

RZB 10

Regulator for effective usage of electricity made by PV power plants

Description

Regulator RZB 10 is suitable for all small producers of electricity who produce electricity by the help of photovoltaic, mainly for their own consumption in "green bonus" mode. The most often there are the owners of family houses with panels situated on the roof but regulator can be also used by the companies with panels situated on the roof of their industrial buildings. Regulator allows effective usage of produced electricity, minimizes power take-off from network, reduces the return of investment and helps with protection of environment.

The main task of RZB 10 is ensure to maximum electricity consumption from own production and if it possible, none consumption from electricity distributor. Production/supply of PV power plant electricity is very changeable in time. So it is quite difficult control consumption by the help of manual regulation or time switch-on or off of appliances.

Regulator RZB 10 consists of control device and items. Control device on the bases of electrometer's pulse by the help of programmed algorithms switch on and switch off the appliances or regulate consumption of appliances connected with item. Regulation of appliance consumption is 0-100%, step is 10%.

Communication between control device and items use 230V net by the help of LonWorks® technology - LonTalk® communication protocol. So it isn't necessary to install new communication net and raise the price of investment. Control device is also equipped by communication interface to Ethernet, user interface are websites which are intuitive and respect customs of internet users (MS Internet Explorer, Mozilla FireFox or Opera).

The right choice of controlled appliances is important factor of successful regulation. The most suitable are heat appliances like water heating, boiler, storage heating, swimming-pool heating, and air condition. Big advantage of regulator is that it is able to ensure PV electricity consumption in full. It is ensured by appliances regulation.

Example: actual production and consumption of household is 3kW. We want to make a coffee – after switch-on of kettle with 1,2kW supply, regulator automatically reduce boiler supply from 2kW to 800W (regulation from 100% to 40%). After cook the water regulator automatically increase boiler supply again according actual PV power plant production. PV power plant owner is in principle independent on distributor.

Technical data

Regulator RZB 10		
	Control device	Item
Rated voltage	12/24V DC	230V AC
Range of power supply voltage	9 - 27V DC	180 - 255V AC
Frequency	47 – 63Hz	47 – 63Hz
Rated power	3VA	2VA
Power factor	> 0,97	> 0,97
Range of working temperature t_a	-20°C to +50°C	-20°C to +50°C
Construction, dimensions	9 modules, DIN bar	120 x 90 x 60mm
Cover	IP20	IP65
Weight	0,2kg	0,3kg
Communication interface	Ethernet, Echelon PowerLine	Echelon PowerLine
Rating of output contacts	-----	External relay max. 40A, 330V AC

Websites – user setting and visualisation

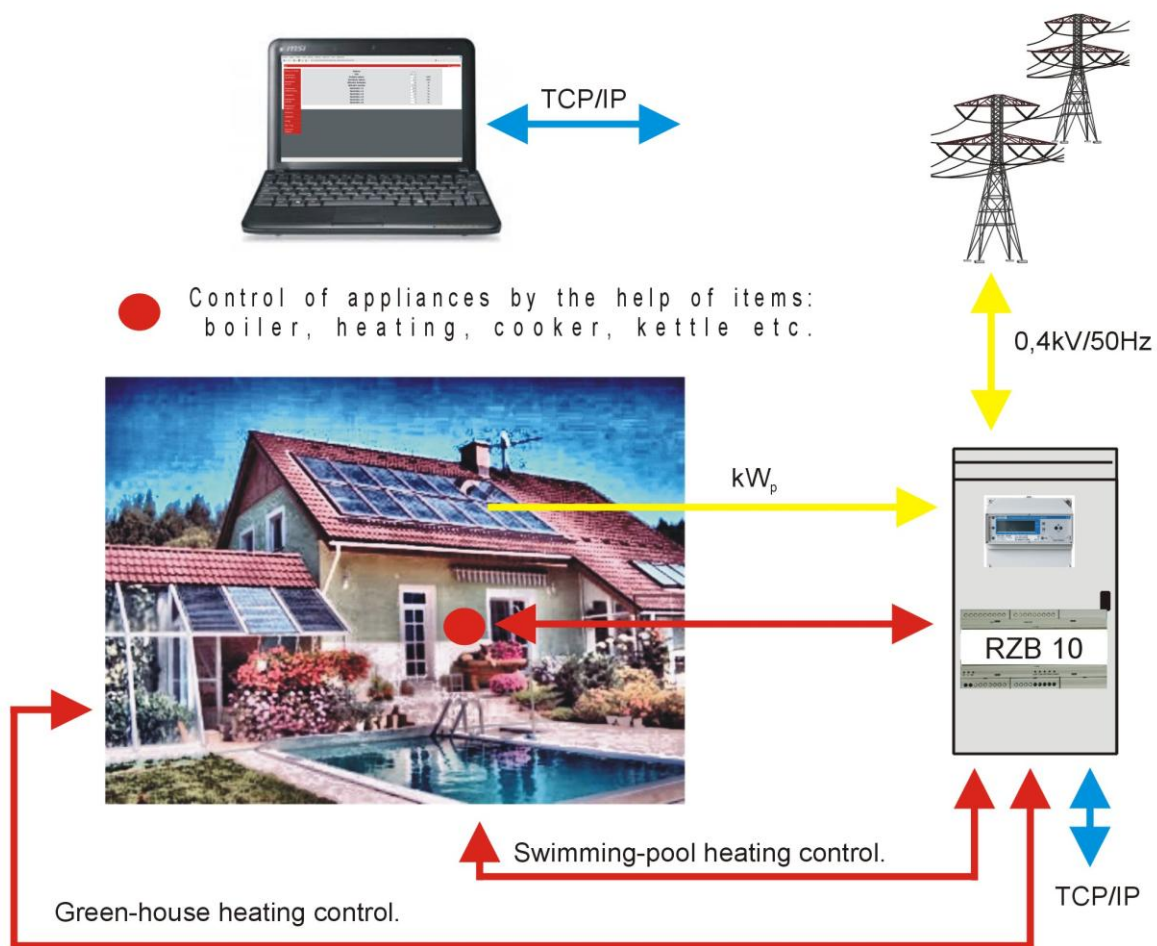
RZB 10 uses standard websites like user interface for device and the whole system. Through this interface is possible to set all needed parameters for regulation like PV power plant parameters, controlled appliances, priorities of regulation, constants of electrometer. User can also get actual summary about production, consumption, appliances status etc. From values can be exported graphs and “history”. This interface also allows remote control and administration via internet.

Websites have predefined basic menu which includes:

STATUS AND MANAGEMENT	Actual summary about PV power plant production, supplies to net (inc. total values of electricity) and status of appliances regulation.
APPLIANCES SETTING	Setting each appliance (name, supply, regulation or only switch-on/off).
PRIORITIES SETTING	Setting priorities of appliances during regulation. The highest priority is priority No. 1.
ELECTROMETER SETTING	Setting electrometer’s constants (PV power plant production, supply to distribution net).
CONTROL	For system testing – manual statement for communication test between control device and items.
REGULATION	Setting parameters of regulation (regulation step, limit for switch-

SETTING	on/off, power reserve etc.).
HISTORY	Tab of regulation steps values – supply and production (till 3600 values).
EVENTS	List of regulation events – date, time, PV power plant production, supply and regulation (switch-on/off appliance, reduce/increase of appliance supply)
GRAPHS	Graphic visualisation of regulation history.
SYSTEM EVENTS	List of system events – start/restart, regulation reset, list of events reasons (information for system diagnostic)
SERVICE FUNCTIONS	Setting time and net

Schema



Control = switch-on/off/regulation of appliances and device