# *Installing OmniSense S-900-1 Moisture Sensors on Polyisocyanurate Insulation Panels*

Tremco's Trisotech[1] and other polyisocyanurate insulation panels are commonly used as in insulation layer in commercial built up roof construction. This application note describes OmniSense's recommended procedure for mounting the S-900-1 Moisture sensor to polyisocyanurate insulation panels.

## 1 Mounting Sensor into 2" Insulation

If the roof deck material does not allow the sensor to fit within the channel spacing it will be necessary to mount the sensor such that it is flush with the surface of the insulation. By using 2" thick (or thicker, although the screw length will need to be increased by the same amount) insulation and cutting out a recess in the insulation sensors can be embedded flush with the insulation's surface.

### *1.1 Required Tools and Materials*

1. Phillips screwdriver
2. utility knife
3. putty knife
4. Miter Box and Back Saw
5. OmniSense S-900-1 Sensor
6. Two (2) ¼-20 x 1 ½" pan head stainless steel machine screw
7. Two (2) ¼" stainless steel split lock washer
8. Two (2) ¼-20 stainless steel T-nut


**Figure 1 - Required Tools**

[1] Trisotech is the trademark of Tremco Inc.

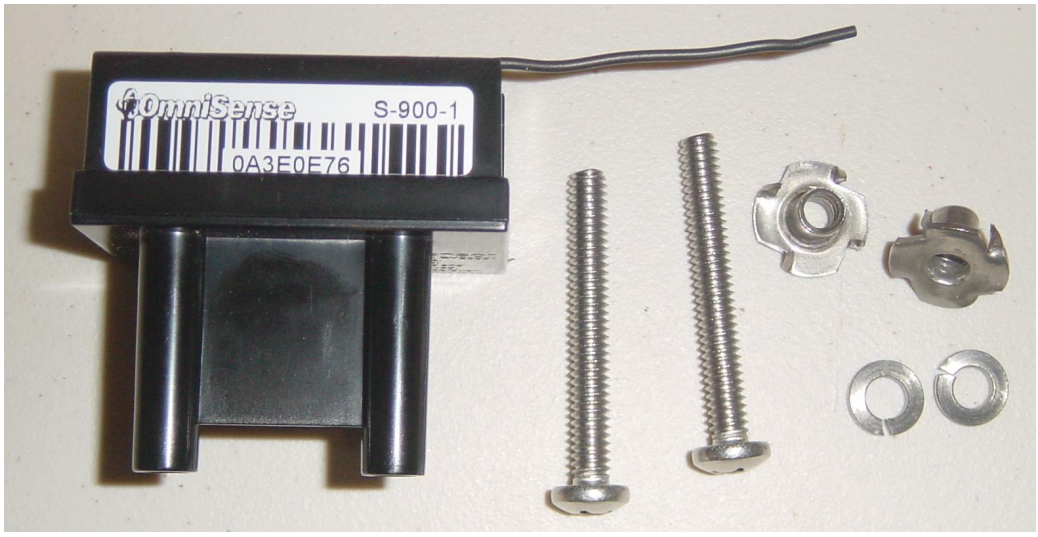


**Figure 2 - Required Materials**

## *1.2 Sensor Mounting Procedure*

1. Remove sensor from its box.
2. Position panel on roof in the intended location and mark sensor location on the insulation panel such that it positions the sensor in a channel in the steel roof deck as shown in Figure 10.
3. Using a utility knife, cut away a 2” x 3” area of the insulation facing as shown in Figure 4.
4. Using the putty knife, cut out a 1” deep recess in the foam as shown in Figure 3.

**Figure 3 - Foam cutout**

**Figure 4 - Cut out insulation facing**

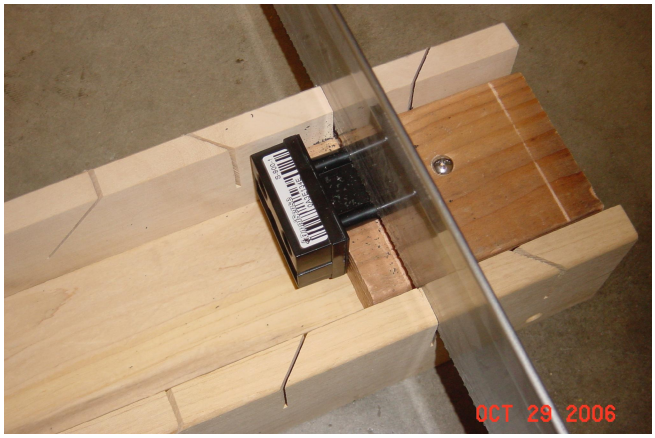


**Figure 5 - Cutting 1/2" from sensor leg**

5. IF SENSORS RE NOT ALREADY CUT TO SIZE - Using Miter Box and Back saw, cut exactly ½" from the end of the sensor's mounting legs as shown in Figure 5.
6. Using only hand force, push the sensor's mounting legs into the polyisocyanurate panel until it is flush with the panel's surface as shown in Figure 6.

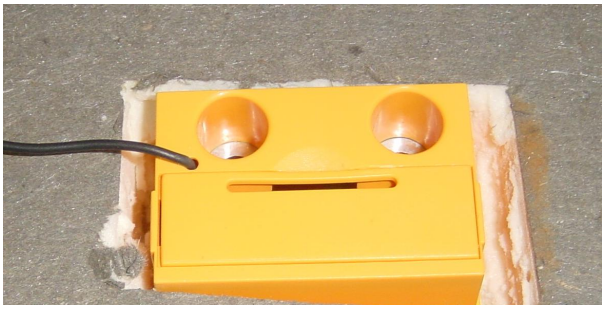

**Figure 6 - Sensor In Cutout**

7. Using your screwdriver, create a pilot hole by pushing the screwdriver through the sensor mounting holes until the screwdriver comes out the other side of the panel as shown in Figure 8.
8. Use the tip of the screwdriver to help guide the ¼-20 T-nut into place as shown in Figure 7 and push the T-Nut into the foam until it is flush.
9. Using the two ¼-20 x 1 ½" screws with the split washer under the screw head, secure the sensor to the panel using the T-Nuts as shown in Figure 12. Note that for 2" insulation using a 1 ½" screw with moderate torque will result in the screw end being flush with the T-Nut and the panel facing as shown in Figure 12. DO NOT OVERTIGHTEN.
10. For best wireless range and reception straighten the antenna and then bend it such that it points parallel to the deck as shown in Figure 6.
11. Position the panel on the roof deck for final mounting taking care to position the sensor into a roof deck channel as planned for in step 2 above.
12. Using the supplied ID labels record the Sensor ID and the sensor location – this is critical to being able to locate a sensor if/when it reports high levels of moisture.
13. The entire mounting process should take about 1-2 minutes.

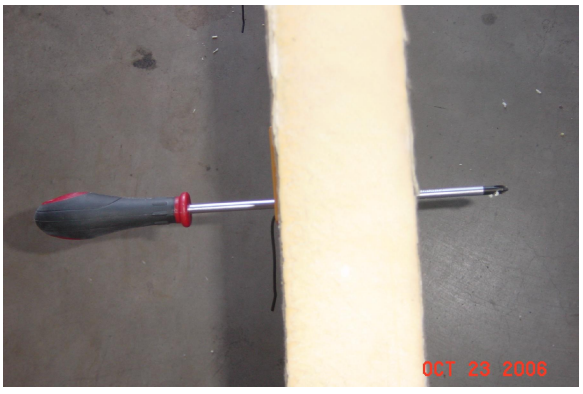


**Figure 7 - Creating Pilot Hole**


er **Figure 8 - Installing T-Nut**

# 2 Mounting When Sensor Fits in Roof Deck Channel

## *2.1 Required Tools and Materials*

9. Phillips screwdriver
10. OmniSense S-900-1 Sensor
11. #10 x 3” pan head stainless steel machine screw
12. #10 stainless steel split lock washer
13. #10 stainless steel T-nut

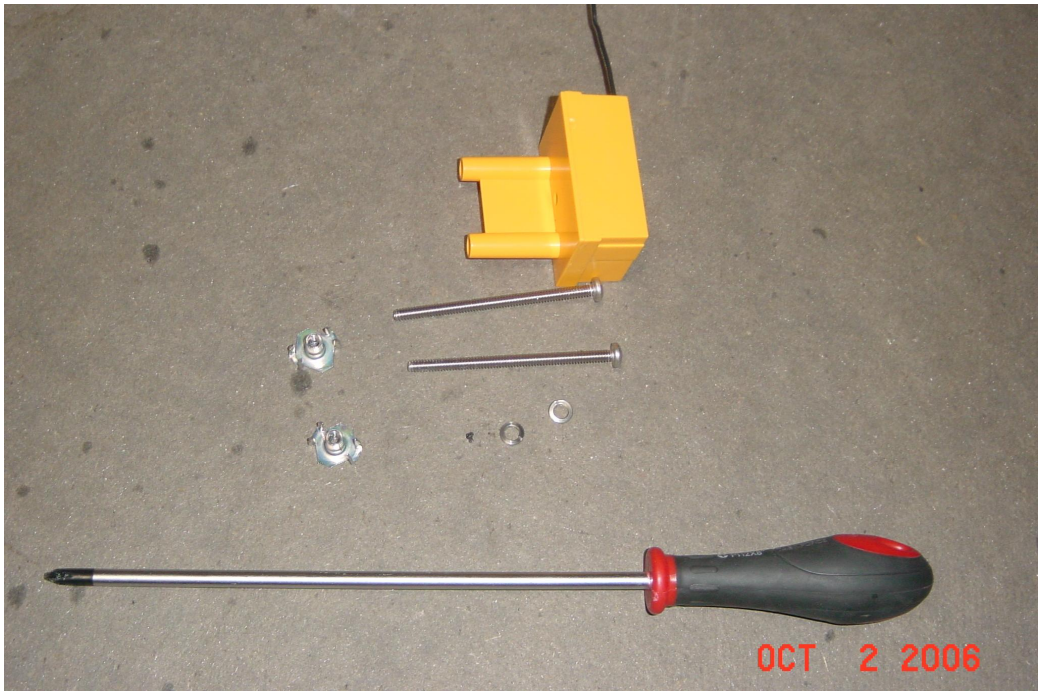


**Figure 9 - Required Materials**

## *2.2 Sensor Mounting Procedure*

14. Remove sensor from its box.
15. Position panel on roof in the intended location and mark sensor location on the insulation panel such that it positions the sensor in a channel in the steel roof deck as shown in Figure 10.
16. Using only hand force, push the sensor's mounting legs into the polyisocyanurate panel until it is flush with the panel's surface as shown in Figure 11.
17. Using your screwdriver, create a pilot hole by pushing the screwdriver through the sensor mounting holes until the screwdriver comes out the other side of the panel as shown in Figure 11.
18. Using the #10 x 3" screws with the split washer under the screw head, secure the sensor to the panel using the T-Nuts as shown in Figure 12. Note that for 2" insulation using a 3" screw with moderate torque will result in the screw end being flush with the T-Nut and the panel facing as shown in Figure 12. DO NOT OVERTIGHTEN.
19. For best wireless range and reception straighten the antenna and then bend it such that it points parallel to the deck as shown in Figure 11.
20. Position the panel on the roof deck for final mounting taking care to position the sensor into a roof deck channel as planned for in step 2 above.
21. Using the supplied ID labels record the Sensor ID and the sensor location – this is critical to being able to locate a sensor if/when it reports high levels of moisture.
22. The entire mounting process should take about 1-2 minutes.

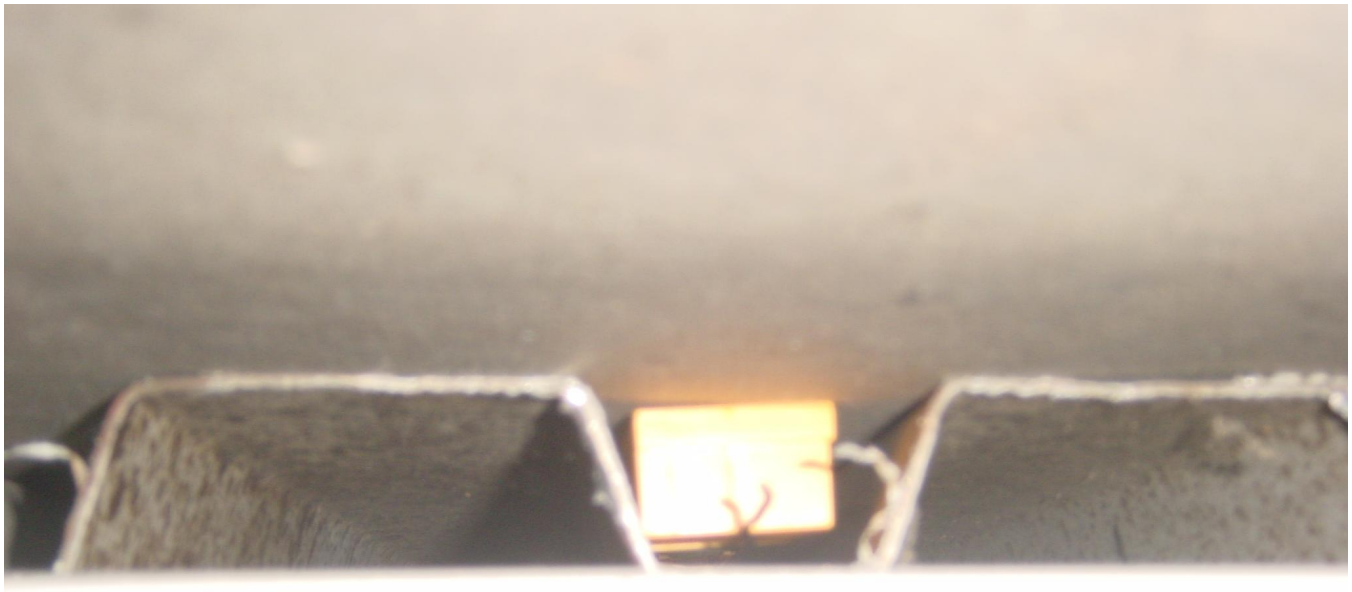

**Figure 10 - Properly Mounted S-900-1 Sensor**


**Figure 11 – Sensor mounting**

**Figure 12 - Close up of T-Nuts**

# 1. Document Revision History

| Date | Revision | Description |
|---|---|---|
| 10/2/06 | 1.0 | Originated |
| 10/23/06 | 1.1 | Added flush mounting instructions |