

SERIES 0129 OUTSIDE AIR TEMPERATURE (OAT) SENSORS

- > OAT measurement for helicopters, UAV's and general aviation aircraft
- > Single or dual 500 ohm elements
- > Non-deiced design tends to shed ice buildup



DESCRIPTION

The Series 0129 Outside Air Temperature sensors were developed for helicopters and other low-to-moderate airspeed vehicles such as UAV's and general aviation aircraft, where the high speed performance and all-weather capability of our Series 0102 military fighter and commercial transport TAT probes are not required. The Series 0129 OAT sensors offer an affordable alternative to the high performance 0102 TAT probe and the low accuracy immersion temperature probes that previously were the only viable options for low-to-moderate airspeed vehicles.

SPECIFICATIONS

Flight Operating Ranges

Altitude:	-1,000 ft to 60,000 ft (-304m to 18,288m)
Mach No:	0 to 0.6
OAT:	-65°C to +85°C

Performance

Element Resistance(s):	500 ±0.6 ohms at 0°C
R vs. T Relationship:	Per Callendar-Van Dusen equation, with the following nominal constants: $\alpha = .003900$ $\beta = 0$ for positive T, and 0.1 for negative T, where T is measured temperature in °C $\delta = 1.50$

Element Calibration Interchangeability

±(0.25°C + .005 T), where T is measured temperature in °C.

Time Constant

10 seconds max. @ mass air flow rate of 40 lbs/sq. ft./sec. 0129(X) OAT probes must be thermally isolated from the mounted surface for accurate time response and temperature.

SPECIFICATIONS (continued)

Electrical

Excitation Current

1 mA (milliampere) recommended (5 mA is acceptable, but self-heating error increases to 0.6°C @ mass air flow rate of 10 lbs/sq. ft./ sec.)

Connector Pinouts: See configuration drawing

Environmental

Maximum

Temperature Exposure: -70°C to +250°C

Vibration: Per MIL-STD-810C, Cat. b2, Figure 514.2, Curves C and J at 5 g's
Per MIL-STD-810D, Method 516.3, Procedure 1, Paragraphs I-3.3, II-1.1 and II-3.1 (30 g's, all axes)

Shock:

Mechanical

Configuration: See configuration drawing

Electrical Connector

Model 0129G/0129H/0129N: Astro Seal P/N AS136-20012, or hermetic seal P/N SS800011-146-7PWOD2

Model 0129L/0129R: MIL-C-38999/25YB98XN

Mating Connector:

Model 0129G/0129H/0129N: Amphenol 48-16R-14-7S (102), or equivalent

Model 0129L/0129R: D38999/26WB98SN

Qualification

Recovery Error: Maximum of 1% at Mach 0.6

Iceball

3 inch iceball at 150 fps (90 knots). Equivalent mass, unit will withstand both 1 and 2 inch iceballs at 217 knots.

Hermetically sealed connector protects sensor from exposure to sand, dust, moisture, and 100% relative humidity.