



DESCRIPTION

Designed for harsh conditions, the PTS-100 is a heavy duty pavement temperature transducer. This easily replaceable sensor requires the ETI Pavement Sensor Housing (p/n 23832), sold separately, with its accompanying installation sheet (p/n 23974).

PACKING LIST

ORDER #	DESCRIPTION
23037	PTS-100 Embedded Temperature Sensor (QTY 1)
20763	Duct Seal (QTY 1lb)
24030	Accessory Kit (QTY 1)
23038	PTS-100 Installation Manual (this document, QTY 1)
23832	ETI Pavement Sensor housing (sold separately)

INSTALLATION

To install a sensor into a Pavement Sensor Housing, first select a pre-installed Housing to be fitted with the sensor. If more than one Housing has been placed as part of the installation, it is best to select the one closest to the center of the protected surface's traffic or snow build-up pattern(s).

1. Take care in choosing a location for your pavement-mounted sensor. The location should be:
 - Centered between runs of hydronic tubing or heater cable
 - Exposed to precipitation and pedestrian or vehicular traffic (except wet-tire paths)
 - Away from external heat sources in excess of 185°F/85°C.
2. Figure 1 illustrates the related components of the PTS-100 and the Pavement Sensor Housing.
3. Installing the PTS-100 occurs after paving is complete and Pavement Sensor Housing's Height Adjustment Ring Cap is removed. Note: the Height Adjustment Ring on the Pavement Sensor Housing had been greased to facilitate leveling adjustments upon sensor installation. Caulking may be required between the sensor housing and the finished paved surface.

4. Remove the Pavement Sensor Housing Cap from the housing unit by removing the three screws securing it in place. Retain the cap in case the sensor requires relocation and the Pavement Sensor Housing requires closing and covering.
5. See "Wiring" (page 2) for electrical connection. Once the sensor is wired, confirm duct seal protects the installation inside the housing and leaves room for the bottom of the sensor to be placed inside the housing.
6. Place the sensor onto the top of the Pavement Sensor Housing. Install mounting screws through the sensor to secure it to the Height Adjustment Ring. The top of the sensor has three protective Allen-head set screws, under which are located three access holes to reach the height adjustment screws; remove these screws. Adjust the height until the exposed surface of the sensor is flush with the surrounding pavement such that it avoids melt pooling during operation. As needed, rotate the three adjustment screws to the left to raise the height adjusting ring or to the right to lower the ring, and then replace the three protective set screws. See Figure 2.

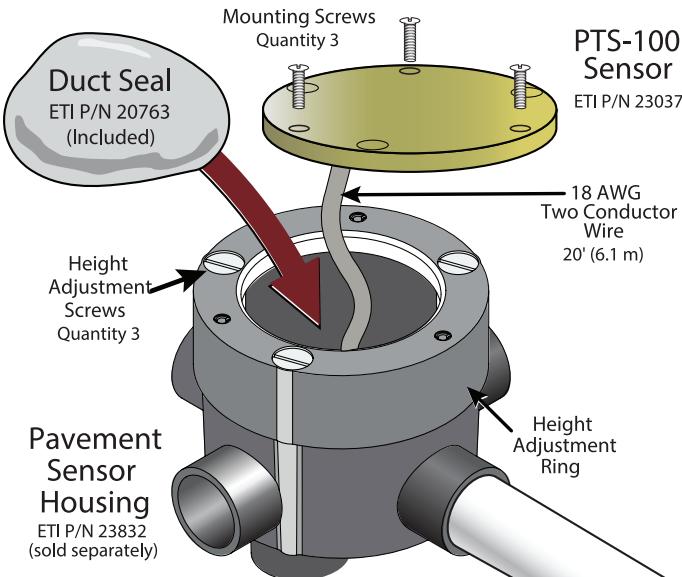


FIGURE 1. Installing PTS-100

CONDUIT

Use individual 3/4" (20 mm) rigid conduit for the entire installed length of the sensor cable, taking care to ensure that all embedded or outdoor couplings and terminations are made watertight. Do not share conduit with other wiring. Do not route conduit across pavement expansion or control joints. For sensors embedded in slab on grade, conduit should be depressed under these joints, as necessary.

Step 1

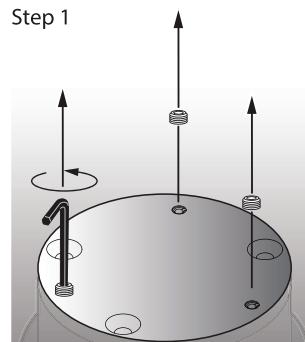
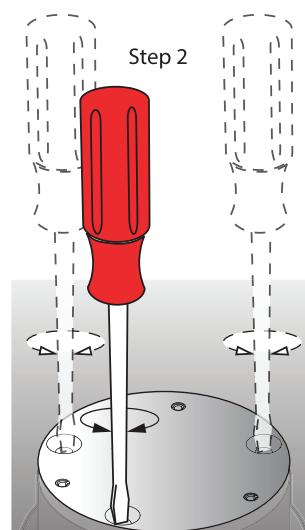


FIGURE 2. Pavement Leveling

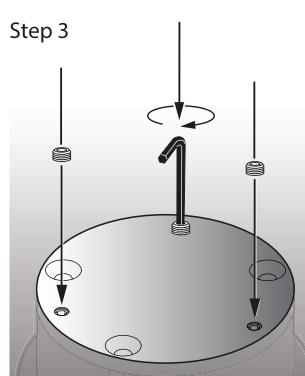
Step 1: Remove the installed, 3/8"-16, hex socket set screws. Save the set screws, as they will be replaced later.

Step 2



Step 2: Using a 1/4" flat head screw driver, turn Housing leveling screw(s) counter-clockwise to raise sensor face. Sensor face may be adjusted up to 5/8". Adjust sensor face to pavement level to prevent pooling of water.

Step 3



Step 3: Replace the 3/8"-16, hex socket set screws and hand tighten.

WIRING

General Guidelines

The PTS-100 sensor is furnished with 20' #18 AWG leads. The red and black wires connect to the control panel via user supplied cable. For proper wiring connections of the PTS-100 sensor to a control panel, consult the control panel's installation instructions.

1. It is critically important to use water-tight wiring connections to the sensor.
2. A two-wire cable is required to connect the PTS-100 sensor to the control panel. Ensure that a direct-burial, wet-environment cable is used. (The sensor's supplied cable meets these requirements.) Though the sensor cable may be cut to fit, longer or extension cable is not supplied by the manufacturer.
3. Failing to ensure a suitable environment for the connection cable run—by correctly using conduit, water tight connections and a direct-burial, wet-environment cable—may greatly decrease the life of the sensor and void the manufacturer warranty.
4. Install all cables leads through conduit as indicated in Conduit section.
5. Confirm that all cable runs greater than 20' are spliced together either in the junction box or in some other water-tight location.

After wiring the sensor, knead the supplied duct sealant until it is pliable. Pack duct sealant inside the Pavement Sensor Housing, leaving enough space for the sensor electronics and wiring. Properly used, the duct sealant minimizes the accumulation of water and ice in the housing, protecting against possible ice damage.

TESTING

Thoroughly check the system before placing it in service. Our experience shows that installation errors cause the majority of problems. Frequently encountered problems include wiring errors and improper waterproofing. Simple electrical tests and visual inspections can discover potential concerns.

Independent of weather conditions, the functional operation of an installed PTS-100 sensor may be determined. Note the temperature at the sensor's location and use an Ohm meter to measure resistance. Confirm this measurement to those on the chart on page 3, where (R) is the measured resistance at a specific temperature ($^{\circ}\text{F/C}$).

LIMITED WARRANTY

ETI's two year limited warranty covering defects in workmanship and materials applies. Contact Customer Service for complete warranty information.

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Ω RESISTANCE AT °F AND °C

°F	°C	R	°F	°C	R	°F	°C	R
-20	-28.9	1490507	12	-11.1	567699	45	7.2	226441
-19	-28.3	1445283	13	-10.6	551388	46	7.8	220539
-18	-27.8	1401455	14	-10.0	535586	47	8.3	214810
-17	-27.2	1358982	15	-9.4	520278	48	8.9	209249
-16	-26.7	1317826	16	-8.9	505445	49	9.4	203849
-15	-26.1	1277950	17	-8.3	491074	50	10.0	198606
-14	-25.6	1239316	18	-7.8	477149	51	10.6	193514
-13	-25.0	1201889	19	-7.2	463655	52	11.1	188569
-12	-24.4	1165631	20	-6.7	450579	53	11.7	183767
-11	-23.9	1130510	21	-6.1	437907	54	12.2	179103
-10	-23.3	1096490	22	-5.6	425626	55	12.8	174573
-9	-22.8	1063538	23	-5.0	413723	56	13.3	170171
-8	-22.2	1031621	24	-4.4	402186	57	13.9	165896
-7	-21.7	1000710	25	-3.9	391002	58	14.4	161742
-6	-21.1	970771	26	-3.3	380161	59	15.0	157705
-5	-20.6	941776	27	-2.8	369652	60	15.6	153783
-4	-20.0	913695	28	-2.2	359463	61	16.1	149972
-3	-19.4	886499	29	-1.7	349584	62	16.7	146267
-2	-18.9	860161	30	-1.1	340005	63	17.2	142667
-1	-18.3	834654	31	-0.6	330717	64	17.8	139167
0	-17.8	809951	32	0.0	321710	65	18.3	135765
1	-17.2	786027	33	0.6	312974	66	18.9	132458
2	-16.7	762858	34	1.1	304502	67	19.4	129243
3	-16.1	740418	35	1.7	296284	68	20.0	126116
4	-15.6	718686	36	2.2	288313	69	20.6	123076
5	-15.0	697638	37	2.8	280581	70	21.1	120120
6	-14.4	677253	38	3.3	273079	71	21.7	117245
7	-13.9	657508	39	3.9	265801	72	22.2	114449
8	-13.3	638384	40	4.4	258739	73	22.8	111729
9	-12.8	619860	41	5.0	251887	74	23.3	109083
10	-12.2	601917	42	5.6	245237	75	23.9	106509
11	-11.7	584536	43	6.1	238783	76	24.4	104005
44	6.7	232520	77	25.0	101568	77	25.0	101568

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