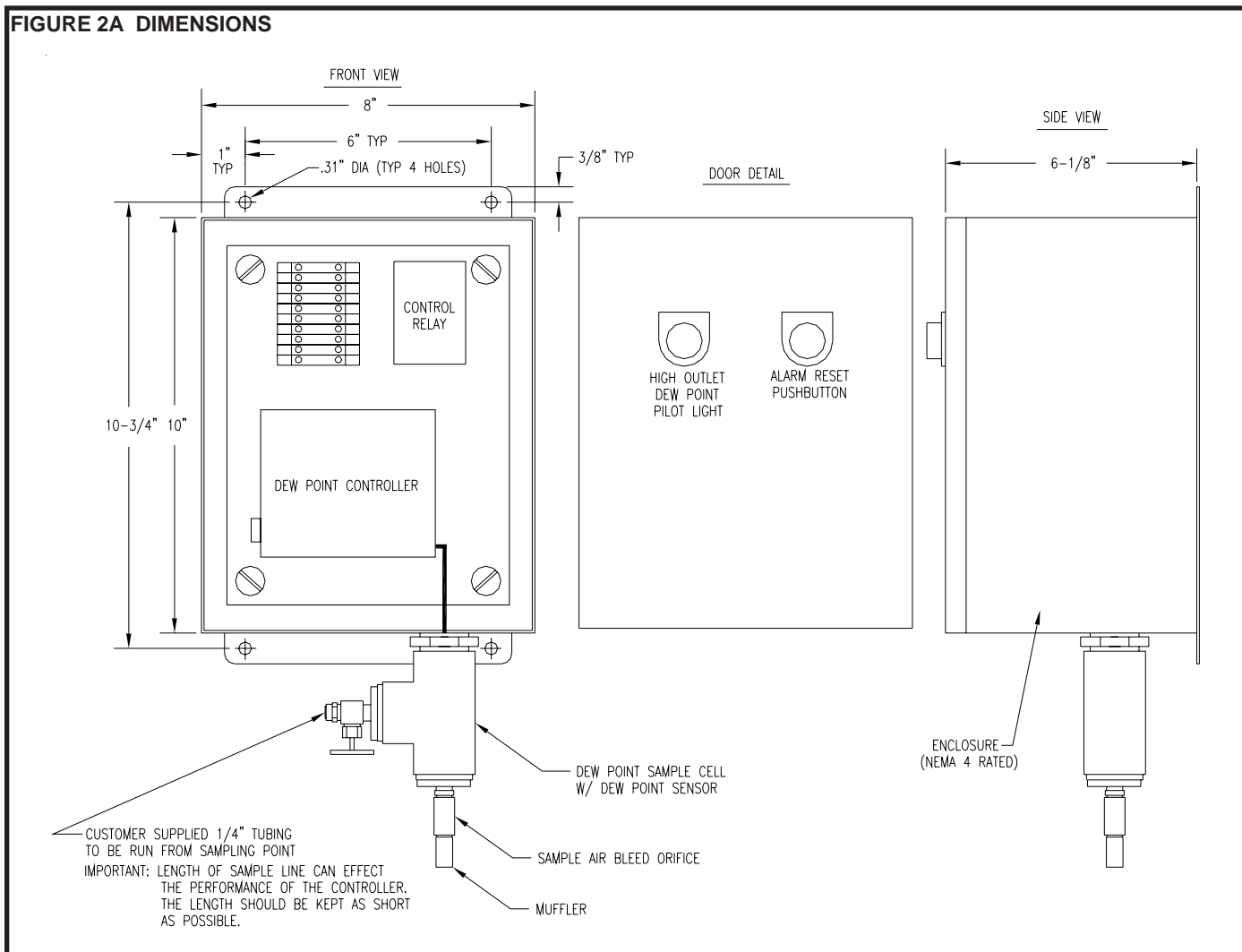


**INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS  
FOR  
HIGH DEW POINT ALARM BOX  
P/N 46-2064**

FEBRUARY 2006  
32-0283

**FIGURE 2A DIMENSIONS**



**SPECIFICATIONS AND DIMENSIONS**

**SECTION 1**

**WEIGHT** ..... 25 LBS  
**DIMENSIONS**..... see Figure 2A  
**MOUNTING** ..... see Figure 2A

**ENCLOSURE**

- Enamel painted Steel Enclosure
- Nema 4 Rated
- Continuous Hinged

**DEW POINT CONTROLLER (humistat)**

**RANGE OF CONTROL** ..... 4% to 98% Relative Humidity  
 (NOTE: Set plug and sensor determine actual operating range)  
**INPUT POWER** ..... 115V-1PH-56/60Hz  
**OUTPUT MODE** ..... SPDT. relay, 1 amperes, noninductive maximum

**DEW POINT SENSOR (hygrosensor)**

**RANGE OF CONTROL** ..... 1.4% to 6% RH @ 80°F  
**TYPE** ..... DUNMORE-TYPE lithium chloride element.

**SET POINT PLUG**

**SET POINT** ..... approx. 0°F Dew point @ 80°F

**DEW POINT SAMPLE CELL**

- Sample line isolation needle valve
  - Sample cell bleed orifice fitting
- MAXIMUM SAMPLE AIR PRESSURE** ..... 150 PSIG  
**SAMPLE LINE CONNECTION SIZE** ..... 1/4" tube fitting

**ALARM OUTPUT CONTACT**

**ELECTRICAL RATING** ..... 115V-1PH-60Hz, 10 ampere  
**OUTPUT MODE** ..... Normally open contact, latching (push-button must be pressed to reset)

**LIGHT & RESET PUSH-BUTTON**

- High Dew Point Light (red)
- Alarm Reset Push-button

**2.1 HANDLING**

DO NOT DROP THE UNIT.

DO NOT LIFT ALARM BOX BY THE SAMPLE CELL

**2.2 INSTALLATION**

BEFORE STARTING INSTALLATION PROCEDURES, TURN OFF POWER AND DEPRESSURIZE THE PIPING WHERE SAMPLE LINE IS TO BE INSTALLED, TO PREVENT INJURY. SERIOUS PERSONAL INJURY MAY RESULT IF THIS SAFETY RULE IS NOT FOLLOWED.

WHEN INSTALLING AND OPERATING THIS EQUIPMENT, COMPLY WITH THE NATIONAL ELECTRICAL CODE AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES.

WHEN INSTALLING THIS ALARM BOX, MAKE SURE THAT THE NEMA RATING IS APPLICABLE TO THE INSTALLATION.

MAKE SURE THAT ALL CUSTOMER SUPPLIED WIRING AND ELECTRICAL DEVICES ARE PROPERLY SIZED TO HANDLE THE ELECTRICAL REQUIREMENTS OF THE UNIT.

**2.3 OPERATION**

USE THIS DEVICE FOR COMPRESSED AIR ONLY.

**2.4 MAINTENANCE**

DO NOT REMOVE, REPAIR, OR REPLACE ANY ITEM ON THE SAMPLE UNIT WHILE IT IS PRESSURIZED.

TURN OFF MAIN POWER TO THE CONTROL BEFORE STARTING MAINTENANCE PROCEDURES.

**INSTALLATION**

**SECTION 3**

**3.1 INSTALLING THE UNIT**

Mount the enclosure on a flat stable surface, where the alarm light can be easily seen. The unit should be installed as close as possible to the sample point. Allow enough space to open door and to connect the sample line. Reference FIGURE 2A for mounting hole dimensions.

**3.2 INSTALLING THE DEW POINT SAMPLE LINE**

A 1/4" sample line must be connected to the isolation needle valve on the sample cell.

**CAUTION**

LENGTH OF SAMPLE LINE CAN EFFECT THE PERFORMANCE OF THE CONTROLLER. THE LENGTH SHOULD BE KEPT AS SHORT AS POSSIBLE

The sample source should be less than 150 PSIG. Do not use a pressure regulating device between the source and the sample cell. The sample source should be free of contaminants and high temperatures (over 100°F).

Use copper or stainless steel tubing for the sample line. DO NOT USE PLASTIC TUBING.

**CAUTION**

DO NOT CONNECT SAMPLE LINE TO A SOURCE EXCEEDING 150 PSIG.

DO NOT CONNECT SAMPLE LINE TO A SOURCE CONTAINING CONTAMINANTS AND/OR HIGH TEMPERATURES.

**3.3 ELECTRICAL CONNECTIONS**

**IMPORTANT**

WHEN INSTALLING AND OPERATING THIS EQUIPMENT, COMPLY WITH THE NATIONAL ELECTRICAL CODE AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES.

**3.3-1 POWER SUPPLY**

The unit requires a power source of 115V-1PH-60Hz for operation. Make the necessary electrical connections from the power source to the unit. Reference FIGURE 3A, Wiring Diagram.

**3.3-2 ALARM OUTPUT CONTACT**

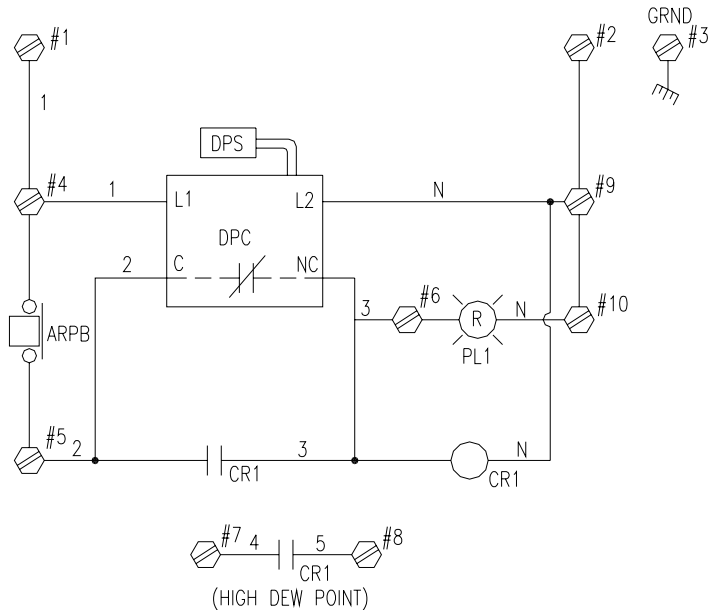
The alarm output contact is labeled as terminals numbered 7 & 8 inside the enclosure. The contacts can be used to activate a device in the event of an alarm condition.

If the alarm output contacts are to be used, make the necessary wiring connections from the alarm enclosure terminal strip to the remote device.

**FIGURE 3A WIRING DIAGRAM**

- LEGEND**
- CR1 CONTROL RELAY
  - DPC DEW POINT CONTROL
  - DPS DEW POINT SENSOR
  - PL1 DEW POINT ALARM LAMP
  - ARPB ALARM RESET PUSHBUTTON

WIRE TABLE		
WIRE NO.	SIZE	COLOR
1-5	18 AWG	RED
N	18 AWG	WHITE



**4.1 START UP**

Once the unit has been properly installed it is ready for operation.

Turn on the power supply to the unit. Open the sample cell isolation needle valve. Air must be exhausting from the sample cell when the sample source is pressurized.

**4.2 OPERATION**

The sample air passes over the sensor in the sample cell. The sample air is then exhausted through the bleed orifice fitting, which is used to maintain line pressure in the sample cell.

The isolation needle valve should be fully open during operation. This valve is only used to shut-off the sample air in the event that the sensor needs to be removed.

The operation of the High Dew Point Alarm is based on relay actuation at adjustable resistance values. The resistance of the sensor varies in inverse proportion to the relative humidity to which it is exposed. When the relative humidity rises above the set point (approx. 0°F pressure dew point @ 80°F) , the controller detects the corresponding resistance change and activates a single pole, double throw relay.

When the relay is closed the "HIGH DEW POINT" light is illuminated. At the same time the control relay CR1 is energized, this closes the alarm output contact and latches the alarm until the "ALARM RESET PUSH-BUTTON" is pushed.

**4.3 EQUIPMENT DESCRIPTION**

The following sections include detailed descriptions of the individual components in this alarm. **REFERENCE FIGURE 2A.**

**4.3-1 SENSOR (hygrosensor)**

The sensor element consists of a dual winding of precious metal wire, on a plastic cylinder, with a moisture sensitive compound (DUNMORE-TYPE lithium chloride element). A perforated metal or plastic cover protects the sensor element from physical damage.

The operation of the sensor is based upon the ability of the coated hygroscopic film to change it's resistance instantly with microchanges in the relative humidity of the sample air. The resistance of the sensor is inversely proportional to the relative humidity to which it is exposed.

The sensor is mounted in the sample cell, which is located on the bottom of the enclosure.

**4.3-2 DEW POINT CONTROLLER (humistat)**

The controller is designed to monitor electric current flowing through the sensing element and detect resistance changes and automatically actuate a single pole double throw relay when the resistance varies above the set point.

The controller set point is calibrated using the set plug.

**4.3-3 SET PLUG**

The set plug is provided with the controller. The set plug is used to calibrate the controller. The plug is simply plugs into the cable instead of the sensor. The plug will emulate a set humidity condition. The controller then is adjusted accordingly. The calibrating instructions are outlined in Section 5.4.

**WARNING**

**THE HUMISTAT MODULE USES 115 VAC. AVOID CONTACT WITH EXPOSED TERMINALS WHEN PERFORMING SET POINT ADJUSTMENTS.**

**NEVER TEST THE HUMIDITY SENSOR WITH AN OHMMETER OR OTHER DC MEASURING DEVICES, DOING SO WILL PERMANENTLY DAMAGE THE SENSOR.**

**DO NOT EXPOSE THE SENSOR TO TEMPERATURES EXCEEDING 140°F.**

**IF SENSOR IS EXPOSED TO LIQUID MOISTURE IT WILL BE PERMANENTLY DAMAGED.**

**5.1 HUMISTAT MAINTENANCE**

Periodically DISCONNECT POWER and clean dust and lint from the PC board with a soft brush.

**5.2 DEW POINT SENSOR MAINTENANCE**

Periodically check the humidity sensor for accumulation of dust and lint. If necessary, use a soft brush to remove accumulated dust and lint from the exterior jacket, but **DO NOT ATTEMPT TO REMOVE ALL TRACES OF LINT AND DUST WITHIN THE SENSOR**, since the introduction of the brush, etc, may damage the sensor. A slight accumulation of dust will not impair the normal function of the sensor as long as it is not heavily contaminated.

It is recommended that the sensor be replaced every two (2) years.

**IMPORTANT**

**ALWAYS CALIBRATE THE HUMISTAT AFTER THE DEW POINT SENSOR IS CLEANED. REFERENCE SECTION 5.4.**

**5.3 MISC EQUIPMENT MAINTENANCE**

Periodically check the following:

- Check the bleed orifice on the sample cell to make sure it is not plugged or damaged. If plugged or damaged, replace immediately.
- Check the isolation valve to make sure it is fully open. If valve will not open completely or is leaking replace immediately.
- Check alarm light. Replace light bulb every 6 months.
- Check the cable from the sensor to the humistat to make sure it is completely seated into the sockets. Check cable for damage. If cable is damaged replace immediately.
- Check dew point sensor for performance by using a spare sensor and compare performance.
- Replace the PC board if a malfunction CAN NOT be resolved by replacing the dew point sensor.

**5.4 HUMISTAT CALIBRATION PROCEDURES**

After the sampling line and power lines are connected, the humistat must be adjusted as follows:

Unplug the cable from the dew point sensor.

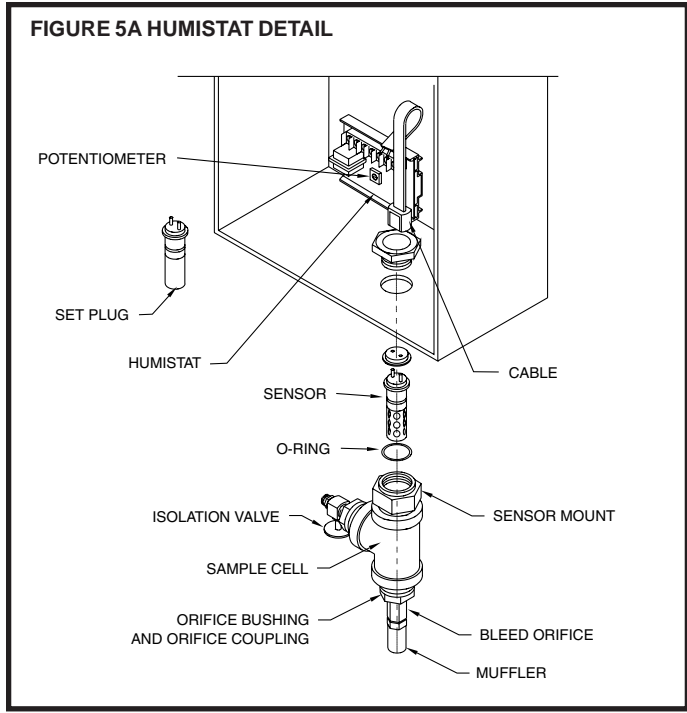
Plug the set plug into the cable.

Apply power to the controller and adjust the potentiometer, **(REFERENCE FIGURE 5A)**, on the PC board. Rotate the potentiometer back and forth, noting the position of the screw-driver slot when the relay clicks as it pulls in and drops out. Set the potentiometer midway between these two points.

Remove the set plug.

Plug the cable back to the dew point sensor.

The humistat is now ready for operation.



**REPLACEMENT PARTS**

**SECTION 6**

ITEM NO	DESCRIPTION	PART NO	QTY
1	ISOLATION VALVE	14-1306	1
2	BLEED ORIFICE	26-0490	1
3	DEW POINT SENSOR	26-0817	1
4	SENSOR MOUNT	26-0816	1
5	CABLE	46-2185	1
6	HUMISTAT	26-0814	1
7	SET PLUG	26-0818	1
8	REPLACEMENT LIGHT BULB	26-0726	1
9	LIGHT ASSEMBLY (W/RED LENS)	26-2141	1
10	RESET PUSHBUTTON	26-3757	1
11	ORIFICE COUPLING	26-0657	1
12	ORIFICE BUSHING	26-0296	1
13	CONTROL RELAY	26-0813	1
14	MUFFLER	26-0623	1



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