

DATA SHEET

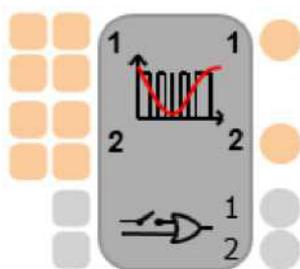


rH-PWM2S2

Two-channel low-voltage PWM controller with two inputs of the F&Home RADIO system.

The rH-PWM2S2 module is a combination of two power regulators and two contact inputs. The module sends information about opening or closing of the contacts to the system and controls two low voltage receivers powered from an external power supply (12V DC). The module has two electrical inputs for connecting two momentary potential-free contacts and two inputs for connecting receivers. Power control is performed by pulse width modulation (PWM) that switches the receiver. The pulse frequency is set in the range of 100 Hz to 1 kHz. Communication with the server is done by radio. The rH-PWM2S2 module is particularly suitable for controlling LEDs, switching electromagnetic locks and other low-voltage electromagnetic actuators.

AUTONOMOUS MODE: If the module is disconnected from the server, it goes into autonomous mode and starts to operate as a classic dimmer. Short press of the button connected to contact 1 or 2 switches on or off the first or the second output of the PWM respectively. Long press of the button increases/decreases power, in steps of 10% in the range of 10%-100%. Conditions for autonomous mode to activate: Correct connection of S1 and S2 contact with the button and Option *Offline: autonomous mode* enabled in the *Installer settings*.



The rH-PWM2S2 module is represented by an object, which consist of two LIGHT-type channels that read information about power and activation time from four identical inputs. The algorithm determines the maximum power read from all inputs and, along with the switch-on time, controls the connected lamp or other receiver. Feedback about the actual level of load control is applied on the “Confirmed PWM status” output. The element has also two binary (bistate) inputs and two binary outputs, separate for each physical input. Closing or opening the contact causes the logical state to change at the corresponding output.

Inputs		
Figure	Name	Type
	PWM control Channel 1, 2	Lightning input
	Channel 1, 2	Binary

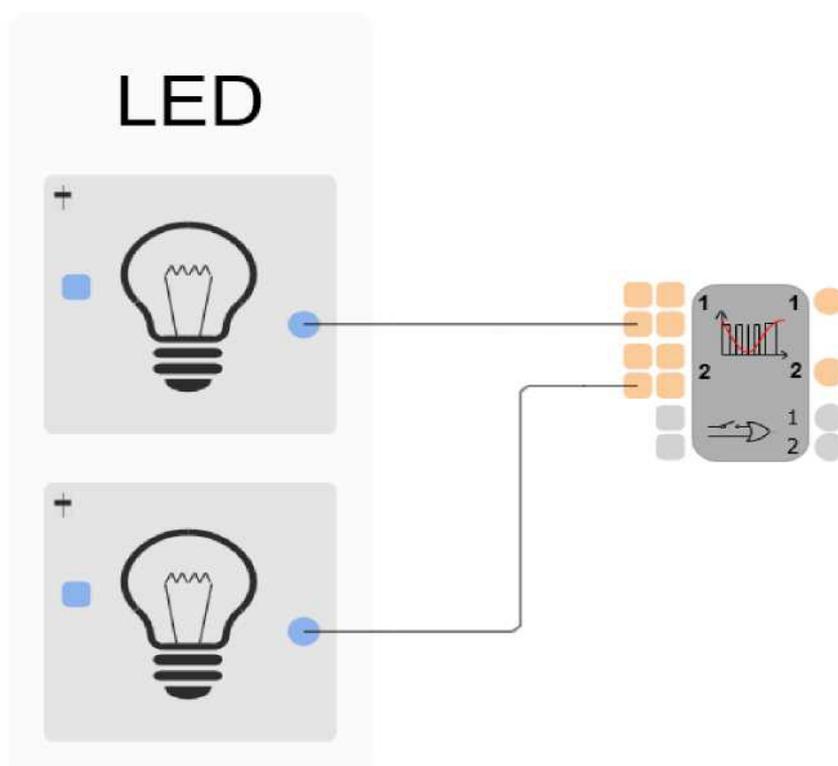
Outputs		
Figure	Name	Type
	Confirmed PWM status Channel 1, 2	Lightning output
	Status of contacts 1, 2	binary

Installer settings in the configuration program

Feature name	Description	Range	Unit / Description
Connection monitoring	Sets action in case of loss of connection to the server (information about the modules out of reach).	Standard module	Information on the standard output SX 752
		Alarm module	Information on the alarm output SX 752
		Unmonitored module	No connection correctness control
The delay in signaling a lack of coverage	Sets the delay after which the module is reported that it is beyond the coverage range of the server	1 - 5	
PWM signal frequency	Sets the frequency of the PWM signal	100 - 1000 with a step of 100	Hz
Channel 1, 2 offline: autonomous mode	Sets the behavior of the module when there is no connected to the server	Enabled	When there is no connection to the server, the module operates as a normal bistable relay.
		Disabled	When there is no connection to the server, the module is inactive.
Offline: enable for [minutes] after switching the power on	Sets the operation time of the module when there is no connection to the server	0-240	minute
Contact 1, 2 active, when	Defines the status of contacts on the output for which the status is to be set active, which means logical state 1	Closed	Logical state '1' is generated on the output when the contacts are closed.
		Open	Logical state '1' is generated on the output when the contacts are open.
Maximum activity time (0 - unlimited)	Sets the time after which the output status will be changed to logical state '0' in the absence of a response from the module.	0 - 600	second

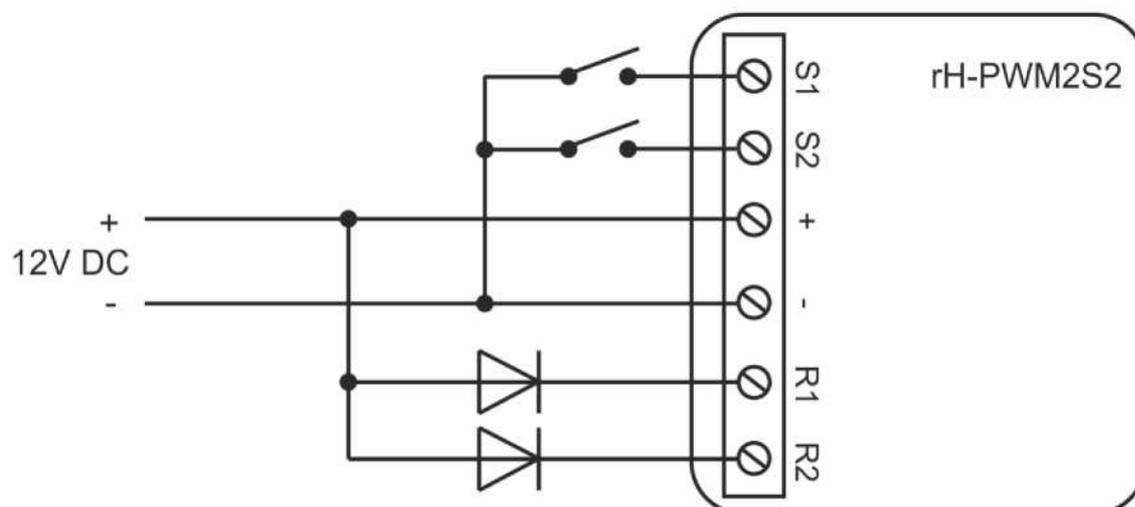
Contact closed, if feature: the system adopted positive logic. This means that the idle state is '0', and the active state (unstable) is '1'. For momentary button (it is the type of a button that has one stable state - built-in spring) the stable state is an inactive state - at the output of the object we have logical state '0'. Regardless of the selected Contact active option and the actual status of contacts, shortly after the project starts the outputs have the logical state '0'. It takes a minute to synchronize with the module and the output states are updated. If you choose the Contact active, when open option, which means the contact inputs are permanently open, then on the appropriate output of the object will cyclically appear logical state '1' for the time specified in the Installer Settings, then the logical state '0' before syncing. If you choose Contact active, when closed option and contact inputs are permanently closed, then the appropriate output object will appear cyclically logical state of '1' for the time specified in the Installer Settings, then the logical state '0' before syncing. Maximum activity time feature: setting the parameter to '0' disables the auto-zeroing of the output. This is usually the case when the contact is treated as a bistable (for example as a limit switch). The maximum activity time has been introduced so that the logic state '1' did not last non-stop, when communication with the module is lost (except in the case where a user himself forced such a situation in Installer Settings)..

The simplest application of this object is a control using a mobile panel - icons with a slider. The brightness of the connected lighting will be proportional to the position of the icon slider.



Technical specifications table

Rated supply voltage	12 V DC
Supply voltage tolerance	-20%, +10%
Rated power consumption	0.4W
Radio link (operating frequency)	868 MHz
Signal strength	9 mW
Transmission type	two-way
Coding	yes
Range in open space	100 m
Period of logging in the system	30 seconds
Output load	2 x 4 A/12 V DC
Switching time from 0 to 100%	0.2-30 seconds
PWM frequency	100 - 1000 Hz adjusted with step of 100 Hz
Inputs	two-contact
Input voltage	12 V
Input current	<1 mA
Storing temperature	-20°C to +50°C
Working temperature	0°C, +45°C
Humidity	<=85% (without condensation and aggressive gases)
Dimensions	48 x 48 x 22 mm
Ingress protection	IP20
Operating position	any
Enclosure type	in-wall
Built-in security	against overheating against the surge on the load lines
Autonomous mode	yes



- Disconnect the power supply circuit; make sure using the appropriate device if there is no voltage on the supply lines.
- Connect the wires according to the diagram above.
- If there are uninsulated wires in the installation box, perform adequate insulation.
- Place the module in the installation box.
- Place the antenna of the module parallel to one of the antennas of the server and move it away as far as possible from other wires.
- Switch on the power supply and register the module in the system.
- Close the installation box or install a button.

Module operation indication (green LED)	
Mode	Description
Online (registered)	LED lights, dims during radio transmission
Registration	LED pulsating quickly
Offline	LED flashes every half a second - a module has lost the radio connection to the server or is not registered
Not programmed	LED flashes: lights, dims for 100 ms every 1 second - the module should be returned to the

Registration in the system

1. Select the registration method in the configurator.
2. Press and hold button on the housing.
3. After 5 seconds the module will register itself in the system or the program will report an error in case of failure.

WARNING

The connection method is specified in this manual. Any activities related to installation, connection and regulation should be carried out by persons with electrical qualifications who are familiar with this manual and features of the module. Manner of transport, storing and using the module affects its proper operation. Installation of the module is not recommended in the following cases: missing components, damage to the module or its deformation. In case of malfunction the module should be returned to the manufacturer.