

Installation, Operation and Maintenance

Boiler Flue Sensor 069

Introduction

- The Boiler Flue Sensor 069 measures the temperature of a boiler flue venting.



⚠ WARNING



Please read carefully before proceeding with installation. Your failure to follow any attached instructions or operating parameters may lead to the product's failure.



Keep this Manual for future reference.

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Important Safety Information

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



This is a safety-alert symbol. The safety alert symbol is shown alone or used with a signal word (DANGER, WARNING, or CAUTION), a pictorial and/or a safety message to identify hazards. When you see this symbol alone or with a signal word on your equipment or in this manual, be alert to the potential for death or serious personal injury.

⚠ WARNING

- It is the installer's responsibility to ensure that this sensor is safely installed according to all applicable codes and standards.
- This sensor is not intended for use as a primary limit device. Other devices that are intended and certified as safety limits must be placed into the control circuit.

NOTICE

- Do not attempt to service the sensor. There are no user serviceable parts inside the sensor. Attempting to service the sensor voids the warranty.



This pictorial alerts you to electricity, electrocution, and shock hazards.

⚠ WARNING

This symbol identifies hazards which, if not avoided, could result in death or serious injury.

⚠ CAUTION

This symbol identifies hazards which, if not avoided, could result in minor or moderate injury.

NOTICE

This symbol identifies practices, actions, or failure to act which could result in property damage or damage to the equipment.

⚠ WARNING



Read manual and all product labels BEFORE using the equipment. Do not use unless you know the safe and proper operation of this equipment. Keep this manual available for easy access by all users. Replacement manuals are available at tekmarControls.com



Installation

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 069 includes:

- One Boiler Flue Sensor 069
- One Installation, Operation, Maintenance Manual IOM-T-069

Preparation

Tools Required

- $\frac{9}{16}$ " Wrench

Materials Required

- Two wire nuts
- 18 AWG Two-conductor Low Voltage Thermostat (LVT) cable

Installation Location

The sensor should be installed on the boiler flue pipe. If there are multiple boilers, the sensor should be installed where the flues are piped together.

Mounting

Install the sensor into a $\frac{1}{4}$ " hole in the boiler flue pipe.

Wiring

The sensor includes 12 inches (300 mm) of high temperature PTFE cable. This can be extended up to total of 500 feet using LVT cable. Ensure that the LVT cable jacket must not

make contact with the boiler flue vent pipe. Use wire nuts to create the splice.

Terminating

The sensor terminates to the flue sensor input on the control.

Testing and Troubleshooting

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.

Temperature vs. Resistance Table

Call customer service if you need assistance with technical details.

TEMPERATURE		RESISTANCE	TEMPERATURE		RESISTANCE	TEMPERATURE		RESISTANCE	TEMPERATURE		RESISTANCE
°F	°C	Ω	°F	°C	Ω	°F	°C	Ω	°F	°C	Ω
-40°	-40°	336,479	68°	20°	12,493	176°	80°	1,255	284°	140°	235
-31°	-35°	242,681	77°	25°	10,000	185°	85°	1,070	293°	145°	208
-22°	-30°	176,974	86°	30°	8,057	194°	90°	915	302°	150°	186
-13°	-25°	130,421	95°	35°	6,531	203°	95°	786	311°	155°	166
-4°	-20°	97,081	104°	40°	5,326	212°	100°	678	320°	160°	148
5°	-15°	72,957	113°	45°	4,368	221°	105°	587	329°	165°	133
14°	-10°	55,329	122°	50°	3,602	230°	110°	510	338°	170°	119
23°	-5°	42,327	131°	55°	2,986	239°	115°	445	347°	175°	107
32°	0°	32,650	140°	60°	2,488	248°	120°	389	356°	180°	97
41°	5°	25,392	149°	65°	2,083	257°	125°	341	365°	185°	87
50°	10°	19,901	158°	70°	1,752	266°	130°	301	374°	190°	79
59°	15°	15,712	167°	75°	1,480	275°	135°	265	383°	195°	72

Technical Data

Boiler Flue Sensor 069

Literature	Submittal, Installation-Operating-Maintenance Manual
Operating Temperature Range	32 to 392°F (0 to 200°C)
Dimensions	$\frac{9}{16}$ " \varnothing x $2\frac{3}{8}$ " L (14.2 mm \varnothing x 60 mm L) cable: 12" (300 mm)
Threads	$\frac{1}{4}$ "-18 NPT
Sensor	NTC thermistor, 10 k Ω @ 77°F (25°C \pm 0.2°C) β =3892
Materials	316L stainless steel (sensor bulb); 2-conductor, 22 AWG with PTFE cable jacket
Packaged Weight	0.15 lbs (66 g)

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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All specifications are subject to change without notice

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