RADIANT
HEATING SYSTEMS

AERIAL SNOW SENSOR

INSTALLATION GUIDE

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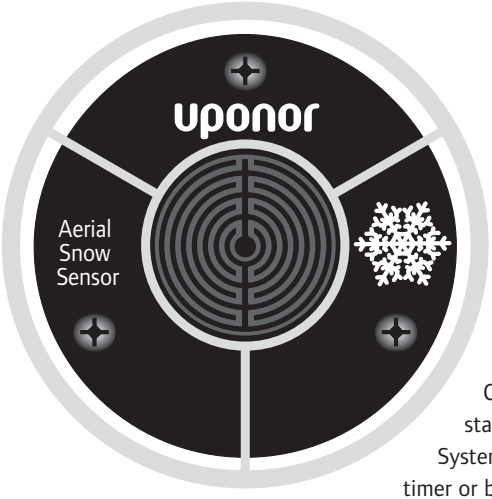


The Aerial Snow Sensor (A3040095) is an aerial-mounted sensor that detects falling snow and allows an Uponor Single-zone Snow Melt Control (A3040654) to automatically start the snow melting equipment. System stop is provided by the control's timer or by manual disable. The Aerial Snow Sensor mounts to a nominal ½" (16mm) metal or PVC conduit or pole.

Installation

Caution: Improper installation and operation of this control could result in damage to the equipment and possibly even personal injury or death. It is the installer's responsibility to ensure that this control is safely installed according to all applicable codes and standards. Please follow these step-by-step instructions to gain a full understanding of this device.

1. Check the Contents

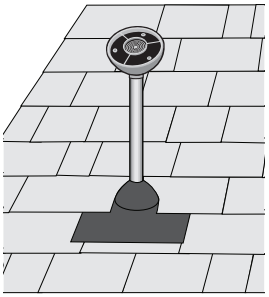
Check the contents of this package. If any of the contents listed are missing or damaged, contact your wholesaler or Uponor sales representative for assistance.

Package includes:

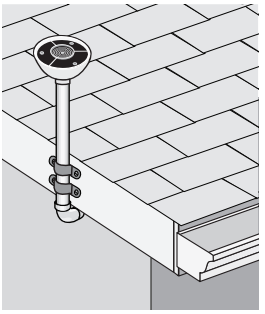
- One Aerial Snow Sensor (A3040095)
- One Installation Guide

2. Choosing a Location for the Sensor

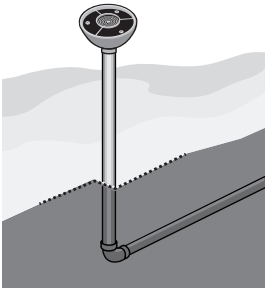
The sensor should be installed outside on a nominal ½" (16 mm) PVC or rigid metal conduit pole either on a roof or to the side of the snow melting surface. The sensor must be located away from trees, building overhangs or other locations that may interfere with falling snow. Avoid installing in locations where the sensor may be vandalized. It is best to point the front face of the sensor in the direction of any prevailing wind.



Roof Mounted
Ensure water-proof installation with flashing boot or similar method



Roof Mounted
Conduit fastened to fascia board



Ground Mounted
Conduit run underground with a pole above surface

3. Rough-in Wiring

Install a nominal ½" (16mm) PVC or metal conduit from the Single-zone Snow Melt Control to the chosen sensor location. Pull 4-conductor 18-AWG wire from the sensor location to the control location through the conduit. The maximum wire length between the sensor and the control is 500' (150 m).

If using PVC conduit, do not run the wires parallel to telephone or power lines. If the sensor wires are located in an area with strong sources of electromagnetic noise, use shielded cable or twisted pair. If using shielded cable, one end of the shield wire should be connected to the Com terminal on the Single-zone Snow Melt Control and the other end should remain free. The shield must not be connected to earth ground.

4. Disassembly

a. Remove the outer ring by pulling up on the three catches.

b. Remove the three screws.

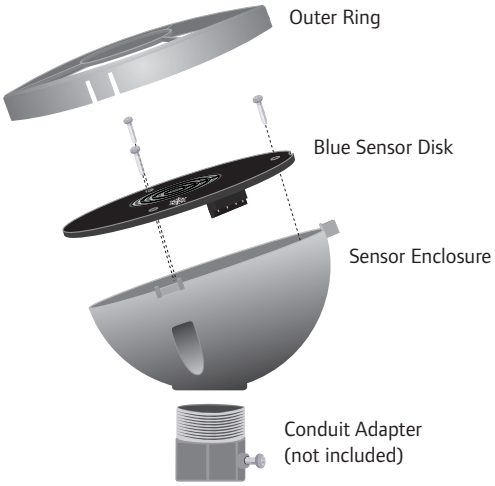
c. Remove the blue sensor disk from the sensor enclosure.

Note: Avoid scratching any part of the surface of the blue sensor disk. Scratches will result in corrosion not covered by warranty.

5. Painting the Sensor

The sensor enclosure is made of an off-white plastic material that is UV stable. The plastic enclosure may be spray painted to match the color of the building.

Note: Do not paint the blue sensor disk as this will damage the sensor.



6. Mounting

The conduit pole can be either PVC plastic or rigid metal. The conduit pole should be mounted plumb using a level.

- When using PVC plastic conduit, Uponor recommends using a nominal ½" (16mm) PVC male terminal adapter with locknut.
- When using rigid metal, Uponor recommends a nominal ½" (16mm) rigid metal conduit adapter with set screw.

a. Pull the 4-conductor wire through the conduit.

b. Install the sensor body with conduit adapter to the conduit. For PVC conduit, use PVC cement adhesive. For rigid metal conduit, tighten the set screw until the conduit adapter is firmly attached to the conduit.

c. Fish the 4-conductor wire though the sensor body and place on top of the conduit adapter. Point the sensor body towards the prevailing wind direction, if any. Thread the locknut onto the conduit adapter and screw until tight.

7. Wiring

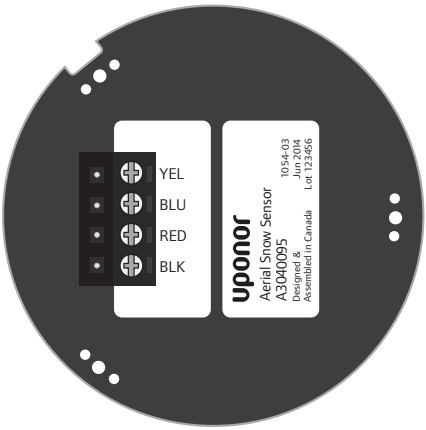
Remove the wiring terminal block by pulling up from the blue sensor disk. Connect the 4-conductor wire to the yellow (YEL), blue (BLU), red (RED) and black (BLK) wiring terminations. If the installed 4-conductor cable uses a different color code, then make a note of the wire color versus the wiring terminal color names. Push the wiring terminal plug onto the pins of the blue sensor disk. At the Single-zone Snow Melt Control location, connect the corresponding wires to the yellow, blue, red and black wire terminations.

8. Assembly

a. Align the blue sensor disk Uponor logo with the highest point of the sensor enclosure body. The blue sensor disk has a notch that ensures the sensor is installed in the correct position.

b. Insert the three screws into the holes and screw them until tight. Do not over tighten.

c. Align the three notches of the outer ring with the sensor body and push down until each of the three corners have snapped on tight.



Maintenance

The sensor is installed in a harsh environment. Accumulation of dirt on the surface of the sensor may affect snow detection. The sensor should be checked on a periodic basis and, when necessary, cleaned.

1. Remove the outer ring by pulling up on the three catches.
2. Use a cloth with warm soapy water to clean any dirt.
3. Rinse with water.
4. Align the three notches of the outer ring with the sensor body and push down until each of the three corners have snapped on tight.

Testing and Troubleshooting

If the Single-zone Snow Melt Control shows an error message describing a sensor failure, perform the following test procedure:

- The 4-conductor wires at the sensor should be disconnected (unplug wiring terminal plug).
- Use a good-quality electrical testing meter with an ohm scale range of 0 to 2,000,000 ohms.

Using the ohmmeter and standard testing practices, measure the resistance between:

1. The yellow (YEL) and black (BLK) wiring terminals to measure a 10 kΩ sensor and use the Temperature vs. Resistance Table on the following page to calculate the approximate temperature reading. Measure the surface temperature of the blue sensor disk and compare versus the yellow to black temperature reading.
2. Measure the resistance between the blue (BLU) and black (BLK) wiring terminals. When the sensor surface is clean and dry, the reading should be 2,000,000 ohms. When the sensor surface is wet it should be between 10,000 and 300,000 ohms.
3. Measure the resistance between the red (RED) and black (BLK) wiring terminals. This reading should be between 45 to 47 ohms.

If resistance readings are outside of the normal operating range, the sensor has failed.

Temperature vs. Resistance Table

Temperature		Resistance	Temperature		Resistance
°F	°C	Ω	°F	°C	Ω
-50	-46	490,813	90	32	7,334
-45	-43	405,710	95	35	6,532
-40	-40	336,606	100	38	5,828
-35	-37	280,279	105	41	5,210
-30	-34	234,196	110	43	4,665
-25	-32	196,358	115	46	4,184
-20	-29	165,180	120	49	3,760
-15	-26	139,402	125	52	3,383
-10	-23	118,018	130	54	3,050
-5	-21	100,221	135	57	2,754
0	-18	85,362	140	60	2,490
5	-15	72,918	145	63	2,255
10	-12	62,465	150	66	2,045
15	-9	53,658	155	68	1,857
20	-7	46,218	160	71	1,689
25	-4	39,913	165	74	1,538
30	-1	34,558	170	77	1,403
35	2	29,996	175	79	1,281
40	4	26,099	180	82	1,172
45	7	22,763	185	85	1,073
50	10	19,900	190	88	983
55	13	17,436	195	91	903
60	16	15,311	200	93	829
65	18	13,474	205	96	763
70	21	11,883	210	99	703
75	24	10,501	215	102	648
80	27	9,299	220	104	598
85	29	8,250	225	107	553

Technical Data	
Packaged weight	0.4 lbs (180 g)
Dimensions	1 15⁄16" H x 3 5⁄32" O.D. (50 H x 80 O.D. mm)
Enclosure	White PVC plastic, UV stable, NEMA type 1
Operating range	-40 to 122°F (-40 to 50°C)
Compatible equipment	Uponor Single-zone Snow Melt Control (A3040654)

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