

# TECH TECH CONTROLLERS

USER MANUAL

EU-M-12t

EN



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JG. 07.09.2023

*Images and diagrams contained in the document serve illustrative purposes only.*

*The manufacturer reserves the right to introduce changes.*

## I. SAFETY

Before using the device for the first time the user should read the following regulations carefully. Not obeying the rules included in this manual may lead to personal injuries or controller damage. The user's manual should be stored in a safe place for further reference. In order to avoid accidents and errors, it should be ensured that every person using the device has familiarized themselves with the principle of operation as well as security functions of the controller. If the device is to be put in a different place, make sure that the user's manual is stored with the device so that any potential user has access to essential information about the device. The manufacturer does not accept responsibility for any injuries or damage resulting from negligence; therefore, users are obliged to take the necessary safety measures listed in this manual to protect their lives and property.



### WARNING

- **High voltage!** Make sure the regulator is disconnected from the mains before performing any activities involving the power supply (plugging cables, installing the device etc.)
- The device should be installed by a qualified electrician.
- Before starting the controller, the user should measure earthing resistance of the electric motors as well as the insulation resistance of the cables.
- The regulator should not be operated by children.



### WARNING

- The device may be damaged if struck by a lightning. Make sure the plug is disconnected from the power supply during storm.
- Any use other than specified by the manufacturer is forbidden.
- Before and during the heating season, the controller should be checked for condition of its cables. The user should also check if the controller is properly mounted and clean it if dusty or dirty.

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Changes in the products described in the manual may have been introduced subsequent to its completion on 07.09.2023. The manufacturer retains the right to introduce changes to the structure or colours. The illustrations may include additional equipment. Print technology may result in differences in colours shown.

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Care for the natural environment is our priority. Being aware of the fact that we manufacture electronic devices obligates us to dispose of used elements and electronic equipment in a manner which is safe for nature. As a result, the company has received a registry number assigned by the Main Inspector of Environmental Protection. The symbol of a crossed out rubbish bin on a product means that the product must not be thrown out to ordinary waste bins. By segregating waste intended for recycling, we help protect the natural environment. It is the user's responsibility to transfer waste electrical and electronic equipment to the selected collection point for recycling of waste generated from electronic and electrical equipment.



## II. DESCRIPTION OF THE DEVICE

The EU-M-12t control panel is designed to operate with the EU-L-12 controller and it is adapted to control the operation of subordinate room controllers, sensors and thermostatic actuators. It has wired RS 485 and wireless communication.

The panel allows management of the system by controlling and editing the settings of specific devices of the heating system in individual zones: pre-set temperature, floor heating, schedules, etc.



### CAUTION

Only one panel can be installed in the system. This can provide support up to 40 different heating zones.

Functions and equipment of the controller:

- It provides the ability to control the operation of the EU-L-12 and EU-ML-12 controllers and the thermostatic actuators, room controllers, wired and wireless temperature sensors (dedicated series 12 or universal, e.g. EU-R-8b Plus, EU-C-8r) and displays all information in full colour via a large, glass screen
- Possibility of controlling the heating system online via <https://emodul.eu>
- The set includes the EU-MZ-RS power supply
- Large, colour display made of glass.

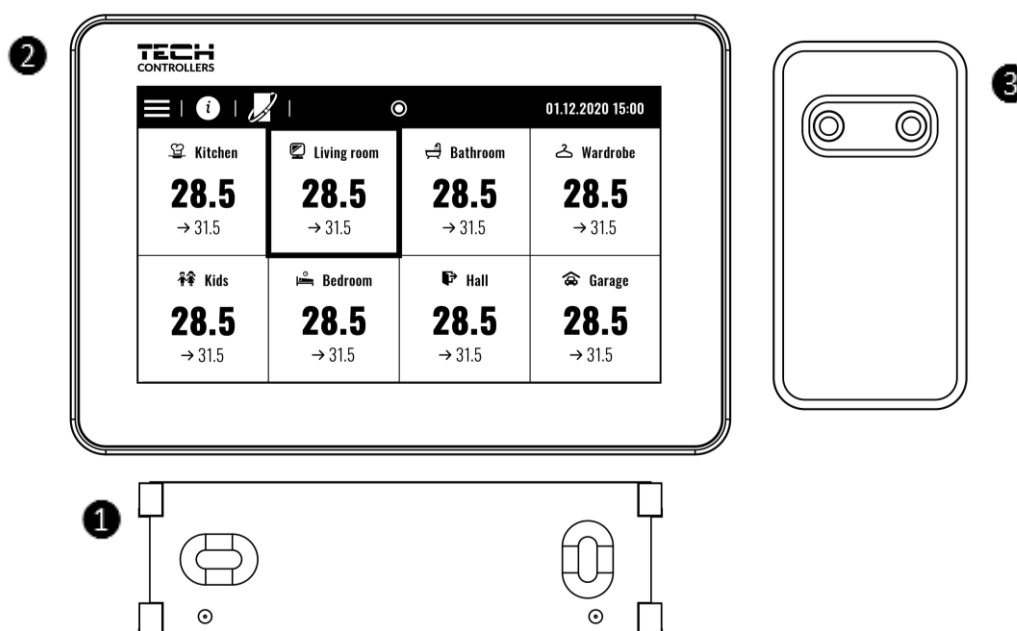


The control panel does not measure temperature! Controllers and sensors registered in the EU-L-12 and ML-12 controller are used for this purpose.

## III. INSTALLING THE CONTROLLER

The EU-M-12t panel is intended to be mounted in an electrical box and should only be installed by a suitably qualified person.

In order to mount the panel on the wall, screw the rear part of the housing onto the wall (1) and slide the device into to (2). The EU-M-12t panel works with an additional EU-MZ-RS power supply (3) included in the set, mounted near the heating device.





**WARNING**

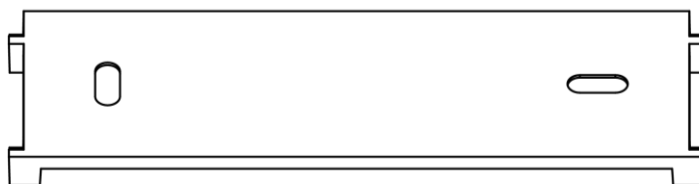
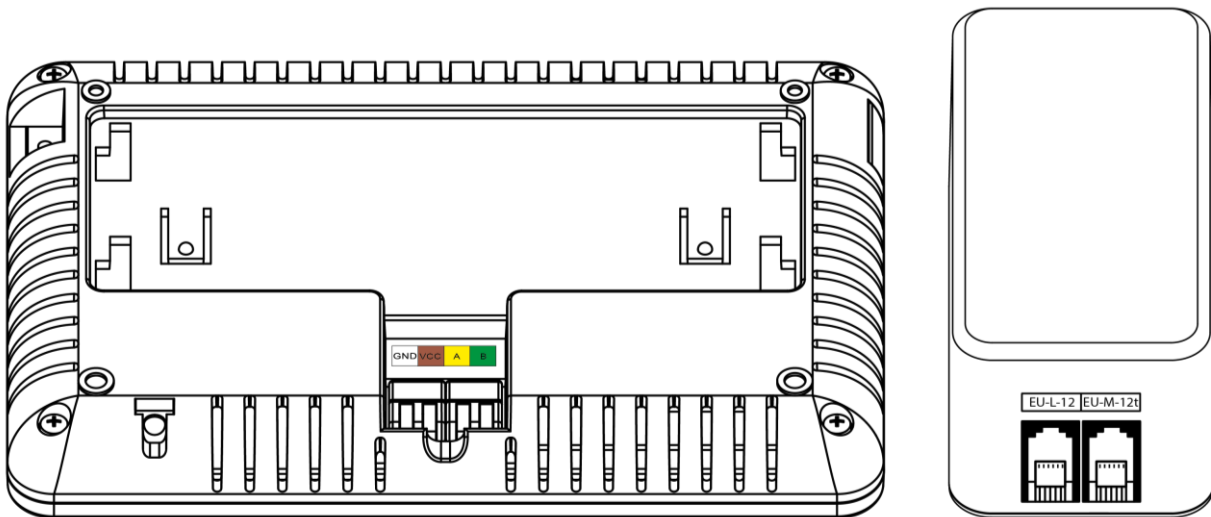
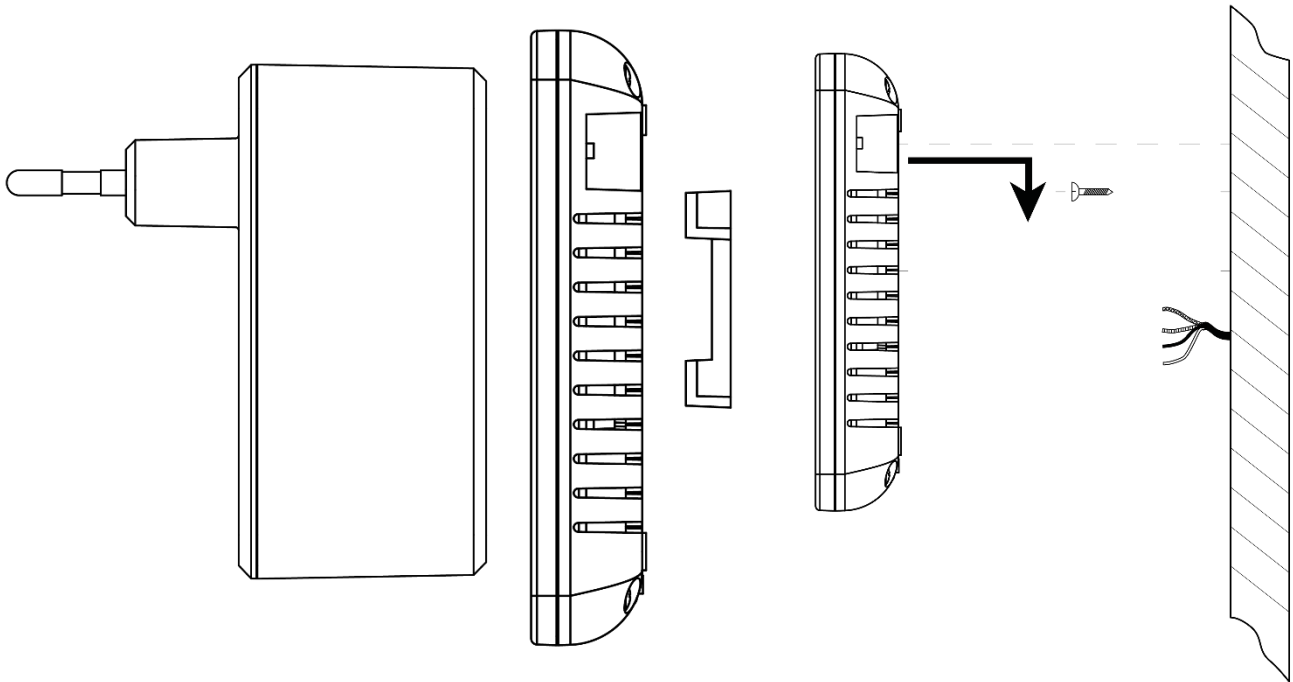
Danger of injury or death due to electric shock on live connections. Before working on the device, disconnect its power supply and secure it against accidental switching on.

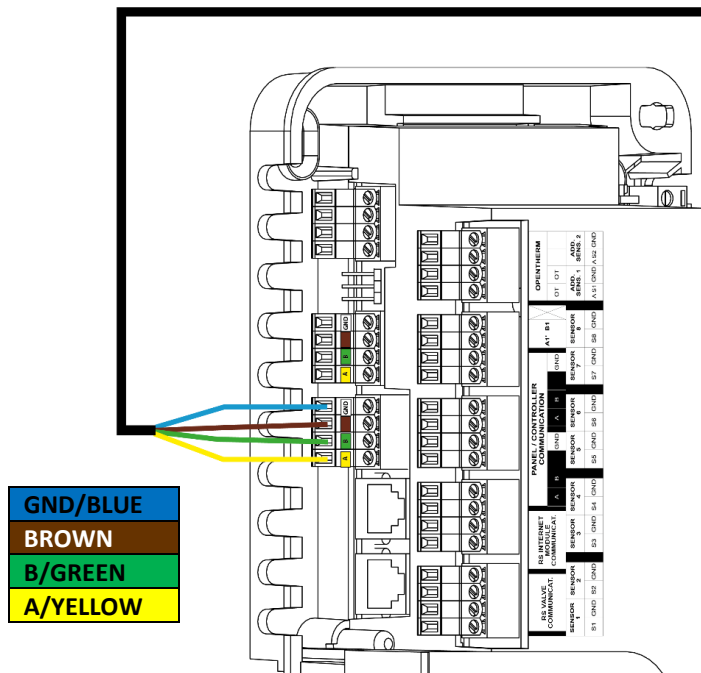
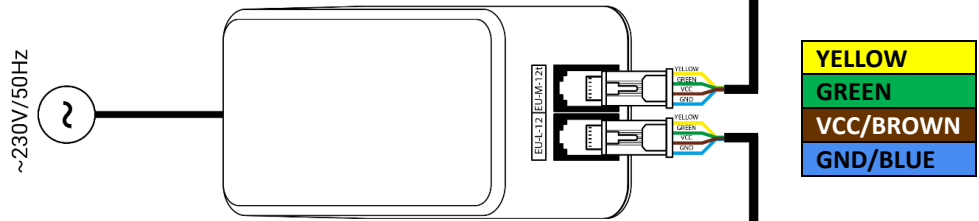
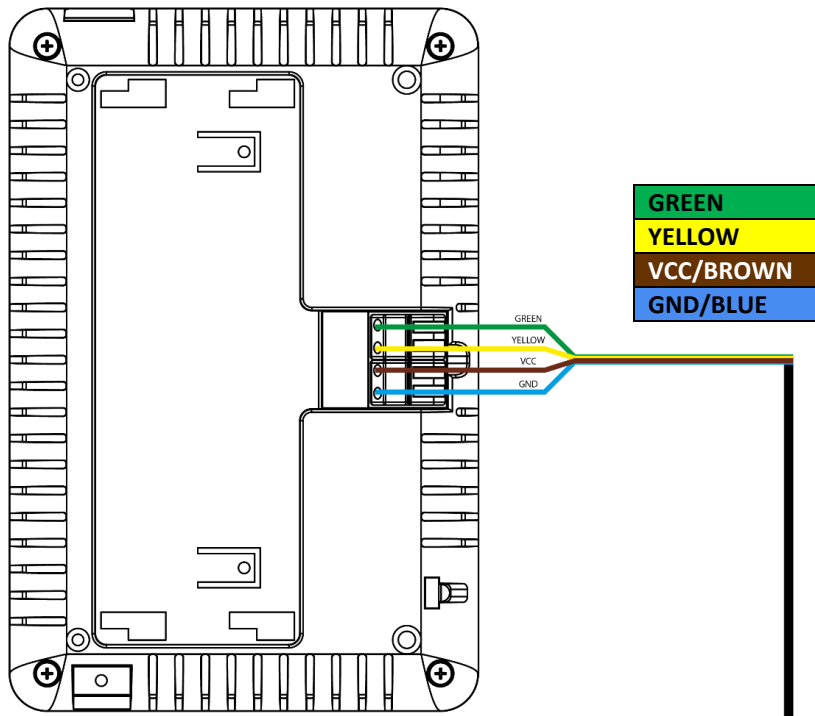


**CAUTION**

Incorrect wiring may damage the controller.

**The panel should be connected to the first or last controller** due to the fact that the panel itself cannot be equipped with a terminating resistor. For details on the termination connection, refer to the EU-L-12 manual.





## IV. FIRST STARTUP

### REGISTRATION THE PANEL IN THE CONTROLLER

In order for the panel to operate correctly, it must be connected to the EU-L-12 controller according to the diagrams in the manual and registered in the controller.

1. Connect the panel to the controller and connect both devices to the power supply.
2. In the EU-L-12 controller, select *Menu → Fitter's menu → Control Panel → Device Type*  
The panel can be registered as a wired or wireless device, depending on the type of assembly.
3. Click the *Register* option on the EU-M-12t panel screen.

After successful registration, the data is synchronized and the panel is ready to operate.



#### CAUTION

Registration will only be successful if the system versions\* of the registered devices are compatible with each other.

\* system version – version of the device (EU-L-12, EU-ML-12, EU-M-12t) communication protocol.



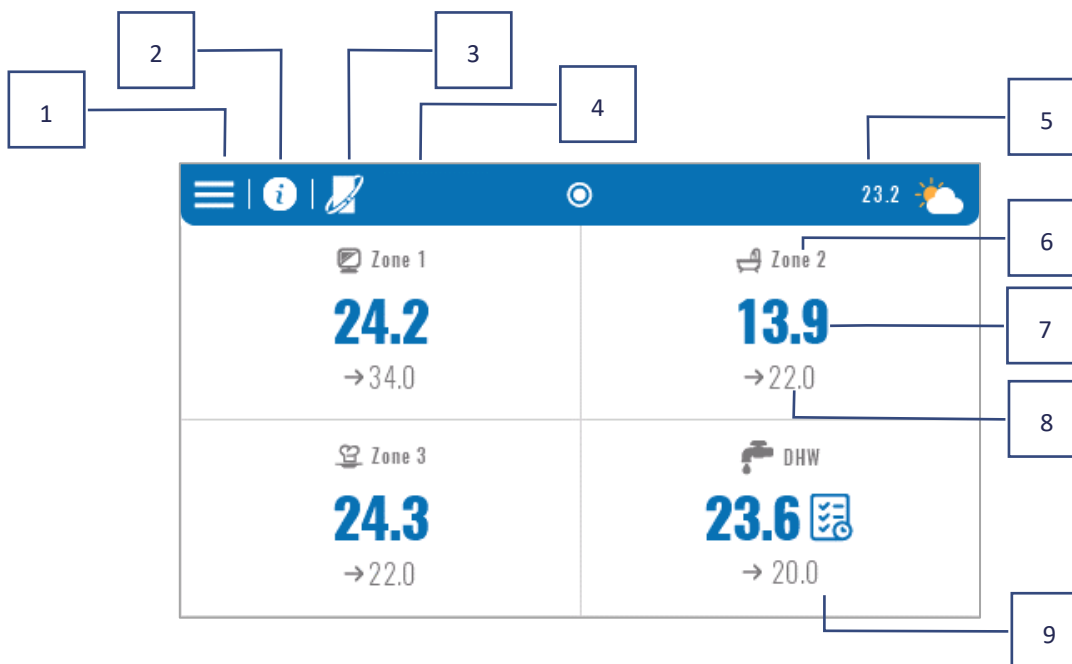
#### CAUTION

Once the factory settings have been restored or the panel has been unregistered from the EU-L-12, the registration process must be repeated.



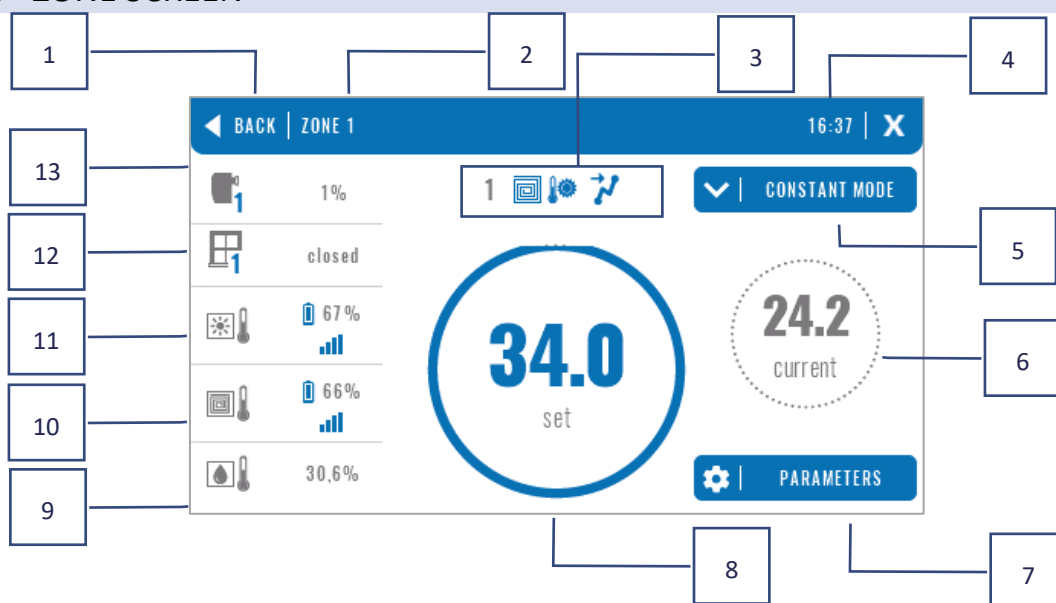
## V. MAIN SCREEN DESCRIPTION

### 1. MAIN SCREEN



1. Enter the Controller Menu
2. Panel information, e.g. connected modules, operation modes, external sensor, etc. (viewable after clicking this area)
3. OpenTherm enabled (information viewable after clicking this area)
4. Function enabled: Heating stopping from date
5. Outdoor temperature or current date and time (after clicking this area)
6. Zone name
7. Current temperature in the zone
8. Pre-set temperature
9. Additional information tile

## 2. ZONE SCREEN



1. Exiting the Zone screen to the main screen
2. Name of the zone
3. Zone status (table below)
4. Current time
5. Active operation mode (can be changed from the screen by clicking this area)
6. Current zone temperature, after clicking the floor temperature (if a floor sensor is registered),
7. Entering the parameters menu of the displayed zone (possible change from the screen after clicking this area), detailed description below
8. Zone pre-set temperature (possible change from the screen after clicking on this mode)
9. Information about the registered humidity sensor
10. Information about the registered floor sensor
11. Information about the registered room sensor
12. Information about the registered window sensors
13. Information on registered actuators

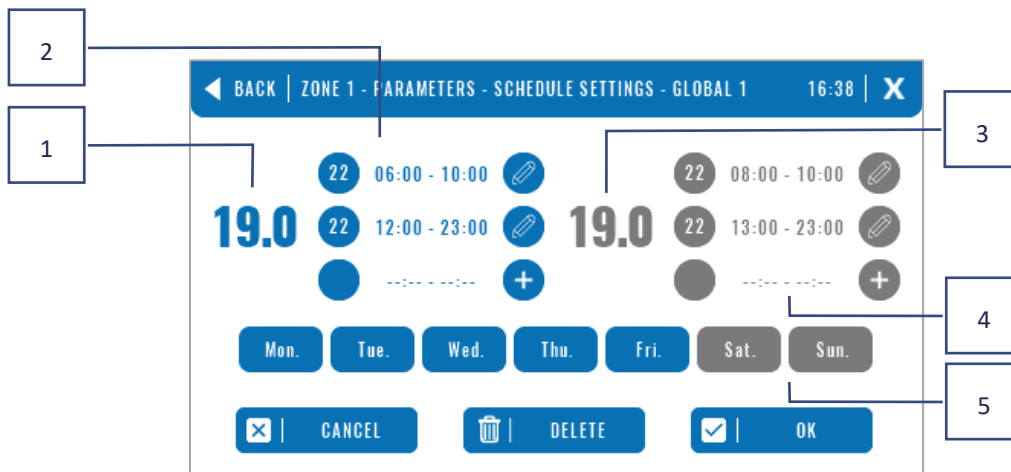
### ZONE STATUS ICON TABLE

	Zone alarm		No cooling due to humidity
	Zone currently heated		Floor overheated
	Zone currently cooled		Floor underheated
	Open windows in the zone (no heating/cooling)		Floor sensor active
	Heating disabled in options		No heating due to weather control
	Cooling off in options		Optimum Start Enabled
	Pump is switched off		Voltage-free contact off

## PARAMETER MENU

- **Activity** – the function is used to enable/disable the zone. When the zone is disabled, it will not be displayed on the main screen of the controller.
- **Pre-set temperature** – enables the editing of the pre-set temperature in a given zone
  - **Timer-controlled** – the user sets the duration of the pre-set temperature, after this time, the temperature resulting from the set operation mode will apply
  - **Constant** – the user sets the pre-set temperature. This will apply permanently until it is switched off.
- **Operation mode** – The user has the option to select the operation mode.
  - **Local schedule** – Schedule settings that only apply to this zone
  - **Global Schedule 1-5** – These schedule settings apply to all zones
  - **Constant temperature** - this function allows setting a separate pre-set temperature value that will be valid in a given zone permanently
  - **Time limit** – the function allows setting a separate temperature that will be valid only for a specific period of time. After this time, the temperature will result from the previously applicable mode (schedule or constant without time limit).
- **Schedule settings** – the option to edit the schedule settings.
  - **Local schedule** – Schedule settings that only apply to this zone
  - **Global Schedule 1-5** – These schedule settings apply to all zones.

The user can assign days of the week to 2 groups (marked in blue and gray). In each group, it is possible to edit separate pre-set temperatures for 3 time intervals. In addition to the designated time intervals, the general pre-set temperature will apply, the value of which can also be edited.



1. The overall pre-set temperature in the first group of days (days highlighted in blue, in the example above these are working days: Monday - Friday). This temperature will apply in the zone outside the designated time periods.
2. Time intervals for the first group of days - pre-set temperature and time frame. Clicking in the area of the selected time period will take you to the editing screen of its settings.
3. The general pre-set temperature in the second group of days (days highlighted in gray, in the example above it is Saturday and Sunday).
4. Time intervals for the second group of days - pre-set temperature and time frame. Clicking in the area of the selected time period will take you to the editing screen of its settings.
5. Groups of days: the first - Mon-Fri and the second – Sat-Sun
  - To assign a given day to a specific group, just click in the area of the selected day
  - To add time intervals, click in the area of the "+" sign.



**CAUTION**

The pre-set temperature can be set to within 15 minutes. In the event that the time intervals set by us overlap, they will be **highlighted in red**. Such settings cannot be approved.

## VI. CONTROLLER FUNCTIONS

### Menu

Operation mode

Zones

Controller settings

Software update

Fitter's menu

Service menu

Factory settings

### 3. OPERATION MODE

The function allows you to activate the selected operation mode in all controllers for all zones. The user has a choice of normal, holiday, economy and comfort modes. The user can edit the factory mode values using the EU-M-12t panel or the EU-L-12 and EU-ML-12 controllers.

#### 3.1. NORMAL MODE

The pre-set temperature depends on the set schedule.

*Menu → Zones → Master Module → Zone 1-8 → Operation Mode → Schedule... → Edit*

#### 3.2. HOLIDAY MODE

The pre-set temperature will depend on the settings of this mode.

*Menu → Fitter's menu → Master Module → Zones > Zone 1-8 → Settings → Temperature Settings > Holiday Mode*

#### 3.3. ECONOMY MODE

The pre-set temperature will depend on the settings of this mode.

*Menu → Fitter's menu → Master Module → Zones > Zone 1-8 → Settings → Temperature Settings > Economy Mode*

#### 3.4. COMFORT MODE

The pre-set temperature will depend on the settings of this mode.

*Menu → Fitter's menu → Master Module → Zones > Zone 1-8 → Settings → Temperature Settings > Comfort Mode*



**CAUTION**

- Changing the mode to holiday, economy and comfort will apply to all zones. It is only possible to edit the setpoint temperature of the selected mode for a particular zone.
- In operation mode other than normal, it is not possible to change the pre-set temperature from the room controller level.

## 4. ZONES

The function is used to enable/disable individual zones in the controllers. If a zone is blank and cannot be marked, it means that no sensor or room controller has been registered in it.

Zones 1-8 are assigned to the main controller (EU-L-12), while zones 9-40 are assigned to EU-ML-12 in the order in which they were registered.

## 5. CONTROLLER SETTINGS

### 5.1. TIME SETTINGS

The function is used to set the current date and time, which will be displayed on the main screen.

### 5.2. SCREEN SETTINGS

- **Screen Saver** - By pressing the *Screen Saver Selection* icon, we go to the panel that allows you to disable the screen saver option (*No screen saver*) or set the screen saver in the form of:

**Clock** – a clock visible on the blank screen

**Screen fading** – after the idle time has elapsed, the screen will be faded completely

The user can also set the *Idle Time*, after which the screen saver will start.

- **Screen brightness** - the function allows you to set the screen brightness while the controller is working
- **Brightness blanking** - the function allows you to set the brightness of the screen at the time of fading.
- **Screen dimming time** - The function allows you to set the time that must elapse for the screen to fade completely after the work is completed.

### 5.3. PROTECTIONS

- **Autoblock off** – the function allows you to turn on/off the parental lock.
- **Autoblock PIN** – if autoblock is enabled, it is possible to set a pin code to secure the controller settings.

### 5.4. SOUND THE BUTTONS

The function is used to enable/disable the key tones.

### 5.5. ALARM SOUND

The function is used to enable/disable the alarm sound. When the alarm sound is off, the alarm message will appear on the display screen. When the alarm sound is on, in addition to the message on the display screen, the user will also hear an audible signal informing about the alarm.

## 6. SOFTWARE VERSION

When this option is activated, the manufacturer's logo will appear on the display, along with the controller software version.

## 7. FITTER'S MENU

### Fitter's menu

- Master module
- Additional modules
- Zones
- External sensor
- Heating stopping
- Anti-stop settings
- Max. humidity
- DHW settings
- OpenTherm
- Language
- Repeater Function
- Factory settings

### 7.1. MASTER MODULE

#### 7.1.1. REGISTER

The function is used to register the panel in the main EU-L-12 controller. The registration process is described in chapter *IV. First startup*.

#### 7.1.2. INFO

The function allows you to preview in which module the panel is registered and what devices and functions are enabled.

#### 7.1.3. NAME

The option is used to change the name of the module in which the panel is registered.

#### 7.1.4. ZONES

### Zones

- Room Sensor
- Outputs configuration
- Settings
- Actuators
- Window sensors
- Floor heating
- Zone name
- Zone Icon

## ROOM SENSOR

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- **Sensor selection** – this function is used to register a sensor or room controller in a given zone. It has the option of choosing an NTC wired sensor, an RS wired sensor or a wireless one. The registered sensor can also be deleted.
- **Calibration** – this is carried out during installation or after prolonged use, when the temperature displayed by the sensor deviates from the actual one.
- **Hysteresis** - adds a tolerance for the room temperature in the range of 0.1 ÷ 5°C, at which there is additional heating/cooling enabled.

## OUTPUTS CONFIGURATION

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This option controls the outputs: floor pump, no-voltage contact and outputs of sensors 1-8 (NTC to control the temperature in the zone or floor sensor to control the temperature of the floor). Sensor outputs 1-8 are assigned to zones 1-8, respectively.

The function also allows switching off the pump and the contact in a given zone. Such a zone, despite the need for heating, will not participate in the control.

## SETTINGS

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- **Weather control** - user-available option to switch on/off the weather control.



### CAUTION

Weather control only works in heating mode.

- **Heating** – this function enables/disables the heating function. There is also a selection of a schedule that will be valid for the zone during heating and for the editing of a separate constant temperature.
- **Cooling** - this function enables/disables the cooling function. There is also a selection of a schedule that will be valid in the zone during cooling and for the editing of a separate constant temperature.
- **Temperature settings** – the function is used to set the temperature for the three operation modes (Holiday mode, Economy mode, Comfort mode).
- **Optimum start** - an intelligent heating control system. It consists of continuous monitoring of the heating system and the use of this information to automatically activate the heating in advance of the time required to reach the pre-set temperatures. A detailed description of this function is provided in the L-12 manual.

## ACTUATORS

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- **Information** – the screen displays the valve head data: battery level, range.
- **Settings**

**SIGMA** - the function enables seamless control of the electric actuator. The user can set the minimum and maximum openings of the valve – this means that the degree of opening and closing of the valve will never exceed these values. In addition, the user adjusts the **Range** parameter, which determines at which room temperature the valve will start to close and open. For detailed description, please refer to the L-12 manual.



### CAUTION

The Sigma function is only available for radiator valve actuator heads.

- **Minimum and maximum opening**

The function allows you to set the **minimum and maximum opening** of the actuator in order to obtain the pre-set temperature.

**Protection** - When this function is selected, the controller checks the temperature. If the pre-set temperature is exceeded by the number of degrees in the Range parameter, then all actuators in a given zone will be closed (0% opening).

**Failsafe Mode** – The function allows you to set the opening of the actuator heads, which will occur when an alarm occurs in a given zone (sensor failure, communication error). The emergency mode of the thermostatic actuators is activated in the absence of power supply to the controller.

The registered actuator can be deleted by selecting a specific one or by deleting all actuators at the same time.

## WINDOW SENSORS

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- **Settings**

**Enabled** - the function enables the activation of window sensors in a given zone (window sensor registration required).

**Delay Time** - This function allows you to set the delay time. After the preset delay time, the main controller responds to the opening of the window and blocks heating or cooling in the respective zone.



**CAUTION**

If the delay time is set to 0, then the signal to the actuator heads to close will be transmitted immediately.

- **Wireless**

**Information** – the screen displays the sensor data: battery level, range

The registered sensor can be deleted by selecting a specific sensor or all can be deleted at the same time.

## FLOOR HEATING

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In order to control the floor heating, you need to register and switch on the floor sensor: wired or wireless.

- **Floor sensor** – the user has the option to register a wired or wireless sensor.

**Hysteresis** - Floor temperature hysteresis introduces a tolerance for floor temperature in the range of  $0.1 \div 5^{\circ}\text{C}$ , i.e. the difference between the pre-set temperature and the actual temperature at which heating or cooling will start.

**Calibration** - Floor sensor calibration is carried out during assembly or after a longer period of use of the room controller, if the displayed floor temperature deviates from the actual one.

- **Operation modes:**

**Floor Protection** – This function is used to keep the floor temperature below the set maximum temperature to protect the system from overheating. When the temperature rises to the set maximum temperature, the reheating of the zone will be switched off.

**Comfort profile** – This function is used to maintain a comfortable floor temperature, i.e. the controller will monitor the current temperature. When the temperature rises to the set maximum temperature, the zone heating will be switched off to protect the system from overheating. When the floor temperature drops below the set minimum temperature, the zone reheat will be switched back on.



- **Maximum temperature** - The maximum floor temperature is the floor temperature threshold above which the contact will be opened (switching off the device) regardless of the current room temperature.
- **Minimum temperature** - The minimum floor temperature is the floor temperature threshold above which the contact will be shorted (switching on the device) regardless of the current room temperature.

## ZONE NAME

Each of the zones can be assigned an individual name, e.g. 'kitchen'. This name will be displayed on the main screen.

## ZONE ICON

Each zone can be assigned a separate icon symbolizing how the zone is used. This icon will be displayed on the main screen.

### 7.1.5. ADDITIONAL CONTACTS

The parameter allows to register additional contacts (max. 6 pcs.) and preview information about these contacts, e.g. operation mode and range.

### 7.1.6. VOLTAGE-FREE CONTACT

The option allows you to switch on the remote operation of the voltage-free contact, i.e. start this contact from the EU-ML-12 slave controller and set the delay time of the contact.



#### CAUTION

The operation function of the voltage-free contact in a given zone must be enabled.

### 7.1.7. PUMP

The function is used to switch on the remote pump operation (starting the pump from a slave controller) and to set the delay time for switching on the pump operation.



#### CAUTION

The pump operation function in the zone must be enabled.

### 7.1.8. HEATING-COOLING

The function is used to enable remote operation of the heating/cooling mode (starting this mode from the slave bar) and to enable a given mode: heating, cooling or automatic mode. In automatic mode, it is possible to switch between heating and cooling modes based on a binary input.

### 7.1.9. HEAT PUMP

Dedicated mode for the installation operating with a heat pump, allowing for optimal use of its capabilities.

- **Energy saving mode** – ticking this option will start the mode and more options will appear.
- **Minimum break time** – a parameter limiting the number of compressor starts, which allows to extend its service life. Regardless of the need to reheat a given zone, the compressor will turn on only after the time counted from the end of the previous operating cycle.
- **Bypass** – an option needed in the absence of a buffer, providing the heat pump with an appropriate heat capacity. It relies on sequential opening of subsequent zones every specified time.
  - **Floor pump** – activate/deactivate floor pump
  - **Cycle time** – the time for which the selected zone will be opened.

## 7.1.10. MIXING VALVE

The function allows you to view the values and status of individual parameters of the mixing valve. For a detailed description of the function and operation of the valve, please refer to the L-12 controller manual.

## 7.1.11. VERSION

The function displays the software version number of the module. This information is necessary when contacting the service.

## 7.2. ADDITIONAL MODULES

It is possible to expand the number of supported zones by using additional ML-12 controllers (modules) (max. 4 in the system).

### 7.2.1. MODULE SELECTION

Each controller must be registered separately in the L-12 controller:

- In the L-12 controller, select:

*Menu → Fitter's menu → Additional Modules → Module 1..4 → Module Type → Wired/Wireless → Register*

- In the ML-12 controller, select:

*Menu → Fitter's menu → Master Module → Module Type → Wired/Wireless → Register*

The ML-12 add-on module can also be registered via the EU-M-12t panel:

- In the panel, select:

*Menu → Fitter's menu → Additional Modules → Module 1...4 → Module Selection → Wired/Wireless → Register*

- In the ML-12 controller, select:

*Menu → Fitter's menu → Master Module → Module Type → Wired/Wireless → Register*

### 7.2.2. INFO

The parameter allows you to preview which module is registered in the L-12 controller and which functions are enabled.

### 7.2.3. NAME

The option is used to name the registered module.

### 7.2.4. ZONES

The function is described in chapter 7.1.4. *Zones*.

### 7.2.5. ADDITIONAL CONTACTS

The parameter allows you to register additional contacts (max. 6 pcs.) and preview information about these contacts, e.g. operation mode and range.

### 7.2.6. VOLTAGE-FREE CONTACT

The option allows you to switch on the remote operation of the voltage-free contact, i.e. start this contact from the EU-ML-12 slave controller and set the delay time of the contact.



#### CAUTION

The operation function of the voltage-free contact in a given zone must be enabled.

### 7.2.7. PUMP

The function is used to switch on the remote pump operation (starting the pump from a slave controller) and to set the delay time for switching on the pump operation.



#### CAUTION

The pump operation function in the zone must be enabled.

### 7.2.8. HEATING-COOLING

The function is used to enable remote operation of the heating/cooling mode (starting this mode from the slave bar) and to enable a given mode: heating, cooling or automatic mode. In automatic mode, it is possible to switch between heating and cooling modes based on a binary input.

### 7.2.9. HEAT PUMP

The parameter functions in the same way as in the master module.

### 7.2.10. MIXING VALVE

The function allows you to view the values and status of individual parameters of the mixing valve. For a detailed description of the function and operation of the valve, please refer to the L-12 controller manual.

### 7.2.11. VERSION

The function displays the software version number of the module. This information is necessary when contacting the service.

## 7.3. ZONES

The function is described in chapter 7.1.4. *Zones*.

## 7.4. EXTERNAL SENSOR

The option allows you to register the selected external sensor: wired or wireless, and enable it, which gives the possibility of weather control.

The sensor must be calibrated if the temperature measured by the sensor deviates from the actual temperature. The **Calibration** parameter is used for this purpose.

## 7.5. HEATING STOPPING

Function to prevent actuators from switching on at specified time intervals.

#### ➤ Date settings

- **Heating Off** – sets the date from which the heating will be switched off
- **Heating on** - sets the date from which the heating will be switched on

- **Weather control** - When the external sensor is connected, the main screen will display the external temperature, while the controller menu will display the mean external temperature.

The function based on the outside temperature allows to determine the mean temperature, which will work on the basis of the temperature threshold. If the mean temperature exceeds the specified temperature threshold, the controller will switch off the heating of the zone in which the weather control function is active.

- **Enabled** – to use the weather control, the selected sensor must be enabled
- **Averaging time** – the user sets the time on the basis of which the mean outside temperature will be calculated. Setting range is from 6 to 24 hours.
- **Temperature threshold** – a function protecting against excessive heating of the respective zone. The zone in which the weather control is switched on will be blocked from overheating if the mean daily outdoor temperature exceeds the set threshold temperature. For example, when temperatures rise in the Spring, the controller will block unnecessary room heating.

## 7.6. ANTI-STOP SETTINGS

If the anti-stop function is activated, the pump starts, preventing scale from building up in the event of prolonged inactivity of the pump. Activation of this function allows you to set the operating time of the pump and the operating intervals of this pump.

## 7.7. MAXIMUM HUMIDITY

If the current humidity level is higher than the set maximum humidity, the cooling of the zone will be disconnected.

The function is only active in **Cooling** mode, provided that a sensor with humidity measurement is registered in the zone.

## 7.8. DHW SETTINGS

By enabling the DHW function, the user has the option to set the mode of operation: time, constant or schedule.

- **Time mode** - the DHW pre-set temperature will only be valid for the set time. The user can change the contact status by clicking **Active** or **Inactive**. After clicking on the option, the screen for editing the duration of the pre-set temperature is displayed.
- **Constant mode** - the DHW setpoint temperature will apply constantly. It is possible to change the contact status by clicking **Active** or **Inactive**.
- **Schedule** – by enabling this option, we additionally select **Settings**, where we have the option to set specific days and times of the DHW pre-set temperature.
- **DHW hysteresis** - is the difference between the pre-set temperature on the boiler (when the DHW pump is switched on) and the temperature of its return to operation (switching on). In the case of the pre-set temperature of 55°C and hysteresis of 5°C, the DHW pump is switched on again after the temperature has dropped to 50°C.

## 7.9. OPENTHERM

- **Enabled** – the function is used to enable/disable OpenTherm communication with gas boilers
- **Weather control:**
  - **Enabled** – the function allows you to turn on the weather control. To make this possible, an external sensor must be installed in a place that is exposed to atmospheric factors.
  - **Heating curve** - is a curve according to which the pre-set temperature of the gas boiler is determined on the basis of the outside temperature. In the controller, the curve is constructed on the basis of four temperature set points for the respective outdoor temperatures.
  - **Min. temperature** – the option allows you to set the min. boiler temperature.
  - **Max. temperature** - option allows you to set the maximum boiler temperature.

- **CH set point temperature** – the function is used to set the CH set point temperature, after which the reheating will turn off.
- **DHW settings**
  - **Operation mode** - a function that allows you to select the mode from schedule, time mode and constant mode. If the constant or time mode is:
    - **Active** – DHW setpoint temperature applies
    - **Inactive** – lower temperature applies.
  - **Setpoint temperature** – this option allows you to set the DHW setpoint temperature, after which the pump will turn off (applies if the *Active* mode is selected)
  - **Lower temperature** - an option that allows you to set the DHW pre-set temperature that will be valid if the *Inactive* mode is selected.
  - **Schedule settings** - a function that allows you to set the schedule, i.e. the time and days on which the specified DHW pre-set temperature will apply.

## 7.10. LANGUAGE

This function allows you to change the controller language version.

## 7.11. REPEATER FUNCTION

In order to use the repeater function:

- Select registration *Menu* → *Fitter's menu* → *Repeater function* → *Registration*
- Start the registration on the transmitting device
- After the correct execution of steps 1 and 2, the wait prompt on the ML-12 controller should change from "Registration step 1" to "Registration step 2", and 'successful communication' will be displayed on the transmitting device.
- Run the registration on the target device or on another device that supports repeater functions.

The user will be notified by an appropriate prompt about the positive or negative result of the registration process.



### CAUTION

Registration must always be successful on both registered devices.

## 7.12. FACTORY SETTINGS

This function allows you to return to the Fitter's menu settings saved by the manufacturer.

## 8. SERVICE MENU

The controller service menu is only available to authorized persons and is protected by a proprietary code held by Tech Sterowniki.

## 9. FACTORY SETTINGS

This function allows you to return to the menu settings saved by the manufacturer.

## VII. SOFTWARE UPDATE

To upload new software, disconnect the controller from the network. Insert the USB flash drive containing the new software into the USB port, then connect the controller to the network.

### CAUTION



The process of uploading new software to the controller may only be carried out by a qualified installer. After changing the software, it is not possible to restore the previous settings.

### CAUTION



Do not turn off the controller while updating the software.

## VIII. ALARMS

The alarms displayed on the panel screen are the system alarms described in the EU-L-12 manual. Additionally, an alarm appears informing about the lack of communication with the master module (EU-L-12 controller).

## IX. TECHNICAL SPECIFICATIONS

Power supply	7 - 15V DC
Max. power consumption	2W
Operation temperature	5 ÷ 50°C
Operation frequency	868 MHz
Transmission IEEE 802.11 b/g/n	

### EU-MZ-RS power supply

Power supply	100-240V/50-60Hz
Output voltage	9V
Operation temperature	5°C ÷ 50°C



## EU Declaration of Conformity

Hereby, we declare under our sole responsibility that **EU-M-12t** manufactured by TECH STEROWNIKI II Sp. z o.o., head-quartered in Wieprz Biała Droga 31, 34-122 Wieprz, is compliant with Directive **2014/53/EU** of the European parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment, Directive **2009/125/EC** establishing a framework for the setting of ecodesign requirements for energy-related products as well as the regulation by the MINISTRY OF ENTREPRENEURSHIP AND TECHNOLOGY of 24 June 2019 amending the regulation concerning the essential requirements as regards the restriction of the use of certain hazardous substances in electrical and electronic equipment, implementing provisions of Directive (EU) 2017/2102 of the European Parliament and of the Council of 15 November 2017 amending Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (OJ L 305, 21.11.2017, p. 8).

For compliance assessment, harmonized standards were used:

PN-EN IEC 60730-2-9 :2019-06 art. 3.1a Safety of use

PN-EN IEC 62368-1:2020-11 art. 3.1 a Safety of use

PN-EN 62479:2011 art. 3.1 a Safety of use

ETSI EN 301 489-1 V2.2.3 (2019-11) art.3.1b Electromagnetic compatibility

ETSI EN 301 489-3 V2.1.1 (2019-03) art.3.1 b Electromagnetic compatibility

ETSI EN 301 489-17 V3.2.4 (2020-09) art.3.1b Electromagnetic compatibility


ETSI EN 300 328 V2.2.2 (2019-07) art.3.2 Effective and coherent use of radio spectrum

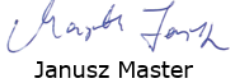
ETSI EN 300 220-2 V3.2.1 (2018-06) art.3.2 Effective and coherent use of radio spectrum

ETSI EN 300 220-1 V3.1.1 (2017-02) art.3.2 Effective and coherent use of radio spectrum

EN IEC 63000:2018 RoHS.

Wieprz, 07.09.2023

  
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