

Installation & Operation Manual

Slab Sensor 072

The Slab Sensor 072 is designed to measure temperature in outside snow melting slabs. It has a high density polyethylene (HDPE) sleeve which is designed for use in conduits, soils, or concrete, as it is suitable for direct burial. This product is supplied with 20 ft (6 m) of 2 conductor cable.

⚠ WARNING

It is your responsibility to ensure that this sensor is safely installed according to all applicable codes and standards. Watts Radiant is not responsible for damages resulting from improper installation and/or maintenance.



Read this Manual BEFORE using this equipment.

Failure to read and follow all safety and use information can result in personal injury, property damage, or damage to the equipment.

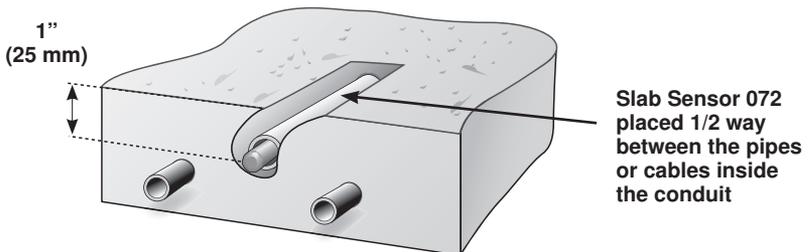
Keep this Manual for future reference.

NOTICE

Proper placement of sensors is critical for correct control operation.

Installation

Though sensors are designed for direct embedding in slab material, it is recommended to install them in a metal or plastic sleeve. This allows for easy replacement if the sensor should ever fail or have to be relocated. The sensor should be placed 1" (25 mm) below the slab surface and 1/2 way between the pipes or electric cables.



⚠ CAUTION

Do not run sensor wires parallel to telephone or power cables. If the sensor wires are located in an area with strong sources of electromagnetic interference, shielded cable or twisted pair should be used or the wires can be run in a grounded metal conduit. If using shielded cable, the shield wire should be connected to the Com or Com Sen terminal on the control and not to earth ground.

Wiring the Sensor

- Sensor wiring can be extended up to 500' (150 m) using 18 AWG wire.
- Wire splices should be properly soldered and protected in an accessible, waterproof junction box.

⚠ CAUTION

Do not apply voltage to a sensor at any time as damage to the sensor may result.

Sensor Testing Instructions

A good quality test meter capable of measuring up to 5,000 k Ω (1 k Ω = 1000 Ω) is required to measure the sensor resistance. In addition to this, the actual temperature must be measured with either a good quality digital thermometer, or if a thermometer is not available, a second sensor can be placed alongside the one to be tested and the readings compared.

First measure the temperature using the thermometer and then measure the resistance of the sensor at the control. The wires from the sensor must not be connected to the control while the test is performed. Using the Temperature vs. Resistance Table, estimate the temperature measured by the sensor. The sensor and thermometer readings should be close. If the test meter reads a very high resistance, there may be a broken wire, a poor wiring connection or a defective sensor. If the resistance is very low, the wiring may be shorted, there may be moisture in the sensor or the sensor may be defective. To test for a defective sensor, measure the resistance directly at the sensor location.

Temperature vs. Resistance Table

Temperature		Resistance	Temperature		Resistance
°F	°C	Ω	°F	°C	Ω
-50	-46	490,813	-10	-23	118,018
-45	-43	405,710	-5	-21	100,221
-40	-40	336,606	0	-18	85,362
-35	-37	280,279	5	-15	72,918
-30	-34	234,196	10	-12	62,465
-25	-32	196,358	15	-9	53,658
-20	-29	165,180	20	-7	46,218
-15	-26	139,402	25	-4	39,913

Temperature vs. Resistance Table Continued

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

Technical Data

Slab Sensor 072

Literature	ES-WR-Slab_Sensor-072, IOM-WR-Slab_Sensor-072
Packaged weight	0.4 lbs (180 g)
Dimensions	3/8" OD x 1-1/2" (10 mm OD x 38 mm)
Sensor material	HDPE sleeve, 20' (6 m) HDPE jacketed wire
Approvals	CSA C US
Operating range	-58 to 140°F (-50 to 60°C)
Sensor	NTC thermistor, 10 kΩ @ 77°F (25°C ±0.2°C) β=3892

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. For more information: www.watts.com/prop65

Hydronic System Electronic Controls and Thermostats Limited Warranty

Watts Radiant (the Company) warrants its hydronic system electronic controls and thermostats (the Product) to be free from defects in materials and workmanship under normal usage for a period of one year from the documented date of installation of the Product. In the event of defects within the warranty period, the Company will replace the Product without charge. This remedy is the sole and exclusive remedy for breach of warranty. This warranty is transferable to subsequent owners.

Under this Limited Warranty, the Company will provide the following:

In order to make a claim, you must:

- (a) Provide the Company with sufficient details relating to the nature of the defect, the installation, the history of operation, and any repairs that may have been made.
- (b) At the Company's discretion and at the owner's expense, ship the Product to the Company or the Company's local representative or distributor.
- (c) Provide proof that the Product was installed in accordance with the applicable Product Installation Manual and any special written design or installation guidelines by the Company for this project.
- (d) Provide proof that the Product was installed in accordance with the National Electrical Code (NEC) or the Canadian Electrical Code (CEC), and all applicable local building and electrical codes.
- (e) Provide a retail sales receipt or proof of purchase.

The following are not covered by this Limited Warranty:

- (a) Any incidental or consequential damage, including inconvenience, loss of time or loss of income.
- (b) Any labor or materials required to repair or replace the Product that are not authorized in writing by the Company.
- (c) Any labor or materials required to remove, repair or replace materials other than the Products.
- (d) Any freight or delivery costs related to the Product or any related electrical products.

Watts Radiant assumes no responsibility under this Limited Warranty for any damage to the Product caused by any trades people, visitors on the job site, or damage caused as a result of post-installation work. This Limited Warranty shall be invalidated by any abuse, misuse, misapplication or improper installation of the Products. The staff at the Company is available to answer any questions regarding the proper installation or application of the Product at this toll-free phone number: 800-276-2419 (USA/International) or 888-208-8927 (Canada). If you are ever in doubt about the correct installation procedure to follow, or if the Product appears to be damaged, you must call us before proceeding with the installation or proposed repair.

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Some states/provinces do not allow the exclusion or limitation of incidental or consequential damages and some states/provinces do not allow limitations on how long implied warranties may last. Therefore, the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which vary from state to state or province to province. SO FAR AS IS CONSISTENT WITH APPLICABLE STATE/PROVINCIAL LAW, ANY IMPLIED WARRANTIES THAT MAY NOT BE DISCLAIMED, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED IN DURATION TO ONE YEAR FROM THE DATE OF MANUFACTURE.

Effective: May 1, 2013. This warranty applies to all Products purchased after this date.

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