MULTIREG6

Installers manual

PRODUCT DOCUMENTS

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54 305 34

White RAL 9010
54 305 33

POWER METERING

ZeroX™ DETECTION

TABLE OF CONTENTS

1. INTRODUCTION

Multireg6 is an electronic thermostat designed for electrical heating and water based heating control. The thermostat has a user friendly interface that can be controlled via the buttons on the front of the thermostat.

Multireg6 has 3 modes; Heat - Cool and Eco.

The thermostat fits in standard European junction boxes and may be used with most System 55 frames. It has a sturdy metal frame for secure fastening in the junction box. The thermostat has one built-in room temperature sensor. Two additional external temperature sensors may also be connected.

The product has implemented ZeroX™ technology. This technology makes sure the relay switches at 0V when turning on and off. With this technology the thermostat will have a much longer lifetime.

Multireg6 has active power metering, which allows you to see the total accumulated energy consumption in kWh.

The thermostat can withstand a load of max 16A/3600W at 230VAC. We recommend a contactor for loads above 13A.

2. INSTALLATION DISCLAIMER

Installation must be done by a qualified electrician in accordance with national building codes. Before installation, disconnect the power to the device from the mains. During installation of the device, power to the device must be disconnected AT ALL TIMES!

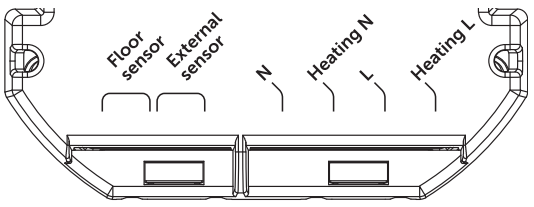
3. QUICK START

1. Switch off the mains voltage (turn off the fuse).
2. Open the junction box.
3. Connect the wires according to the description in chapter "Connections". Optional: Connect external wired sensors.
4. After verifying the connections, switch on the mains voltage.

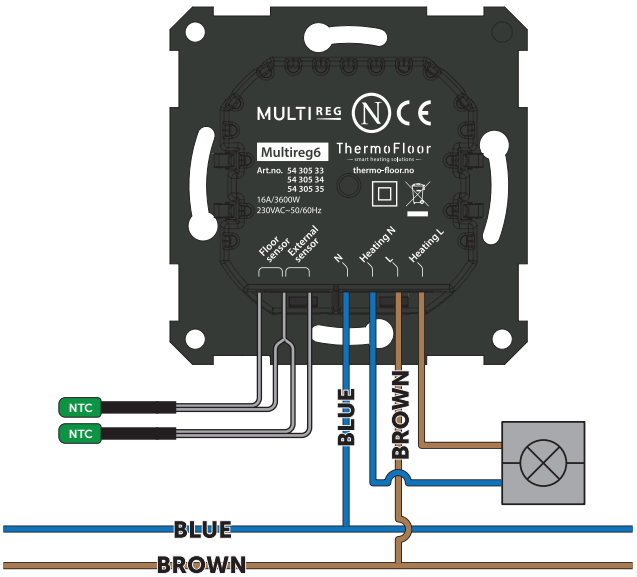
4. CONNECTIONS

Max tightening torque for terminal screws: 2Nm.
If the cable used has multiple strands using a end sleeve is advised. The product allows for wiring of cables with a cross section of up to 1x2.5mm².

To access the terminal screws, hold the sides of the display and gently pull outwards to detach the front piece.



Floor sensor	NTC type 6.8, 10, 12, 15, 22, 33, 47 or 100kΩ. Default 10kΩ.
External sensor	NTC type 6.8, 10, 12, 15, 22, 33, 47 or 100kΩ. Default 10kΩ.
N	Power connection (Neutral) 230VAC.
Heating N	Heating cable N connection.
L	Power connection (Live) 230VAC.
Heating L	Heating cable L connection.



5. INSTALLATION

Position the thermostat and mount it into the junction box using 2 screws. Position the thermostat front over the part mounted in the junction box, then carefully press the front until it clicks into place. In order to get power metering values, the load needs to be connected to both heating L + N.

6. FACTORY RESET

Enter the menu by holding the Center button for about 5 seconds, navigate in the menu with the "+" button til you see "FACT". Press the Center button until you see "-- --" blinking in the display, then hold for about 5 seconds to perform a reset. You may also initiate a reset by holding the Right and Center buttons for 60 seconds.

When either of these procedures has been performed, the thermostat will perform a complete factory reset. The device will display "RES" for 5 seconds while performing a factory reset. When "RES" is no longer displayed, the thermostat has been reset.

7. STARTUP

After powering up the device for the first time, all parameters will have default settings and the thermostat will start by asking which sensor mode should be used.

8. PRINCIPLES OF REGULATION

The thermostat uses temperature readings retrieved from the internal sensor and/or from external wired sensors to regulate the temperature. The thermostat will regulate the temperature using hysteresis or PWM, based on the setpoint temperature.

8.1 Hysteresis

Hysteresis will turn on and off the load based on the hysteresis value in comparison to the setpoint. You can make changes to the thermostat hysteresis. It may be changed by entering the local settings menu and holding the Center button for 2 seconds when "REG" is displayed. Here you can choose values between 0.3 and 3.0. The default setting is 0.5°C. When using waterbased heating we recommend a hysteresis of 1.0°C.

8.2 Pulse-width modulation PWM

With PWM regulation enabled, the thermostat will regulate based on duty cycles. The thermostat is turned on and off in percentage intervals of the cycle. The amount of time the relay will be on is based on how far the measured temperature is from the setpoint.

9. LOCAL SETTINGS MENU

To enter the settings menu, hold the Center button for 5 seconds. The display will display "OFF". You are now in the settings menu. While in the settings menu, "SET" will be displayed in the bottom right of the display. You can now scroll up and down using the Left and Right buttons. Some options have submenus. To navigate the submenus, press the Center button once to enter or exit the submenu. Press the Left and Right buttons to find your desired value and hold the Center button for 2 seconds to confirm your selection. "STOR" will appear to indicate settings are stored.

10. DISPLAY MENU STRUCTURE

See flowchart at the end of this manual.

11. TEMPERATURE SHOWN IN DISPLAY

By default, the temperature shown in the display while in standby state is the setpoint. This may be changed by entering the local settings menu and holding the Center button for 2 seconds when "MODE" is displayed. You can choose between "SETT" and "RELT". "SETT" is the Setpoint temperature and "RELT" is the real-time temperature.

12. STANDBY AND MAIN SCREEN

When the thermostat remains untouched for a while, it will automatically go to the standby screen. The standby will by default show the setpoint temperature. By pressing any button once, you will see the measured temperature. By pressing the Left or Right button multiple times, you will change the setpoint.

13. KWH VALUE IN MENU

The device supports power metering to give insight into the power consumption of the heating. The total consumption of the device can be seen in the system from the "kWh" menu option. The total consumption data can be reset by holding the Center button while in the kWh menu.

14. SIZE OF LOAD

In the "load" menu, the load value can be set manually if the load is not directly connected to the thermostat. The load size can be adjusted in 100W increments up to 9900W.

15. CHOICE OF SENSOR

The thermostat has multiple sensors and sensor modes. This lets you configure the thermostat to work correctly in most installations. The sensors and modes may be selected from the local settings menu ("OPER").

Available temperature sensors:

F	Floor sensor
A	Internal room sensor
AF	Internal room sensor + Floor sensor
A2	External room sensor
A2F	External room sensor + Floor sensor
PWER	Power regulator mode (no sensor used)

NOTE: Some types of floor require that a floor sensor is connected in order to limit the floor temperature to a maximum of 27°C (check the manual from the floor manufacturer). When the thermostat is used in (AF or A2F) the floor limiter FHI is automatically set to 27°C. When using any other sensor type (A, F or A2) the minimum and maximum limits are 5°C and 40°C respectively.

16. SELECTING SENSOR VALUE

The thermostat allows the selection of multiple different resistance values of an NTC sensor and can be selected using the local settings "SEN". The supported sensor values are as follows: 6.8, 10, 12, 15, 22, 33, 47 or 100KΩ.
The factory default value is 10kΩ. When connecting both the floor sensor and the external sensor, make sure to use sensors with the same Ohm value.

17. CALIBRATION

If the temperature sensor readout is not correct, you can make minor changes to the temperature readout. The temperature readings can be calibrated by ±6°C . The temperature calibration can be performed from the menu using CAR, CAE and CAF. The adjusted value will be displayed indicating what the thermostat uses for regulation.

SENSOR TYPE	IN MENU STRUCTURE
Internal sensor	CAR
External sensor	CAE
Floor sensor	CAF

18. BRIGHTNESS

Using the menu choices "BR1" and "BR2", the brightness of the display in Active and Standby state can be changed respectively.

19. DISPLAY ON/OFF (DON/DOFF)

The thermostat has a display ON/OFF function which decides whether the display should turn completely off when in Standby. To enable/disable this function, hold the Left and Center buttons for 10 seconds. The display will show "DOFF" when the function is activated and "DON" when the function is disabled. When operating any button, the display will light up.

20. DISPLAY ICONS

ICON	DESCRIPTION
	This icon will be displayed while the device is in Heat or Eco mode, and is currently heating.
	This icon will be displayed while the relay is on and the device is in Cooling mode.

21. CHILD LOCK

Child lock is a function for disabling the buttons from the display locally. It will show "LOCK" when attempting to operate it while the function is enabled. To enable or disable the function, hold the Left and Right buttons for 10 seconds. Enabling the function will show "LOCK" in the display, disabling the function will show "OPEN".

22. OPEN WINDOW DETECTION OWD

Open Window Detection (OWD) is a function which will reduce the thermostat setpoint on detection of an open window. This happens when the temperature sensor registers a rapid temperature drop.

When OWD is active, the setpoint is reduced to 5°C in order not to waste energy. OWD will automatically be cancelled if OWD has been active for more than 1 hour, or if the temperature increases by 3°C. OWD can also be cancelled manually by increasing/decreasing the setpoint with the Left and Right buttons.

By default, OWD is not enabled. The feature may be enabled by selecting "OWD" from the menu. Choose between options "OFF" and "ON".

23. ERROR CODES

Err1	Internal error. Most probably a faulty unit. Replace unit.
Err3	Internal error. Most probably a faulty unit. Replace unit.
Err4	Floor sensor error. You have chosen F, AF or A2F sensor mode without having a floor sensor connected, or the sensor may be damaged.
Err5	External sensor error. You have chosen A2 or A2F, and there are no external sensors installed or the sensor may be damaged.
Err6	Overheating. Contact your electrician.
Err7	Overload. Contact your electrician.

24. SAFETY FEATURES

The device has safety features to ensure safe operation and warn the user of any faults/unexpected behavior. The device has an Overheat and Overload function. If the thermostat registers an Overheat or Overload incident, the thermostat will switch off and an error code will appear in the display.

24.1 Overheating

The device features internal temperature sensors to prevent the device from overheating. The device will attempt to turn off the relay and warn the user.
When overheating is detected, the device will:

- Turn off the relay.
- Display Err6 in the display.

24.2 Overload

The device features a 16A overload protection. The overload is triggered if there is a current draw of more than 16A.
When overload is detected, the device will:

- Turn off the relay.
- Display Err7 in the display.

24.3 Sensor failure

The device has the ability to detect when there is no sensor connected, or if the sensor is broken or otherwise defective, causing an open circuit.

When the device detects the sensor error, the device will:

- Turn off the relay.
- Display an error in the display, changes based on which sensor is not connected/faulty.

To clear the "Sensor not connected" error the device has to be disconnected from the mains, and the wiring and sensor(s) need to be checked. When the fault is resolved the mains can be reconnected and the device will function normally again.

25. THERMOSTAT SETPOINT

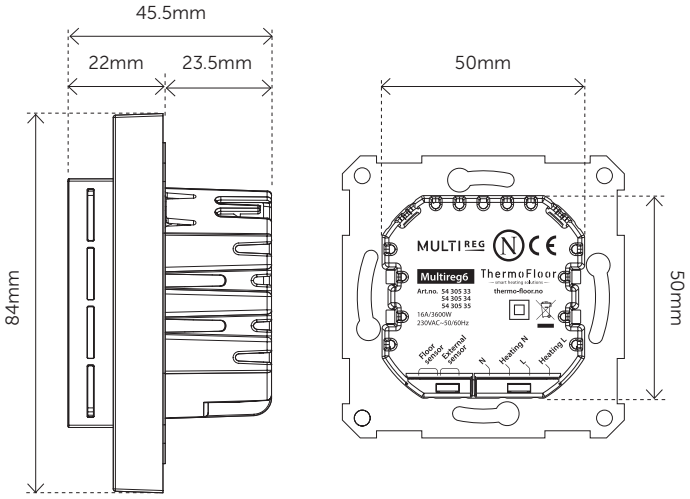
The device supports 3 setpoints: Heating, Cooling and ECO. Supported setpoints are from 5°C - 40°C with 0.5°C increments.

26. THERMOSTAT MODE

It is possible to change the operating mode of the thermostat in the Mode menu. The accessible operating modes are:

OFF	Thermostat regulation and display are deactivated.
Heating Mode	Thermostat regulation is active.
Cooling Mode	Thermostat regulation is inverted.
ECO Mode	Thermostat regulation is active with a separate setpoint from Heating Mode.

27. THERMOSTAT DIMENSIONS



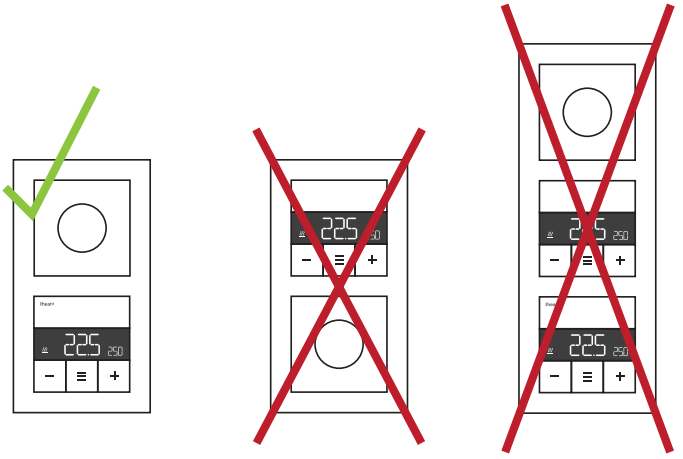
28. THERMOSTAT CONTROLS

ICON	DESCRIPTION
−	Previous. Decrease set temperature.
☰	Menu confirm. Menu enable.
+	Next. Increase set temperature.

29. PLACEMENT IN JUNCTION BOX

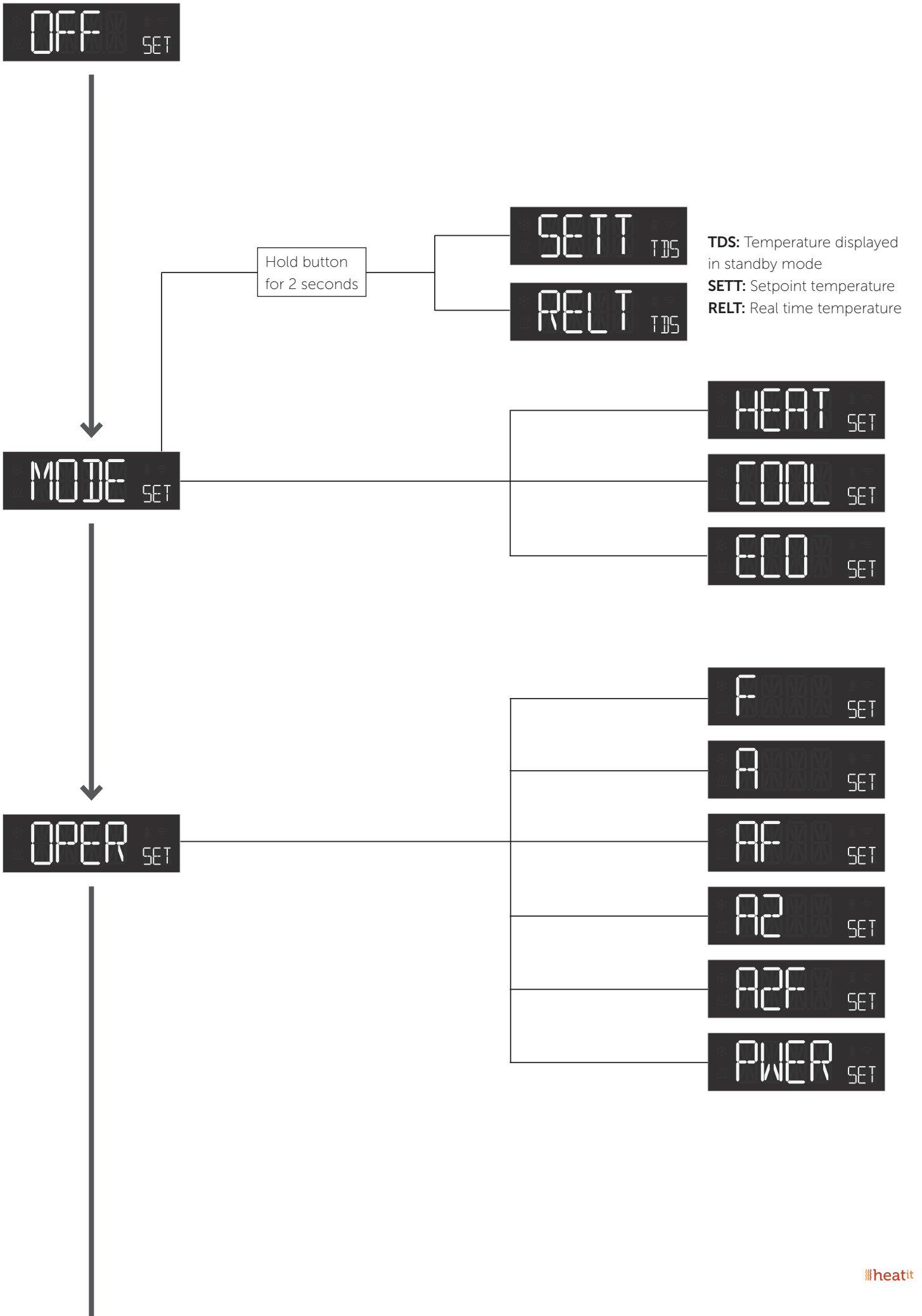
When two or more thermostats are mounted too close to each other, the heat they emit, can interfere with the temperature sensors and the temperature in the junction box becomes too high. This can cause inaccurate temperature readings, especially under high load, leading to incorrect heating control. To avoid such issues, thermostats should be installed as far apart as possible and always in separate junction boxes. This ensures more accurate temperature readings.

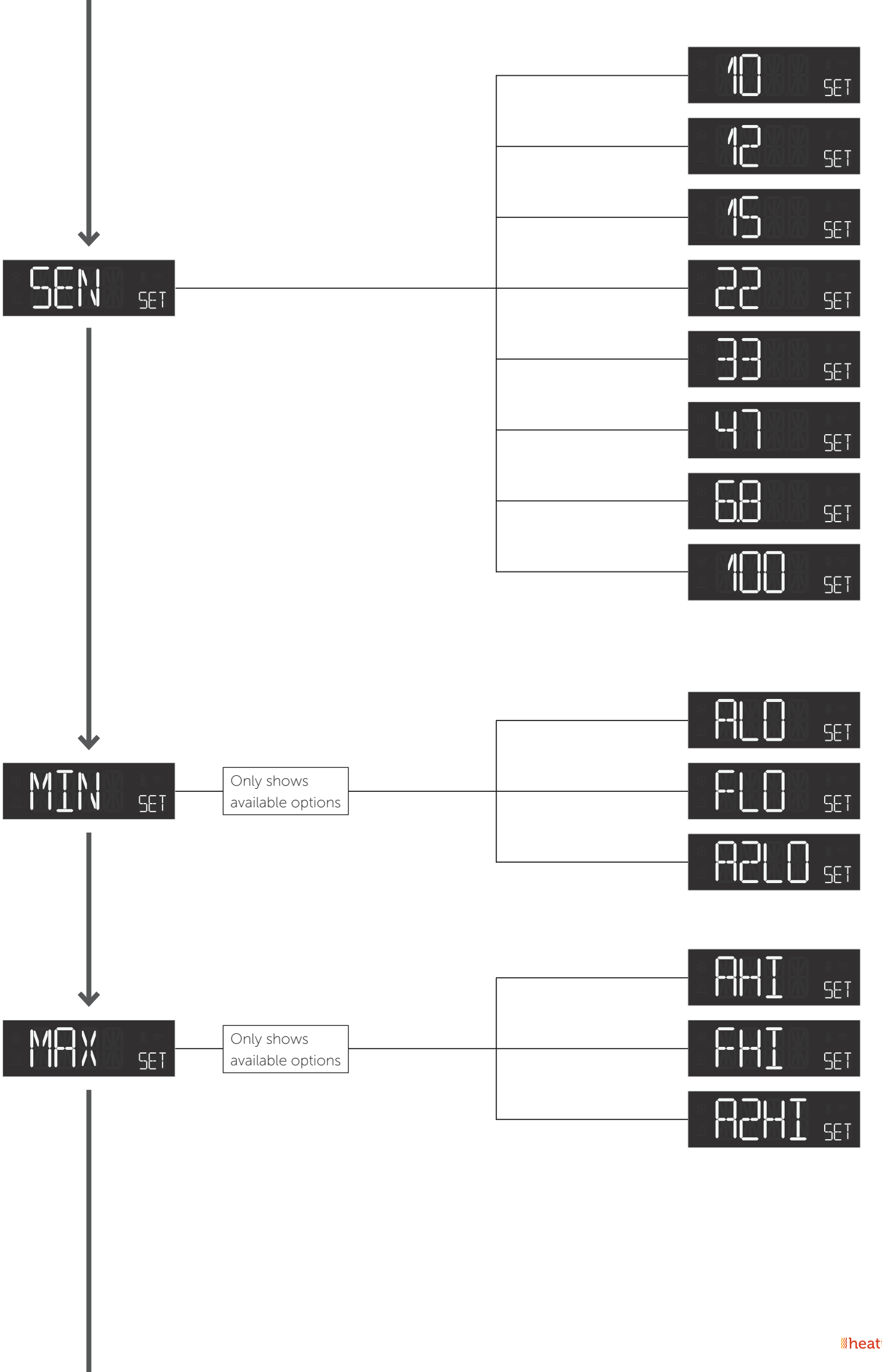
In multi-frames with multiple units, the thermostat should always be mounted at the bottom, and no more than one thermostat should ever be installed in a multi-frame.

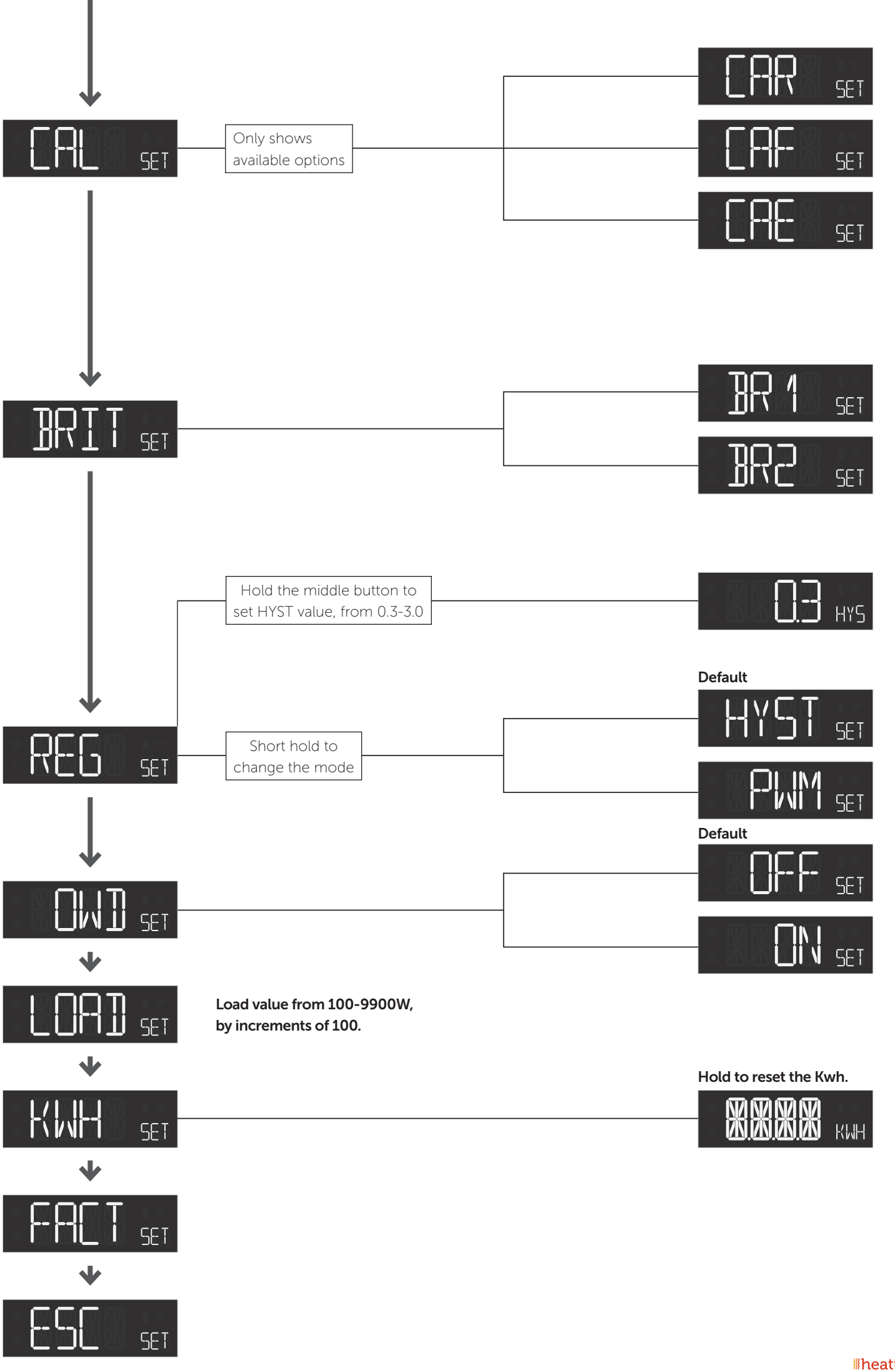


30.CHART - DISPLAY MENU STRUCTURE

Hold the middle button for 5 seconds to enter menu.




SEN SET
10 SET
12 SET
15 SET
22 SET
33 SET
47 SET
68 SET
100 SET
MIN SET
Only shows available options
ALO SET
FLO SET
A2LO SET
MAX SET
Only shows available options
AHI SET
FHI SET
A2HI SET


CAL SET
Only shows available options
CAR SET
CAF SET
CAE SET
BRIT SET
BR1 SET
BR2 SET
REG SET
Hold the middle button to set HYST value, from 0.3-3.0
0.3 HYS
Default
HYST SET
Short hold to change the mode
PWM SET
OWD SET
Default
OFF SET
ON SET
LOAD SET
Load value from 100-9900W, by increments of 100.
KWH SET
Hold to reset the Kwh.
0000 KWH
FACT SET
ESC SET

heatit

30.1 Error messages in display

Internal error

Internal sensor error

Floor sensor error

External sensor error

Overheat

Overload

30.2 General display messages

Childlock activated

Childlock disabled

Backlight on when device in standby

Backlight off when device in standby

Open window detected

Settings stored

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

We develop and design our products according in accordance with our strict quality requirements (ISO 9001) and environmental requirements (ISO 14001). All electrical installations must be carried out by an authorized electrical installer. The product must be installed in accordance with our installers manual and national building codes. Any wrongful installation, misuse, damage of the product, is not covered under warranty. Updated documentation is available at www.heatit.com and/or documents.heatit.com. Heatit Controls AB can not be held liable for any type of errors or omittances in our product information. Product specifications may change without further notice.

PRODUCT INFO Multireg6

FEATURES

- Internal room sensor
- External room sensor (wired by cable)
- Floor sensor
- Power regulator
- Temperature limiter
- 3 modes; Heat - Cool - Eco
- Active power metering
- Hysteresis/PWM
- Relay status icon
- Adjustable display brightness
- Single pole switch
- Lock mode/child lock
- Temperature calibration
- Open window detection
- ZeroX™ detection

TECHNICAL DATA

Rated voltage	230VAC 50Hz
Max. load	3600W (resistive load) Contactor recommended for loads above 13A
Max. current	16A
Power consumption	<2.0W
Power regulator	Time cycle 0 to 30 min
Ambient temperature	5°C to 40°C
Temperature range	5°C to 40°C
Storage temperature	-30°C to 70°C
Hysteresis	0.3°C to 3.0°C (default 0.5°C)
Humidity	10% to 85% RH
Compatible with NTC-sensors with values	6.8, 10, 12, 15, 22, 33, 47 or 100kΩ @ 25°C
Length NTC sensor	Max. 50 meters
Screw terminal	Max. 2.5mm² 2Nm
IP Code	IP 21
Size	84 x 84 x 45mm
Approvals	CE, Nemko

The distance between user and products should be no less than 20 cm. There is no restriction to use this product across the EU countries.

Hereby, Heatit Controls AB declares that this device is in compliance with the essential requirements another relevant provisions of Directive 2014/53/EU.

MAINTENANCE

The device is maintenance-free. Indoor use only.

heatit CONTROLS

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