

137 Vigilant

Military Qualified Aircraft Hygrometer

The 137 Vigilant Aircraft Hygrometer is a rugged, shock mounted military qualified instrument used for the primary measurement of dew/frost point in flight or in installations with existing flow, such as wind tunnels.

The 137 Vigilant features a miniature, remote, primary method chilled mirror dew/frost point sensor employing a platinum resistance thermometer, and has 15 feet of interconnecting cable to the control unit. Precision calibration units for the linear analog outputs are included.

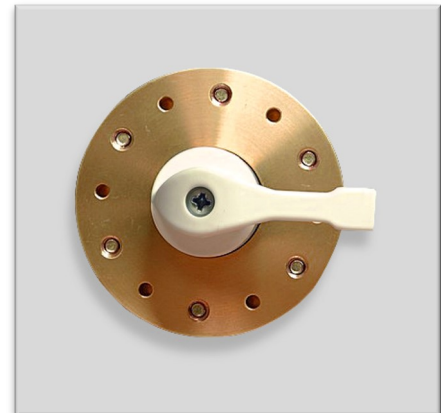
The specially designed dew/frost point sensor is mounted through the skin of the aircraft on either the left or right side. The dew/frost point detection method utilized assures precision accuracy, high repeatability and high reliability.

Features:

- Designed for atmospheric sciences
- Measures dew/frost points in flight
- Rugged shock-mounted, military qualified
- Choice of left or right-side mounting
- 90 to 240 Vac operating power
- Single or three stage sensors available to fit specifications
- Five soft keys for setup and operation:
 - Displayed parameter selection, °C/°F toggle
 - View/change time, date digital averaging, baud rate
 - Manual Auto Balance Cycle initiate
 - Program Auto Balance Cycle for start time, interval, output Track/Hold
 - Maximum Heat toggle
 - Maximum Cool toggle
 - View/change high and low limits for analog outputs
 - View/change alarm parameters, high/low limits, high or low alarms, latched or unlatched relays
 - Reset front panel alarm indicators, latched only



The 137 Vigilant Aircraft Hygrometer



The 137 Vigilant Sensor Mounting Fitting
Outside and Inside Views



 **Edgetech Instruments**

ISO/IEC 17025:2005 Accredited
ISO 9001:2015 Registered

Technical Specifications

Dew/Frost Point Range:

A1 Sensor Single Stage:
-40°C to +60°C (-40°F to +140°F)

A3 Sensor Three Stage:
-50°C to +90°C (-58°F to +200°F)

Dew/Frost Point Accuracy:

±0.20°C (±0.36°F) nominal

Dew/Frost Point Sensor:

Chilled mirror with 3-wire Platinum
Resistance Thermometer (PRT)
100 ohms at 0°C, nominal

Depression:

45°C (81°F), nominal, A1 Sensor
65°C (117°F), nominal, A3 Sensor

Sensor Materials:

Chromium, glass, epoxy, anodized aluminum

Slew Rate:

1.5°C (2.7°F)/second max, above 0°C

Repeatability:

±0.05°C (0.09°F)

Hysteresis:

Negligible

Precision Resolution:

0.1 degrees C or F

Sample Flow Rate:

0.25 to 2.5 liters/minute (0.5 to 5.0 SCFH)

Operating Temperature:

Control Unit: 0°C to +50°C (+32°F to +122°F)

A1 Sensor: -40°C to +60°C (-40°F to 110°F)

A3 Sensor: -50°C to +100°C (-58°F to 212°F)

Display:

LCD graphics backlit display 0.25 inch digits

Analog Output:

Voltage: 0 to 5 Vdc, scalable from -75°C to +100°C
(-103°F to +212°F), 1 K ohms minimum load
resistance

Current: 4 to 20 mA, scalable from -75°C to +100°C
(-103°F to +212°F), 1000 ohms max loop resistance

Serial Digital Communication:

RS-232C compatible 9-pin D sub-miniature
connector (female)

Baud Rates: 1200/2400/4800/9600/19200
Protocol: N81

Output of time, date and dew/frost point at
timed intervals

Programming of most keypad functions

Auto Balance Control:

Manual initiation of ABC at any time

Automatic ABC with start time and interval
programmable from keypad or RS-232 port

Outputs programmable for Track or Hold
during ABC

Physical:

Shipping weight: 11 lb. (5 kg) with sensor

Dimensions:

Less shock mount base (L x W x H):
13 x 7.6 x 4.9 in. (33 x 19.2 x 12.4 cm)

With shock mount base (L x W x H):
13.1 x 7.6 x 5.8 in. (33 x 19 x 14.6 cm)

Mounting Configurations:

AS/L Aircraft sampling module, left side to
pilot perspective

AS/R Aircraft sampling module, right side to
pilot perspective

Power Requirements:

90 to 240 Vac, 50-60 Hz, 75 W maximum

Fuses:

90 to 150 Vac Operation:

1 A, 3 AG, 250 Vac, Slo-Blo

160 to 240 Vac Operation:

1 A, 3 AG, 250 Vac, Slo-Blo

Options:

Additional sensor cable over 15 feet

Keypad:

Five soft keys for setup and operation

