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 secure Z-Wave module which allows to use the device with Z-Wave Home Automation systems such as Fibaro, Vera, Zipato, SmartThings, Z-Way, HomeSeer 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 statuses.

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 unauthorized, 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.
- **+** Plus
- **–** Minus
- 🕐 Time
- ⚙ Settings
- ♨ Manual Heating
- MODE Mode

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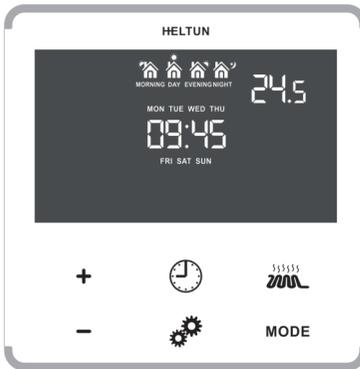
To set up the time and temperature for each period go to the Time menu by pressing and holding the 🕐 key for 3 seconds. The display will show the Time menu.

To set up the start time for each period choose the period by pressing the 🕐 key than 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 (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.
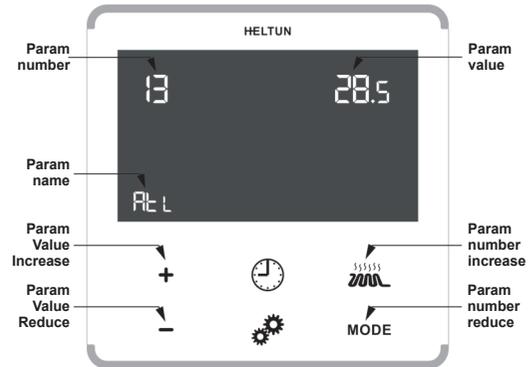
To leave the Settings mode to go to the main display mode press and hold the ♂ key for 3 seconds.

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, FA, P, 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	tIH	Time Hour	0	0 - 23
12	tIL	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 choosen. 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 take (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.

6) PA – Power regulator + Air sensor: Regulation is based on the time set by Params 05 and 06 but also controlled by the internal air temperature sensor ensuring that the room temperature remains within the set limits. The air temperature limits are specified in Params 13 and 14.

7) PF – Power regulator + Floor sensor parameters: Regulation is based on the time set by Params 05 and 06 but also controlled by the floor temperature sensor ensuring that the floor temperature remains within the set limits. The floor temperature limits are specified in Params 15 and 16.

For example:
In FA mode the SET POINT is set to 30°C, AtL is set to 24°C and AtH is set to 27°C:
a) If floor temperature is lower than 30°C and the room temperature is lower than 27°C the thermostat will operate in HEATING mode.
b) If the floor temperature is higher than 30°C or the room temperature is higher than 27°C then the thermostat will go to IDLE mode which switches off the heater.
c) If the room temperature is lower than 24°C the thermostat will operate in HEATING mode even though the floor temperature is higher than 30°C.

Attention: Be careful when setting the lower limitation (Param 13 - AtL and Param 15 – FtL) to be sure that the value is not too high and it can be reached. Otherwise the thermostat will always operate in the HEATING mode.
Note: For safety reasons the thermostat will go to the IDLE mode if the floor temperature reaches 40°C despite the parameter settings.
Note: If there is no floor sensor installed or it becomes damaged (indicated by " – " in "FLOOR TEMP") the regulation mode (A) will be automatically selected as the source sensor. This can only be changed to (P) or (PA). Regulation modes (F), (FA), (AF) and (PF) will not be able to be selected.
Factory default value is F.

Parameter 05 (POn) – Power regulation ON time
This parameter defines floor HEATING time in minutes when Power Regulator (P, PA or PF) is selected as the source sensor in Param 04. Time can be changed in range 10 – 90 minutes.
Factory default value is 15 minutes.

Parameter 06 (POf) – Power regulation OFF time
Floor IDLE time in minutes when Power Regulator (P, PA or PF) is selected as the source sensor. Time can be changed in range 10 – 90 minutes.
Factory default value is 15 minutes.

Parameter 07 (dry) – Dry Time
This parameter specifies how long in minutes the thermostat will be in HEATING mode when the DRY mode is selected. After this time the thermostat will go to the TIME mode. The time range is 5-90 minutes.
Factory default time is 30 minutes.

Parameter 08 (tCr) – Time correction by main controller
If this parameter value is 1 and the thermostat is connected to Z-Wave gateway the thermostat time and weekday will be periodically polled and corrected from the gateway. To switch off the auto correction set the parameter value 0.
Factory default value is 1.

Parameter 09 (tfo) – Time format
24-hours or 12-hours time indication format can be chosen.
0 = 24 hours format. 1 = 12 hours (AM/PM) format
Factory default value is 0.

Parameter 10 (day) – Week day
This parameter allows manually adjustment of the day of the week in case the thermostat is not connected to any gateway or Parameter 08 (auto correction) selected as 0.

Parameter 11 (tiH) – Hour
This parameter allows manual adjustment of the hours.

Parameter 12 (tiL) – Minute
This parameter allows manual adjustment of the minutes.

Parameter 13 (AtL) – Air Temperature Minimum (Lowest level)
Room temperature low limit. Reading of internal temperature sensor. It has effect only if FA or PA is selected as the source sensor in Param 04
Factory default value is 21°C or 70°F.
Note: AtL value cannot be higher than AtH value - 1°C

Parameter 14 (AtH) – Air Temperature Maximum (Highest level)
Room temperature high limit. Reading of the internal temperature sensor. It has effect only if FA or PA is selected as the source sensor.
Factory default value is 27°C or 81°F.
Note: AtH value cannot be lower than AtL value + 1°C

Parameter 15 (FtL) – Floor Temperature Minimum (Lowest level)
Floor temperature low limit. Reading of external NTC temperature sensor. It has effect only if AF or PF are selected as the source sensor.
Factory default value is 18°C or 64°F.
Note: FtL value cannot be higher than FtH value - 1°C

Parameter 16 (FtH) – Floor Temperature Maximum (Highest level)
Floor temperature high limit. Reading of the external NTC temperature sensor. It has effect only if AF or PF are selected as the source sensor.
Factory default value is 32°C or 90°F.
Note: FtH value cannot be lower than FtL value + 1°C

Parameter 17 (FSr) – Floor sensor resistance
If the external floor NTC temperature sensor is used it is necessary to select the correct ohm value (resistance) of the sensor. 1 – 100 kΩ is available to select. In the box is included one floor NTC 10kΩ temperature sensor with a three metre connection wire.
Factory default value is 10kΩ.
Note: If the floor sensor is disconnected or damaged "–" will indicate on the display FLOOR TEMP field.

Parameter 18 (Atc) – Room Air Temperature Calibration
This parameter defines the offset value for room air temperature. If the internal air temperature sensor is not correctly calibrated changes of temperature can be made by adjusting the values by up to +/- 9.5°C or +/- 17°F. This value will be added or subtracted from the internal air temperature sensor reading.
Factory default value is 0

Parameter 19 (Ftc) – Floor Temperature Calibration
This parameter defines the offset value for floor temperature. Should the external floor temperature sensor not be correctly calibrated then temperature changes are able to be adjusted by up to +/- 9.5°C or +/- 17°F. This value will be added or subtracted from the floor temperature sensor reading.
Factory default value is 0.

Parameter 20 (HYS) – HYSTERESIS (HYS)
The hysteresis value for temperature control. The thermostat will stabilize the temperature with selected hysteresis. For example, if the SET POINT is set for 25°C and HYSTERESIS is set for 0.5°C the thermostat will change the state to HEATING if the temperature will be lower than 24.5°C and it will change the state to idle if temperature reaches 25.5°C.
The hysteresis can be changed from 0.1°C up to a maximum of 9.5°C in Celsius mode and from 0.1°F to 17°F in Fahrenheit mode.
Factory default values are 0.5°C or 0.9°F.

Parameter 21 (dIF) – Temperature difference to send to controller
The thermostat will send a new temperature to the gateway only in case if the temperature change is greater or equal than the value specified in this parameter.
From 0.1C to 1.0C can be chosen.
Factory default value is 0.2C
Note: The thermostat is very sensitive to changes of ambient temperature and can often vary by ±0.1C, therefore it is recommended to set this parameter from 0.2 and above to reduce the load on your Z-Wave network.

DISPLAY BRIGHTNESS
The thermostat has two states of brightness.
Active state – when press any key and commence adjustments.
Inactive state – after five seconds of inactivity it will revert to inactive state.
The display brightness in either state can be adjusted.

Parameter 22 (brH) – Display brightness high level
The brightness level can be selected in the active state from values 1 (lowest brightness) to 4 (highest brightness) but the level cannot be lower than the level of brightness for the inactive state (param 23).
Factory default value is 4.

Parameter 23 (brL) – Display brightness low level
This parameter defines the brightness level of the display in the inactive state. The level can be selected from values 1 to 4 but the level cannot be higher than the level of brightness for the active state (param 22).
Factory default value is 3.

Parameter 24 (Abr) – Auto brightness
The thermostat can adjust its display brightness automatically depending on the illumination of the ambient environment. The comfort brightness of the screen can be chosen depending on the room illumination in Parameters 25, 26 and 27.
Value 1 = Active the function, Value 0 = Inactive the function
Factory default value is 1.
Note: The illumination of the environment can be checked at any time in the centre of the display (on time position) in the device MENU on Parameter 24 or via your Z-Wave gateway

Parameter 25 (Ab1) – Auto brightness level 1 max lumens
The value indicates the maximum level of ambient illumination during which the brightness of the display will be at level 1 (at the lowest level). For example if this parameter value is set 30 and the ambient illumination is in range 0-30 the display will be in lowest brightness level. As soon as the illumination will be 31 or higher the display brightness will be changed to Level 2.
Factory default value is 30.

Parameter 26 (Ab2) – Auto brightness level 2 max lumens
This parameter indicate the maximum illumination for display brightness level 2. In case if the illumination is in range Parameter 25 (Ab1) - Parameter 26 (Ab2) the display brightness will be on level 2. If the illumination drops below the value of parameter 25 the brightness of the display will be decreases to level 1, and if the illumination increases beyond the value of parameter 26 the display brightness will rise to level 3.
Factory default value is 200.

Parameter 27 (Ab3) – Auto brightness level 3 max lumens
This parameter indicate the maximum illumination for display brightness level 3. In case if ambient illumination raise above this value the display brightness will be changed to Level 4
Factory default value is 3000.

Parameter 28 (bsA) – Basic Sat Action
This parameter defines to which mode the thermostat operating mode will be changed to if the Basic Set command is received.
If the received value of the Basic Set command is 0 (OFF state) the thermostat will go to MAN mode and switch off the heating element (IDLE mode).
If the received value of the Basic Set command is 1 or higher (ON state) the thermostat will change its mode regarding the value defined in this parameter.
If the parameter value is 1 the thermostat will go to the COM operating mode, value 2 is for the TIME mode, Value 3 is for the DRY mode, Value 4 is for the ECO mode, Value 5 is for the VAC, Value 6 is for the MAN.
If the parameter value is 6 (change to manual mode) and the Basic Set value is 1 or higher (ON) the thermostat will go to the MAN mode and switch ON the HEAT mode.
Factory default value is 6.

Parameter 29 (nEt) – INCLUSION / EXCLUSION MODE
If the thermostat is included in the z-wave network the antenna will be indicated in the main display and Inc will be indicated in the Param value. If the thermostat is not included in the network, no antenna will be indicated in the main display and the Param value will be ECL.
To include or exclude the thermostat into/from your home automation gateway, activate inclusion or exclusion mode on your gateway then go to Param 29 in the device Menu and press "+" key for inclusion and the "-" key for exclusion.
For more details go to point "Z-Wave Functions" – "Network"of this manual.

Parameter 30 (Prr) – Power Meter values & reset
The Heltun thermostat monitors the load and total power consumption. The current load is indicated in this Param values in the center of display (time position) in W. The data of total consumption in kWh is indicated in the top right corner of the display.
If the device is included to the Z-Wave network it will also send the data of the current load and total consumption to the main controller.
The thermostat, even when the electricity is disconnected, maintains the electric consumption record in its memory.
To reset the consumption memory press and hold "+" key (about 3 seconds) until the parameter total consumption value will be changed to 0.

CHILD LOCK – LOC
To activate the child lock mode, press and hold the ▨▨▨ key till the icon 🔒 will be indicated in the bottom center of the display (about 5 seconds). To deactivate the child lock press the key ▨▨▨ until the icon 🔒 disappears.

FACTORY RESET – RES
By pressing and holding the "MODE" key for 6 seconds, the thermostat will enter the Factory Reset mode and "Res" will appear in left bottom corner, "y" in top left corner and "n" in top right corner. Press "+" key if reversion to factory reset is required or the key ▨▨▨ to cancel. The factory reset will change all the parameters to the original factory defaults and will also exclude from the Z-Wave network.

Z-WAVE NETWORK

Inclusion
To include the thermostat in the Z-Wave network
1. Go to the "SETTINGS" mode by pressing and holding the ⌨ key for 3 seconds
2. Go to "Parameter 29 – nEt" of the menu by using the ▨▨▨ key for scrolling up and the "MODE" key for scrolling down in parameters.
3. In the value position will be seen the current state of the network. It should be ECL. If Inc is indicated, anexclusion must be first performed.
4. Start the inclusion mode from the gateway
5. Press "+" key to start inclusion process
6. Lines will be moving in value position.
7. The "Inc" should appear in the value position if the inclusion has been successful. The "Err" will appear if the inclusion was not completed.

Note: In case the device has been part of the Z-Wave network before and not excluded since, inclusion is not possible. In this case, exclusion must be performed before inclusion.

If the thermostat is included in the network, in the bottom right corner of the main screen the antenna icon will be displayed with connection lines 📶. If not on the network then it will be displayed without lines 📶 .

Security: S0, S2 unauthorized and S2 authorized inclusion modes are supported. If you use S2 authorized inclusion mode the security key should be used in inclusion process.
NOTE: Be sure to save this key. Without the key it is impossible to perform an inclusion in S2 authorized mode.

Exclusion
To exclude the thermostat from the Z-Wave network
1. Go to "SETTINGS" mode by pressing and holding the ⌨ key for 3 seconds
2. Go to "Parameter 29 – nEt" of the menu
3. In the value position the current state of network state will be displayed. It should be "Inc". if the "ECL" is indicated the device is already excluded.
4. Start the exclusion from the gateway.
5. Press the "–" key to start the exclusion process
6. Lines will be moving in the value position.
7. The "Ecl" should appear with successful deletion.
8. If the "Err" appear then start the exclusion process again.

If the thermostat is included in the network, in the bottom right corner of the main screen the antenna icon will be displayed with connection lines 📶. If not on the network it will be displayed without lines 📶 .

Association
Association enables the thermostat to control other Z-Wave products from the network.
Up to ten other products from different manufacturers can be within the association grouping.
The thermostat has two association groups:
Group 1 is for Life Line and used to connect Z-Wave gateway.
Through Group 2 the thermostat sends Basic Set command. It sends Basic Set command with value 0 (Off state) when thermostat goes to IDLE mode and sends 255 (ON state) when the thermostat goes to HEATING mode.

Z-WAVE DEVICE TYPE:
GENERIC_TYPE_THERMOSTAT
SPECIFIC_TYPE_SETPOINT_THERMOSTAT

Supported Command Classes:
COMMAND_CLASS_BASIC,
COMMAND_CLASS_THERMOSTAT_OPERATING_STATE,
COMMAND_CLASS_THERMOSTAT_MODE,
COMMAND_CLASS_THERMOSTAT_SETPOINT,
COMMAND_CLASS_SENSOR_MULTILEVEL,
COMMAND_CLASS_METER,
COMMAND_CLASS_CLOCK,
COMMAND_CLASS_ZWAVEPLUS_INFO,
COMMAND_CLASS_TRANSPORT_SERVICE,
COMMAND_CLASS_SECURITY,
COMMAND_CLASS_SECURITY_2,
COMMAND_CLASS_VERSION,
COMMAND_CLASS_ASSOCIATION,
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION,
COMMAND_CLASS_ASSOCIATION_GRP_INFO,
COMMAND_CLASS_MANUFACTURER_SPECIFIC,
COMMAND_CLASS_DEVICE_RESET_LOCALLY,
COMMAND_CLASS_POWERLEVEL,
COMMAND_CLASS_SUPERVISION,
COMMAND_CLASS_CONFIGURATION,
COMMAND_CLASS_FIRMWARE_UPDATE_MD

THERMOSTAT SETTINGS USING Z-WAVE PROTOCOL (GATEWAY)

All configuration parameters are accessed through
COMMAND_CLASS_CONFIGURATION

Parameter Number	Parameter Size	Description	Default Value	Available Values
01	1 byte	Degree Mode	0	°C, °F
02	1 byte	EXT input mode	1	0, 1, 2
03	1 byte	Mode number for EXT input action	2	1, 2, 3, 4, 5, 6
04	1 byte	Source Sensor: 1=A, 2=AF, 3=F, 4=FA, 5=P, 6=PA, 7=PF	3	1, 2, 3, 4, 5, 6, 7
05	1 byte	Power Regulation ON time, min	15	10 - 90
06	1 byte	Power Regulation OFF time, min	15	10 - 90
07	1 byte	Dry Time, min	30	5 - 90
08	1 byte	Time correction by controller	1	0, 1
09	1 byte	Time format	0	0, 1
10	1 byte	Week Day	1	1 - 7
11	1 byte	Time Hour	0	0 - 23
12	1 byte	Time Minute	0	0 - 59
13	2 bytes	Air Temperature Minimum in °C, value X 10, e.g. 22.5°C=225	210	40 - 360
14	2 bytes	Air Temperature Maximum in °C, x10	270	50 - 370
15	2 bytes	Floor Temperature Minimum in °C, x10	180	40 - 360
16	2 bytes	Floor Temperature Maximum in °C, x10	320	50 - 370
17	1 byte	Floor Sensor Resistance, kΩ	10	1 - 100
18	2 bytes	Air Temperature Calibration in °C, x10	0	-95 - 95
19	2 bytes	Floor Temperature Calibration in °C, x10	0	-95 - 95
20	2 bytes	Temperature Hysteresis in °C, x10	5	1 - 95
21	1 byte	Temperature difference to send to controller, value X 10	2	1 -10
22	1 byte	Active display brightness level	4	1 - 4, but >=Param23
23	1 byte	Inactive display brightness level	3	1 - 4, but <=Param22
24	1 byte	Auto LCD brightness control	1	0, 1
25	2 bytes	Auto brightness level 1 max lumens	30	0 - 5000
26	2 bytes	Auto brightness level 2 max lumens	200	0 - 5000
27	2 bytes	Auto brightness level 3 max lumens	3000	0 - 5000
28	1 byte	Basic Set Action	6	1, 2, 3, 4, 5, 6
29-50		Reserved by manufacturer		
51	1 byte	Touch buttons sensitivity. 20=Supper sensitive. 70=lowest sensitivity.	50	20 - 70
52	2 bytes	Morning start time. Format: HHMM. e.g.08:00 should be sent as 0800	0600	0000 - 2359
53	2 bytes	Day start time. Format: HHMM.	0900	0000 - 2359
54	2 bytes	Evening start time. Format: HHMM.	1800	0000 - 2359
55	2 bytes	Night start time. Format: HHMM.	2300	0000 - 2359
56	2 bytes	Monday Morning temperature, valueX10	240	40 - 370
57	2 bytes	Monday Day temperature, valueX10	200	40 - 370
58	2 bytes	Monday Evening temperature, valueX10	230	40 - 370
59	2 bytes	Monday Night temperature, valueX10	180	40 - 370
60 - 63	2 bytes	Tuesday schedule temperatures: P60=morning t°C, P61=day t°C, P62=evening t°C, P63=night t°C		40 - 370
64 - 67	2 bytes	Wednesday schedule temperatures		40 - 370
68 - 71	2 bytes	Thursday schedule temperatures		40 - 370
72 - 75	2 bytes	Friday schedule temperatures		40 - 370
76 - 79	2 bytes	Saturday schedule temperatures		40 - 370
80 - 83	2 bytes	Sunday schedule temperatures		40 - 370

2-YEAR LIMITED WARRANTY

Heltun warrants this product to be free from defects in the workmanship or materials, under normal use and service, for a period of two (2) years from the date of purchase by the consumer. If at any time during the warranty period the product is determined to be defective or malfunctions, Heltun shall repair or replace it (at Heltun's option).
If the product is defective,
(i) return it, with a bill of sale or other dated proof of purchase, to the place from which you purchased it; or
(ii) contact Heltun Customer Care at support@heltun.com. Customer Care will make the determination whether the product should be returned or whether a replacement product can be sent to you.

THIS WARRANTY DOES NOT COVER REMOVAL OR REINSATLLATION COSTS. THIS WARRANTY SHALL NOT APPLY IF IT IS SHOWN BY HELTUN THAT THE DEFECT OR MALFUNCTION WAS CAUSED BY DAMAGE WHICH OCCURRED WHILE THE PRODUCT WAS IN THE POSSESSION OF A CONSUMER THIS WARRANTY SHALL NOT OBLIGATE HELTUN FOR ANY LABOR COSTS AND SHALL NOT APPLY TO DEFECTS IN WORKMANSHIP OR MATERIALS FURNISHED BY YOUR INSTALLER AS CONTRASTED TO DEFECTS IN THE THERMOSTAT ITSELF. IMPLIED WARRANTIES OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE SHALL BE LIMITED IN DURATION TO THE AFORESAID TWO YEAR PERIOD. HELTUN'S LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, OTHER THAN DAMAGES FOR PERSONAL INJURIES, RESULTING FROM ANY BREACH OF THE AFORESAID IMPLIED WARRANTIES OR THE ABOVE LIMITED WARRANTY IS EXPRESSLY EXCLUDED. THIS LIMITED WARRANTY IS VOID IF DEFECT(S) RESULT FROM FAILURE TO HAVE THIS THERMOSTAT INSTALLED BY A QUALIFIED HEATING AND AIR CONDITIONING CONTRACTOR. IF THE LIMITED WARRANTY IS VOID DUE TO FAILURE TO USE A QUALIFIED CONTRACTOR, ALL DISCLAIMERS OF IMPLIED WARRANTIES SHALL BE EFFECTIVE UPON INSTALLATION.

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