

Description

The Thermostat 506x operates a single heating zone and uses a multilingual display. A single auxiliary sensor input allows either an optional floor, indoor, or outdoor sensor to be installed.

Features

- Night setback
- Optional floor warming
- Optional remote indoor sensing
- Optional outdoor temperature display

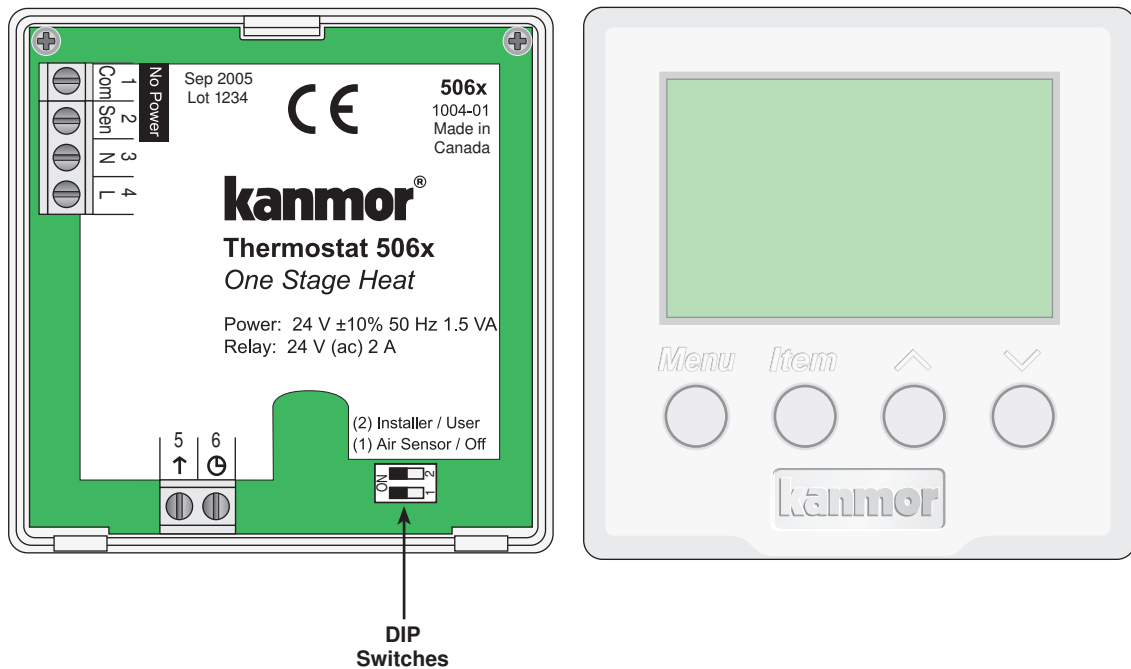


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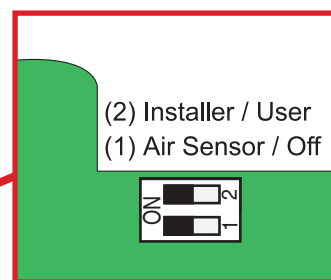
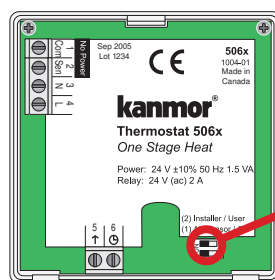
Dip Switches

DIP Switch 2: Installer / User

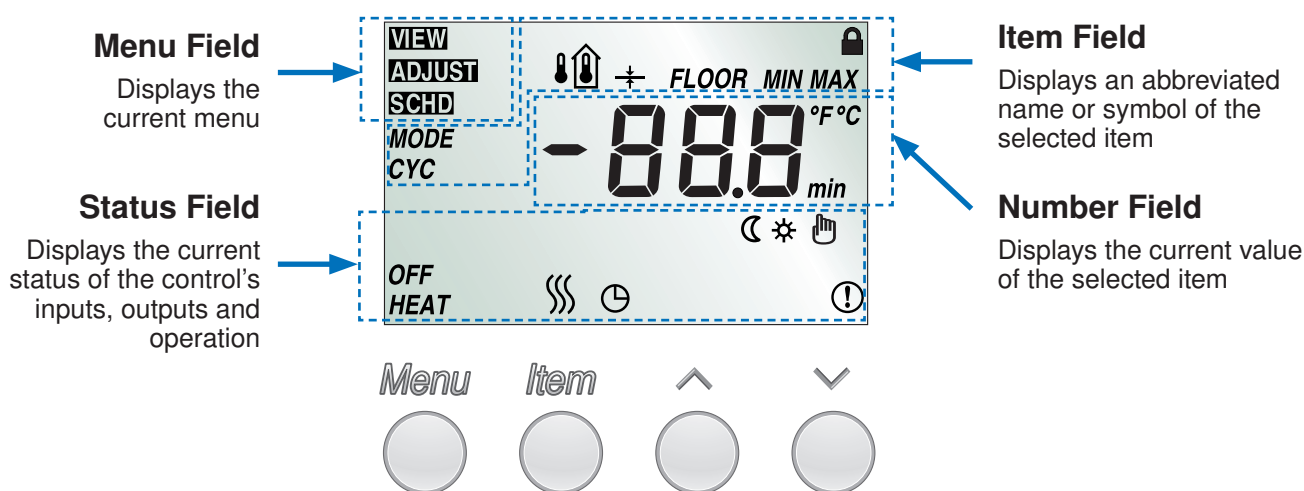
- Select to 'Installer' during thermostat installation. Select 'User' for regular use.
- The Access column on page 3, 4 and 5 shows the access level required to view the item.

DIP Switch 1: Air Sensor / Off

- Select whether or not the internal air sensor is used to measure air temperature.



Display



Symbols Description

HEAT	HEAT Thermostat is in the heating mode of operation.	OFF	OFF Thermostat is in the off mode of operation.
	MANUAL OVERRIDE Shown when an override is manually selected.		INSTALLER / USER A padlock is shown while in the user access level.
	OUTDOOR TEMPERATURE Shown together with the measured outdoor temperature.		WARNING Shown when an error message is present.
	INDOOR TARGET Shown together with the desired indoor air temperature.		INDOOR TEMPERATURE Shown together with the measured indoor air temperature.
	WAKE Shown while operating at the wake temperature.		SLEEP Shown while operating at the sleep temperature.
	HEAT CONTACT Shows when the heat contact is closed.		EXTERNAL NIGHT SETBACK Shown when external night setback signal is present.

User Interface

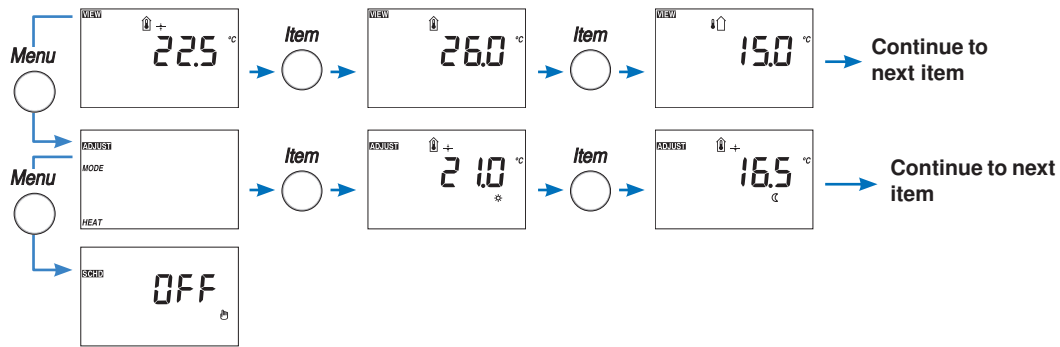
The 506x has four buttons: Menu, Item, Up, Down.

Menu Button    

Each press and release of the Menu button advances the display to the next menu.

Three menus are available:

- View
- Adjust
- Schedule



Item Button    

Each press and release of the Item button advances the display to the next item in the same menu.

Up or Down Button    

Each press and release of the Up or Down button changes the number value while in the 'ADJUST' or 'SCHD' menus.








Setup

All settings are stored in permanent memory which is not affected by power loss.

View Menu (1 of 1)



The View menu items display the current operating temperatures and status information of the system.

Item Field	Range	Access	Description
	---, 1.5 to 38.0°C (---, 35 to 100°F)	INST	 INDOOR TARGET The desired indoor air temperature.
	-55 to 85°C (-67 to 185°F)	USER INST	 INDOOR The measured indoor air temperature. The average is shown if both the internal and external indoor sensors are used.
	-55 to 85°C (-67 to 185°F)	USER INST	 OUTDOOR The measured outdoor temperature. Requires an outdoor sensor to be installed on the auxiliary sensor input.
	-55 to 85°C (-67 to 185°F)	USER INST	FLOOR FLOOR The measured floor temperature. Requires a floor sensor to be installed on the auxiliary sensor input.

VIEW MENU

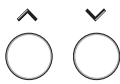
• After the last item, the control returns to the first item in the menu.

Adjust Menu (1 of 1)

Menu













Item



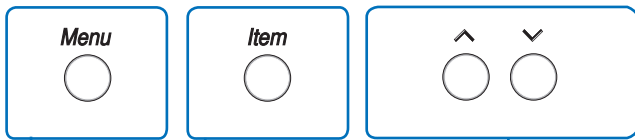
The Adjust Menu items are the programmable settings used to operate the mechanical equipment.

ADJUST MENU

Item Field	Range	Access	Description
<p>ADJUST</p> <p>MODE</p> <p>HEAT</p>	<p>OFF, HEAT</p> <p>Default = HEAT</p>	<p>USER</p> <p>INST</p>	<p>MODE MODE OF OPERATION</p> <p>The thermostat can operate in two modes: HEAT or OFF.</p>
<p>ADJUST</p> <p> +</p> <p>21.0 °C</p> <p>*</p>	<p>4.5 to 35.0 °C</p> <p>(40 to 95 °F)</p> <p>Default = 21.0 °C (70 °F)</p>	<p>USER</p> <p>INST</p>	<p> +  INDOOR TARGET WAKE</p> <ul style="list-style-type: none"> The desired indoor target temperature during the wake period. Requires an air sensor to be on.
<p>ADJUST</p> <p> +</p> <p>16.5 °C</p> <p>☾</p>	<p>4.5 to 35.0 °C</p> <p>(40 to 95 °F)</p> <p>Default = 16.5 °C (62 °F)</p>	<p>USER</p> <p>INST</p>	<p> +  INDOOR TARGET SLEEP</p> <ul style="list-style-type: none"> The desired indoor target temperature during the sleep setback period. Requires an air sensor to be on.
<p>ADJUST</p> <p>FLOOR MIN</p> <p>22.0 °C</p> <p>*</p>	<p>OFF, 4.5 to 50.0 °C</p> <p>(OFF, 40 to 122 °F)</p> <p>Default = 22.0 °C (72 °F)</p>	<p>USER</p> <p>INST</p>	<p>FLOOR MIN  FLOOR MIN WAKE</p> <ul style="list-style-type: none"> The minimum floor temperature during the wake period. Requires a floor sensor to be installed on the auxiliary sensor input.
<p>ADJUST</p> <p>FLOOR MIN</p> <p>OFF</p> <p>☾</p>	<p>OFF, 4.5 to 50.0 °C</p> <p>(OFF, 40 to 122 °F)</p> <p>Default = OFF</p>	<p>USER</p> <p>INST</p>	<p>FLOOR MIN  FLOOR MIN SLEEP</p> <ul style="list-style-type: none"> The minimum floor temperature during the sleep setback period. Requires a floor sensor to be installed on the auxiliary sensor input.
<p>ADJUST</p> <p>FLOOR MAX</p> <p>32.0 °C</p>	<p>4.5 to 50.0 °C, OFF</p> <p>(40 to 122 °F, OFF)</p> <p>Default = 32.0 °C (90 °F)</p>	<p>INST</p>	<p>FLOOR MAX FLOOR MAX</p> <ul style="list-style-type: none"> The maximum floor temperature. Requires a floor sensor to be installed on the auxiliary sensor input.
<p>ADJUST</p> <p>SEn</p> <p>OFF</p>	<p>OFF, FLOOR,</p> <p> = Indoor Sensor,</p> <p> = Outdoor Sensor</p> <p>Default = OFF</p>	<p>INST</p>	<p>SEn AUXILIARY SENSOR</p> <ul style="list-style-type: none"> Select the type of auxiliary sensor.
<p>ADJUST</p> <p>CYC</p> <p>HeAT</p> <p>Au</p>	<p>Au, 2 to 12</p> <p>Default = Au</p>	<p>INST</p>	<p>HEAT CYC HEAT CYCLE</p> <ul style="list-style-type: none"> Select the number of heating cycles per hour. Select 'Au' for the thermostat to automatically calculate the heating cycles per hour.
<p>ADJUST</p> <p>°C</p>	<p>°F, °C</p> <p>Default = °C</p>	<p>USER</p> <p>INST</p>	<p>°F °C UNITS</p> <ul style="list-style-type: none"> Select Celsius or Fahrenheit temperature units.

After the last item, the control returns to the first item in the menu.

Schedule Menu (1 of 1)



The Schedule menu allows the user to override the Wake temperature setting and operate based on the Sleep temperature setting.

SCHD MENU

Item Field	Range	Access	Description
	OFF, On Default = OFF	USER INST	MANUAL OVERRIDE Manually select the sleep setback override when set to 'On'. Select 'OFF' to operate on the external night setback timer.

After the last item, the control returns to the first item in the menu.

Sequence of Operation

Auxiliary Sensors

The thermostat allows for a single auxiliary sensor to be installed. Once installed, the thermostat must be set to read the auxiliary sensor. The Sensor setting in the Adjust menu has four possible settings:

- 1) OFF = no auxiliary sensor is present
- 2) FLOOR = an auxiliary floor sensor is present
- 3) Indoor = an auxiliary indoor sensor is present
- 4) Outdoor = an auxiliary outdoor sensor is present

Based upon the auxiliary sensor selected, the thermostat can have 5 different sequences of operation:

- 1) Air = The air temperature is controlled using the internal air temperature sensor. The internal air DIP switch is set to 'ON'
- 2) Air Averaging = The air temperature is controlled using the internal air temperature sensor and an indoor auxiliary sensor. The internal air sensor DIP switch is set to 'ON'. The two sensor readings are averaged.
- 3) Remote Air = The air temperature is controlled using an auxiliary indoor sensor. The internal air sensor DIP switch is set to 'OFF'.
- 4) Floor = The floor temperature is controlled using an auxiliary floor sensor. A minimum floor temperature is maintained. The internal air sensor DIP switch is set to 'OFF'.
- 5) Floor and Air = Floor and air temperature is controlled using the internal air sensor and a floor sensor. The internal air sensor DIP switch is set to 'ON'. A minimum floor temperature is maintained even when the air temperature is satisfied. Should the air require heating, the floor temperature is raised. A floor maximum can be set to protect floors from potential overheating.

Night Setback

An external signal can force the thermostat to operate at the sleep temperature setting. This external signal can be provided from the channel timer output on the Mixing Control 355x. Any time the 'timer' (6) and neutral (3) terminals are shorted together, the thermostat operates at the sleep temperature setting.

Temperature Adjustment

Press the up or down button while viewing the Indoor or Indoor Target temperature to change the temperature. The thermostat automatically enters the Adjust Menu to the Indoor Target setting for the current time period (Wake or Sleep).

If only a floor sensor is present and the indoor sensors are off, press the up or down button to change the temperature. The thermostat automatically enters the Adjust Menu to the Floor Minimum setting for the current time period (Wake or Sleep).

Manual Override

Set the manual override setting in the Schedule menu to 'On' in order to force the thermostat to operate at the sleep setback temperature.

Freeze Protection

The thermostat will operate the heat contact if the air or floor temperature fall below 1.5°C (35°F). The thermostat provides freeze protection while the Mode of Operation is set to OFF or HEAT.

Installation

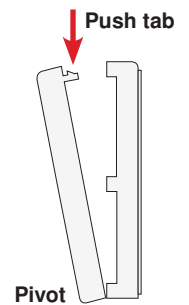
Step 1 – Contents

Type 506x includes: One Thermostat 506x • One Wall Plate 008e • One Data Brochure D506x • One User Brochure U506x • Two M3.5 x 0.6 x 50 mm slotted machine screws • Two #6 x 5/16" self-tapping screws

Step 2 – Mounting the Thermostat

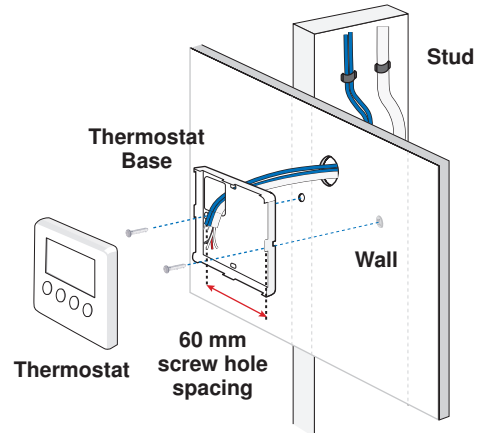
To remove the back cover:

- Place a screwdriver or similar object into the small slot located on the top of the thermostat.
- Push the screwdriver against the plastic tab and pull the top of the front cover so that it pivots around the bottom edge of the base.



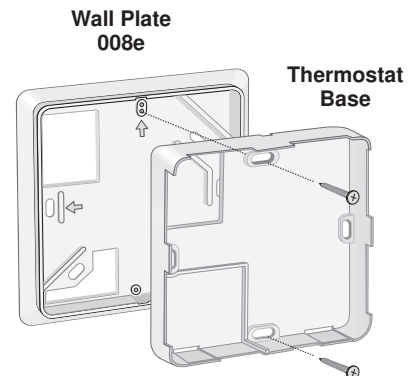
Mounting to a wall:

- The thermostat should be installed on an interior wall of the desired zone approximately 1.5 m above the floor.
- Do not mount the thermostat in a location that may be affected by localized heat sources or cold drafts.
- It may be necessary to install a draft barrier behind the thermostat to prevent air from blowing through the wiring hole and affecting the thermostat's built-in sensor.
- Mount the base directly to the wall using the supplied two self-tapping 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 or similar surface.



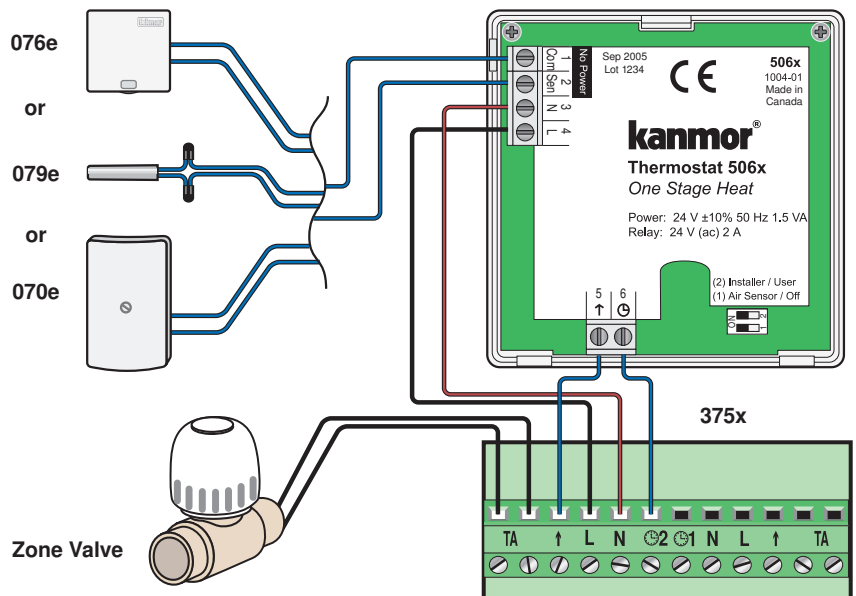
Mounting to an electrical box:

- Use the Wall Plate 008e to mount the thermostat onto an electrical box using the supplied machine screws.
- Ensure that at least one of the arrows molded into the plastic points upwards.
- Ensure that the electrical box is properly insulated and protected from cold drafts.
- All required wiring must be pulled through the existing top left hole of the wall plate.
- Connect the wiring to the thermostat terminals before attaching the thermostat to the wall plate using the supplied self tapping screws.
- Do not over tighten screws as the plastic molding may strip.




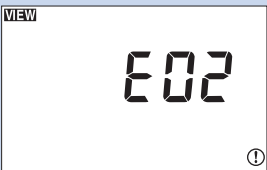


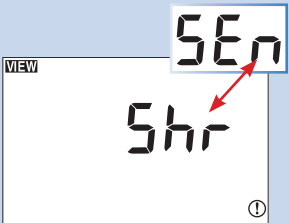
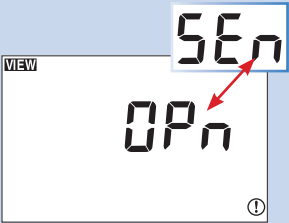
Step 3 – Wiring

- Only qualified and competent personnel should attempt installation of the control.
- The power supply must be disconnected before starting with the installation.
- Recommended cable: Double insulated minimum 0.35 mm².
- All wires are to be stripped to a length of 9 mm to ensure proper connection.



Input/Output	Thermostat 506x Terminal	Wire Voltage	Connects To...	On Device...
Auxiliary Sensor	1 2	Analogue Signal	Sensor Wire	Indoor Sensor 076e or Slab Sensor 079e or Outdoor Sensor 070e
N	3	Neutral 24 V	N	Wiring Center
L	4	Phase 24 V	L	Wiring Center
↑Heat	5	Switched Phase	↑Heat	Wiring Center
⌚Timer	6	Switched Neutral	⌚Timer	Wiring Center

Error Messages (1 of 1)

Error Message	Description
	<p>CONTROL ERROR</p> <ul style="list-style-type: none"> There is an internal control problem. The default settings have been loaded into memory. The control stops operation until settings are checked by the installer. <p>To correct error:</p> <ul style="list-style-type: none"> Set the Installer / User DIP switch to Installer. Check all items in 'Adjust' menu.
	<p>NO ACTIVE SENSOR</p> <ul style="list-style-type: none"> The internal air sensor has been shut off and the auxiliary sensor input is set to 'OFF' or Outdoor. <p>To correct error:</p> <ul style="list-style-type: none"> Select SEn to Indoor or FLOOR or Select the Internal Air Sensor / Off DIP switch to Internal Air Sensor.
	<p>INTERNAL ROOM SENSOR SHORT CIRCUIT</p> <ul style="list-style-type: none"> The thermostat continues to operate on an external indoor sensor if available. The thermostat operates at the 'FLOOR MIN' setting if a floor sensor is available. If the 'FLOOR MIN' is set to 'OFF', the thermostat stops operation. The thermostat stops operation if an outdoor sensor is installed. The thermostat stops operation if no auxiliary sensor is installed. The internal room sensor short circuit is not field repairable. Contact your kanmor supplier for warranty or repair details.
	<p>INTERNAL ROOM SENSOR OPEN CIRCUIT</p> <ul style="list-style-type: none"> The thermostat continues to operate on an external indoor sensor if available. The thermostat operates at the 'FLOOR MIN' setting if a floor sensor is available. If the 'FLOOR MIN' is set to 'OFF', the thermostat stops operation. The thermostat stops operation if an outdoor sensor is installed. The thermostat stops operation if no auxiliary sensor is installed. The internal room sensor open circuit is not field repairable. Contact your kanmor supplier for warranty or repair details.
	<p>AUXILIARY SENSOR SHORT CIRCUIT</p> <ul style="list-style-type: none"> The thermostat continues to operate on the internal air sensor if available. The thermostat stops operation if 'FLOOR MAX' is set to a temperature. Check the auxiliary sensor resistance reading using an ohmmeter. Check for short circuits along the auxiliary sensor wires. The error message is cleared once the auxiliary sensor short circuit is corrected and one of the buttons is pressed.
	<p>AUXILIARY SENSOR OPEN CIRCUIT</p> <ul style="list-style-type: none"> The thermostat continues to operate on the internal air sensor if available. The thermostat stops operation if 'FLOOR MAX' is set to a temperature. Check the auxiliary sensor resistance reading using an ohmmeter. Check for loose connections and broken wires along the auxiliary sensor wires. If an auxiliary sensor is intentionally not present, set SEn to 'OFF'. The error message is cleared once the auxiliary sensor open circuit is corrected and one of the buttons is pressed.

Cleaning the Thermostat

The thermostat's exterior can be cleaned using a damp cloth. Moisten the cloth with water and wring out prior to wiping the thermostat. Do not use solvents or cleaning solutions.

Technical Data

Thermostat 506x:	
Packaged weight	260 g (0.47 lb)
Enclosure	White PVC plastic
Dimensions	73 mm H x 73 mm W x 21 mm D (2-7/8" x 2-7/8" x 13/16")
Ambient conditions	Indoor use only, 0 to 50°C (32 to 122°F).
	< 90% RH non-condensing, Altitude <3000 m, Installation Category II, Pollution Category 2
Power supply	24 V (ac) ± 10% 50 Hz, 1.5 VA
Relay	24 V (ac) 2 A
Sensor	NTC thermistor, 10 kΩ @ 25°C ± 0.2°C (77°F) β = 3892
– Optional	Indoor Sensor 076e, Slab Sensor 079e, Outdoor Sensor 070e

Limited Warranty and Product Return Procedure

Limited Warranty *The liability of kanmor Control Systems Ltd. ("kanmor") under this warranty is limited. The Purchaser, by taking receipt of any kanmor 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 kanmor 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 kanmor Product is warranted against defects in workmanship and materials if the Product is installed and used in compliance with kanmor'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 kanmor under the Limited Warranty shall be limited to, at kanmor's sole discretion: the cost of parts and labor provided by kanmor 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 kanmor, and, without limiting the foregoing in any way, kanmor 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 kanmor 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 kanmor Limited Warranty are the Purchaser's sole responsibility and obligation. Purchaser shall indemnify and hold kanmor 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 kanmor, 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 kanmor; or if the Product was not installed in compliance with kanmor'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 kanmor'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 kanmor through its Representative. If kanmor receives an inquiry from someone other than a kanmor Representative, including an inquiry from Purchaser (if not a kanmor Representative) or Purchaser's customers, regarding a potential warranty claim, kanmor's sole obligation shall be to provide the address and other contact information regarding the appropriate Representative.



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