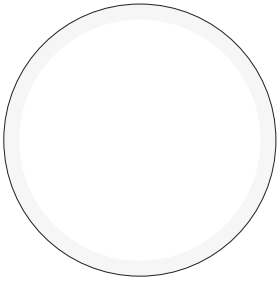
tekmar® - Data Brochure

Indoor Sensor 084

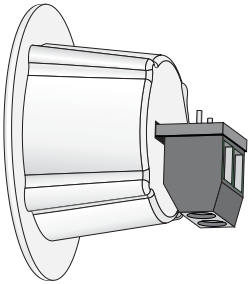
D 084

05/07

The tekmar Indoor Sensor 084 includes a 10 kΩ thermistor mounted on a white thermoplastic disk to provide an accurate measurement of the indoor temperature. The 084 mounts flush or nearly flush to the wall to give an unobtrusive look to the sensor. Since the sensor material is corrosion resistant, drywall installers are able to mud over the sensor or the 084 can be painted to match the existing wall color. The 084 can be connected to a tekmar thermostat for remote temperature sensing.



Actual Size



Installation

CAUTION

Improper installation and operation of this sensor could result in damage to equipment and possibly even personal injury. It is your responsibility to ensure that this sensor 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.

STEP ONE — GETTING READY

Check the Contents

Check the contents of this package. If any of the contents listed are missing or damaged, please refer to the Limited Warranty and Product Return Procedure on the back of this brochure and contact your wholesaler or tekmar sales representative for assistance.

Type 084 includes • One Indoor Sensor 084 • One Data Brochure D 084.

STEP TWO — CHOOSING A LOCATION FOR THE INDOOR SENSOR

The Indoor Sensor should be installed on an interior wall of the desired zone to be controlled. Avoid installing the sensor in a wall if the adjacent zone is at a much different temperature. Do not mount the 084 in a location that may be affected by localized heat sources or cold drafts (in direct sunlight or near a supply air duct or window).

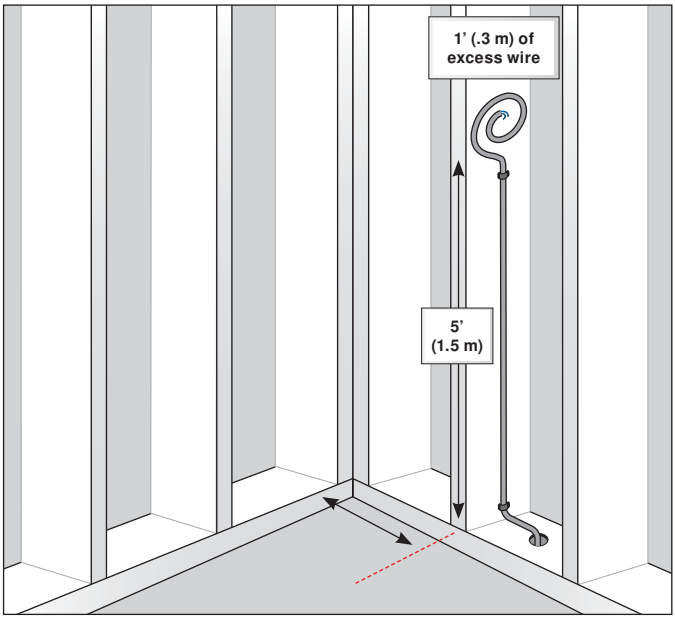
STEP THREE — ROUGH IN WIRING

- Before drywall is installed run two conductor 18 AWG wire from the tekmar thermostat to the desired location of the Indoor Sensor. The maximum wire length between a thermostat and sensor is 500' (152.4 m).

- 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 terminals on the thermostat and the other end should remain free. The shield must not be connected to earth ground.

- Staple the wire to a wall stud 5' (1.5 m) above the floor and coil 1' (.3 m) of the wire to work with before cutting it off.

- **Write down the exact location of the wire in the wall so it can be found when the drywall is installed.**



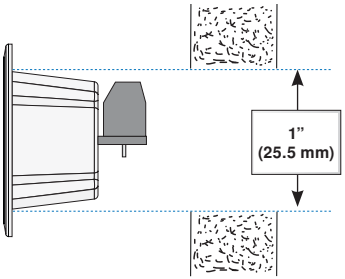
Record distance from corner.

STEP FOUR — PREPARING THE WALL

Once the drywall has been installed, locate the sensor wire behind the drywall using your notes from step three.

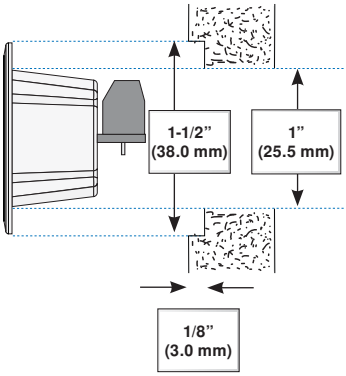
Near Flush Mount

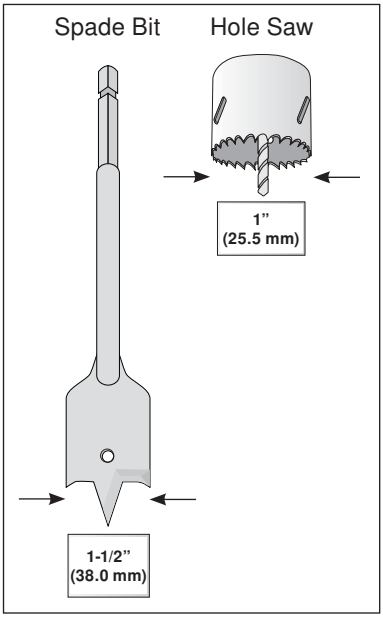
- Using a hole-saw, drill a 1” (25.5 mm) hole at the location of the sensor wire.
- Pull the excess wire through the hole and now you are ready to wire your sensor.
- Do not drill hole directly over stud.



True Flush Mount

- Using a 1-1/2” (38.0 mm) spade bit, drill a recess hole lightly into the drywall to a depth no more than 1/8” (3.0 mm).
- Turn the 084 Indoor Sensor around so that the front disk is facing the wall and test to see if this recess hole is deep enough to mount the sensor flush.
- Once the recess hole is at the desired depth, use a 1” (25.5 mm) hole-saw and place the guide bit into the center hole created by the spade bit and drill through the drywall.
- Pull the excess wire through the hole and now you are ready to wire your sensor.





STEP FIVE — WIRE & MOUNT THE INDOOR SENSOR

- Connect the two wires to the terminals in the back of the 084 sensor.
- Once wired, feed the excess wire back into the hole and hand press the 084 until the back of the disk touches the wall. The sensor is held in place by the taper of the enclosure (no fasteners required).
- **Be careful not to press the sensor through the drywall.**

STEP SIX — FINISH THE INDOOR SENSOR

- The sensor can now be painted to match the wall color or wallpapered over.
- The sensor can also be mudded over and sanded during the drywall process, and then the wall can be painted or wallpapered as normal. **Be careful not to sand the sensor plate.**
- **Keep a record of where the 084 is installed in case of failure the sensor can be found.**

  Note: The mud area of a near flush mount will be much greater than the mud area of a true flush mount.

A good quality test meter capable of measuring up to 5,000 kΩ (1 kΩ = 1000Ω) 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.

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

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

Notes

Technical Data

INDOOR SENSOR 084

Literature	D 084
Packaged weight	0.11 lbs (50g)
Enclosure	White PC-ABS plastic
Dimensions	1-7/16” O.D. x 1-1/8” D (36 O.D. x 28 mm)
Approval	CSA C US, CSA/UL 61010-1
Ambient Conditions	Indoor use only, -60 to 140°F (-50 to 60°C), < 90% RH non-condensing
Sensor Type	NTC thermistor, 10 kΩ @ 77°F (25°C ± 0.2°C), ß = 3892

Limited Warranty and Product Return Procedure

Limited Warranty ***The liability of tekmar under this warranty is limited. The Purchaser, by taking receipt of any tekmar product ("Product"), acknowledges the terms of the Limited Warranty in effect at the time of such Product sale and acknowledges that it has read and understands same.***

The tekmar Limited Warranty to the Purchaser on the Products sold hereunder is a manufacturer's pass-through warranty which the Purchaser is authorized to pass through to its customers. Under the Limited Warranty, each tekmar Product is warranted against defects in workmanship and materials if the Product is installed and used in compliance with tekmar's instructions, ordinary wear and tear excepted. The pass-through 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 the Limited 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 warranty 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.

The pass-through Limited Warranty applies only to those defective Products returned to tekmar during the warranty period. This Limited 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, all such costs and expenses being subject to Purchaser's agreement and warranty with its customers.

Any representations or warranties about the Products made by Purchaser to its customers which are different from or in excess of the tekmar Limited Warranty are the Purchaser's sole responsibility and obligation. Purchaser shall indemnify and hold tekmar harmless from and against any and all claims, liabilities and damages of any kind or nature which arise out of or are related to any such representations or warranties by Purchaser to its customers.

The pass-through Limited Warranty does not apply if the returned 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 / or 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 ALLOWS PARTIES TO CONTRACTUALLY EXCLUDE, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND 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 Warranty Return Procedure All 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 assigned to the territory in which such Product is located. If tekmar receives an inquiry from someone other than a tekmar Representative, including an inquiry from Purchaser (if not a tekmar Representative) or Purchaser's customers, regarding a potential warranty claim, tekmar's sole obligation shall be to provide the address and other contact information regarding the appropriate Representative.

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