

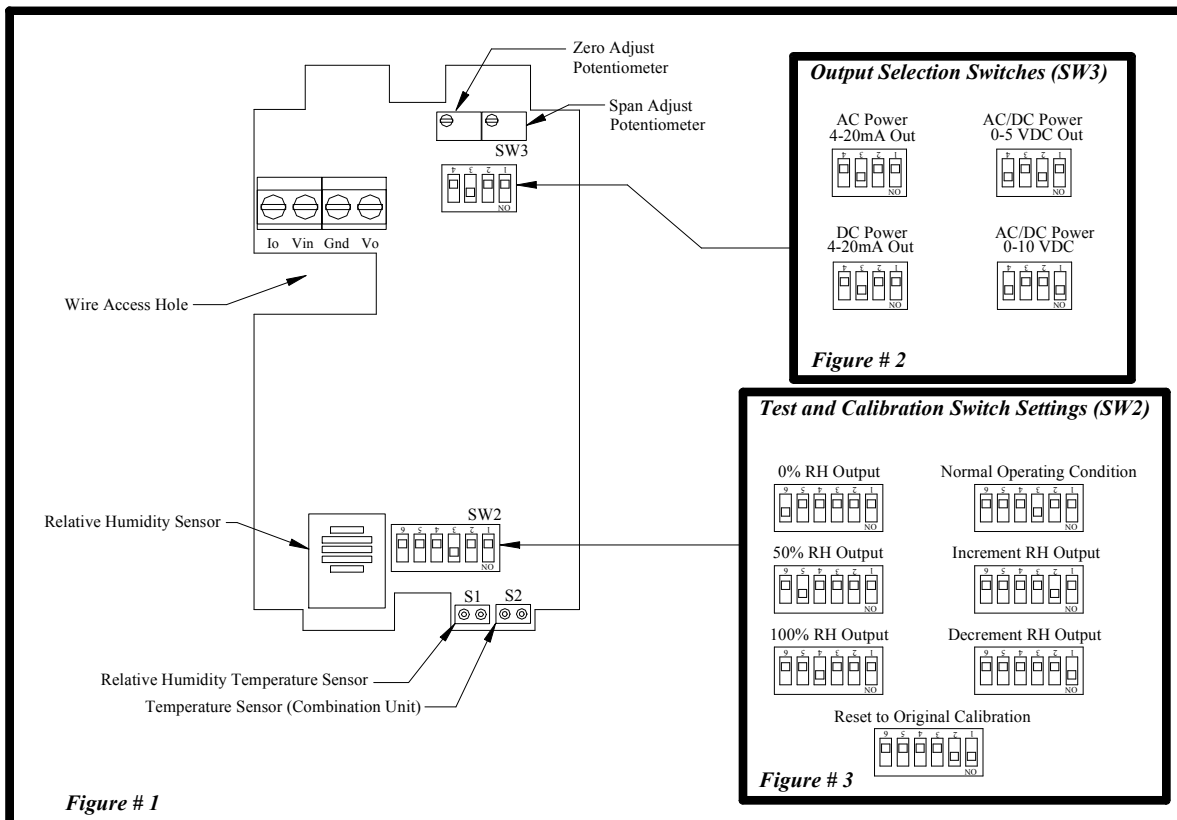
Please Read Instruction Carefully Before Installation!

The ACI/RH Room Series transmitters are a universal Relative Humidity transmitter that can be powered with either a DC or AC supply voltage (See Figure #4). The ACI/RH uses a half-wave bridge rectifier to convert the AC power to a useable DC voltage. **Caution: When using a 24 VAC transformer, ACI recommends that you use an isolated transformer. If sharing the transformer with your controller, valve, actuator, or any other device, be sure to connect all of the devices with the proper polarity, since most controllers are earth grounded. Failure to do so may result in damage to the ACI/RH, your controller, or any other devices that are attached due to a ground loop problem.**

The ACI/RH Room transmitters are designed with a field selectable 4-20 mA, 0-5 VDC, or 0-10 VDC output signal that is equivalent to 0 to 100% RH. **Unless specified upon ordering, all units are shipped from the factory to accept DC power with a 2-wire, 4-20 mA loop-powered output. Caution: When changing the Output Selection Switch (SW3) make sure that the power supply is turned off before making any changes. Failure to do this may cause damage to the unit.**

■ RH Wiring Diagram

ACI recommends that all ACI/RH 4-20 mA Room relative humidity transmitters be wired with a 16 to 22 AWG 2-wire twisted pair or shielded cable for best results. All ACI/RH Room voltage output transmitters should use a 3-wire 16 to 22 AWG shielded cable. **Note: When using a shielded cable, be sure to connect only (1) end of the shield to ground at the controller. Connecting both ends of the shield to ground may cause a ground loop.**



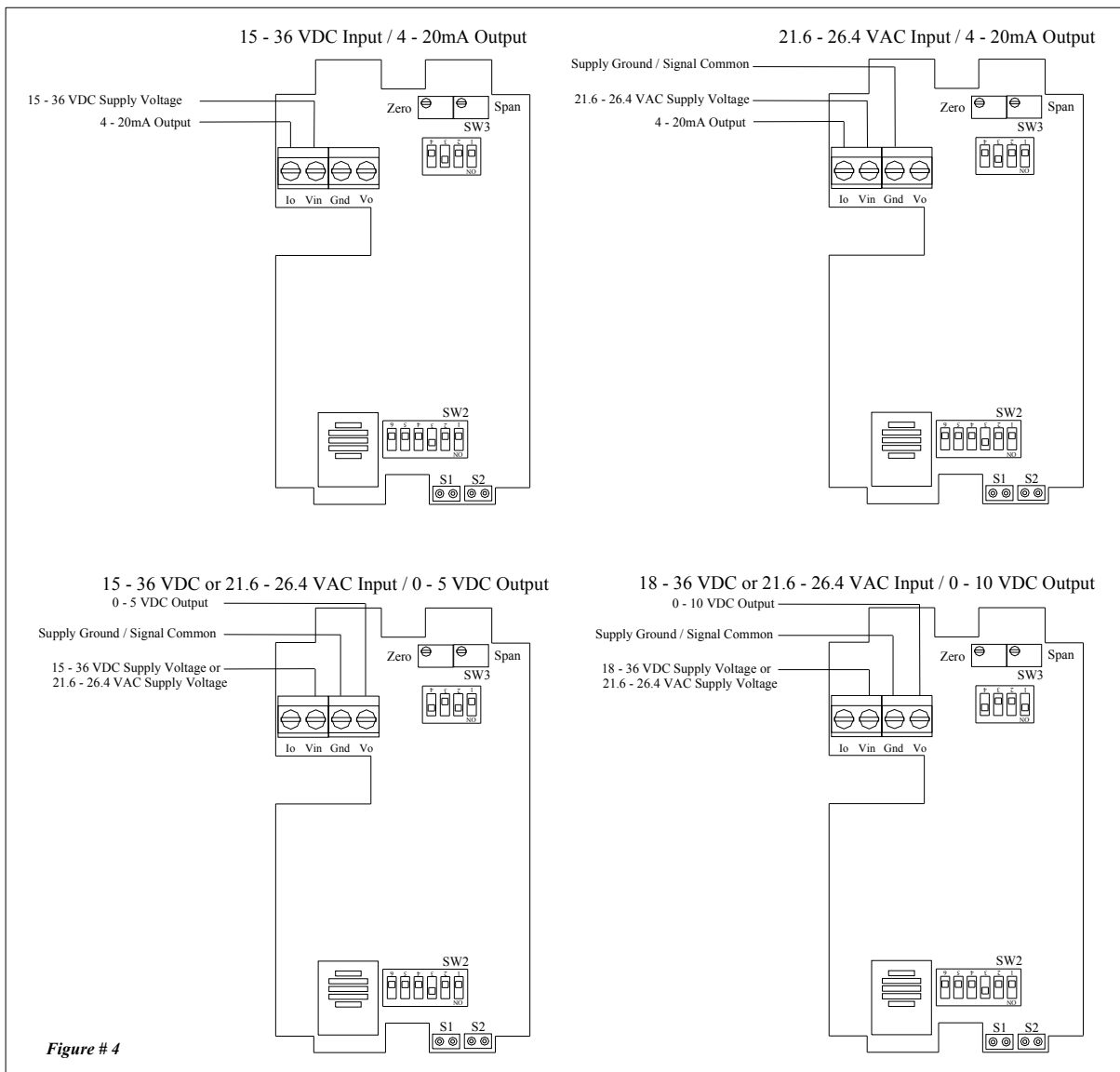


Figure # 4

■ RH Test and Calibration Dip Switch Settings (See Figure #3)

Note: Do not adjust these switches unless you are using them to troubleshoot or recalibrate the sensor. Dipswitch #3 should always be left in the ON position. Failure to do so will not allow the RH transmitter to read the sensor (The output will always remain the same).

0% RH Output - Transmitter always outputs a signal of 4 mA or 0 VDC. Sensor doesn't affect the transmitter output. *(For Trouble Shooting Purposes Only)*

50% RH Output - Transmitter always outputs a signal of 12 mA, 2.5 VDC, or 5 VDC. Sensor doesn't affect the transmitter output. *(For Trouble Shooting Purposes Only)*

100% RH Output - Transmitter always outputs a signal of 20 mA, 5 VDC, or 10 VDC. Sensor doesn't affect the transmitter output. *(For Trouble Shooting Purposes Only)*

Normal Operating Condition - The DIP switch must be set in this position for the RH signal to change, due to the actual measurement of the Relative Humidity by the humidity sensor.

Increment RH Output - This DIP switch will allow you to calibrate the sensor through the software. The switch must be toggled from the **Off** to the **On** position and then returned to the **Off** position for an increase of 0.5% RH. This means that if your humidity has drifted 1% over a certain time period, you will be able to toggle the **Increment RH Output** switch (2) times in order to slide the whole curve upward 1%. **Note: This is only a single point calibration, and is not recommended for critical applications. Please contact the factory before doing any field calibration.**

2305 Pleasant View Rd. ● Middleton Industrial Park ● Middleton, WI 53562

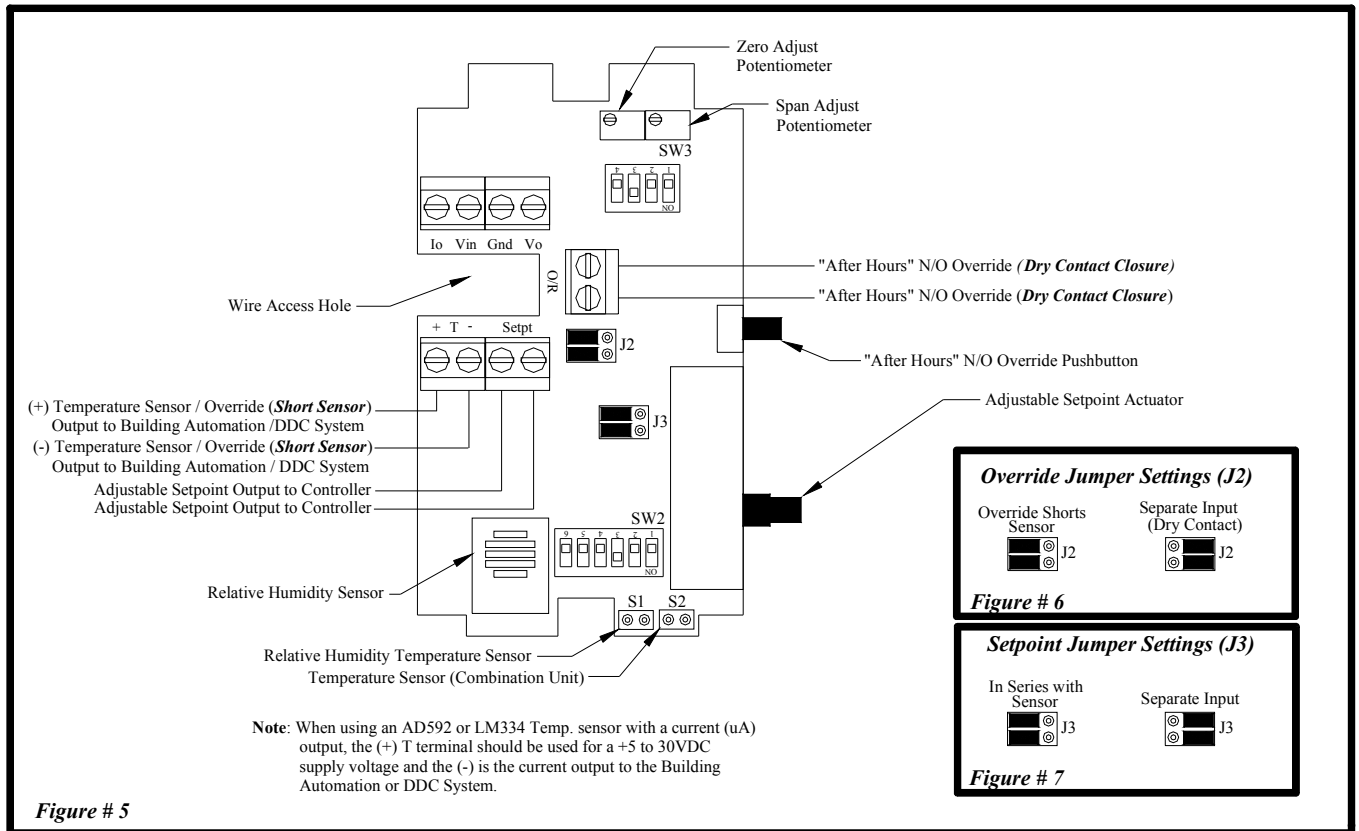
PH: (608) 831-2585 ● FAX (608) 831-7407

I000144.DOC REV 2

Decrement RH Output - This DIP switch will allow you to calibrate the sensor through the software. The switch must be toggled from the **Off** to the **On** position and then returned to the **Off** position for a decrease of 0.5% RH. This means that if your humidity has drifted 1% over a certain time period, you will be able to toggle the **Decrement RH Output** switch 2 times in order to slide the whole curve downward. **Note: This is only a single point calibration, and is not recommended for critical applications. Please contact the factory before doing any field calibration.**

Reset to Original Calibration - Both the **Increment** and the **Decrement** DIP switches should be turned on for a **minimum of 5 seconds** before turning them both off again. This will allow you to reset the transmitter back to the original factory calibration.

■ **Temperature Sensor Wiring Diagram (For RH/Temperature Combination Units only)**



Space Mount:

The RH transmitter should be placed away from areas of excessive moisture, corrosive fumes, vibration, or extremely high temperatures. The base of the housing was designed to mount over a standard 2" X 4" single gang junction box or flush to the wall. All of the RH sensors have a +/- 3% interchangeability. It is recommended to do a single point calibration for a much higher accuracy.

1. Mount the unit on an indoor wall, approximately 4 to 6 feet above the floor.
2. Make sure that the unit receives adequate airflow.
3. Connect the wires to the corresponding terminal blocks as shown in **Figure #4** and **Figure #5**.
4. Now make sure that all of the dip switches are properly set before initially powering the unit.
5. Now snap the cover back into position.
6. Finally turn out the (2) 1/16" Allen screws at the bottom of the enclosure until the cover cannot be removed.

■ Troubleshooting

No reading

1. Check that you have the correct supply voltage at the power terminal blocks.
2. Check wiring configuration and all DIP switch settings are as in **Figure #2 and Figure #3**.
3. Verify that the terminal screws are all connected tightly and that all of the wires are firmly in place.

Erratic readings

1. Verify that all of the wires are terminated properly.
2. Make sure that there is no condensation on the board.
3. Check that the input power is clean. In areas of high RF interference or noise, shielded cable may be necessary to stabilize signal.

Inaccurate readings

1. If you suspect that the transmitter is not reading within the specified tolerance, please contact the factory for further assistance.

■ RH Conversion Formulas

To convert transmitter output signal to %RH.

4-20mA to %RH

Example: 12mA transmitter signal output
 $(12\text{mA}-4\text{mA}) / 0.16 = 50\% \text{ RH}$

0-5 VDC to %RH

Example: 2 VDC transmitter signal output
 $2 \text{ VDC} / 0.05 = 40\% \text{ RH}$

0-10 VDC to %RH

Example: 8 VDC transmitter signal output
 $8 \text{ VDC} / 0.10 = 80\% \text{ RH}$