



**allweatherinc**  
Your Aviation Weather Partner

# Aviation Grade Digital Barometer

## 7150 Series

### Overview

The All Weather, Inc (AWI) 7150 Series Aviation Grade digital barometers are designed to provide accurate pressure measurements over a wide range of environmental temperatures and pressures. The fully compensated Class A digital barometer is ideal for use in the most demanding automated weather applications such as Automated Weather Observing Systems (AWOS).

### Designed for Aviation

The AWI 7150 Aviation Grade digital barometers are FAA Certified and meet the recommendations of both the International Civil Aviation Organization (ICAO) and the World Meteorological Organization (WMO). More than 2,000 AWI digital barometers are operationally calculating altimeter readings all over the world. Used as a primary barometer for the field AWOS or as a back-up altimeter for the tower operations, the AWI 7150 Series barometer will deliver reliable pressure measurements.

### Accurate and Reliable

Providing an altimeter reading during high atmospheric temperature is one of the most operationally important parameters for any airport operator. The AWI 7150 digital barometer has the largest operating temperature range of any Class A barometer on the market today. Containing highly accurate pressure transducers with silicon piezoresistive absolute pressure sensors, the AWI 7150 series barometer has excellent hysteresis and repeatability. The pressure sensor combines three powerful techniques for its superior performance: the use of single crystal silicon material, the capacitive measurement principle and the air sampling inlet. The design of the capacitive pressure sensor is maximized for a wide dynamic range and includes a built-in overpressure blocking mechanism.



### Operation

Low temperature dependence and long-term stability characteristics places this sensor best in class. The large operational temperature range makes it suitable for all types of harsh environments. Used as a primary barometer for the field AWOS or as a back-up altimeter for the tower operations, the AWI 7150 Series barometer will deliver reliable pressure measurements.

### Calibration & Self-Diagnostics

Every digital barometer is calibrated through a scientifically valid chain of reference. The traceability chain goes directly from the product up to the National Institute of Standards and Technology (NIST) with an unbroken chain of calibrations. All barometers come with a NIST traceable factory calibration certificate. In the field, software continuously checks that each transducer remains within set tolerances. Should a transducer be out of tolerance, the field software sends a message indicating a corrective action is needed.

### Built-In Failover

The AWI 7150 series of digital barometers is available in single, dual or triple transducer models providing multiple measurements, ensuring corroboration of reported data as well as continued operation in the unlikely event of transducer failure.

# Models

The AWI 7150 series digital barometer is available in Single, Dual and Triple transducer configuration as follows:

Model	Number of Transducers
7150-B	Single - 1
7150	Dual - 2
7150-A	Triple - 3

# Specifications

Parameter	Specification
Measurement	Barometric Pressure
Grade	Aviation
Sensor Class	Class A ( $\pm 0.15$ hPa)
Sensor Type	Silicon Piezoresistive Absolute Pressure Sensor
Number of Transducers	1, 2 or 3
FAA Certified	Yes
ICAO and WMO Compliant	Yes
Pressure Range	500-1117 hPa (14.7-33.0 inHg)
Resolution	0.01 hPa (0.0003 inHg)
Accuracy at +20 °C	$\pm 0.07$ hPa ( $\pm 0.002$ inHg) @ 25°C
Long-term Stability 500...1100 hPa	$\pm 0.1$ hPa/year ( $\pm 0.003$ inHg)
Linearity	$\pm 0.03$ hPa ( $\pm 0.001$ inHg)
Hysteresis	$\pm 0.03$ hPa ( $\pm 0.001$ inHg)
Repeatability	$\pm 0.03$ hPa ( $\pm 0.001$ inHg)
Calibration Uncertainty	$\pm 0.03$ hPa ( $\pm 0.001$ inHg)
Response Time (One Sensor)	1 s
Operating Temperature	-40 to +85°C (-40 to +185°F)
Storage Temperature	-55 to +125°C (-67 to +257°F)
Humidity	Noncondensing
Maximum Pressure Limit	2032 hPa(60 inHg) abs.
Minimum Pressure Limit	0 hPa(0 inHg)
Supply Voltage	6 to 40 VDC, reverse polarity protected
Serial I/O	RS232, RS-485, RS-422 simultaneously
Serial Baud Rate	4800, 9600, 19200, or 57600
Serial Parameters	8-N-1
Serial Connector	DE9 Female
Housing Material	Powder-coated aluminum
Compliance	EMC Standard EN 61326-1:2005, MIL-STD-461F (CE102, RE102, CS101, and RS103) <b>CE</b>

## DCP KIT - 11906

The 11906 Data Collection Platform (DCP) Kit includes all the components necessary to incorporate the AWI 7150 series digital barometer into the DCP enclosure. Please refer to the DCP Kit Model 11906 data sheet for details.