tekmar® - Data Brochure

10K Indoor Sensors

D 074

06/00

ADAPTOR PLATE 007

The Adaptor Plate 007 allows for installation of a small enclosure Room Temperature Unit (RTU) or Indoor Sensor on to a 2" x 4" electrical box. The adapter plate can be mounted vertical or horizontal and is designed to allow wiring to feed through in any position. Included with the adapter are surface painted screws for mounting to the 2" x 4" electrical box and screws to mount the RTU / Indoor Sensor to the plate.

INDOOR SENSOR 076

The tekmar Indoor Sensor 076 includes a 10KΩ thermistor which provides accurate measurement of the indoor temperature. The 076 can be mounted directly on the wall using two #6 - 1" screws. The small size of the 076 makes this sensor visually appealing and less noticeable on the wall. The 076 can be connected to a 10K Room Temperature Unit (RTU) for remote temperature sensing.

INDOOR SENSOR 077

The tekmar Indoor Sensor 077 includes a 10KΩ thermistor mounted on a white enamel steel plate to provide an accurate measurement of the indoor temperature. The 077 can be mounted flush onto a standard duplex electrical box. Wiring enters from the back. The 077 can be connected to a 10K Room Temperature Unit (RTU) for remote temperature sensing.

Installation – Adaptor Plate 007

STEP ONE — GETTING READY

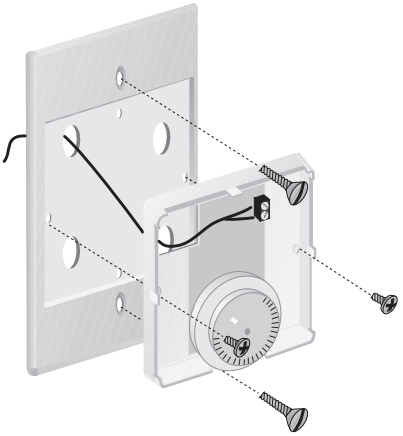
Check the contents of this package. If any of the contents listed are missing or damaged, please contact your wholesaler or tekmar sales representative for assistance.

Type 007 includes:

- One Adaptor Plate 007
- Two 5/16" screws
- Two electrical cover screws
- One Data Brochure D 074

STEP TWO — MOUNTING THE PLATE

The Adaptor Plate is mounted onto a standard 2" x 4" electrical box using the supplied screws. Ensure the electrical box is properly insulated and protected from cold drafts. All required RTU or Indoor sensor wiring must be pulled through the existing top left hand hole of the adaptor plate. The adaptor plate may be mounted horizontally or vertically using the electrical cover screws provided.



STEP THREE — MOUNTING THE SENSOR / RTU

Insert the wiring through the hole provided in the back of the sensor or RTU enclosure, and connect them to the wiring terminals as described in the applicable Sensor/RTU Data Brochure. Attach the sensor or RTU to the adaptor plate using the supplied 5/16" screws.

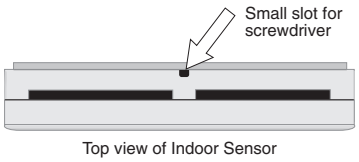
Do not over tighten screws as the plastic molding may strip.

Installation — Indoor Sensor 076

STEP ONE — GETTING READY

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

Type 076 includes: • One Indoor Sensor 076 • One Data Brochure D 074



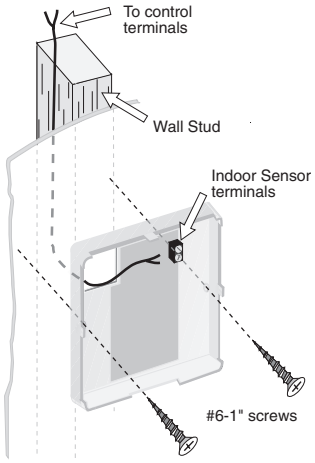
Top view of Indoor Sensor

STEP TWO — REMOVING THE FRONT COVER

Note *The temperature sensor (thermistor) is built into the 076 enclosure.*

To remove the 076 front cover, place a small screwdriver or similar object into the small hole located in the top of the 076 enclosure. Push the screwdriver against the plastic flap and pull the top of the front cover so that it pivots around the bottom edge of the mounting base.

STEP THREE — MOUNTING THE INDOOR SENSOR



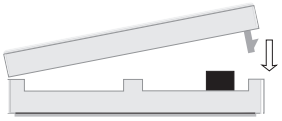
- The Indoor Sensor should be installed on an interior wall of the desired zone to be controlled. Do not mount the 076 in a location that may be affected by localized heat sources or cold drafts. It may be necessary to install a draft barrier and / or insulation behind the enclosure in order to prevent air from blowing through the wiring hole and affecting the Sensor reading.
- For surface mounting, mount the Indoor Sensor directly to the wall using two #6-1” screws. The screws are inserted through the mounting holes and must be securely fastened to the wall. If possible, at least one of the screws should enter a wall stud.

STEP FOUR — WIRING THE INDOOR SENSOR

Run two conductor 18 AWG or similar wire between the Indoor Sensor and the terminals on the tekmar control. Insert the wires through the hole provided in the back of the indoor sensor enclosure and connect them to the indoor sensor terminal block. Do not run the wires parallel to telephone or power lines. If the indoor sensor wires are located in an area with strong sources of electromagnetic noise, shielded cable or twisted pair should be used or the wires can be run in a grounded metal conduit. If using shielded cable, one end of the shield wire should be connected to the *Com - Sen* terminals on the control and the other end should remain free. The shield must not be connected to earth ground. Follow the sensor testing instructions on page 3 of this brochure and connect the wires to the control.

STEP FIVE — INSTALLING THE FRONT COVER

The Indoor Sensor 076 front cover is installed by aligning the hinges on the bottom of the front cover with the bottom of the sensor mounting base. The front cover is then pivoted around the bottom hinge and pushed against the mounting base until it snaps firmly into place.



Installation — Indoor Sensor 077

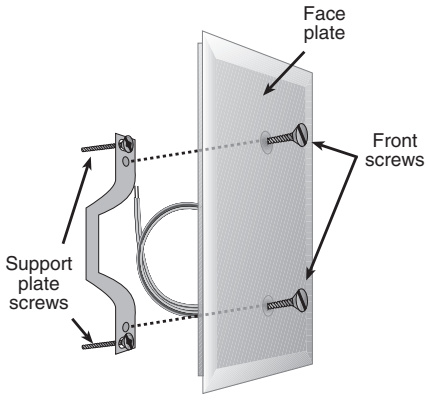
STEP ONE — GETTING READY

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

Type 077 includes: • One Indoor Sensor 077 • One Data Brochure D 074
• Two 6-32 x 3/4" screws • Two 6-32 x 1/2" screws

STEP TWO — REMOVING THE FRONT COVER

Remove the two front screws from the face plate and pull the support plate from the back of the sensor. Ensure the support plate screws do not fall off as the support plate is removed.

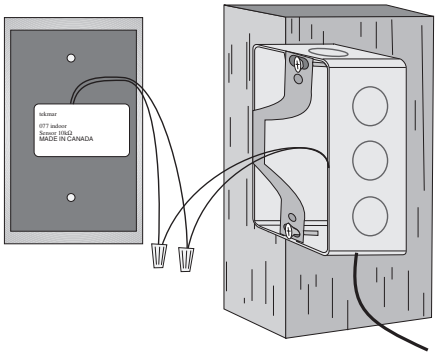


STEP THREE — MOUNTING THE SUPPORT PLATE

- The Indoor Sensor should be installed on an interior wall of the desired zone to be controlled. Do not mount the 077 in a location that may be affected by localized heat sources or cold drafts. It may be necessary to install a draft barrier and / or insulation behind the enclosure in order to prevent air from blowing through the wiring hole and affecting the Sensor reading.
- Mount the support plate to the electrical box using the two support plate screws provided.

STEP FOUR — WIRING THE INDOOR SENSOR

Run two conductor 18 AWG or similar wire between the Indoor Sensor and the terminals on the tekmar control. Insert the wires through the hole provided in the back of the indoor sensor enclosure and connect them to the indoor sensor terminal block. Do not run the wires parallel to telephone or power lines. If the indoor sensor wires are located in an area with strong sources of electromagnetic noise, shielded cable or twisted pair should be used or the wires can be run in a grounded metal conduit. If using shielded cable, one end of the shield wire should be connected to the *Com* - *Sen* terminals on the control and the other end should remain free. The shield must not be connected to earth ground. Follow the sensor testing instructions on page 3 of this brochure and connect the wires to the control.



STEP FIVE — INSTALLING THE FRONT COVER

Place any extra sensor wire into the electrical box. Secure the front plate of the Indoor Sensor 077 to the support plate using the two front screws. Ensure the wiring is not pinched or crushed when replacing the front plate.

Sensor Testing Instructions

A good quality test meter capable of measuring up to 5,000 kΩ (1 kΩ = 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 below, 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 with the wires disconnected.

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

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

Technical Data

Adaptor Plate 007

Literature	—	D 074
Packaged weight	—	0.13 lb. (60 g), white PVC plastic
Dimensions	—	4-1/2" H x 2-7/8" W x 3/16" D (115 x 73 x 4.8 mm)
Ambient conditions	—	Indoor use only, -20 to 120°F (-30 to 50°C)
Included	—	two #6 x 5/16" self-tapping screws
	—	two #6-32 x 1/2" white cover plate screws

Indoor Sensor 076

Literature	—	D 074
Packaged weight	—	0.16 lb. (72 g), Enclosure G, white PVC plastic
Dimensions	—	2-7/8" H x 2-7/8" W x 13/16" D (73 x 73 x 21 mm)
Approvals	—	CSA C US
Operating range	—	-60 to 140°F (-50 to 60°C)
Sensor	—	NTC thermistor, 10 kΩ @ 77°F (25°C ±0.2°C), ß=3892

Indoor Sensor 077

Literature	—	D 074
Packaged weight	—	0.16 lb. (72 g), baked enamel (white) on steel
Dimensions	—	4-1/2" H x 2-7/8" W x 1/2" D (114 x 73 x 13 mm) 3/16" D (5 mm) when installed
Operating range	—	Splashproof, -60 to 140°F (-50 to 60°C)
Sensor	—	NTC thermistor, 10 kΩ @ 77°F (25°C ±0.2°C) ß=3892
Sensor Leads	—	1' (30 cm) 20 AWG, XPE multi strand
Backing	—	1/4" expanded neoprene gasket
Included	—	two 6-32 x 3/4" screws two 6-32 x 1/2" white cover plate screws

Limited Warranty and Product Return Procedure

Limited Warranty The liability of tekmar Control Systems Ltd. and tekmar Control Systems, Inc. ("tekmar") under this warranty is limited. The purchaser, by taking receipt of the tekmar product ("product"), acknowledges receipt of the terms of the warranty and acknowledges that it has read and understands same.

tekmar warrants each tekmar product against defects in workmanship and materials, if the product is installed and used in compliance with tekmar's instructions. The warranty period is for a period of twenty-four (24) months from the production date if the product is not installed during that period, or twelve (12) months from the documented date of installation if installed within twenty-four (24) months from the production date.

The liability of tekmar under this warranty shall be limited to, at tekmar's sole discretion: the cost of parts and labor provided by tekmar to repair defects in materials and/or workmanship of the defective product; or to the exchange of the defective product for a replacement product; or to the granting of credit limited to the original cost of the defective product, and such repair, exchange or credit shall be the sole remedy available from tekmar, and, without limiting the foregoing in any way, tekmar is not responsible, in contract, tort or strict product liability, for any other losses, costs, expenses, inconveniences, or damages, whether direct, indirect, special, secondary, incidental or consequential, arising from ownership or use of the product, or from defects in workmanship or materials, including any liability for fundamental breach of contract.

This warranty applies only to those products returned to tekmar during the warranty period. This warranty does not cover the cost of the parts or labor to remove or transport the defective product, or to reinstall the repaired or replacement product. Returned products that are not defective are not covered by this warranty.

This warranty does not apply if the product has been damaged by negligence by persons other than tekmar, accident, fire, Act of God, abuse or misuse; or has been damaged by modifications, alterations or attachments made subsequent to purchase which have not been authorized by tekmar; or if the product was not installed in compliance with tekmar's instructions and the local codes and ordinances; or if due to defective installation of the product; or if the product was not used in compliance with tekmar's instructions.

This warranty is in lieu of all other warranties, express or implied, which the Governing Law (being the law of British Columbia) allows parties to contractually exclude, including, without limitation, warranties of merchantability, fitness for a particular purpose, durability or description of the product, its non-infringement of any relevant patents or trademarks, and its compliance with or non-violation of any applicable environmental, health or safety legislation; the term of any other warranty not hereby contractually excluded is limited such that it shall not extend beyond twenty-four (24) months from the production date, to the extent that such limitation is allowed by the Governing Law.

Product Return Procedure Products that are believed to have defects in workmanship or materials must be returned, together with a written description of the defect, to the tekmar representative for that territory. If the address of the representative is not known, please request it from tekmar at the telephone number listed below**.**

tekmar® Control Systems

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