ENGO ONE

Wi-Fi Smart Thermostat

EONE-16W EONE-16B

Quick Guide

Ver. 1.0
Release date: XII 2025
Soft:
Main module v1.0.0 (3.0.22)
MCU v0.0.6

Works with ENGO SMART App

Powered By tuya

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ENGO CONTROLS

Producer:
Engo Controls sp.z.o.o.sp.k.
Rolna 4 St.
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Poland
www.engocontrols.com

Product Compliance

This product complies with the following EU Directives: 2014/53/EU, 2011/65/EU

Safety Information

Use in accordance with national and EU regulations. Use the device only as intended, keeping it in a dry condition. The product is for indoor use only. Please read the entire manual, before installation or use.

Installation

Installation must be performed by a qualified person with appropriate electrical qualifications, in accordance with the standards and regulations in force in a given country and in the EU. The manufacturer is not responsible for non compliance with the instructions.

Attention:

For the entire installation, there may be additional protection requirements, which the installer is responsible for.

Introduction

A modern, flush-mounted temperature controller with Wi-Fi and RS-485 Modbus communication, designed for controlling underfloor heating and electric heating systems. The device supports both manual operation and automatic schedule-based control – also in offline mode, without Internet access. The controller ensures precise temperature regulation, offers advanced protection functions, and provides convenient local and remote operation via the ENGO Smart application.

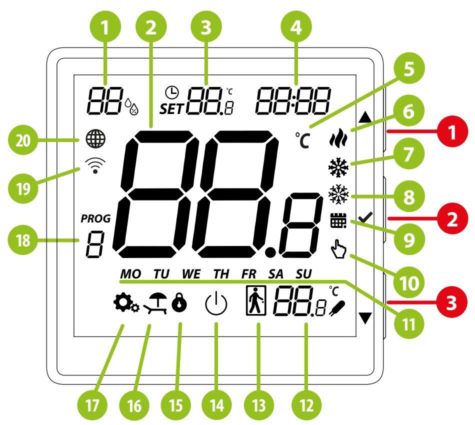
Product features

- Works with ENGO Smart
- Heat/Cool changeover
- 16A Maximum load 16(2)A
- Key lock function also with a PIN code
- Minimum and maximum setpoint temperature limit
- Valve Protection Function and Antistop
- Precise TPI temperature control algorithm
- S1–S2 input for an additional sensor NTC 10/12/15kOhm

Technical data

Power supply	230V AC 50Hz
Max. Current	16(2)A
Temp. setpoint range	5,0°C to 45,0°C
Display temp. Accuracy	0,5°C
Control algorithm	TPI or Histeresis (±0.2°C to ±2.0°C)
Communication	Wi-Fi 2,4GHz, MODBUS RS-485
Control output	SL 230V AC
S1 - S2 input	Floor temp sensor, external air sensor, occupancy sensor
Control input	CO/NSB 230V AC
Dimensions	90 x 90 x 37 mm (13 mm after mounting in electrical box Φ 60)

LCD Icon Description + Button Description



1. Current humidity reading
2. Current temperature
3. Setpoint temperature
4. Clock
5. Temperature unit
6. Heating indicator (icon is animating when there is heating demand)
7. Cooling indicator (icon is animating when there is cooling demand)
8. Frost mode icon
9. Schedule mode icon
10. Manual mode / Temporary override mode
11. Day of the week indicator
12. External/Floor sensor
13. Occupancy sensor (hotel card) - S1-S2 connection
14. Power OFF icon
15. Button lock
16. Holiday mode
17. Settings icon
18. Program number
19. Wi-Fi connection
20. Cloud connection

1. "Up" Button ▲
2. "OK" Button ✓
3. "Down" Button ▼

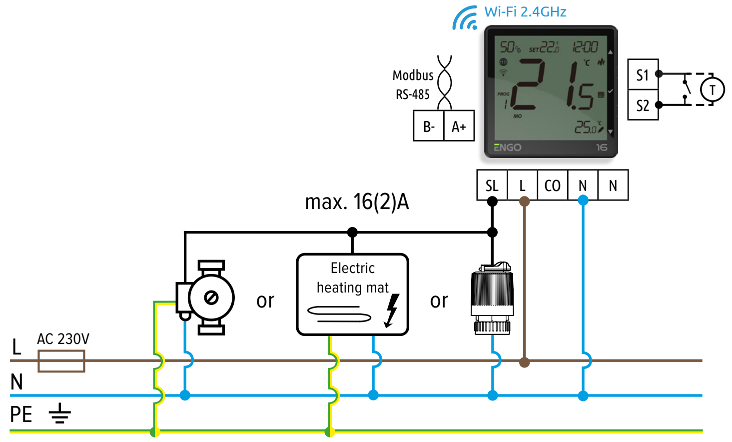
▲	Change the parameter value up
▼	Change the parameter value down
✓	Manual/Schedule mode - short button press
	Entering time schedule / clock programming / installer parameters - hold 3 seconds
	Turn OFF/ON thermostat - hold 5 seconds
▲&▼	Enter the pairing mode - hold until the PA message appears
	Factory reset - hold until the FA message appears, then release them, select "YES," and confirm
▲&✓	Lock/Unlock thermostat keys - hold 3 seconds
▼&✓	Heating/Cooling mode change - hold 3seconds. (Function inactive when P11=0 – automatic Heating/Cooling switching)

Description of thermostat terminals

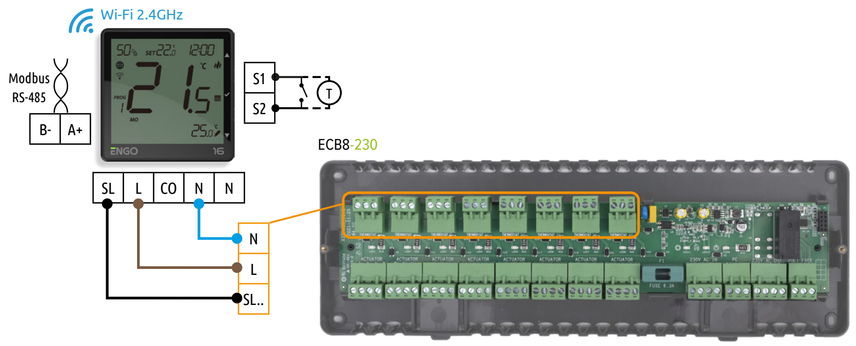
L, N	Power supply 230 V AC (L – live wire, N – neutral wire)
SL	Control output 230 V AC, maximum load 16(2)A
CO/NSB	Control input 230 V AC - Heating/Cooling mode change (Active when P11=0) - Night Set Back temperature reduction (Active when P11=1)
S1-S2	Volt-free input for a switch (for occupancy sensor – hotel key card) or for an external temperature sensor (NTC 10/12/15 kOhm).
A+ / B-	Communication port for Modbus RS-485

Connection description

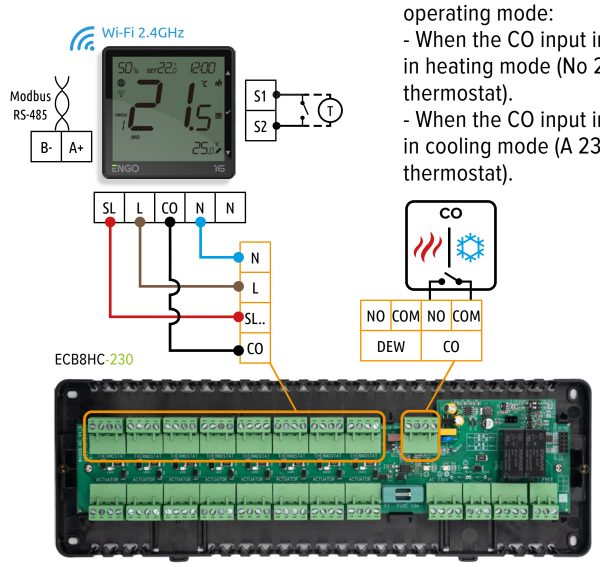
a) Connection diagram to a circulation pump / electric heating mat / actuator



b) Connection diagram to the control box



c) Connection diagram for connection to the control box with Heating/Cooling mode switching

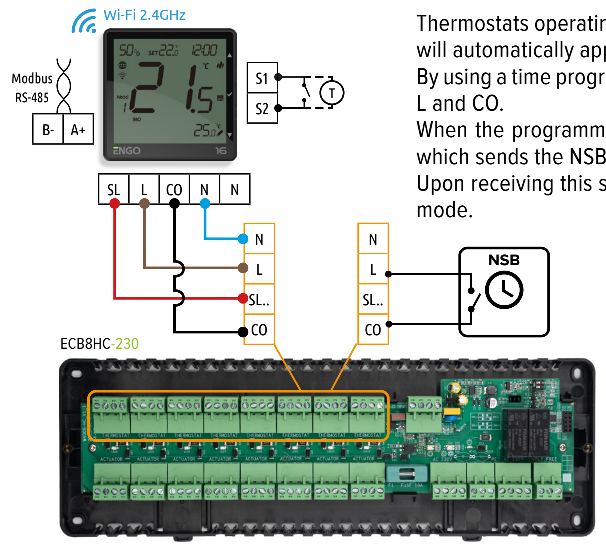


Thermostats connected to the control box will automatically switch the operating mode:
- When the CO input in the control box is open – the system operates in heating mode (No 230 V AC signal is applied to the CO input of the thermostat).
- When the CO input in the control box is closed – the system operates in cooling mode (A 230 V AC signal is applied to the CO input of the thermostat).

Attention:

Automatic HEATING / COOLING mode switching in the thermostat is active when parameter P11=0.

d) Connection diagram for connection to the control box with Night Setback (NSB) timer



Thermostats operating in manual mode and connected to the control box will automatically apply night temperature reduction:
By using a time programmer connected to one of the zones — to terminals L and CO.
When the programmer is activated, 230 V appears on the CO terminal, which sends the NSB signal (230 V) to all zones of the control box.
Upon receiving this signal, the thermostat switches to the Night Setback mode.

Attention:

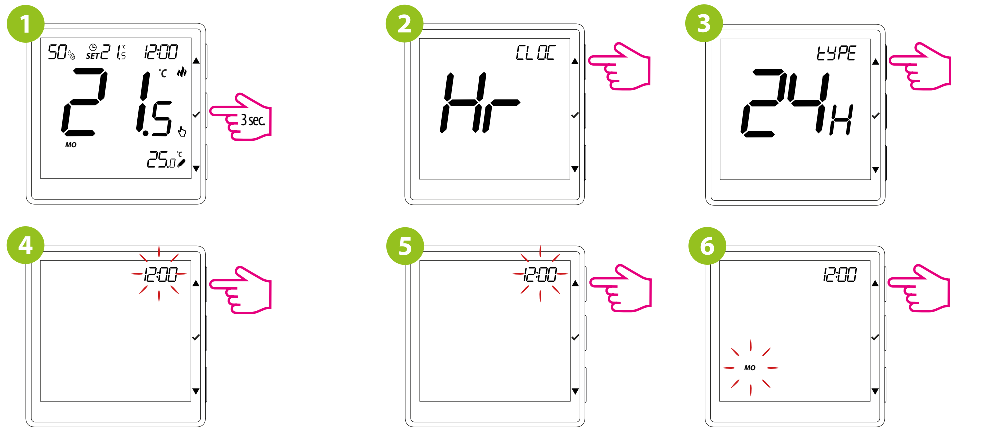
The NSB function in the thermostat is active only in manual mode and when parameter P11=1. The night setback temperature value must be set in parameter P12.

Legend:

- Fuse
- L, N – 230V AC power supply
- PE – Ground (electricity)
- SL. – Control signal 230 V
- Wi-Fi 2.4GHz communication
- CO/NSB – Mode change / NSB function terminal
- S1-S2 – Volt-free input for a switch (e.g. occupancy sensor – hotel key card) or for an external temperature sensor. (NTC 10/12/15kOhm)
- A+ / B- – Communication port for Modbus RS-485
- Timer terminal for Night Set Back temperature control – NSB
- Mode change terminal Heating / Cooling – CO (Change Over)
- Temperature sensor
- External contact
- Actuator
- Pump
- Electric heating mat
  - Floor temperature sensor recommended (overheating protection)
  - Maximum load must not be exceeded.

Setting the day of the week and time in offline mode

To enter the clock setting, press and hold the ✓ button for 3 seconds, then use the ▲ or ▼ button to select “Hr” and confirm with the ✓ button.



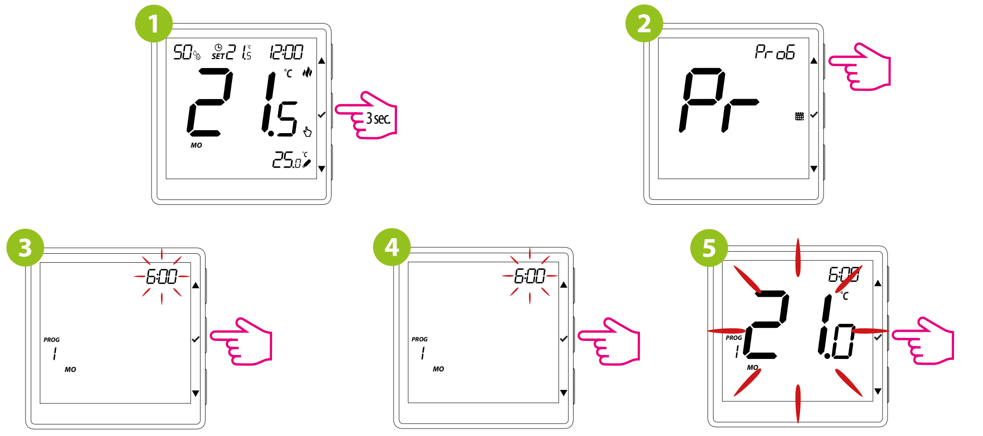
Using the ▲ or ▼ buttons, set the clock format, then confirm with the ✓ button. In the same way, set the subsequent parameters: hour, minutes, and day of the week.

Switching between manual and schedule modes

In manual mode, the thermostat maintains a constant setpoint temperature until the user changes its value or switches to Auto (schedule) mode.
To change the operating mode from automatic to manual, or vice versa, press the ✓ button.

Setting the schedule

To enter the schedule settings, press and hold the ✓ button for 3 seconds, then use the ▲ or ▼ button to select “Pr”, and confirm with the ✓ button. ✓.



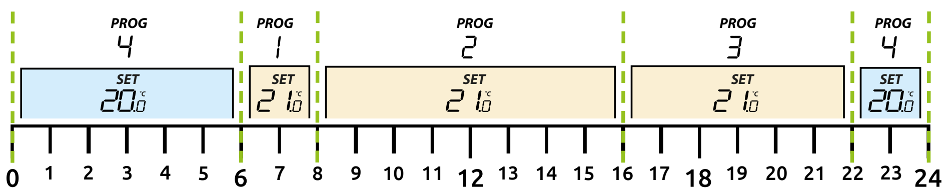
Using the ▲ or ▼ buttons, set the hour, minutes, and temperature for each of the four time periods, confirming each selection with the ✓ button. The programmed schedule can be copied to the next day by setting the “Copy” parameter to “YES” using the buttons, and then confirming with the ✓ button.If you want to set an individual schedule for the next day, set the “Copy” parameter to “NO”, confirm with the ✓ button, and then create the schedule for the subsequent days of the week (see steps 3–5).

⚠ Attention:

Programs must be set for all days of the week!
To exit to the main screen without saving changes, press and hold the ✓ button for 3 seconds.

By default, the schedule is set identically for each day of the week, according to the table and chart shown below:

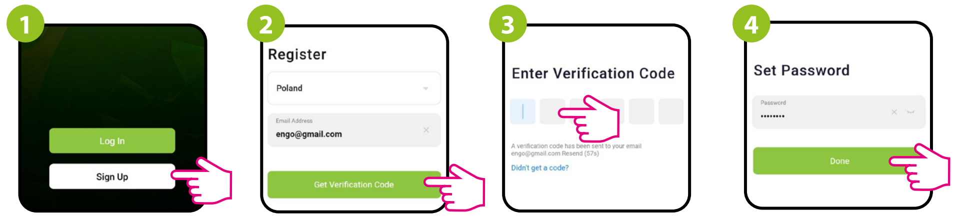
Default schedule		
Time period - *PROG*	**Start time**	**Setpoint temperature - *SET***
1	6:00	21.0
2	8:00	21.0
3	16:00	21.0
4	22:00	20.0



Installation of the thermostat in the app

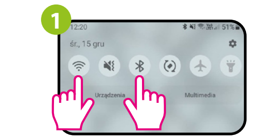
Make sure your router is within range of your smartphone. Make sure you are connected to the Internet. This will reduce the pairing time of the device.

To register a new account, please follow the steps below:

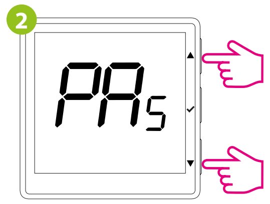


1. Click „Sign Up” to create new account.
2. Please enter the email address to which the verification code will be sent.
3. Enter the verification code received in the email.
4. Then set the login password.

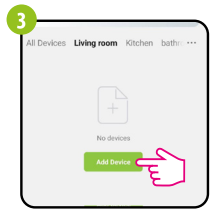
After installing the app and creating an account:



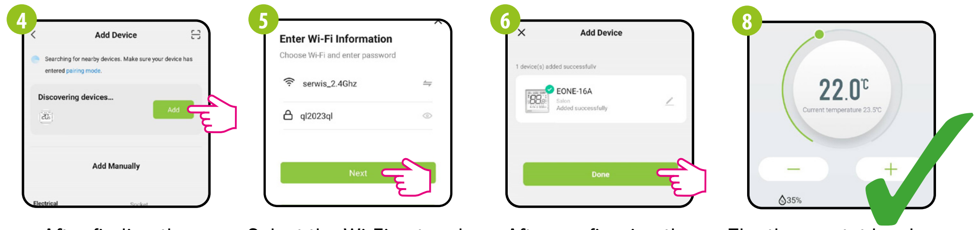
1. On your mobile device, make sure the ENGO Smart has access to permissions (Location, Bluetooth, Nearby devices). Then turn on Bluetooth and Location. Connect to 2.4GHz Wi-Fi network to which you want to assign the device.



2. On the controller, press and hold the ▲ and ▼ buttons simultaneously until the “PA” message appears. Then release the buttons.



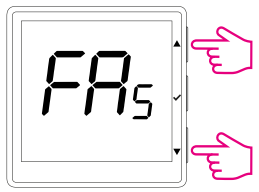
3. In the app, select: „Add Device”.



4. After finding the thermostat, go „Add”.
5. Select the Wi-Fi network in which the thermostat will operate and enter the password of this network.
6. After configuring the controller with the Wi-Fi network, name the device and tap “Done”.
8. The thermostat has been installed and displays the main interface.

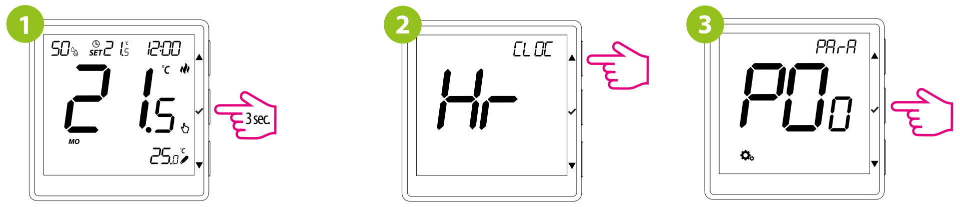
Factory reset

To RESET the controller to factory settings, press and hold the ▲ and ▼ buttons until the “FA” message appears, then release the buttons. Next, use the ▲ or ▼ button to change “NO” to “YES”, and confirm with the ✓ button. The controller will restart, restore the factory default settings, and display the main screen. This operation can only be performed within the first 5 minutes after the controller is powered on.



Installer settings

To enter installer parameters press and hold ✓ button for 3 seconds, then Select “PArA” with the ▲ or ▼ button and confirm with the ✓ button.



Use ▲ or ▼ button to move between parameters. Enter the parameter by ✓ . Edit the parameter using ▲ or ▼. Confirm the new parameter value with the ✓ button.

Installer parameters

Pxx	Function	Value	Description	Default value
P01	Heating/Cooling Selection (Active when P11 = 1 or 2)	(heating icon)	Heating	(heating icon)
		(cooling icon)	Cooling	
P02	Control algorithm	TPI UFH	TPI for Underfloor Heating	TPI UFH for heating HIS 0.4 for cooling
		TPI RAD	TPI for Radiators	
		TPI ELE	TPI for Electrical Heating	
		H 0.2	SPAN +/-0.1°C	
		H 0.4	SPAN +/-0.2°C	
		H 0.6	SPAN +/-0.3°C	
		H 0.8	SPAN +/-0.4°C	
		H 1.0	SPAN +/-0.5°C	
		H 2.0	SPAN +/-1.0°C	
		H 3.0	SPAN +/-1.5°C	
		H 4.0	SPAN +/-2.0°C	
P03	Offset temperature	-3.5°C to +3.5°C	If the thermostat indicates wrong temperature, you can correct it by max ± 3.5°C	0°C
P04	Minimum setpoint	5°C - 45°C	Minimum heating / cooling temperature that can be set	5°C
P05	Maximum setpoint	5°C - 45°C	Maximum heating / cooling temperature that can be set	35°C
P06	S1/S2 Input	0	Disabled	0
		1	External sensor as a floor sensor	
		2	External sensor as an air sensor	
		3	Occupancy sensor (ON/OFF volt free input)	
P07	Maximum floor temp. for heating (Active when P06=1)	5°C - 45°C	Floor protection: heating will be switched off when the sensor temperature exceeds the maximum value.	35°C
P08	Minimum floor temp. for heating (Active when P06=1)	5°C - 45°C	Floor protection: heating will be switched on when the sensor temperature drops below the minimum value.	5°C
P09	Maximum floor temp. for cooling (Active when P06=1)	5°C - 45°C	Floor protection: cooling will be switched on when the sensor temperature exceeds the maximum value.	15°C
P10	Minimum floor temp. for cooling (Active when P06=1)	5°C - 45°C	Floor protection: cooling will be switched off when the sensor temperature drops below the minimum value.	7°C
P11	Configuration of the „CO/NSB” input 230V AC	0	Automatic HEATING / COOLING mode switching	0
		1	Night Setback – NSB (Active when the thermostat is in manual mode)	
		2	Input inactive	
P12	Night setback temperature value (Active when P11=1)	0.5°C - 5°C	Adjustable night setback temperature value	0.5°C
P13	External sensor type	10	NTC 10k	10
		12	NTC 12k	
		15	NTC 15k	
P14	Comfort warm floor	OFF	This function helps to keep the floor warm, even if there is no heating demand from the room thermostat. This feature is available only for Heating Mode. User can select 5 levels of warm floor feature. Note that comfort warm floor function will activate heating for specified amount of time (in relation to Level setting chosen by user). Heating will be activated only if in the past 1 hour heating was OFF.	OFF
		Level 1 (short cycle)		
		Level 2		
		Level 3		
		Level 4		
		Level 5 (long cycle)		
P15	Valve protection	ON	Function enabled	OFF
		AS	Anti stop	
		OFF	Function disabled	
P16	Internal relay	NO	Relay type NO-COM	NO
		NC	Relay type NC-COM	
		OFF	Relay disabled+	
P17	Backlight brightness	10% - 100%	Adjustable in the range from 10 to 100%	50%
P18	PIN Code for settings access	NO	Function disabled	NO
		PIN	Function enabled	
P19	Require a PIN to unlock the keys every time (function active when P18=PIN)	NO	No	NO
		YES	Yes	
CLR	Clear settings factory reset	NO	No action	NO
		YES	Factory Reset	

Installer parameters - RS-485 communication settings

Before the controller is connected to the RS-485 network, it must first be correctly configured. Communication parameters and descriptions of MOD-BUS registers are available in the appendix on the product website www.engocontrols.com.

Pxx	Function	Value	Description	Default value
Addr	MODBUS Slave device address (ID).	1 - 247	MODBUS Slave Address (ID)	1
BAUD	Bitrate (Baud)	4800	Bitrate (Baud)	9600
		9600		
		19200		
		38400		
PARI	Parity bit - sets data parity for error detection	None	Lack	None
		Even	Even	
		Odd	Odd	
STOP	Stop bit	1	1stop bit	1
		2	2 stop bit	