

HELTUN HEATING THERMOSTAT HE-ZW-THERM-FL2 USER MANUAL V1.0

OVERVIEW

This is a programmable electronic room heating thermostat for flush mounting into most standard wall boxes. It is designed to maintain a constant ambient temperature, the criteria of which can be simultaneously either floor, room or both temperature sensors. It is recommended for the control of electric heating devices (radiators, convectors, electric fireplace), boilers or electric under floor heating. The heating element is directly controlled by a single pole switch. The maximum loading for the thermostat is 16A over which a contactor will be required. (16A–3600W @ 220V/240V.)

The thermostat has an LCD screen, six sensitive capacitive touch control buttons and two temperature sensors (external NTC floor sensor and a built-in room air temperature sensor). The thermostat is also equipped with built-in humidity, illumination and energy consumption sensors.

The thermostat has an integrated 5th generation security Z-Wave module which allows to use the device with Z-Wave Home Automation systems such as Fibaro, Vera, Zipato, SmartThings, Z-Way, HomeSaver and others. The thermostat can be associated and control up to 10 Z-Wave devices (relays, switchers etc.)

One of six operation modes can be selected either manually or via the Z-Wave controller / gateway. The 6 operating modes are: COM – most comfortable (full power) mode, TIME – control the temperature by day time, DRY - floor quick drying mode, ECO – energy saving mode, VAC – vacation mode and MAN - manual control mode. The thermostat protects the floor from overheating by automatically switching off the load when the temperature reaches a maximum of 40°C.

The LCD screen with white icons has a user-friendly interface, displaying: floor temperature, air temperature, humidity level, user set temperature, operating mode, time, weekday, relay and Z-Wave network status.

TECHNICAL SPECIFICATIONS

- Front frame dimensions: 89x89x9mm
- Back dimensions: 53x53x28mm
- Material: Flame retardant plastic, tempered glass
- 4 frame colors: Silver, Chrome, Black, White
- 6 glass colors: White, Black, Yellow, Green, Red, Blue
- LCD: 73x42mm, black with white icons
- 6 sensitive capacitive touch buttons
- Operating temperature: 0°C – +50°C
- Power supply: 100V – 230VAC, 50Hz/60Hz
- Power consumption: 1.5W
- Maximum resistive load: 16A, 3600W @220V
- Relay life time: 100.000 switches
- Internal ambient brightness sensor
- Internal temperature sensor
 - Measurement range: -30°C to +80°C
 - Accuracy: ±0.5°C
- Internal humidity sensor
 - Measurement range: 0 – 80%RH
 - Accuracy: ±3.0%RH
- External floor temperature sensor
 - NTC 10kOhm
 - Measurement range: -30°C to +80°C
 - Accuracy: ±0.5°C
- Energy consumption meter
- IP class: IP21
- Z-Wave Plus SDK: V6.71

FUNCTIONAL SPECIFICATIONS

- Inclusion/exclusion into/from z-wave network
 - Non Secure
 - S0 secure
 - S2 unauthenticated, S2 authorized
- Association control of 10 devices from network
- 6 operation modes with individual temperature set point:
 - COM, ECO, VAC, DRY, TIME, MANUAL
- 4 time schedule for 7 days of the week:
 - Morning, Day, Evening, Night
- Choosing a temperature sensor for operation:
 - Floor temperature only
 - Air temperature only
 - Floor + Air temperature
 - Power regulator (Automatic ON/OFF timer)
- Usable with different NTC-sensor (1kOhm - 100kOhm)
- Temperature sensors calibration
- Temperature set intervals: 4.0°C to 37.0°C
- Temperature limiter: 40.0°C
- Choosing a temperature hysteresis: 0.1°C - 9.5°C
- Choosing a degree (Celsius / Fahrenheit)
- Adjustable LCD brightness: Auto or Manual
- LCD standby mode
- Child lock (touch buttons lock)
- Consumption meter
- Factory reset
- OTA function (Firmware update over the air).

INSTALLATION

We recommend the installation conforms to your local regulations and is undertaken by a qualified electrical engineer. Positioning of the thermostat is of the utmost importance and must be away from sunlight and sources of direct heat. We recommend installation about 1.5 metres above the floor.

Electrical power must be switched off during all aspects of installation.

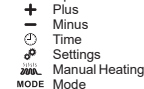
1. Remove the front cover and back plate of the thermostat from the main box.
2. ENSURING THE POWER IS OFF and using a small cross head (Phillips) screwdriver connect the wires to the thermostat terminals:
IN: Power connection
HEATING: Heating element connection
3. If using the thermostat for floor heating, connect the NTC temperature sensor wires to terminals NTC. 10 kΩ NTC sensor is included in the box but any NTC sensor can be used. If another sensor other than 10 kΩ NTC is used then ensure changing the sensor value in the thermostat settings (Parameter 17 - Fsr).
4. If using an external device for the thermostat modes control, connect its dry contacts to terminals EXT.
5. Making sure "TOP" is uppermost secure the back plate into the wall mounting box using the screws provided. Install the thermostat body by carefully aligning the top snap connectors and then pushing on the front cover with gentle pressure ensuring it snaps firmly into position all the way round.
6. Switch On the main power and the thermostat will start up showing the original default factory settings.
7. Remove protective film by pulling the tab in the top right hand side.

DISASSEMBLY

1. ENSURE POWER IS SWITCHED OFF AND SCREEN IS BLANK.
2. To remove thermostat body grasp firmly and pull back from the bottom until all tabs disconnect.
3. Remove screws from back plate and disconnect the wires.

TOUCH PANEL OPERATION

The touch panel has six touch buttons which require minimal pressure to operate.



"+" key will increase set point temperature by 0.5°C (or 1°F), and "-" key will decrease set point temperature by 0.5°C (or 1°F). The set point temperature is displayed in the bottom left corner of the display as "SET TEMP".

Note: The minimum set point is 4.0°C (39°F) and the maximum set point is 37.0°C (99°F).

The thermostat has two working modes: HEATING and IDLE. In HEATING mode the operating state icon will appear on the right bottom corner of the display, and the icon will disappear in the IDLE mode.

OPERATION MODE

Current mode is displayed in the middle right line of display under "HEATING MODE" field.

The thermostat has 6 operating modes:
COM – general comfort (full power) mode.
TIME – time mode allows to set a different temperature for different periods of the day
DRY – fast floor drying.
ECO – economy (power efficient / energy saving) mode.
VAC – vacation (away) mode
MAN – manual mode.

Change the mode by touching the MODE key and reselecting as above. Each operating modes has an individual temperature set points. The thermostat will operate automatically depending on the current SET TEMP point. To change the set point values choose the desired mode and press "+" key to increase or press "-" key to reduce the value. Alternatively control from your Z-wave gateway.

MAN MODE

In this mode the thermostat logic is disabled and the heating state can be switched On/Off manually by pressing the key.
Note: if the MAN mode is enabled the SET POINT will indicate OFF.

COM (comfort) MODE

This mode is recommended for normal comfort.
Factory default set point is 25.0°C (77°F)

DRY MODE

This mode is recommended for use if a high floor temperature is required for a limited period of time for example after floor washing. By choosing DRY mode the thermostat will increase the temperature to the selected set point for a limited time specified in the "Dry Time" parameter. The time range of 5-90 minutes can be selected. After the drying time the thermostat will automatically change back to the TIME mode.
To change the DRY time, go to "Settings Mode" by pressing the key for 3 seconds. Use the keys or to scroll the menu to Parameter 07, then use keys "+" and "-" to increase or reduce the time. The value of Dry Time is in minutes.
Factory default Dry time is 30 min.
Factory default set point is 30.0°C (86°F)

ECO (energy saving) MODE

This mode can be used if lower temperature and energy consumption is required. It can also be used at night or when absent from all or part of the property for a length of time.
Factory default set point is 20.0°C (68°F)

VAC (vacation) MODE

This mode is recommended for use when absent.
Factory default set point is 15.0°C (59°F)

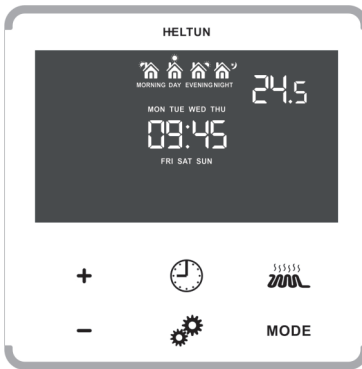
Note: The minimum set point for each mode is 4.0°C (39°F) and the maximum set point is 37.0°C (99°F).

TIME MODE

Adjust home temperature according to personal habits by reducing it whilst away from home and increasing in the evenings and early mornings.

The thermostat can be set individually for morning, day, evening and night. For example, it can be assigned for Morning period start at 7.00, then Day starting at 9.00 (when absent for work etc.), then Evening starting at 18.00 (half an hour before occupants return). The Night regime then begins at 23.30 (bedtime).

Separate temperature settings can be made for all 4 periods for every day of the week.



To set up the time and temperature for each period go to the Time menu by pressing and holding the key for 3 seconds. The display will show the Time menu.

To set up the start time for each period choose the period by pressing the key then adjust the time by pressing the key for increase or MODE key for decrease. Do this action for all 4 periods: Morning, Day, Evening & Night.

To set up the temperature choose the week day by pressing the key, choose the period by pressing key and adjust the temperature by pressing "+" or "-" keys. Do this action for every day of the week.

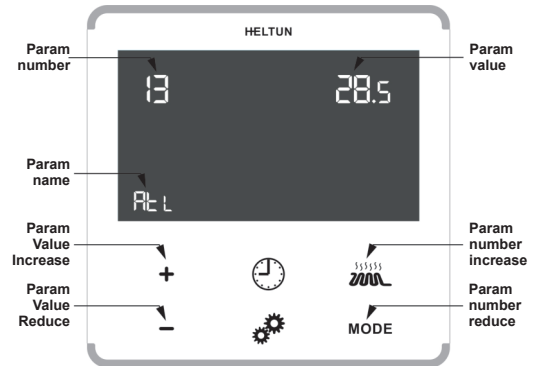
Note: TIME mode works only in case of the correct time being set. The time can be automatically corrected by polling from your gateway if the Parameter 8 value is 1 or set manually in Parameters 10, 11 and 12 in the settings menu.

Note: In the TIME mode the SET POINT of the thermostat will be automatically changed depending on the period. The SET POINT can be adjusted manually out of the TIME menu but it will be effective only until the next period.

SETTINGS MODE

To activate the settings mode, press and hold the key for 3 seconds. The display will show the settings menu. In the top left corner is the parameter number, in the left bottom corner is the parameter display indication (the parameter name) and in the right top corner is the parameter value.

To scroll the menu navigation just press the key to go up and the MODE key to go down. To change the parameters value press the "+" or "-" keys.



To leave the Settings mode to go to the main display mode press and hold the key for 3 seconds.

The thermostat will automatically leave to the display mode if no action is detected for 10 seconds.

PARAMETERS LIST

Parameter Number	Display Indication	Description	Default Value	Available Values
01	dEg	Degree Mode	°C	°C, °F
02	In1	EXT input mode	1	0, 1, 2
03	In2	Mode number for EXT input action	2	1, 2, 3, 4, 5, 6
04	Sen	Source Sensor	F	A, AF, F, FA, PA, PF
05	Pon	Power Regulation ON time, min	15	10 - 90
06	POF	Power Regulation OFF time, min	15	10 - 90
07	dry	Dry Time, min	30	5 - 90
08	tCr	Time correction by controller	1	0, 1
09	tFo	Time format	0	0, 1
10	dAy	Week Day	1	1 - 7
11	tH	Time Hour	0	0 - 23
12	tL	Time Minute	0	0 - 59
13	AtL	Air Temperature Minimum, °C / °F	21 / 70	4,0-36,0 in °C 39 - 97 in °F
14	Ath	Air Temperature Maximum, °C / °F	27 / 81	5,0-37,0 in °C 41 - 99 in °F
15	FtL	Floor Temperature Minimum, °C / °F	18 / 64	4,0-36,0 in °C 39 - 97 in °F
16	FtH	Floor Temperature Maximum, °C / °F	32 / 90	5,0-37,0 in °C 41 - 99 in °F
17	Fsr	Floor Sensor Resistance, kΩ	10	1 - 100
18	Atc	Air Temperature Calibration, °C / °F	0 / 0	-9,5-9,5 in °C -17 - 17 in °F
19	Ftc	Floor Temperature Calibration, °C / °F	0 / 0	-9,5-9,5 in °C -17 - 17 in °F
20	HYS	Temperature Hysteresis, °C / °F	0,5 / 0,9	0,1-9,5 in °C 0,1 - 17 in °F
21	dIF	Temperature difference to send to controller, °C / °F	0,2 / 0,3	0,1-1,0 in °C 0,2 - 1,8 in °F
22	brH	Active display brightness level	4	1 - 4, but =>Param23
23	brL	Inactive display brightness level	3	1 - 4, but <=>Param22
24	Abr	Auto LCD brightness control	1	0, 1
25	Ab1	Auto brightness level 1 max lumens	30	0 - 5000
26	Ab2	Auto brightness level 2 max lumens	200	0 - 5000
27	Ab3	Auto brightness level 3 max lumens	3000	0 - 5000
28	bSA	Basic Set Action	6	1, 2, 3, 4, 5, 6
29	nEt	Inclusion / Exclusion Mode	Ecl	Inc, Ecl
30	Prr	Power Meter total value & reset	0	0-999kwh

Parameter 01 (dEg) – Degree mode
Celsius (°C) or Fahrenheit (°F) degree mode can be chosen. Floor and air temperature, as well as set point and all parameters will be indicated in the chosen mode.
Factory default value is Celsius (°C).

Parameter 02 (In1) – External input mode
The thermostat can be connected to an external device (like security system) dry output contacts and control the thermostat operating modes depending on the contacts state. If parameter value is 0 no action will be taken (the input state is ignored by the thermostat logic). If parameter value is 1 the thermostat will be switched to the operating mode selected in Parameter 3 if the output was short-circuited. The thermostat will go back to previous mode as soon as the input is open. If parameter value is 2 the thermostat will be switched to the operating mode selected in Parameter 3 if the output was short-circuited. But the thermostat will not undertake any action if the input is open again.
Factory default value is 1.

Parameter 03 (In2) – Operating mode for external input action
This parameter allows selecting which operating mode the thermostat should go to if the external input is short-circuited. 1=COM, 2=TIME, 3=DRY, 4=ECO, 5=VAC, 6=MAN.
Note: When thermostat goes to MAN mode it will be in IDLE state till HEATING key is not pressed manually.
Factory default value is 2

Parameter 04 (SEn) – Source sensor
The thermostat has seven regulation modes based on different sensors values. Use keys "+" and "-" to choose follow modes:
1) A – Air sensor
2) AF – Air sensor + Floor sensor
3) F – Floor sensor
4) FA – Floor sensor + Air sensor
5) P – Power regulator
6) PA – Power regulator + Air sensor
7) PF – Power regulator + Floor sensor

- 1) A – Air sensor: Regulation (heating control) is based on the SET POINT applied to the internal room air temperature sensor.
- 2) AF – Air sensor plus floor sensor: Regulation is based on SET POINT applied to the internal room temperature sensor but also controlled by the floor temperature sensor ensuring that the floor temperature remains within the set limits. The lower floor temperature limit is specified in Param 15 - FtL and the high temperature limit in Param 16 – FtH.
- 3) F – Floor sensor: Regulation is based on the SET POINT applied to the external floor temperature sensor.
- 4) FA – Floor sensor plus air sensor: Regulation is based on SET POINT applied to the external floor sensor but is also controlled by the internal air temperature sensor ensuring that the room temperature remains within the set limits. The lower air temperature limit is specified in Param 13 - AtL and the higher temperature limit in Param 14 – Ath.
- 5) Power regulator: Regulation is based on the time settings for heating which will be ON during the time in Param 05 – Pon and then OFF during the time in Param 06 - POF. This cycle will be repeated constantly.

