

Installation, Operation and Maintenance

Outdoor Sensor PM-070

The Outdoor Sensor PM-070 provides accurate measurement of the outdoor air temperature. Many controls and thermostats can connect to the PM-070 to measure and display the outdoor temperature.



WARNING



**THINK
SAFETY
FIRST**

Read this Manual **BEFORE** using this equipment.

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

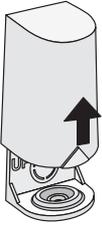
Keep this Manual for future reference.

WATTS[®]

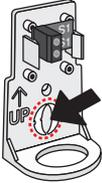
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Installation - Outdoor Sensor PM-070



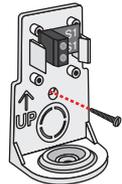
Remove cover by sliding upwards away from the base.



To wire from the back, remove the knock-out in the sensor base.



If using conduit, remove the flexible plug from the base bottom.



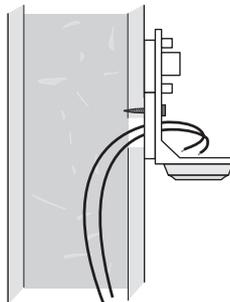
Attach the base to the wall, soffit or electrical box.

Step One

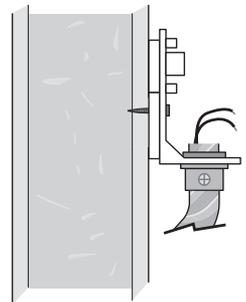
Mounting The Sensor

NOTE: The temperature sensor (thermistor) is built into the PM-070 enclosure.

- The PM-070 can be mounted directly onto a wall and the wiring should enter through the back or bottom of the enclosure. Do not mount the PM-070 with the conduit knockout facing upwards as rain could enter the enclosure and damage the sensor.
- In order to prevent heat transmitted through the wall from affecting the sensor reading, it may be necessary to install an insulating barrier behind the enclosure.
- The PM-070 should be mounted on a wall which best represents the heat load on the building (a northern wall for most buildings and a southern facing wall for buildings with large south facing glass areas). The PM-070 should not be exposed to heat sources such as ventilation or window openings.
- The PM-070 should be installed at an elevation above the ground that will prevent accidental damage or tampering.



Sensor with wiring from back



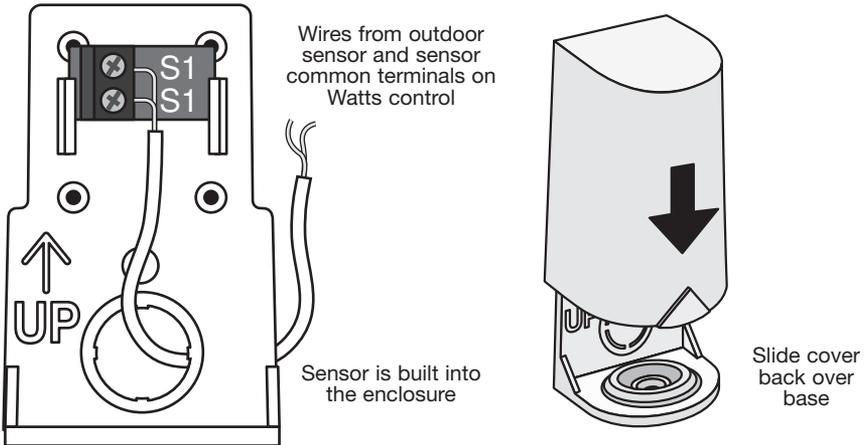
Sensor with wiring from bottom

Installation - Outdoor Sensor PM-070

Step Two

Wiring And Testing The Sensor

- Connect 18 AWG or similar wire to the two terminals provided in the enclosure and run the wires from the PM-070 to the control. Do not run the wires parallel to telephone or power cables. If the sensor wires are located in an area with strong sources of electromagnetic interference (EMI), 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 terminal on the control and not to earth ground.
- Follow the sensor testing instruction in this brochure and connect the wires to the control.
- Replace the front cover of the sensor enclosure.



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 chart on the following page, 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.

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

Resistance Table

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

Technical Data

Outdoor Sensor PM-070

Literature	ES-WR-Outdoor_Sensor-070, IOM-WR-Outdoor_Sensor-070
Packaged weight	0.17 lb. (77 g)
Dimensions	2-5/8" H x 1-9/16" W x 1-11/16" D (67 x 40 x 43 mm)
Enclosure	White PVC plastic, NEMA type 2
Operating range	-60 to 140°F (-51 to 60°C)
Sensor	NTC thermistor, 10 kΩ @ 77°F (25°C ±0.2°C) β=3892



Limited Warranty: Watts Regulator Co. (the "Company") warrants each product to be free from defects in material and workmanship under normal usage for a period of one year from the date of original shipment. In the event of such defects within the warranty period, the Company will, at its option, replace or recondition the product without charge.

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The remedy described in the first paragraph of this warranty shall constitute the sole and exclusive remedy for breach of warranty, and the Company shall not be responsible for any incidental, special or consequential damages, including without limitation, lost profits or the cost of repairing or replacing other property which is damaged if this product does not work properly, other costs resulting from labor charges, delays, vandalism, negligence, fouling caused by foreign material, damage from adverse water conditions, chemical, or any other circumstances over which the Company has no control. This warranty shall be invalidated by any abuse, misuse, misapplication, improper installation or improper maintenance or alteration of the product.

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