

COCKPIT ENGINE INSTRUMENTATION



H1900 Series Indicator/Monitor

Howell's H1900 Series Indicator/Monitor is a state-of-the-art cockpit indicator that also functions as a health and usage engine monitor.

Primary Display Options:

- Engine Speed
- Engine Temperature
- Engine Torque
- Engine Pressure Ratio (EPR)
- Fuel Flow/Pressure
- Oil Pressure/Temperature
- OAT
- DC Voltage

Available Monitoring Functions include the options listed above as well as:

- Identification and Usage Data including:
 - Aircraft/Engine Number
 - Engine Starts
 - Engine Hours
 - Engine Cycle Counting (Low Cycle Fatigue)
- Hot Section Exposure
- Exceedance Data
- Trend Data



Specifications

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Power Input	28 VDC nominal, 18 to 32 VDC requires 10W maximum
Case	The H1900 Series is 5.5 inches overall length/5.25 inches behind bezel. Both dimensions exclude the input connector. The H1900 case conforms to MS33639 standard, and supplied in a 2 or 3 inch diameter case.
Mounting	MS28042-1 clamp or MS28055-11 bezel
Weight	1.25 lbs
Environmental	DO-160C and MIL-STD-810

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Additional Features

Signal Input

- One low-level DC input used to measure the output of the engine thermocouple harness. ANSI Type K thermocouple, range 0 to 1200 °C.
- Two frequency inputs usually assigned to monitor engine speed. Inputs from 5 Hz to 20 KHz, 500 mV to 50 Vrms, range 5.0 to 120 %RPM.
- Two discrete +28 VDC or 28V return inputs that can be used to monitor switch closures from weight-on-wheels or bleed air switches.
- One analog 0 to 5 VDC, usually used to measure a signal from an amplified pressure transducer, for torque, EPR or PAMB.
- RS-232 input used for data uploading.

Signal Output

- One discrete +28 VDC or 28V return output that can be used to operate a caution panel or other warning device (limitation of 350 mA).
- RS-232 output used for data downloading.

Optional Input/Output

While many options are available, the most common are listed below:

- ARINC 429
- MIL-STD-1553B
- One resistance input (RTD) for measuring outside air temperature sensors.
- One synchro transmitter input for measuring engine pressure ratio (EPR) or inlet guide vane (IGV) type devices.
- One analog 0 to 5 VDC output.

Data Retrieval

- Two remote-mounted switches allow the operator to step through real-time secondary displays and interrogate or reset stored engine exceedance, usage or performance data. Password protection is available.
- Download data via the RS-232 output and optional download cable. This option will allow customer-specific data to be transferred from the indicator to PC or Laptop computer in a standard ASCII format. Customer-specified formats available at additional cost.

Special Features

- Re-programmable through the connector via software and RS-232.
- Calibration on condition, without opening the indicator.

Display

- A precision micro-stepper motor drives the analog pointer.
- The digital display features four, seven-segment LED characters with four decimal points. (NVG compatible per MIL-L-85762A). Brightness automatically controlled via an integral photoelectric cell.
- Accuracies for the digital display, from -40 °C to +71 °C ambient, ± 3 °C / ± 0.2 %RPM.

Warning Lamp (Optional)

- The H1900 Series employs an integral warning lamp, which can be supplied in red, yellow, orange or NVG blue/green or red. Activation point is set to customer specifications.

Ball Flag Indicator

- Electro-magnetic, latching ball indicator, password resettable. Normally black, this indicator turns white to indicate an exceedance or maintenance action.

Internal Lighting (Optional)

- Internal lighting can be provided to operate from 5V AC/DC or 28 VDC system. Brightness controlled by the lighting rheostat in the aircraft. Available color options are white, red, blue/white or NVG.

Connector Interface

- MS3476W16-26S or PT06SE-16-26S (MIL-C-26482 Series I or II). Adapter harnesses are available to connect to existing aircraft harness, avoiding aircraft wiring change.

Certification

- TSO certification provided depending on application.

