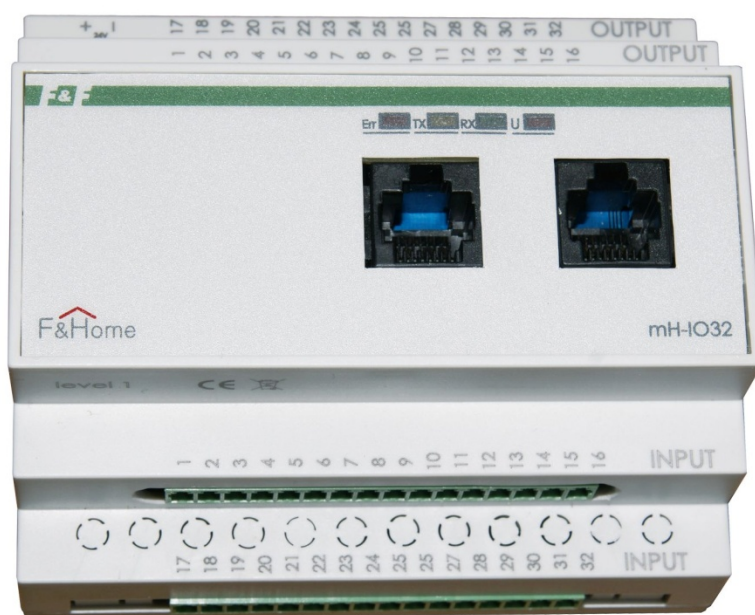


DATA SHEET



mH-IO32

Logic module / 32-channel on / off controller
of the F&Home system

The logo for F&Home, featuring a red house-shaped icon above the text 'F&Home'.

The mH-IO32 input/output module is the basic F&Home system module equipped with 32 binary inputs and 32 binary outputs (operating on the on/off basis). The module is mounted in the switchgear where it occupies a field of 6 modules and is supplied with 24 V DC voltage. The buttons that are located on the building are directed to the inputs of the module and connected by UTP wires. The module manages the lighting and other receivers via relay actuator modules of the mH-R8x8 or mH-R2x16-type on the on/off basis. The control is carried out fully on a 24 V low voltage line, which ensures full safety and allows for any layout of control buttons in the building. The mH-IO32 module communicates with touch panels via the CAN line. Any module output can be triggered by touch panels by selecting a specific device or scene (device group). From the touch panel, it is possible to program a temporary automatic switching on/off of devices or groups of devices controlled from the input/output module. Additionally, four module inputs are dedicated to control the operation of the mH-LH4 lighting dimmer module via the CAN network.

If more inputs/outputs are required, several inputs/outputs modules can be used, bearing in mind that they must be modules of successive levels (mH-IO32 – level 1, mH-IO32 – level 2, ...)

The module is available in two versions:

mH-IO32 - basic module, on sale from 2012.

mH-IO32B - module with modified electronics. Functionally identical, it allows the installer to set the level.

Inputs / outputs

Inputs of the mH-IO32 module are designed to connect both monostable (bell) switches and bistable switches supplied with 24 V safe voltage. Triggering of the input takes place when the switch is closed and +24 V is applied to the input of the module.

Outputs of the mH-IO32 module are adapted to work with the mH-R8x8, mH-R2x16-type relay output modules. The choice of the number and type of relay modules depends on the number and load size of receivers. The mH-IO32 module is available for different levels, thus enabling the expansion of the I/O network connected to the F&Home system. First install the module from level 1, then from level 2, and so on. Each level has a separate numbering, which makes it easier to install the system. The input/output list for the mH-IO32 module is shown in the following table.

Level	Inputs		Outputs	
1	1 – 27	Direct control of outputs 1-27	1 – 27	Switch on - off (triggered directly from inputs 1-27 and from the touch panel)
	28	Switch everything off	28 – 32	Switch on - off (triggered only from the touch panel)
	29 – 32	Inputs controlling the mH-L4 dimmer level 1		
2	129 – 156	Direct control of outputs 129-156	129 – 156	Switch on - off (triggered directly from inputs 129-156 and from the touch panel)
	157 - 160	Inputs controlling the mH-L4 dimmer level 2	157 – 156	Switch on - off (triggered only from the touch panel)
3	161 – 188	Direct control of outputs 161 - 188	161 – 188	Switch on - off (triggered directly from inputs 161-188 and from the touch panel)
	189 - 192	Inputs controlling the mH-L4 dimmer level 3	189 – 192	Switch on - off (triggered only from the touch panel)
For subsequent levels, the numbering is shifted according to the relation: $1 + (N-1) \times 128$, where N is the level number.				

Power supply

Use a DC 24 V power supply unit common to the entire F&Home system located in the given switchgear. Therefore, it is necessary to use a power supply unit with a sufficient current capacity to supply the entire installation.

CAN

Two RJ-45 sockets on the front panel of the module are used to connect the CAN communication network cables, which must be connected to adjacent modules using the CAN cables provided with the system.

Operating principle



Inputs Triggering the input with the function of a direct change of the output state (input 1-27) causes the change to the opposite of the output state with the same number as the triggered input. For example, the first triggering of the input number 1 will result in switching on the output number 1, the second triggering - in switching off of the output, and the next triggering - in switching it on again. In the module on the first level is a special dedicated input 28 (switch everything off) that allows all circuits to be switched off using only one button. The last four inputs of the module (29-32) are intended for controlling the mH-LH4 dimmer module via the CAN network (it is important that the dimmer module is at the same level as the IO module). In this case, the dimming inputs operate as follows: short triggering of the input will cause full switching on of the lighting (or full switching off when the light is on). In case of a longer triggering, the brightness of the lighting associated with the triggered input changes in the brightening loop from full brightness - dimming up to switching off - brightening to full brightness.

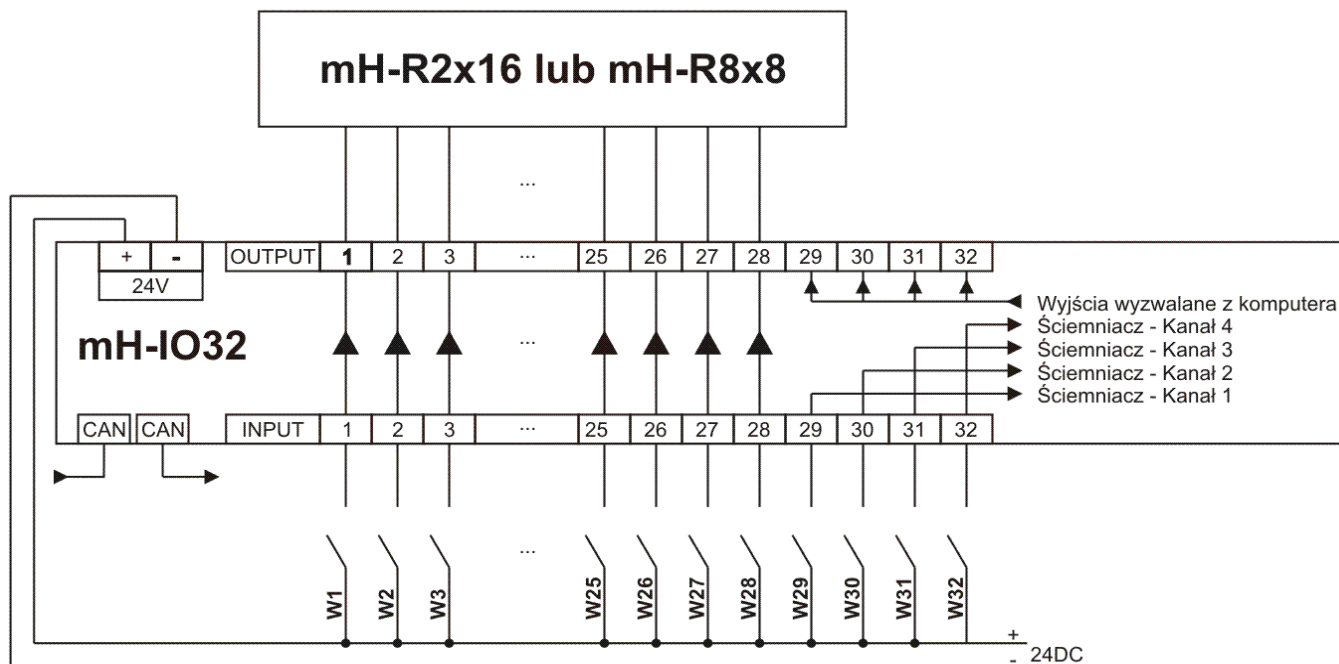
Outputs The outputs allow to switch lighting circuits (or other that operate on an on/off basis) via relay modules mH-R8x8 or mH-R2x16. The status of first 28 (or 27 inputs for level 1) and can be set locally by triggering the appropriate inputs of the module or remotely from a host computer with a touch panel. The remaining outputs can only be set remotely via a host computer with a touch panel.

Notes

- Inputs of the module are located at the bottom and outputs at the top.
- 24 V DC power supply. Power supply polarity is important!
- In case of simultaneous use of mH-IO12E6 modules in combination with mH-IO32 modules, it should be noted that these modules cannot occur at the same level due to address conflict.

Connection diagram

WARNING: The description and numbering in the connection diagram refer to level 1. For the remaining levels, the numbering is shifted according to the relation: $33 + (N-1) \times 128$, where N is the level number. The following diagram refers to the connection of the module at the first level (On subsequent levels, triggering the input corresponding to input 28 causes a direct change of the state of the corresponding output).

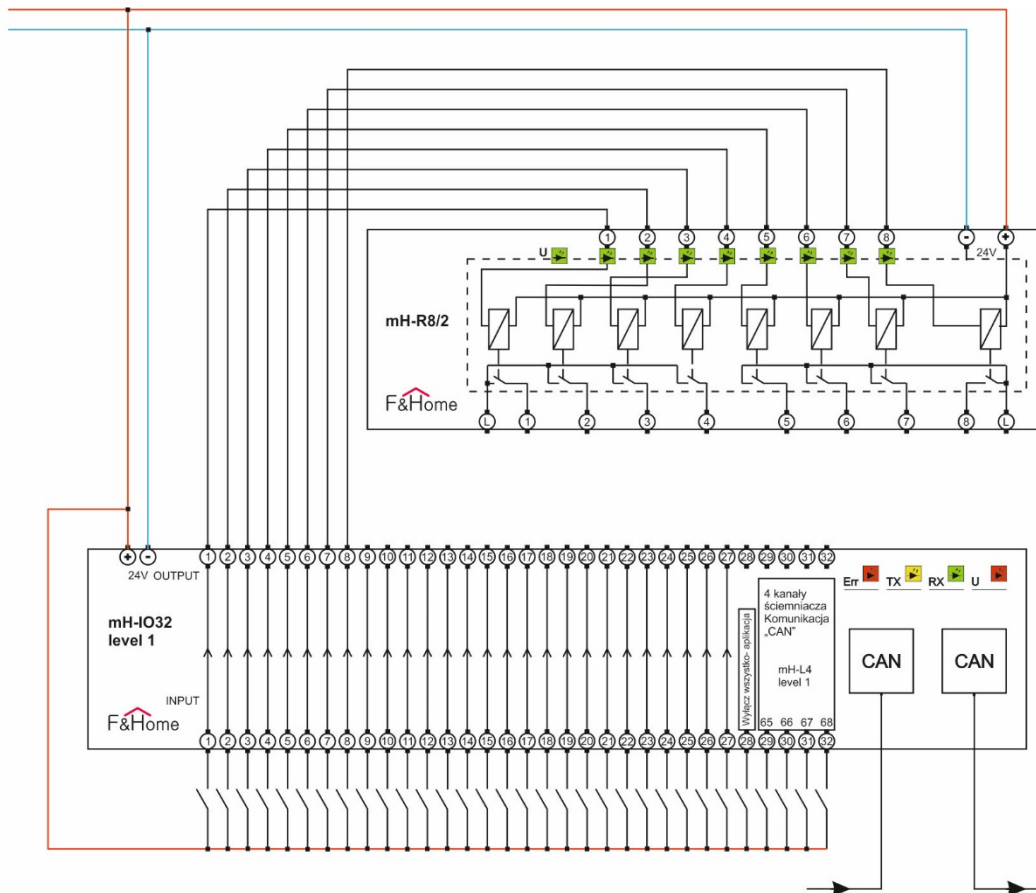


Wyjścia wyzwalane z komputera - Outputs triggered from the computer
 Ściemniacz - Kanał 1 - Dimmer - Channel 1

Operation signaling

The operation of the mH-IO32 module is indicated by four LEDs on the front of the module. The meaning of the individual controls is as follows:

U	The blinking of the U diode means that the device is connected to the power supply and is working properly. The constantly lighted U diode indicates an error or malfunction of the module.
RX	Indicates that the module is in the process of receiving data through the CAN network.
TX	Indicates that the module is in the process of sending data through the CAN network.
Err	Indicates that there is no communication between the mH-IO12E6 module and the host computer (possible power outage/damage to the host computer or damage to the communication cables).



Connecting the actuator module (relays - mH-R8x8) to the input-output module.

4 kanały ściemniacza - 4 channels of the dimmer

Komunikacja CAN - CAN communication

Wyłącz wszystko - aplikacja - Switch everything off - application

Notes to the diagram:

- Inputs in IO32 module are marked as INPUT
- Outputs in IO32 module are marked as OUTPUT
- Power supply for both modules: 24 V
- Module IO32 module inputs controlled by 24V voltage plus
- A polarization of the module power supply is very important
- Relays in the actuator module are separated from each other.
- Allowed control of monostable and bistable switches (except inputs of the dimmers and inputs of the “switch everything off”-type.
- In this example, the first eight inputs in the IO32 module control eight channels in the R8 actuator relay.

Technical data table

Module type	logic (without actuator elements)
Rated supply voltage	24 V DC
Power supply voltage tolerance	-20%, +10%
Maximum current consumption	800 mA
Maximum input current for a single input.	10 mA
Maximum load capacity for a single output.	15 mA
Output voltage	24 V
Storage temperature	-20°C to +50°C
Operating temperature	0°C, +45°C
Humidity	<=85% (without condensation or aggressive gases)
Dimensions	105 x 65 x 90 mm (6 modules)
Dimensions of the packaging	119 x 104 x 75 mm
Ingress protection	IP20
Operating position	any
Enclosure type	for DIN rail
Net weight	175 g
Gross weight (including packaging)	260 g

WARNING

The method of connection is specified in this manual. Installation, connection and adjustment should be carried out by authorized electricians who are familiar with the operating instructions and the functions of the module.

The correct operation is affected by the way the module is transported, stored and used. Installation of the module is not recommended in the following cases: missing components, damage to the module or its deformation.

In case of malfunction, please contact the manufacturer.