HYGRODYNAMICS

DEW POINT MONITOR

MODEL 8092
8092-230VAC

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DIAGRAMS

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DEW POINT MODEL
MODEL 8092

SPECIFICATIONS

Dew Point Range: +10°F to +70°F (at +73°F sample air temp)
0°F to +50°F (at +50°F sample air temp)
+35°F to +90°F (at 100°F sample air temp)

Ambient Air Temp.: +50°F to +100°F (sample air temp is approximately equal to ambient air temp)

Accuracy: ±2°F

Pressure Range: 5-150psig

Alarm Indication: Red Light and Audible Alarm With Silencer Switch

Alarm Output: Normally Open and Normally Closed Dry Contacts Rated @ 5AMP, 115VAC

Recorder Output: 4-10mA Scaled as -40°F to 70°F. Jumper Selectable 0-5V.

$$MA = \frac{DP + 67.5}{6.875} \quad \text{or} \quad V = \frac{DP + 40}{22}$$

-40 = 4mA or 0V 70 = 20mA or 5V

Sensor Part No.: 1826-2

Enclosure: Lexan NEMA-12 Electrical Box, CSA Approved. Wall Mountable or Portable With Removable Front Cover.

Dimensions: 10-1/2" x 8-1/2" x 6"

Net Weight: 7.4 lbs.

Power Requirements: 115VAC ±10% 50/60Hz 0.1 AMPS **(230V available)**

PRINCIPLE OF OPERATION

The 8092 Dew Point Monitor operates by bleeding off compressed air that has passed through a sensor manifold. The sensor manifold contains a 3 element moisture sensor and a temperature transducer. With humidity and temperature signals the circuitry can provide temperature compensated dew point measurement.

Because the sensor is exposed to line pressure, the monitor reads the true pressure dew point of the air in the system it is monitoring.

INSTALLATION

Choosing a Sampling Location

The best sampling location is usually the main distribution line of the air system. Follow these guidelines when selecting a sampling location:

1) Sample air should be free of oil, particulates, and condensation. **Install an inline filter between sampling location and dew point monitor.**
2) Be aware of ambient and sample air temperature limitations listed in SPECIFICATIONS section.

When a suitable location is found, install a 1/8" NPT male fitting in your air line and attach the Dew Point Monitor with the supplied plastic tubing.

Mounting the Enclosure

Remove the screws that hold the brackets on the backside of the unit. Re-install brackets so the flanges extend beyond the top and bottom of the enclosure. Mount the enclosure to a chosen location with bolts. Connect the supplied plastic tubing to the sampling location and to the Dew Point Monitor air inlet.

Remote Alarm Connection

Refer to the wiring diagram for details on alarm connection.

1) Route wires through the liquid tight fitting on the side of the dew point monitor.

2) Connect wires to terminal block on PC Board.
   - 5 & 6 are normally closed. They make continuity when the dew point is below set point (green light).
   - 4 & 5 are normally opened. They make continuity when the dew point is above set point (red light).

3) Gently tighten the liquid tight fitting.

Recorder Output Connection

1) Route wires through the liquid tight fitting on the side of the dew point monitor.

2) Connect wires to terminal 7 & 8 of the PC Board. Terminal 7 is positive, 8 is common.

3) Gently tighten the liquid tight fitting.

OPERATION

On the Dew Point Monitor, close the valve on the flow meter by turning clockwise. Start your compressed air system and observe the pressure on the Dew Point Monitor's gauge. Line pressures around 100 psig should have a flow of about 40 SCFH. Line pressures around 50 psig should have a flow of about 25 SCFH. Carefully open the flowmeter's valve until you get flow. This adjustment does not affect the accuracy of the dew point reading, it only affects the response time of the monitor to changes in sample dew point.

NOTE: The built in audible alarm can be silenced with the ALARM switch on the front panel. This switch does not affect the status of the remote alarm output.

MAINTENANCE

The Dew Point Monitor normally does not require calibration, and in most applications the sensor will provide years of service. However, the easiest and most reliable way to insure consistent accuracy is to replace the sensor annually.

Sensor Replacement Procedure

****Remove power to the Dew Point Monitor before servicing.**

1) Remove front cover and locate black sensor manifold.
2) Loosen hex nut on manifold and slide nut along wires away from manifold.
3) Lift 4 pin insert out of manifold to reveal sensor assembly.
4) Use a blunt object to pry sensor assembly out of 4 pin insert.
5) Observe the pin pattern on the new sensor assembly and match to the 4 pin insert. Use moderate finger pressure to press in the new sensor assembly. The sensor does not need to seat fully into the 4 pin insert.
6) Replace sensor assembly and 4 pin insert into manifold and hand tighten the hex nut.

Alarm Set Point Adjustment

****Remove power to the Dew Point Monitor before servicing.**

1) Remove the front cover.
2) Locate the set point switch (SW1) on the PC Board.
3) Move the switch to the upper position and apply power to the Dew Point Monitor.
4) View the set point on the digital meter and adjust P3 for desired set point.
5) Remove power, return SW1 to the lower position and replace the front cover.

Recorder Output Selection

****Remove power to the Dew Point Monitor before servicing.**

1) Remove the front cover.
2) Locate jumper J9 on the PC Board.
3) Refer to the wiring diagram to select either 4-20mA or 0-5V jumper position.
4) Replace the front cover.

Display Units Selection

****Remove power to the Dew Point Monitor before servicing.**

1) Remove the front cover.
2) Locate jumpers J10 and J11 on the PC Board.
3) Refer to the wiring diagram to select either °F or °C jumper positions. Both J10 and J11 must be in the same position for proper operation.
4) Replace the front cover.

TROUBLESHOOTING GUIDE

PROBLEM	ACTION
Reading on digital display never changes:	1)Check for airflow through Dew Point Monitor as indicated on flow meter. Make sure flow meter valve is open. 2)Make sure SW1 on PC Board is in the "OPERATE" position.
Dew Point reading is abnormally high or low:	1)Check for air flow through Dew Point Monitor. 2)Make sure temperature limitations are not exceeded. 3)Inspect air in system for oil, condensation, or reactive chemical vapors. 4)Sensor may be damaged requiring replacement.

Electronic Test Procedure

The following electronic test will confirm proper operation of the circuit board:

****Remove power to the Dew Point Monitor before servicing.**

1) Remove the front cover.
2) Locate jumper J8 near the center of the PC Board and move it to the upper position using needle nose pliers.
3) Disconnect the wires from terminals 11 & 12.
4) Apply Power to the Dew Point Monitor and observe the digital display. It should read -1°F$\pm$2°F.
5) Place a jumper from terminal 11 to terminal 12. Display should read 70°F$\pm$2°F.
6) Remove power to the Dew Point Monitor.
7) Reposition J8 to the lower location. Remove jumper from terminals 11 & 12. Reconnect to sensor wires to terminals 11 & 12.
8) Replace the front cover.

If the circuit does not function properly, the Dew Point Monitor should be returned to the factory for repair. Please contact the NSI Sales Department for instructions on returning equipment for repair.

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HYGRODYNAMICS

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