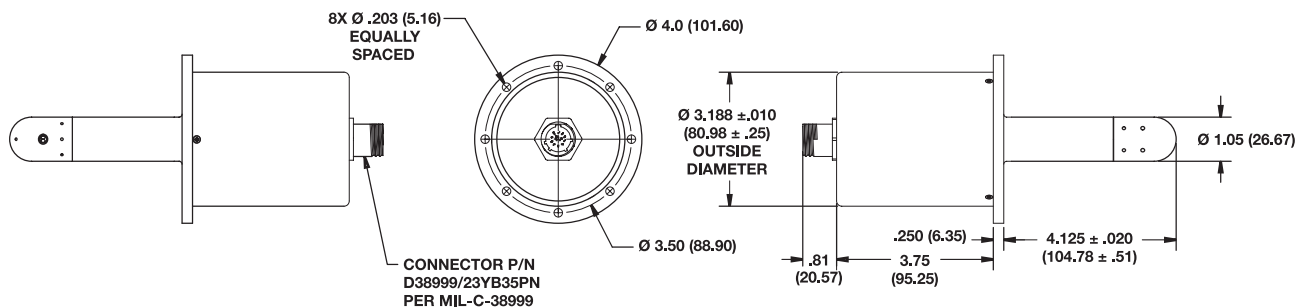
True Air Speed: 60 to 599 knots

Altitude: Up to 60,000 ft

Icing Conditions and De-Icing Requirements: FAR 25

Appendix C

Weight: 2.0 lb (0.9 kg) max



IN
(MM)

DIMENSIONS

AMETEK®

AEROSPACE & DEFENSE

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