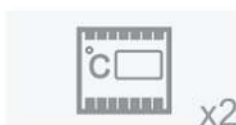


Module B

Module C

FOR THE WEATHER CONTROLLER MULTI-MIX



CE

INSTALLATION MANUAL

REVISION: 1.0_EN



ELECTRIC DEVICE UNDER VOLTAGE!

Before any action related to the power supply (cables connection, device installation etc.) check if the regulator is not connected to the mains!

Installation should be done by a person with appropriate electrical qualifications. Improper cables connection could result in the regulator damage.

The regulator cannot be used in steam condensation conditions and cannot be exposed to water.

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1 Safety information

Safety requirements were specified in certain sections of this manual. Additionally, respect the following requirements.



- Prior to installation, repairs or maintenance and while performing any connection operations, remember to cut off mains power supply and ensure that terminals and electric wires are cut off from power.
- After turning on the regulator by means of the keyboard, hazardous voltage may occur in the regulator terminals.
- The regulator must not be applied beyond intended use.
- Use additional automatic devices protecting the district heating system against the possible results of regulator failure or errors occurring in its software.
- Regulator is not intrinsically safe, i.e. in case of failure it may produce sparks or high temperature that may lead to fire or explosion in the presence of flammable dust or gases. Thus, the regulator must be separated from flammable dust and gases, e.g. by means of suitable housing.
- The regulator must be installed by trained personnel in accordance with valid standards and regulations.
- Modification of programmed parameters must be performed only by the person that understood this manual.
- Apply only in heating circuits made in accordance with valid regulations.
- The electrical circuit containing this regulator must be secured with a fuse properly selected to applied loads.
- The regulator must not be used, when its housing is damaged.
- Under no circumstances do not perform any modifications in the regulator's structure.
- The regulator uses the option of electronic cut off of connected devices (2Y operation in accordance with PN-EN 60730-1).
- Children must not have access to the regulator.

2 Purpose of the module

Modules B and C complete the scope of functions realized by the Mult-Mix controller. Modules must not be operated as separate devices.

Usage of the module and the functions it performs depend on the main controller the module cooperates with. All module settings are performed in the main controller.

The regulator can be used in a household or similar surroundings and in slightly industrialized buildings.

3 Information related to documentation

The module instruction is a supplement to the documentation of the main controller. Particularly, apart from content of this instruction, please follow the rules specified in the documentation of this controller. Servicing of devices operated by the module is described in the instruction of the relevant main controller. The manufacturer bears no responsibility for losses resulting from violation of the instruction rules.

4 Storage of documentation

We kindly ask you to store this installation and maintenance instruction and all other valid documentation in order to be able to make use of them at any moment. In case of relocation or selling the device, the new user / owner should be provided with the enclosed documentation.

5 Applied symbols

The following graphic symbols are applied in the instruction:



- denotes necessary information and hints,



- denotes important information, which destruction of property and danger for human and pets health and life may depend on.

Attention: crucial information was labelled with symbols in order to facilitate understanding the instruction. It does not

release users and fitters from responsibility for observing requirements not labelled with graphic symbols!

6 Directive WEEE 2012/19/UE

Purchased product is designed and made of materials of highest quality.

The product meets the requirements of the **Directive 2012/19/EU of 4 July 2012 on waste electrical and electronic equipment (WEEE)**, according to which it is marked by the symbol of crossed-out wheeled bin (like below), meaning that product is subjected to separate collection.



Responsibilities after finishing a period of using product:

- dispose of the packaging and product at the end of their period of use in an appropriate recycling facility,
- do not dispose of the product with other unsorted waste,
- do not burn the product.

By adhering obligations of waste electrical and electronic equipment controlled disposal mentioned above, you avoid harmful effects on the environment and human health.

7 Storage and transportation conditions

The module must not be exposed to direct weather influence, i.e. rain and sun. The storage and transportation temperature should not go beyond the range of -15...+65°C.

During transportation the module must not be exposed to vibrations greater than those relevant for typical transportation conditions of boilers.

8 Installation of the module

8.1 Environmental conditions

Because of fire threat, it is forbidden to apply the module in explosive atmosphere of dust and gases (e.g. coal dust). The module must be separated by means of appropriate housing.

Moreover, the module must not be used in conditions, when vapour condensation may occur and it must not be exposed to influence of water.

8.2 Installation requirements

The module should be installed by the trained and authorized fitter in accordance with valid standards and regulations.

The manufacturer bears no responsibility for losses resulting from non-observance of this instruction.

The module is designed to be used in a built-in arrangement. It must not be used as a separate device.

The ambient temperature at the installation surface should not go beyond the range of 0...50°C.

8.3 Module installation

Module B and C must be built-in. This built-in housing must ensure the protection level corresponding to environmental conditions the module is going to be used in. Moreover, the housing must prevent the user from having access to parts being under hazardous voltage, e.g. terminals. For housing purposes the common eight modules wide installation housing can be used (see Fig. 3a). In such a situation the user has access to the front surface of the module. The housing can also comprise of boiler elements surrounding the entire module (Fig. 3b). Space needed for the module is shown at Fig. 2 and 3. The module housing does not provide resistance to dust and water. Provide the appropriate housing in order to protect the module against these factors.

Module B and C is designed for installation on the standardized DIN TS35 rail. The rail should be firmly installed on the rigid surface. Prior to installing the module on the rail (2) use a screwdriver to lift clips (3) up (Fig. 1). After installing on the rail press clips

(3) to their original position. Make sure the device is firmly mounted and it is not possible to remove it from the rail without tools.

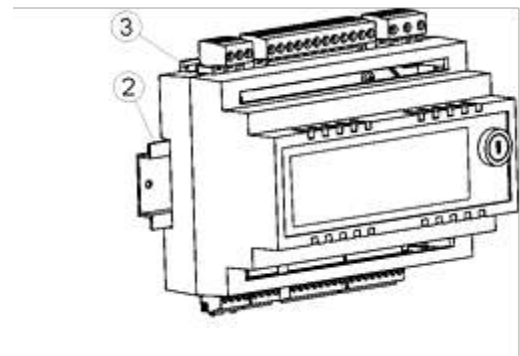


Fig. 1 Installing the module on the rail:

- 1 – module B and C,
- 2 – DIN TS35 rail,
- 3 – clips.

Because of safety reasons, keep safe distance between movable parts of module terminals and conducting (metal) housing elements (at least 10mm).

Connecting cables must be secured against tearing out, loosening and be built-in in such a way that occurrence of any strains on these cables will not be possible.

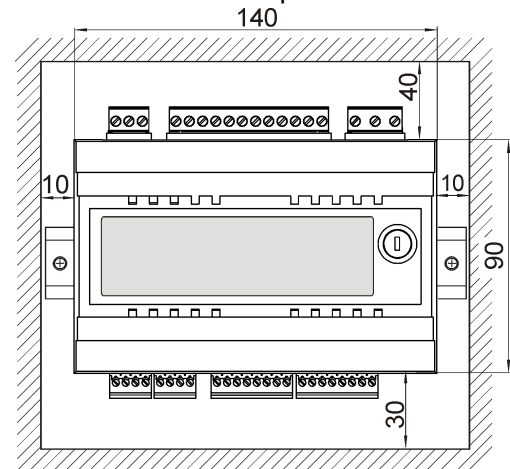


Fig. 2 Conditions of module housing

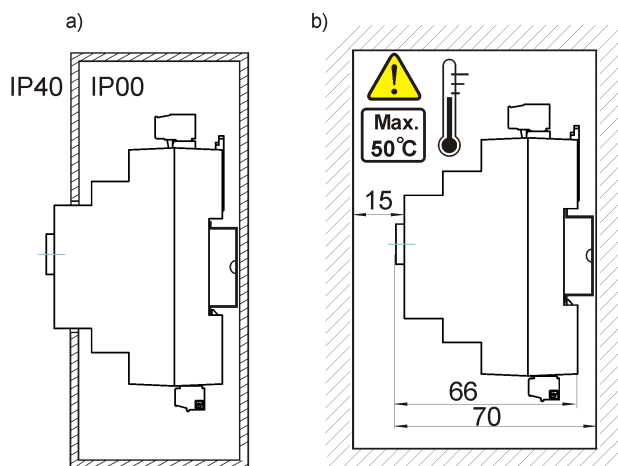


Fig. 3 Methods of module housing:

- a) – in the module housing with access to the front surface,
- b) – in the housing with no access to the front surface.

8.4 IP protection level

The module housing provides various levels of IP protection, depending on the method of installation. See explanation at Fig. 3a. In accordance with this figure, after building in from the front side of the module housing the device's level of protection is IP 20 (specified in the rating plate). From the terminals side the housing level of protection is IP00, that is why terminals of the module must be definitely built-in preventing from having access to this part of the housing.

If it is needed to have access to the part with terminals, cut off the mains power supply, make sure there is no mains electricity present in terminals and cables and subsequently dismount the housing of the module.

8.5 Connection to the Multi-Mix main controller



Example wiring diagram for modules B and C is shown below. The functions of module B, C are shown in the manual instructions for the Multi-Mix main controller.

Note: the module works only with actuators of valves equipped with limit switches.

The C module is most often used as an additional extension of the main controller function together with the module B already connected to it.

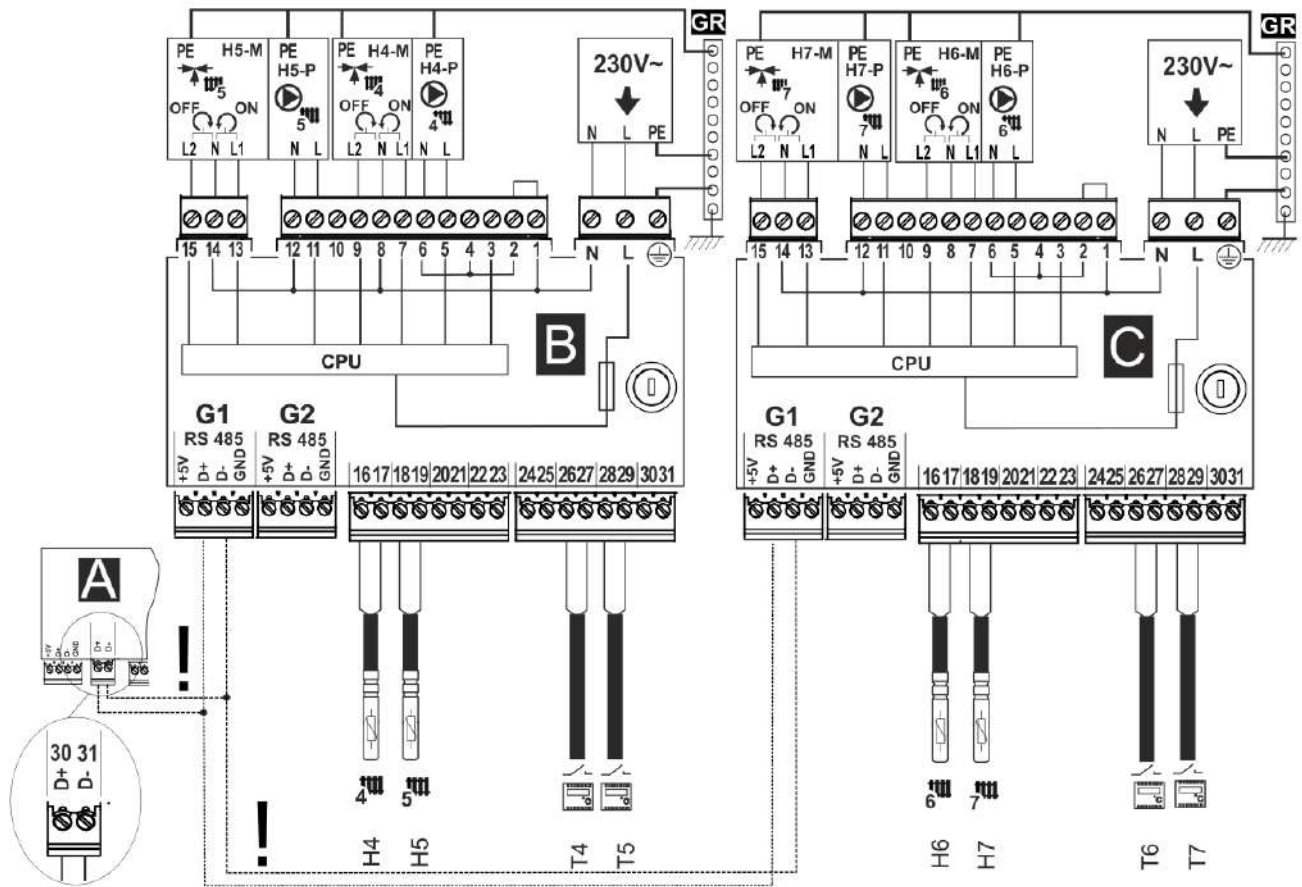


Fig. 4 Electrical connection scheme for the module B and C to Mult-Mix main controller:

G1 – RS485 transmission socket for connecting the A main controller, **!** – connect exclusively with two cables (do not connect with four cables, as it may lead to damage of the regulator),

H4 – temperature sensor H4 circuit (type CT4),

H5 – temperature sensor H5 circuit (type CT4),

H6 – temperature sensor H6 circuit (type CT4),

H7 – temperature sensor H7 circuit (type CT4),

T4, T5, T6, T7 – the ON/OFF type thermostat/room thermostat (thermostat with shorted contacts when calling for heating), or wireless temperature controller (transmitter + receiver with COM/NO contacts), or an underfloor heating system that affects the heating circuit through the COM/NO contacts of the wiring centre (COM/NO contacts are shorted when system is calling for heating),

A – main controller (Multi-Mix),

230V~ - power supply,

H4-P – H4 circuit pump,

H5-P – H5 circuit pump,

H6-P – H6 circuit pump,

H7-P – H7 circuit pump,

H4-M – H4 mixing valve actuator,

H5-M – H5 mixing valve actuator,

H6-M – H6 mixing valve actuator,

H7-M – H7 mixing valve actuator,

GR – equipotential bonding, **CPU** – control.

8.6 Electrical system

The module is designed to operate with power of 230V~, 50Hz.

Installation should be performed:

- in the three-cable way (using a protective cable PE),
- in accordance with valid regulations.



After turning on the main controller hazardous voltage may occur in the module terminals. Prior to installation definitely cut off the mains power supply and make sure that there is no hazardous voltage present in cables and terminals.

Connecting cables should not contact surfaces, as their temperature exceeds their nominal operating temperature.

Terminals 1-15 are designed to be connected to devices operating with mains power of 230V~.

Terminals 16-31 are designed to be connected to low-voltage devices (less than 12V).



Connecting mains power of 230V~ to the terminals 16-31 results in damage of the regulator and creates a risk of electric shock.

Tips of the connected wires, especially power leads, must be secured against splitting by means of insulated clamps.

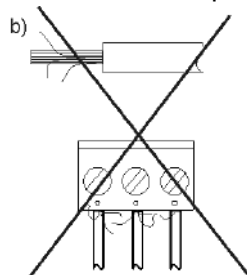
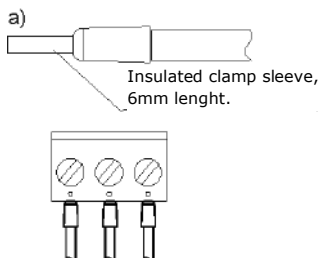


Fig. 5 Securing wire tips:

- a) – right,
b) – wrong.

The power cord should be connected to the terminals labelled with the symbol of an arrow.




If the cable linking the module with the main controller is damaged, then mixer actuators are closed.

Use a two-connector cable with the section area of 0,5mm² to connect the module with the main regulator. Total cable length must

not exceed 10m. It does not have to be a braided screened cable.

8.7 Protective connections

The protective cable of the power cord should be connected to the equipotential bonding. If the module housing is made of metal, then connect the housing to the equipotential bonding that should be subsequently connected to the regulator terminal labelled with the symbol  and to the rigid ears of the devices (if any) connected to the regulator.



The regulator must be equipped with the set of pins plugged into connectors for providing power to the 230V~ devices

Do not allow sensor cables to contact hot elements of the boiler and the heating system. Cables of temperature sensors are resistant to the temperature not exceeding 100°C.

8.8 Replacement of the mains fuse

The mains fuse it secures the module and the devices it feeds. Apply 5x20 mm anti-surge, porcelain fuses with nominal blow limit of 6.3A.

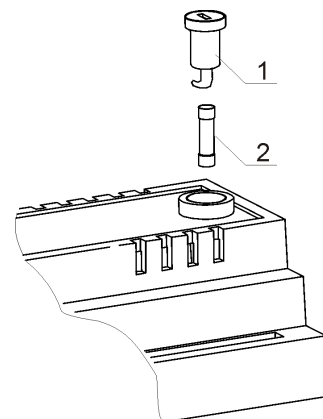


Fig. 6 Fuse replacement:

- 1 – fuse,
2 – fuse's socket.

Press the fuse's socket with a flat-head screwdriver and turn in counter-clockwise in order to remove the fuse.

9 Description of possible failures

After turning on or losing electrical power mixer actuators are closed:

- This is a symptom of normal operation. Actuators are closed during calibration and then they start operating.
- If actuators are closed time after time, then check the electrical connection with the controller.

10 Technical data

Power supply	230V~, 50Hz
Current consumption	0,02A ¹
Max. rated current	6 (6)A
IP rating of the module	IP20, IP00 ²
Ambient temperature	0...50°C
Storage temperature	0...65°C
Relative humidity	5...85% without vapour condensation
Temperature range of CT4 sensors	0...100°C
Temperature measurement accuracy with CT4 sensors	2°C
Connections	Screw terminals at the side of mains electricity 2,5mm ² Screw terminals at the controlling side 1,5mm ²
External dimensions	140x90x65mm
Weight	0,3kg
Standards	PN-EN 60730-2-9 PN-EN 60730-1
Software class	A
Protection class	To be built-in into class 1 devices
Pollution degree	2nd pollution degree, PN-EN 60730-2-9

Note:

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¹ This is electricity consumed by the module itself. The total electricity consumption depends on devices connected to the module.

² IP20 - at the front side of the module, IP00 - at the side of module terminals.



SALUS-Controls
ul. Rolna 4
43-262 Kobielice
www.salus-controls.pl