

Neostat Room Humidistat (Proportional Type)

General

Neostat Model HY9000Z is an electric room humidistat that is similar in design and size to Neosensor, the electronic room temperature or humidity sensor.

A moisture-sensitive nylon ribbon is adopted for the humidistat.

Features

- Simple connection to our actuator allows easy humidity control.
- Compact (thin) and lightweight.
- Several installation types selectable in combination with optional auxiliary devices.



Model Numbers

Model number	Control action	Range	Our corporate logo (on the cover)
HY9000Z8000	Proportional*	30 %RH to 80 %RH	Printed
HY9000Z8000-1			Not printed

Note:

* Use Neostat (proportional type) with our Control Motor or ACTIVAL™.



Safety Instructions

Please read instructions carefully and use the product as specified in this manual. Be sure to keep this manual near by for ready reference.







Usage Restrictions










This product is targeted for general air conditioning. Do not use this product in a situation where human life may be affected. If this product is used in a clean room or a place where reliability or control accuracy is particularly required, please contact our sales representative. Azbil Corporation will not bear any responsibility for the results produced by the operators.

Warnings and Cautions

 WARNING	Alerts users that improper handling may cause death or serious injury.
 CAUTION	Alerts users that improper handling may cause minor injury or material loss.

Signs

	Alerts users possible hazardous conditions caused by erroneous operation or erroneous use. The symbol inside  indicates the specific type of danger. (For example, the sign on the left warns of the risk of electric shock.)
	Notifies users that specific actions are prohibited to prevent possible danger. The symbol inside  graphically indicates the prohibited action. (For example, the sign on the left notifies that disassembly is prohibited.)
	Instructs users to carry out a specific obligatory action to prevent possible danger. The symbol inside  graphically indicates the actual action to be carried out. (For example, the sign on the left indicates general instructions.)

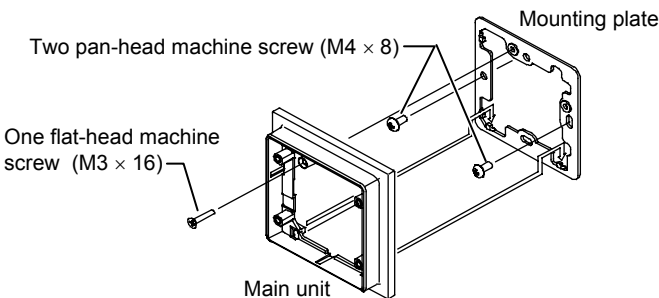
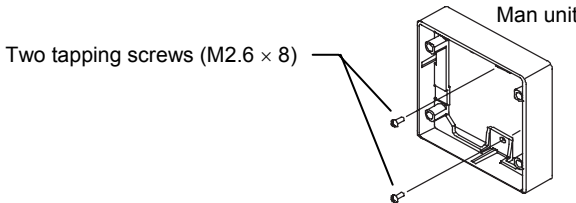
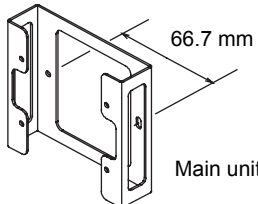
 CAUTION	
	Use the product under the operating conditions (temperature, humidity, power, vibration, shock, mounting direction, atmospheric condition, etc.) as listed in the specifications. Failure to do so might cause fire or device failure.
	Use the product within the rated operating ranges as listed in the specifications. Failure to do so might cause device failure.
	Installation and wiring must be performed by qualified personnel in accordance with all applicable safety standards.
	All wiring must comply with applicable codes and ordinances.
	Before wiring, be sure to turn off the power to the product. Failure to do so might cause electric shock.
	To connect the wires to the screw terminals, use crimp terminal lugs with insulation. Failure to do so might cause fire or device failure due to short circuit.
	Do not disassemble the product. Doing so might cause electric shock or device failure.
	Dispose of the product as industrial waste in accordance with your local regulations. Do not reuse all or part of this product.

Part Numbers of Optional Items

Mount Neostat with the following optional items (sold separately). Order necessary items.

Item	Part number/Model number	Note	
Dedicated mounting kit	Wall-direct mounting kit	Part No. 83165803-001	
	Thermoplate mounting kit	Part No. 83165803-011	
	Multi-Thermocase mounting kit	Part No. 83165803-021	
Auxiliary device	Thermoplate for individual room control	Model QY1100A	With slide switch
		Model QY1100C	With rotary switch
		Model QY1100D	
	Thermoplate	Part No. DY2000A1022	For mounting one Neostat, lengthwise
		Part No. DY2000A1023	For mounting one Neostat, crosswise
		Part No. DY2000A2023	For mounting two Neostat in 94mm (H) x 192mm (W) outlet box, crosswise
		Part No. DY2000A2024	For mounting two Neostat in 106mm (H) x 198mm (W) outlet box, crosswise
		Part No. DY2000A3022	For mounting three Neostat, crosswise
	Thermoplate for open wiring * Thermoplate for open wiring is used for open wiring installation.	Part No. DY2000A1021	For mounting one Neostat, square
		Part No. DY2000A2021	For mounting two Neostat, crosswise
Part No. DY2000A3021		For mounting three Neostat, crosswise	
Multi-Thermocase	Model TY1100Z	—	

Dedicated mounting kits for each mounting method

Mounting method	Mounting kit	Contents
Mounting directly on a wall	Wall-direct mounting kit (Part No. 83165803-001)	 <p>Two pan-head machine screw (M4 × 8)</p> <p>One flat-head machine screw (M3 × 16)</p> <p>Mounting plate</p> <p>Main unit</p>
Mounting onto Thermoplate for open wiring		
Mounting onto Thermoplate	Thermoplate mounting kit (Part No. 83165803-011)	 <p>Two tapping screws (M2.6 × 8)</p> <p>Main unit</p>
Mounting in Multi-Thermocase	Multi-Thermocase mounting kit (Part No. 83165803-021)	 <p>66.7 mm</p> <p>Main unit</p> <p>Mounting screws are supplied with the Multi-Thermocase (optional).</p>

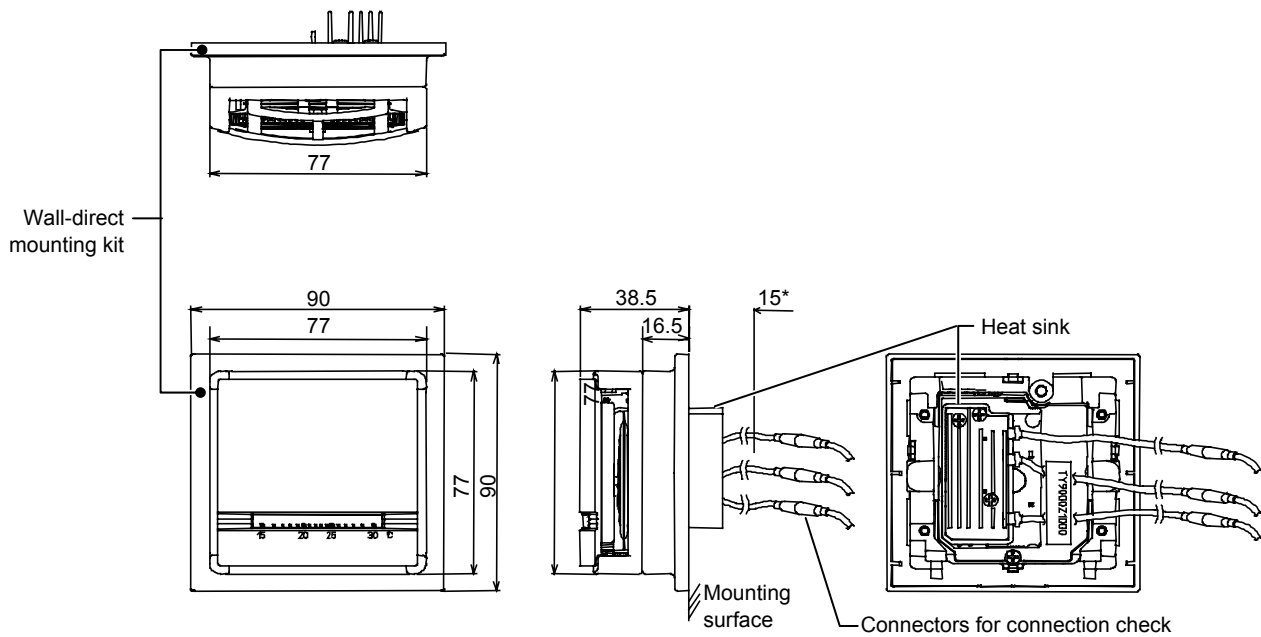
Specifications

Item		Specification	
Proportional bands		Approx. 12 %RH fixed (at 50 %RH)	
Sensing element		Nylon ribbon	
Power supply		24 V AC -15/+10 % (50 Hz/60 Hz)	
Environmental conditions		Rated operating conditions	Transport/storage conditions
	Ambient temperature	15 °C to 40 °C	-20 °C to 50 °C
	Ambient humidity	10 %RH to 95 %RH (non-condensing)	Max. 95 %RH (non-condensing)
Color		Pale gray	
Materials	Cover	PC resin	
	Base	Modified PPE resin	
Weight		Approx. 190 g	
Installation		With the optional mounting kit (sold separately)	
Connection		Lead wire connection	
Accessory		Four mounting screws (M3 x 16)	

PPE: Polyphenylene ether

Dimensions

Neostat with Wall-direct mounting kit

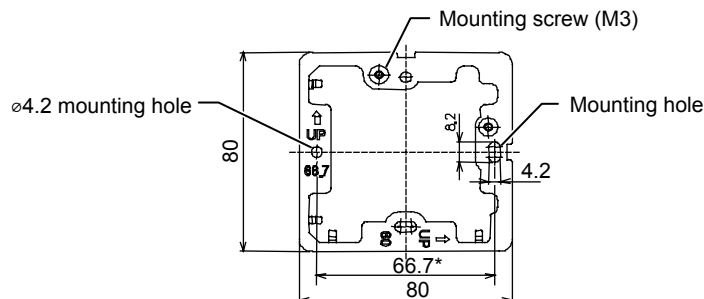


Note:

* Secure more than 15 mm clearance inside the mounting wall when installing Neostat with Wall-direct mounting kit.

Figure 1. Mounting dimensions (mm): Neostat with Wall-direct mounting kit

Mounting plate

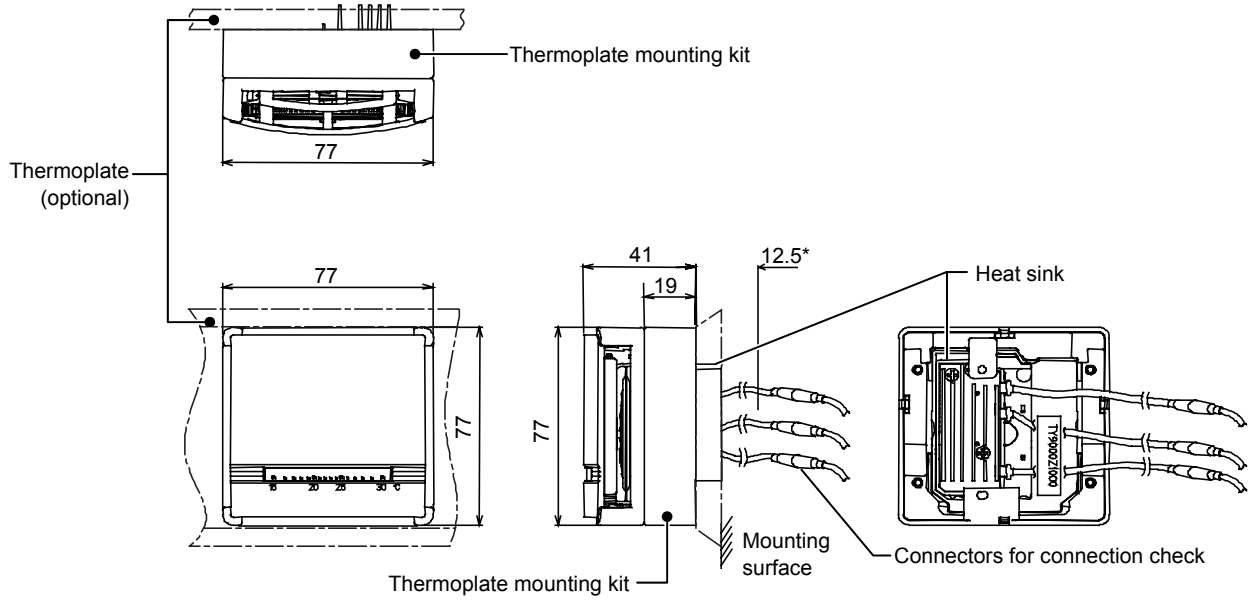


Note:

* Use JIS outlet box/box cover (JIS C8340:1999) with 66.7 mm mounting dimension.
 JIS: Japanese Industrial Standards

Figure 2. Dimensions (mm): Mounting plate of Wall-direct mounting kit

Neostat with Thermoplate mounting kit



Note:

* Secure more than 12.5 mm clearance from the Thermoplate surface to the inside of the mounting wall when installing Neostat with Thermoplate mounting kit.

Figure 3. Mounting dimensions (mm): Neostat with Thermoplate mounting kit on Thermoplate

Thermoplate mounting kit

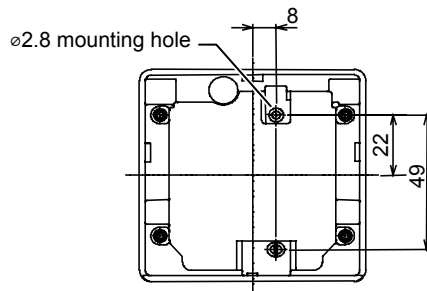


Figure 4. Dimensions (mm): Mounting plate of Thermoplate mounting kit

Neostat (without the cover) with Multi-Thermocase mounting kit (to mount in Multi-Thermocase)

When installing Neostat in the optional Multi-Thermocase, remove the cover of Neostat.

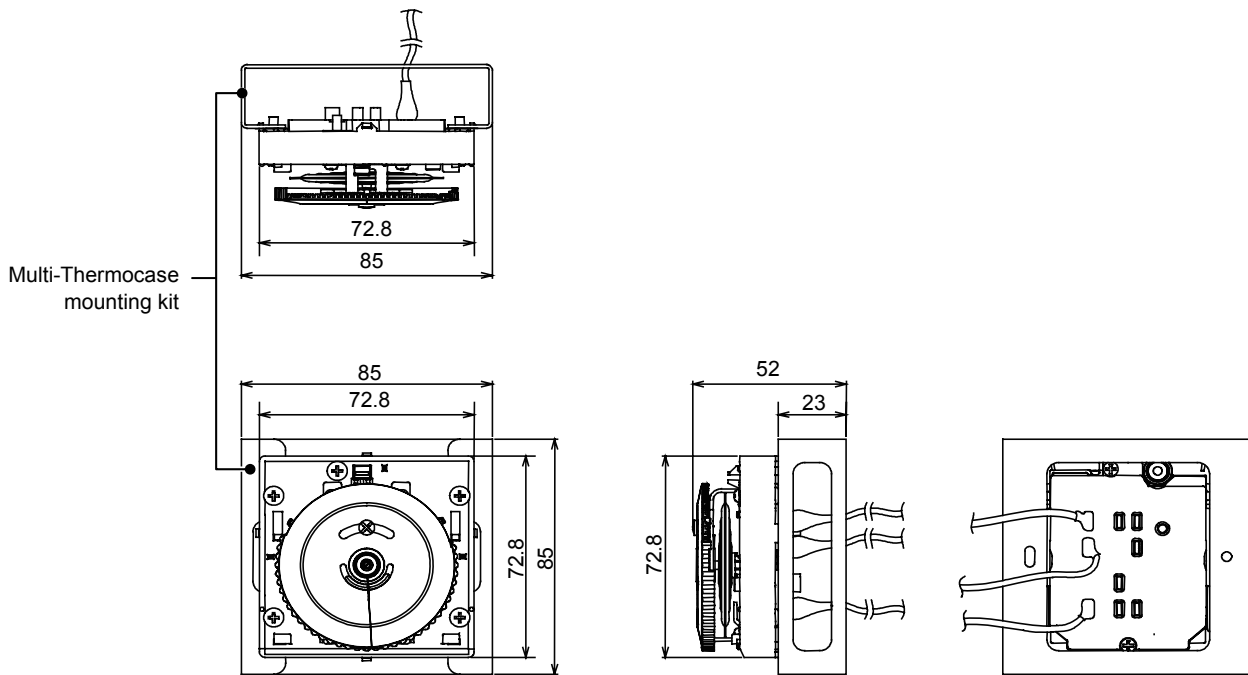
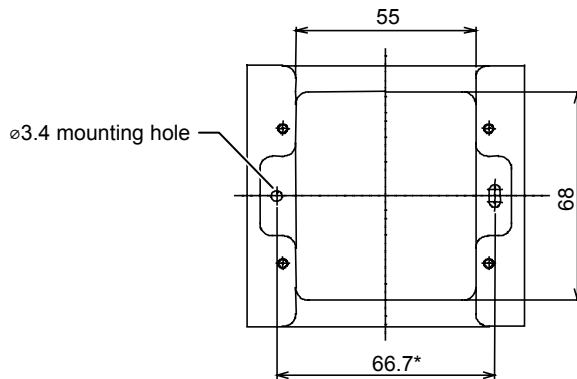


Figure 5. Mounting dimensions (mm): Neostat (not covered) with Multi-Thermocase mounting kit

Multi-Thermocase mounting kit



Note:

* Assembling dimension with device mounting plate of Multi-Thermocase is 66.7 mm.

Figure 6. Dimensions (mm): Multi-Thermocase mounting kit

Installation

CAUTION



Use the product under the operating conditions (temperature, humidity, power, vibration, shock, mounting direction, atmospheric condition, etc.) as listed in the specifications.
Failure to do so might cause fire or device failure.



Installation and wiring must be performed by qualified personnel in accordance with all applicable safety standards.

Requirements for installation location

IMPORTANT:

- Installation location of Neostat largely affects humidity control. Carefully select the location.
- Ask our salesperson for use of Neostat in a special application, as mentioned below.
 - Chemical (organic solvent) atmosphere may shift the output values.
 - Corrosive gas, organic solvent, and other chemicals contained in the atmosphere can cause measuring error of Neostat, shorten the service life of Neostat, or damage Neostat.
- Do not tighten or loosen the screws (except the screws described in the **Installation steps** sections). Doing so might damage Neostat.

Install Neostat on an indoor wall where:

- Representative temperature/humidity (of the room/zone to control) can be measured (approx. 1.5 m high above the floor).
- Ambient wind velocity is 0.1 to 0.15 m/s.
- There is enough maintenance space left in front of Neostat.

Do not install Neostat on a wall where:

- Heat (generated by office device or equipment, for example) stays on.
- Air circulation is interfered (by furniture or door, for example).
- Humidity sensing is affected by draft, downdraft, and hot/cold air from water pipes/ducts.
- Humidity sensing is affected by weather conditions (including sunlight and outdoor air).
- There is vibration.
- Dew condensation occurs.
- Water drops on.
- Atmosphere that contains corrosive gas, organic solvent, or other chemicals surrounds.

Do not install Neostat outdoors or in a duct.

Do not install Neostat directly or horizontally on a ceiling.

Precautions for installation

- Secure the clearance for wiring inside the wall (as shown in Figs. 1 and 3).
- Install Neostat with the optional dedicated mounting kit (sold separately) suitable for your application.
- Do not allow any refuse such as an electric wire scrap to get inside Neostat.
- Do not allow the lead wires caught between the mounting surface of Neostat and the wall.
- Do not put heavy load on the heat sink, the lead wires, etc. Doing so may distort Neostat, causing failure or affecting humidity control.
- If air infiltrates to the rear side of the Neostat from the inside of the installed wall through the outlet box, shut off the air by sealing the outlet box.
- After installation, leave Neostat well so that it adapts to ambient conditions (atmospheric environment).

Cover removal

To remove the cover:

Press the spring, located on the upper center part of the Neostat main unit, using a thin object.

To attach the cover:

Engage the tabs, located on the lower part of the cover, with the slots on the lower part of the main unit. Then fix the cover with the spring, located on the upper center part of the Neostat main unit.

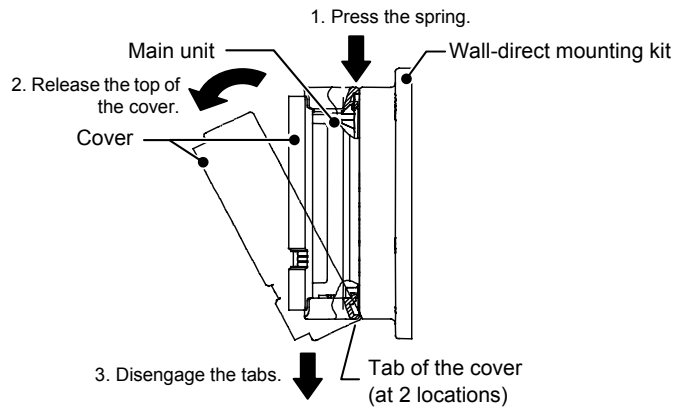


Figure 7. Cover removal

Assembling the Wall-direct mounting kit (the main unit to the mounting plate)

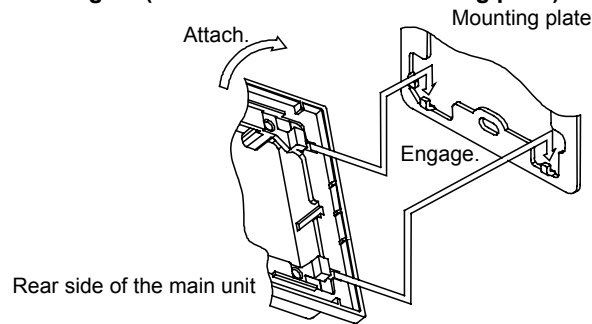


Figure 8. Assembling the Wall-direct mounting kit

Installation steps: Neostat directly on a wall with Wall-direct mounting kit

- 1) Attach the mounting plate of the Wall-direct mounting kit to the outlet box cover (JIS C8340:1999 Boxes and box covers for rigid metal conduits (mounting dimension: 66.7 mm)) on the mounting surface with two pan-head machine screws (M4 x 8) supplied with Wall-direct mounting kit.
- 2) Attach the main unit of the Wall-direct mounting kit to the mounting plate with one flat-head machine screw supplied with Wall-direct mounting kit. (See Fig. 8.)
- 3) Connect the lead wires of Neostat and the wires from the load. (See Fig. 18.)
- 4) Remove the cover of Neostat. (See the **Cover removal** section.)
- 5) Set the depth change levers on the bilateral sides of the Neostat main unit to the upper position (indicated with "L" shown in Fig. 15).
- 6) Mount the main unit of Neostat on the main unit of the Wall-direct mounting kit with four flat-head machine screws (M3 x 16) supplied with Neostat.
- 7) Attach the cover back to the Neostat main unit. (See the **Cover removal** section.)

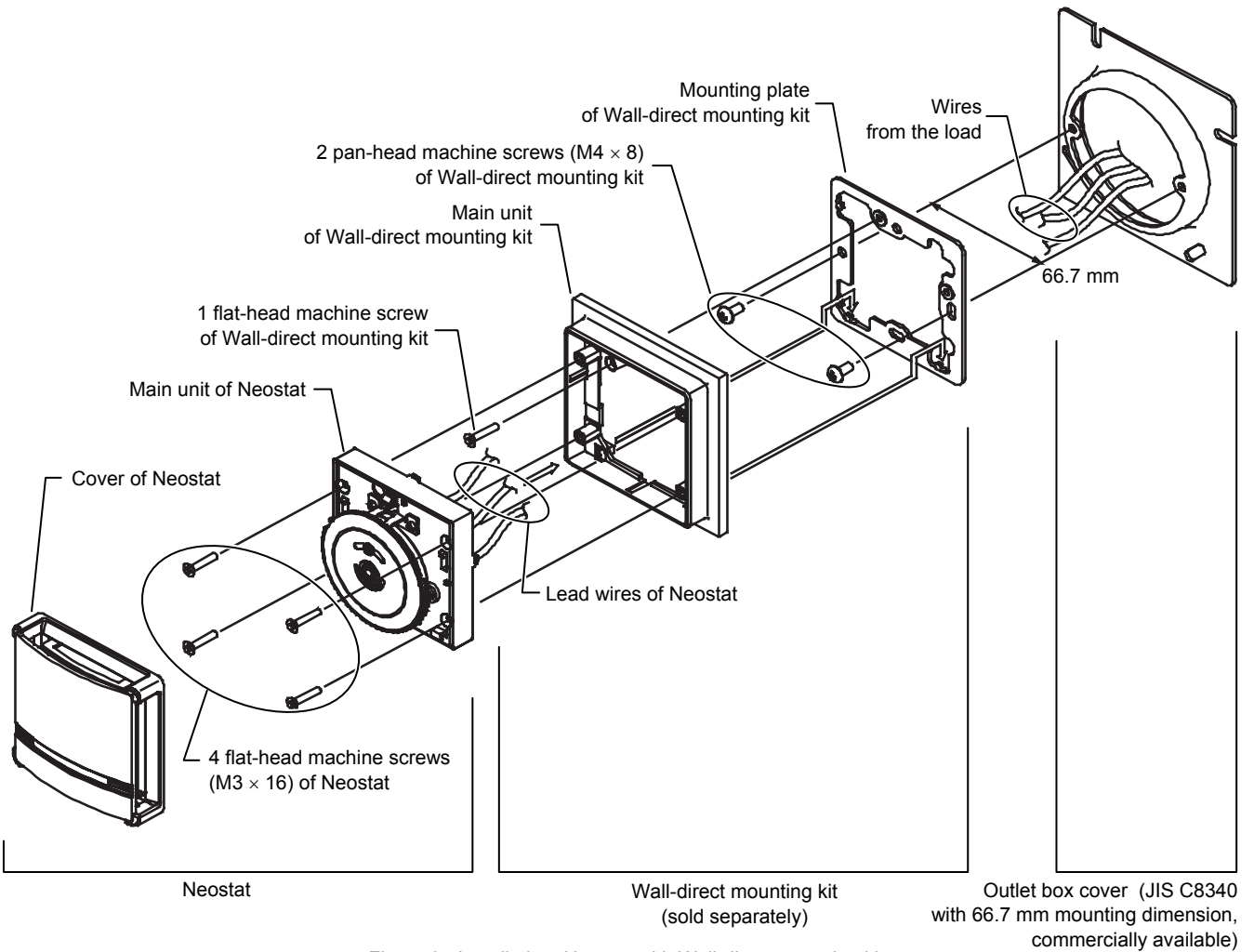


Figure 9. Installation: Neostat with Wall-direct mounting kit

Installation steps: Neostat on Thermoplate for open wiring with Wall-direct mounting kit

- 1) Attach the mounting plate of the Wall-direct mounting kit to the Thermoplate for open wiring on the mounting surface with two pan-head machine screws (M4 x 8) supplied with Wall-direct mounting kit.
- 2) Attach the main unit of Wall-direct mounting kit to the mounting plate with one flat-head machine screw (M3 x 16) supplied with Wall-direct mounting kit. (See Fig. 8.)
- 3) Connect the lead wires of Neostat to the wires from the load. (See Fig. 18.)
- 4) Remove the cover of Neostat. (See the **Cover removal** section.)
- 5) Set the depth change levers on the bilateral sides of the Neostat main unit to the upper position (indicated with "L" shown in Fig. 15).
- 6) Mount the main unit of Neostat on the main unit of the Wall-direct mounting kit with four flat-head machine screws (M3 x 16) supplied with Neostat.
- 7) Attach the cover back to the Neostat main unit. (See the **Cover removal** section.)

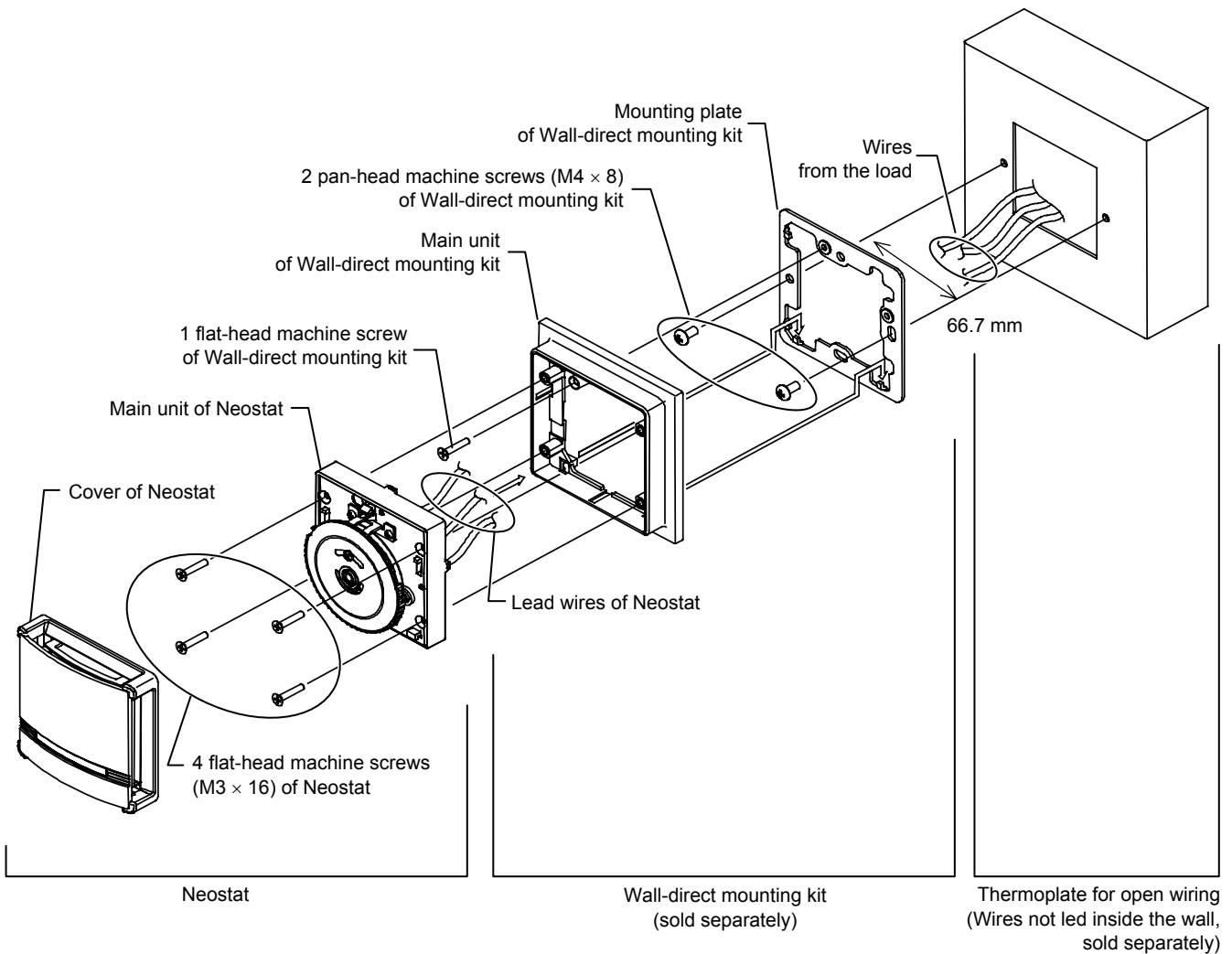


Figure 10. Installation: Neostat with Wall-direct mounting kit (on Thermoplate for open wiring)

Installation steps: Neostat on Thermoplate with Thermoplate mounting kit

- 1) Attach the mounting plate of Thermoplate to the outlet box cover (JIS C8340:1999 Boxes and box covers for rigid metal conduits (mounting dimension: 83.5 mm)) on the mounting surface with two pan-head machine screws (M4 x 8) supplied with Thermoplate.
- 2) Attach the main unit of Thermoplate to the mounting plate with two pan-head machine screws (M3 x 5) supplied with Thermoplate.
- 3) Attach the Thermoplate mounting kit to the Thermoplate with two tapping screws (M2.6 x 8) supplied with Thermoplate mounting kit.
- 4) Connect the lead wires of the Neostat to the wires from the load. (See Fig. 18.)
- 5) Remove the cover of Neostat. (See the **Cover removal** section.)
- 6) Set the depth change levers on the bilateral sides of the Neostat main unit to the upper position (indicated with "L" shown in Fig. 15).
- 7) Mount the main unit of Neostat on the main unit of the Thermoplate mounting kit with four flat-head machine screws (M3 x 16) supplied with Neostat.
- 8) Attach the cover back to the Neostat main unit. (See the **Cover removal** section.)

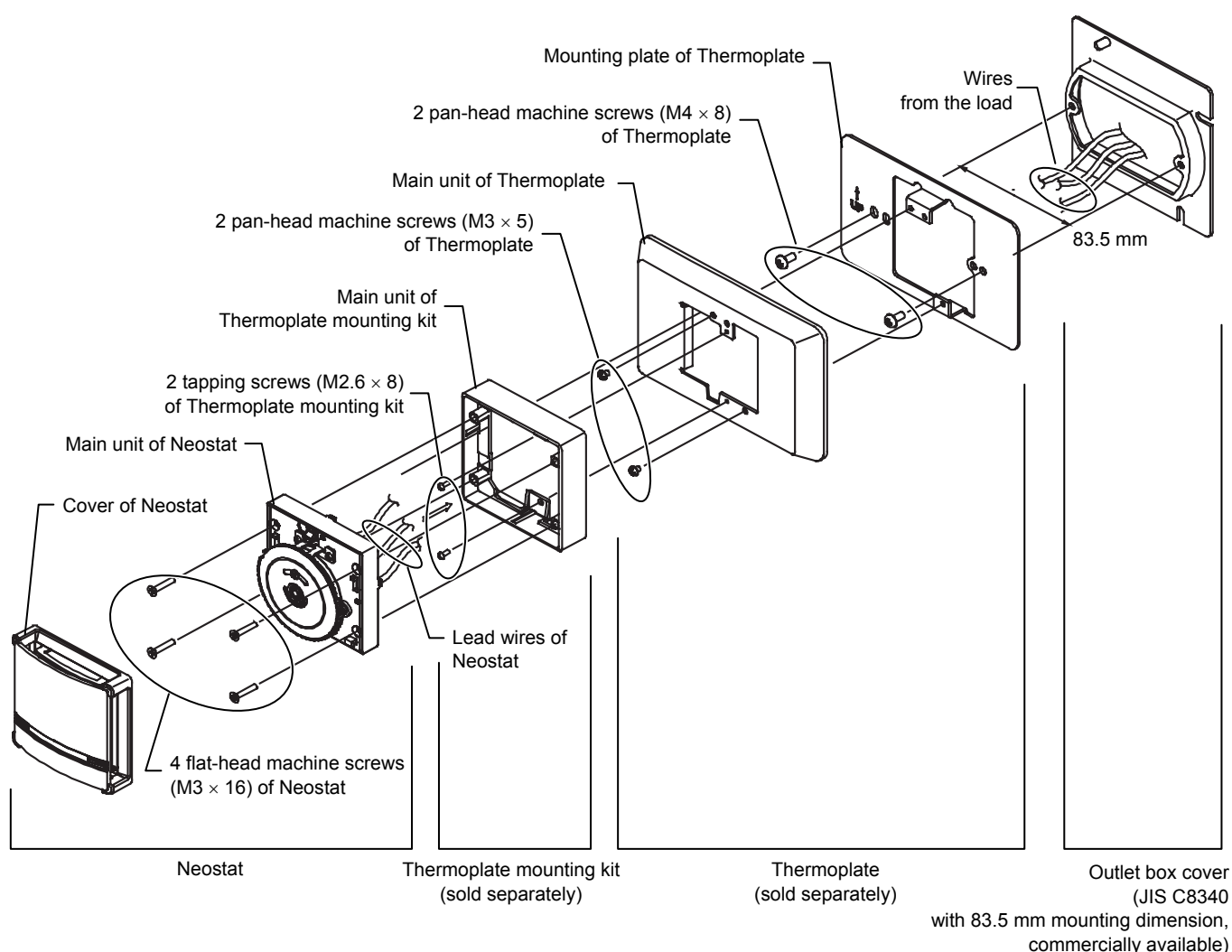


Figure 11. Installation: Neostat with Thermoplate mounting kit (on Thermoplate)

Installation steps: Neostat in Multi-Thermocase with Multi-Thermocase mounting kit

- 1) Attach the main unit of the Multi-Thermocase mounting kit to the device mounting plate of Multi-Thermocase with two pan-head machine screws (M3 x 6).
- 2) Connect the lead wires of Neostat to the wires from the load.
- 3) Remove the cover from the Neostat main unit. (See the **Cover removal** section.)
- 4) Set the depth change levers on the bilateral sides of the Neostat main unit to the lower position (indicated with "H" shown in Fig. 15).
- 5) Mount the Neostat main unit to the Multi-Thermocase mounting kit with four flat-head machine screws (M3 x 16) supplied with Neostat. In the Multi-Thermocase, Neostat is installed with its cover removed.

IMPORTANT:
 Before installing Neostat in the Multi-Thermocase, be sure to set the depth change levers on the bilateral sides of the Neostat main unit at the lower position (indicated with "H".)

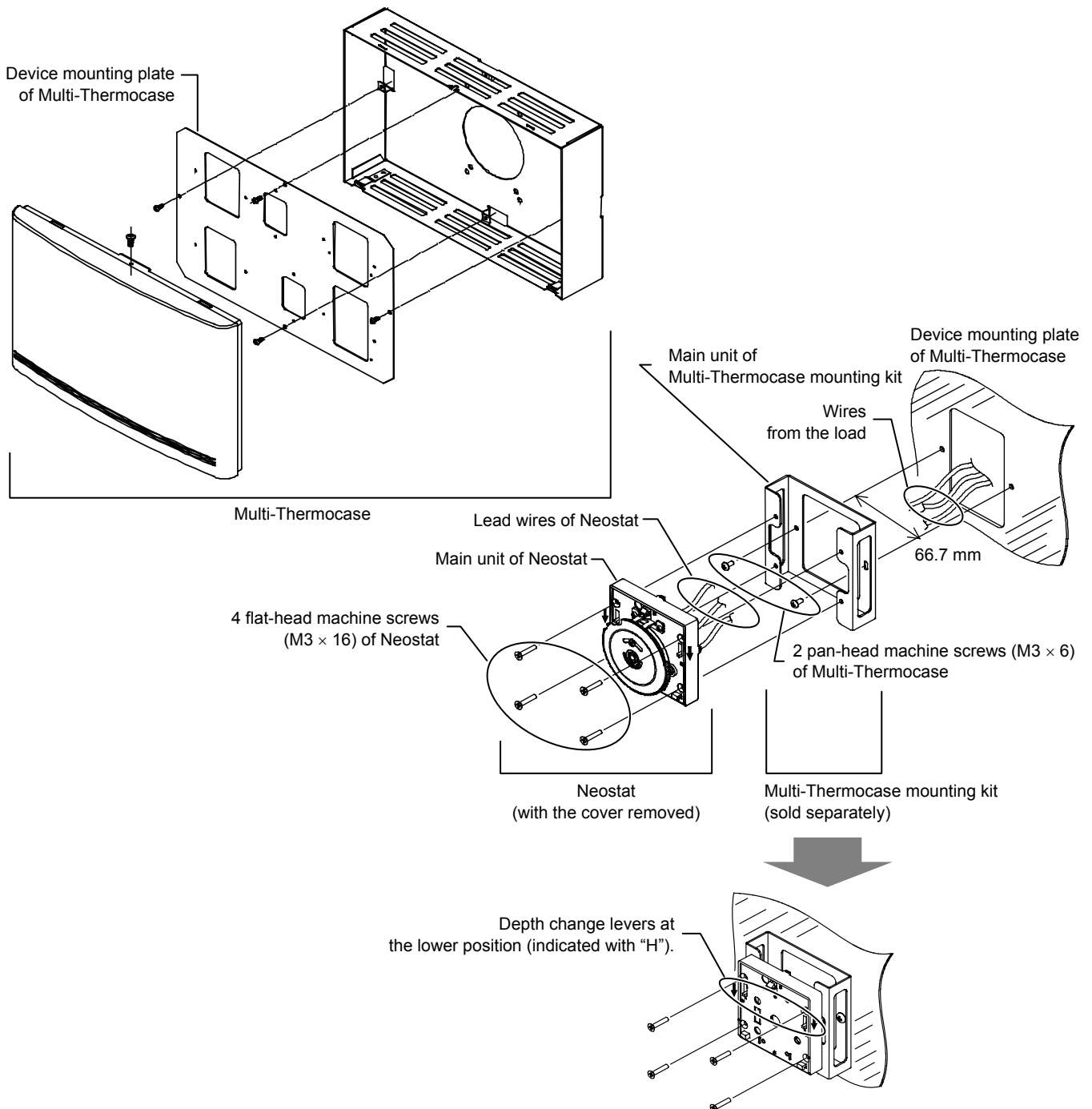


Figure 12. Installation: Neostat (in Multi-Thermocase) with Multi-Thermocase mounting kit

Protection from radiation and conduction heat

To protect the measuring accuracy from disturbances (including radiation and conduction heat) caused by the wall where Neostat is mounted, the distance between the Neostat sensing element and the wall can be changed by extending the depth of the Neostat main unit. See the following steps to change the depth.

- 1) Remove four mounting screws of Neostat.

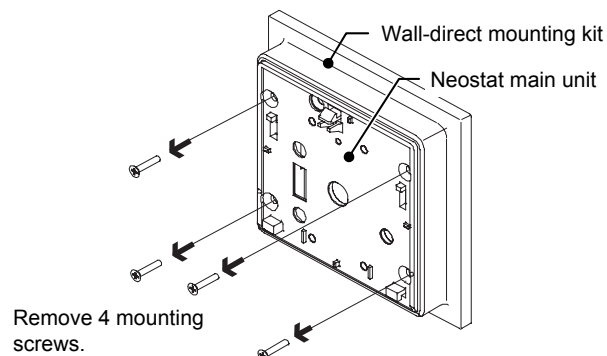


Figure 13. Depth change: Removing the mounting screws

- 2) Raise the Neostat main unit from the Wall-direct mounting kit. 9 mm max. can be raised.

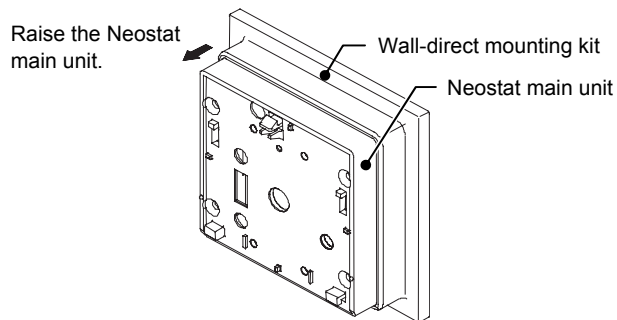


Figure 14. Depth change: Raising the Neostat main unit

- 3) Set the depth change levers, located on the upper right and left of the Neostat main unit, at the lower position. (The levers are factory-set at the upper position.)

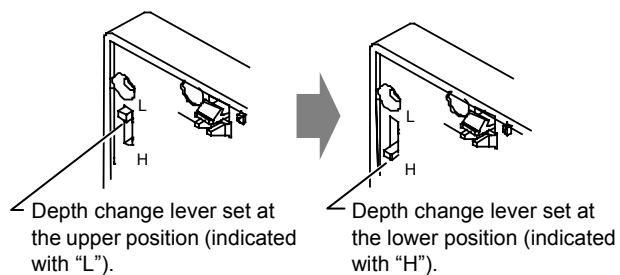


Figure 15. Depth change: Setting the depth change lever

- 4) Fix the raised Neostat main unit to the Wall-direct mounting kit with four mounting screws.

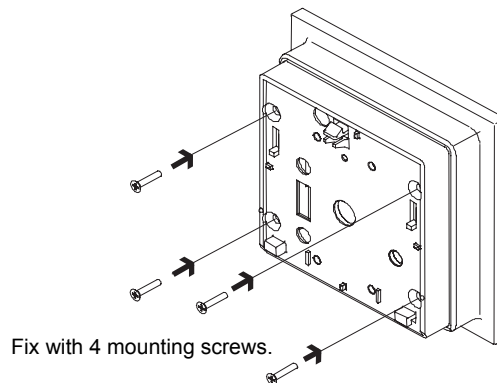


Figure 16. Depth change: Fixing the raised main unit

- 5) Check that the depth of the Neostat is extended. Follow the same steps to extend the depth of Neostat installed on Thermoplate.

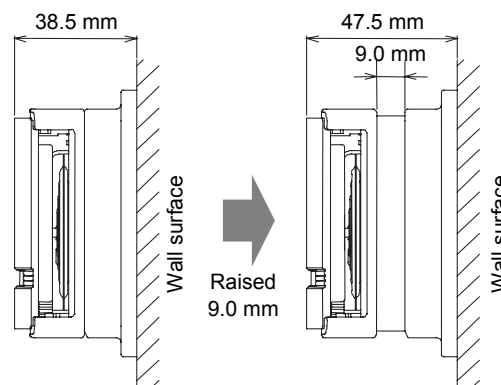


figure 17. Depth change: Side view of the raised Neostat

Note:

Effect of raised Neostat differs depending on its installation environment.

Wiring

⚠ CAUTION	
❗	Installation and wiring must be performed by qualified personnel in accordance with all applicable safety standards.
❗	All wiring must comply with applicable codes and ordinances.
⚡	Before wiring, be sure to turn off the power to the product. Failure to do so might cause electric shock.
❗	To connect the wires to the screw terminals, use crimp terminal lugs with insulation. Failure to do so might cause fire or device failure due to short circuit.

Model HY9000Z is a proportional humidistat capable of performing proportional control of Control Motor (Model MY3000), ACTIVAL (Model VY512_/VY522_/MY532_), or Modutrol Motor (Model M904E/M9184F1026/M9185A1075) that actuates valve/damper.

IMPORTANT:
To connect Neostat (Model HY9000Z) to a product not specified above, ask our salesperson.

Internal connection

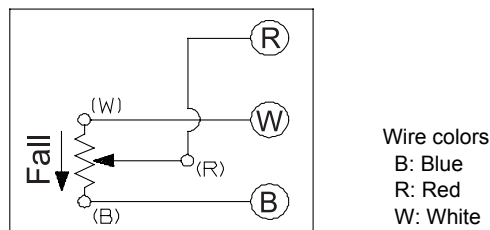


Figure 18. Internal connection diagram

Precautions for wiring

- For connecting wires from the load, use 1.25 mm² or greater stranded annealed copper wires with insulation.
- Correctly connect the wires from the load and from Neostat, and make sure that all the wires are tightly connected.
- Refer to the figure above (the internal connection diagram) and connect the lead wires of Neostat to the wires from the load in order to achieve the required control.

IMPORTANT:
Carefully handle Neostat Model HY9000Z so as not to get hurt yourself by touching the heat sink.

Setting

Humidity setting range of Neostat is variable. You can either set the setting range or lock the setting. The center of the proportional band is setpoint (which is, 50 % position of the proportional band when humidity falls).

High and low limits of the range

- 1) Remove the cover of Neostat. (See the **Cover removal** section.)
- 2) Press lightly (to release lock) and shift the range adjusters for high and low limits to the desired positions to set.

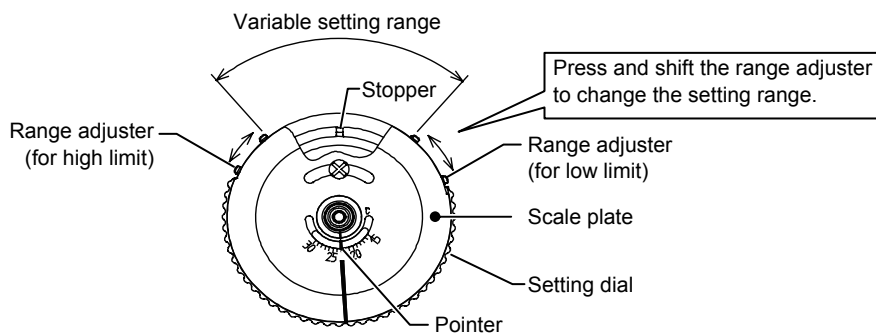


Figure 19. Change of the setting range

- 3) Attach the cover to the main unit.

Lock of the setting

- 1) Remove the cover of Neostat. (See the **Cover removal** section.)
- 2) Press lightly the range adjuster provided in the moving direction of the setting dial and shift the setting dial so that the pointer points to the desired position.
- 3) Shift the range adjusters to the stopper (at the top).

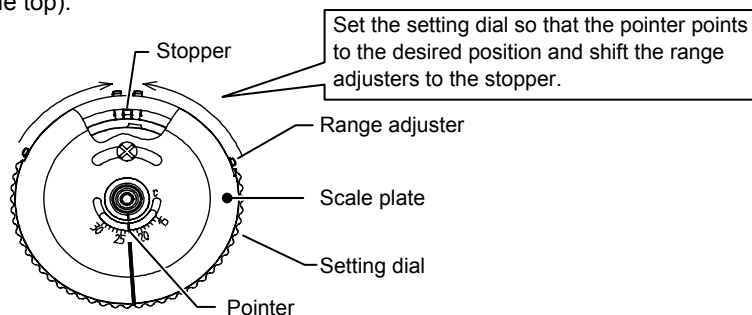


Figure 20. Lock of the setting

- 4) Attach the cover to the main unit.

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azbil

Specifications are subject to change without notice.

Azbil Corporation
Building Systems Company

<http://www.azbil.com/>