AIRMAR TECHNOLOGY CORPORATION

Sensing Technology

WeatherStation® Instrument Calibration Certificate

Model: **PB200**
ID: **2265416**
Calibration Date: **6/2/2011**
Manufacturer: Airmar Technology Corporation, Milford NH USA
Test Procedure: 96-154-02

The WeatherStation® Instrument passes testing for IPX6 heavy seas water standards (excepting units equipped with RH sensors, which meet IPX4) and the IEC 60945 standards for exposed units[1]. All units are calibrated in an onsite wind tunnel[2].

Unit Test Results:

Test Performed	Logged Value	Test Requirement
0 Knot Wind	0.9	Less than 1 Knot Max
50 Knot Cal [4]	PASS	Within 2 Knots RMS
Humidity	N/A	Within ±5 % RH
Temperature [5]	22.3	Within ±1.1 °C
Pressure	997.7	Within ±2 mBar
Rate Gyro – Dynamic [6]	N/A	Under 4 deg/sec average error
Rate Gyro – Static	N/A	Within ±40 Deg/min
Pitch	0.0	Within 1°
Roll	0.2	Within 1°

Ambient (Local) Test Conditions [3]:

Humidity: 39.5 %RH
Temperature: 22.7 Deg C
Pressure: 997.9 mBars

Equipment List

- **Wind Tunnel Calibration**
  - **United Sensor Corp. Pitot Tube – Calibrated to NIST traceable pitot tube**
  - **MKS Instruments Pressure Sensor**
  - **BK Precision® 5491A Multimeter**
- **Ambient Temperature Readings (Temperature, humidity and pressure)**
  - **Vaisala® PTU200**
- **Rate Gyro Testing**
  - **SEI A2 Absolute encoder**
  - **US Digital R164 Motor Controller**

1 – After multiple heat cycles above 65° C (149°F) wind anemometer performance may require recalibration to remain within specifications at wind speeds above 50 knots (92.6 km/h) .

2 – The on site wind tunnel is calibrated with a pitot tube, which in turn was calibrated with a NIST traceable pitot tube.

3 – Ambient conditions measured with a Vaisala PTU300. Temperature, humidity and pressure readings compared to Vaisala PTU300. The temperature, pressure and humidity readings from the Vaisala® instruments were calibrated by Vaisala® against instruments calibrated to NIST traceable instruments.

4 – Units are calibrated at 50 knots with a 75 point correction curve.

5 – Unit temperature and humidity recorded with 4+ knots of wind present.

6 – Test conducted at a rate of turn of 70 degrees per second.

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Sensing Technology

WeatherStation® Instrument Calibration Certificate

Model: **PB200**
ID: **2250051**
Calibration Date: **5/14/2011**
Manufacturer: Airmar Technology Corporation, Milford NH USA
Test Procedure: 96-154-02

The WeatherStation® Instrument passes testing for IPX6 heavy seas water standards (excepting units equipped with RH sensors, which meet IPX4) and the IEC 60945 standards for exposed units[1]. All units are calibrated in an onsite wind tunnel[2].

Unit Test Results:

Test Performed	Logged Value	Test Requirement
0 Knot Wind	0.1	Less than 1 Knot Max
50 Knot Cal [4]	PASS	Within 2 Knots RMS
Humidity	N/A	Within ±5 % RH
Temperature [5]	22.8	Within ±1.1 °C
Pressure	1001.6	Within ±2 mBar
Rate Gyro – Dynamic [6]	N/A	Under 4 deg/sec average error
Rate Gyro – Static	N/A	Within ±40 Deg/min
Pitch	0.0	Within 1°
Roll	0.0	Within 1°

Ambient (Local) Test Conditions [3]:

Humidity: 31.7 %RH
Temperature: 23.8 Deg C
Pressure: 1001.4 mBars

Equipment List

- **Wind Tunnel Calibration**
  - **United Sensor Corp. Pitot Tube – Calibrated to NIST traceable pitot tube**
  - **MKS Instruments Pressure Sensor**
  - **BK Precision® 5491A Multimeter**
- **Ambient Temperature Readings (Temperature, humidity and pressure)**
  - **Vaisala® PTU200**
- **Rate Gyro Testing**
  - **SEI A2 Absolute encoder**
  - **US Digital R164 Motor Controller**

1 – After multiple heat cycles above 65° C (149°F) wind anemometer performance may require recalibration to remain within specifications at wind speeds above 50 knots (92.6 km/h) .

2 – The on site wind tunnel is calibrated with a pitot tube, which in turn was calibrated with a NIST traceable pitot tube.

3 – Ambient conditions measured with a Vaisala PTU300. Temperature, humidity and pressure readings compared to Vaisala PTU300. The temperature, pressure and humidity readings from the Vaisala® instruments were calibrated by Vaisala® against instruments calibrated to NIST traceable instruments.

4 – Units are calibrated at 50 knots with a 75 point correction curve.

5 – Unit temperature and humidity recorded with 4+ knots of wind present.

6 – Test conducted at a rate of turn of 70 degrees per second.

AIRMAR TECHNOLOGY CORPORATION

Sensing Technology

WeatherStation® Instrument Calibration Certificate

Model: **PB200**
ID: **2265420**
Calibration Date: **6/2/2011**
Manufacturer: Airmar Technology Corporation, Milford NH USA
Test Procedure: 96-154-02

The WeatherStation® Instrument passes testing for IPX6 heavy seas water standards (excepting units equipped with RH sensors, which meet IPX4) and the IEC 60945 standards for exposed units[1]. All units are calibrated in an onsite wind tunnel[2].

Unit Test Results:

Test Performed	Logged Value	Test Requirement
0 Knot Wind	0.5	Less than 1 Knot Max
50 Knot Cal [4]	PASS	Within 2 Knots RMS
Humidity	N/A	Within ±5 % RH
Temperature [5]	22.7	Within ±1.1 °C
Pressure	998.1	Within ±2 mBar
Rate Gyro – Dynamic [6]	N/A	Under 4 deg/sec average error
Rate Gyro – Static	N/A	Within ±40 Deg/min
Pitch	0.0	Within 1°
Roll	0.2	Within 1°

Ambient (Local) Test Conditions [3]:

Humidity: 39.4 %RH
Temperature: 23.4 Deg C
Pressure: 998.1 mBars

Equipment List

- **Wind Tunnel Calibration**
  - **United Sensor Corp. Pitot Tube – Calibrated to NIST traceable pitot tube**
  - **MKS Instruments Pressure Sensor**
  - **BK Precision® 5491A Multimeter**
- **Ambient Temperature Readings (Temperature, humidity and pressure)**
  - **Vaisala® PTU200**
- **Rate Gyro Testing**
  - **SEI A2 Absolute encoder**
  - **US Digital R164 Motor Controller**

1 – After multiple heat cycles above 65° C (149°F) wind anemometer performance may require recalibration to remain within specifications at wind speeds above 50 knots (92.6 km/h) .

2 – The on site wind tunnel is calibrated with a pitot tube, which in turn was calibrated with a NIST traceable pitot tube.

3 – Ambient conditions measured with a Vaisala PTU300. Temperature, humidity and pressure readings compared to Vaisala PTU300. The temperature, pressure and humidity readings from the Vaisala® instruments were calibrated by Vaisala® against instruments calibrated to NIST traceable instruments.

4 – Units are calibrated at 50 knots with a 75 point correction curve.

5 – Unit temperature and humidity recorded with 4+ knots of wind present.

6 – Test conducted at a rate of turn of 70 degrees per second.

AIRMAR TECHNOLOGY CORPORATION

Sensing Technology

WeatherStation® Instrument Calibration Certificate

Model: **PB200**
ID: **2265415**
Calibration Date: **6/2/2011**
Manufacturer: Airmar Technology Corporation, Milford NH USA
Test Procedure: 96-154-02

The WeatherStation® Instrument passes testing for IPX6 heavy seas water standards (excepting units equipped with RH sensors, which meet IPX4) and the IEC 60945 standards for exposed units[1]. All units are calibrated in an onsite wind tunnel[2].

Unit Test Results:

Test Performed	Logged Value	Test Requirement
0 Knot Wind	0.6	Less than 1 Knot Max
50 Knot Cal [4]	PASS	Within 2 Knots RMS
Humidity	N/A	Within ±5 % RH
Temperature [5]	22.5	Within ±1.1 °C
Pressure	997.5	Within ±2 mBar
Rate Gyro – Dynamic [6]	N/A	Under 4 deg/sec average error
Rate Gyro – Static	N/A	Within ±40 Deg/min
Pitch	0.0	Within 1°
Roll	0.0	Within 1°

Ambient (Local) Test Conditions [3]:

Humidity: 39.1 %RH
Temperature: 23.0 Deg C
Pressure: 997.5 mBars

Equipment List

- **Wind Tunnel Calibration**
  - **United Sensor Corp. Pitot Tube – Calibrated to NIST traceable pitot tube**
  - **MKS Instruments Pressure Sensor**
  - **BK Precision® 5491A Multimeter**
- **Ambient Temperature Readings (Temperature, humidity and pressure)**
  - **Vaisala® PTU200**
- **Rate Gyro Testing**
  - **SEI A2 Absolute encoder**
  - **US Digital R164 Motor Controller**

1 – After multiple heat cycles above 65° C (149°F) wind anemometer performance may require recalibration to remain within specifications at wind speeds above 50 knots (92.6 km/h) .

2 – The on site wind tunnel is calibrated with a pitot tube, which in turn was calibrated with a NIST traceable pitot tube.

3 – Ambient conditions measured with a Vaisala PTU300. Temperature, humidity and pressure readings compared to Vaisala PTU300. The temperature, pressure and humidity readings from the Vaisala® instruments were calibrated by Vaisala® against instruments calibrated to NIST traceable instruments.

4 – Units are calibrated at 50 knots with a 75 point correction curve.

5 – Unit temperature and humidity recorded with 4+ knots of wind present.

6 – Test conducted at a rate of turn of 70 degrees per second.