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PSP MIpB v1.0 Bridge

Technical documentation

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Change log

Change in TD:

- v1.0 – First release.
- v1.1 – Prometheus.io/Grafana end points,
- …

Introduction

	**Warning!** **Device for professionals use only.**

PSP MIpB v1.0 bridge is suitable for deliver dedicated energy meter data by WiFi network.

Main characteristics of bridge are:

- Can get data from dedicated energy meters by RS485/Modbus.
- Working with two dedicated energy meters.
- Built-in WiFi with infrastructure support (STA) or access point (AP).
- Build-in local WWW service.
- Build-in WebAPI for easy integration with the automation system.
- Prometheus.io (Grafana) endpoints.
- Firmware update OTA.

	**Warning!** **Manufacturer does not guarantee suitability of the product for every application.** **In doubtful cases you should consult application with manufacturer.**

	**Warning!** **Device is component to be built into the system, additional resources might be mandatory for compliance with directives LVD, EMC, RED.**

	**Warning!** **Device is powered by electricity dangerous for health and life, You must absolutely keep all precautions and personal protection measures.**

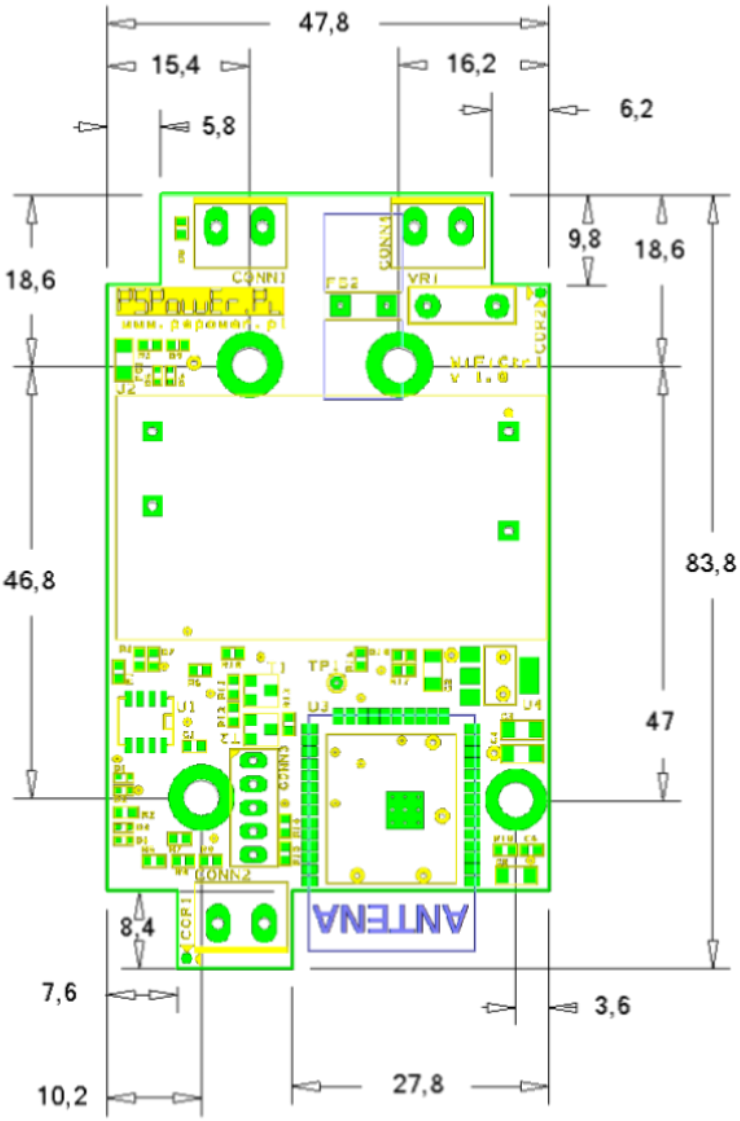
Technical specification

General parameters	Value	Comments
Voltage	85-264 VACrms, 50Hz	
Power	<2W	
Surge protection device (SPD) required	T1 + T2 or T2	IEC 61643-11 Consider an SPD in main Switchboard
Working temperature	-25…+60°C	
Humidity	<90%	No condensation
Level of protection IP	IP00	
Dedicated case – DIN rail	Kradex Z102 ABS V0	
RS485 parameters	**Value**	**Comments**
Standard	TTL 5V	
Maximum bus length	100m	
End terminator	120R	
WiFi parameters	**Value**	**Comments**
Working modes	Infrastructure (STA), Access point(AP)	
Compatibility	2,4GHz; 802.11 b/g/n	
Antenna	Built-in	
Authentication in infrastructure mode	WPA/WPA2 PSK	Password ab to 63 signs
Authentication in access point mode	WPA/WPA2 PSK	SSID: PSP_XX_YY, IP: 192.168.100.1, Factory password: pspower2021
Maximum number simultaneous connections to access point	1	
Addressing	DHCP	
Monitoring parameters	**Value**	**Comments**
Prometheus endpoint energy meter number 1	http://<IP>/Meter1Metrics	
Prometheus endpoint energy meter number 2	http://<IP>/Meter2Metrics	
Minimal data acquisition interval	15s	

Arrangement of leads \ Diameters

Signal	Description
PE	Main reference potential, PE
AC_L	Mains power input AC, N
AC_N	Mains power input AC, L
RS485_B	RS485 Bus, signal B
RS485_A	RS485 Bus, signal A

Dimensions:



Installation

The Bridge should be connected to power supply. Energy meter\meters should be correctly configured and connected to the RS485/Modbus bus. Bus end should by terminated.

The installation location should comply the environmental requirements of the bridge.

The first setup should be done using build-in WWW service.

Check for firmware updates.

Warning!

Device is powered by electricity dangerous for health and life, You must absolutely keep all precautions and personal protection measures

External signalization

LED Status (service status, on the controller PCB):

LED Status	Description
Flashes with period about 1s	The Bridge connected with configured WiFi network in infrastructure mode (STA).
Flashes with period about 4s	The Bridge in access point mode (AP)
Fast flashes with period about 0,2s	The Bridge tries to connect to the currently configured WiFi network. This state should be temporary if it is permanent it means problems with connection.

Energy meters

The Bridge supports selected electricity meters.

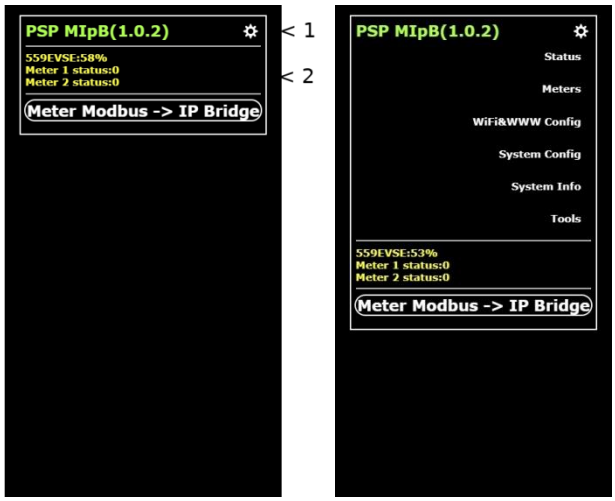
Supported energy meters:
- ✓ EASTRON SDM72D-M and derivatives.
- ✓ LUMEL NMID30-2 (EASTRON SDM630), and derivatives.
- ✓ EASTRON SDM120.

Data transmission parameters:
- Modbus address statistical meter: 1.
- Modbus address control meter: 2.
- RS485:
  - speed: 9600,
  - data bits: 8,
  - stop: 1,
  - parity: EVEN,

Energy meters can be connected directly to the bridge using the built-in RS485/Modbus. The bridge has built a tool into the WWW service for the configuration of SDM120 type meters. Configuration is done by selective (single) connection of the SDM120 meter to the RS485/Modbus bus and selecting the appropriate tool function for its role. Before starting the role assignment utility function, the connected SDM120 meter must be entered into the setting mode.

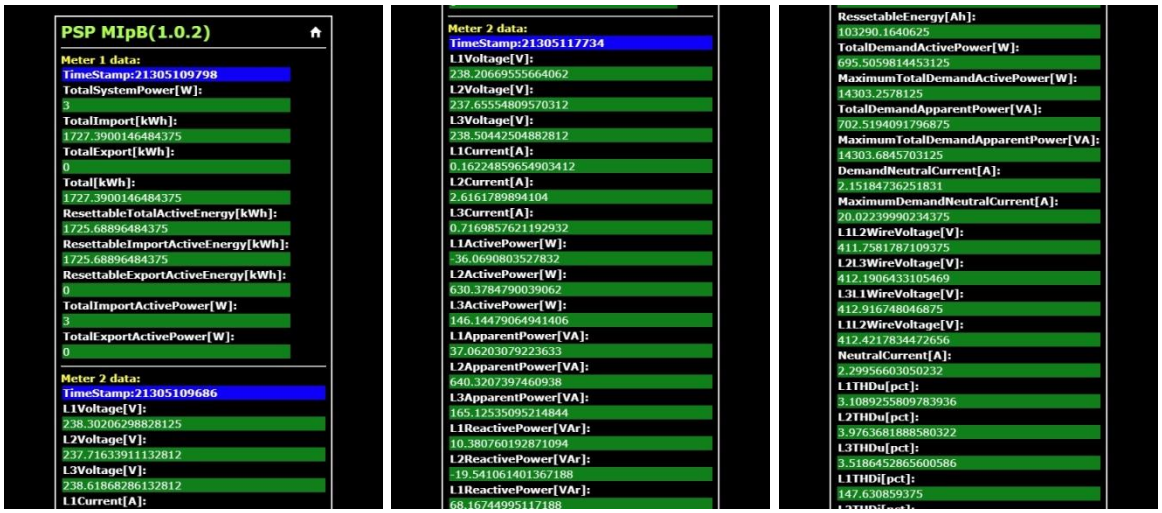
WWW Interface

Home screen – Status



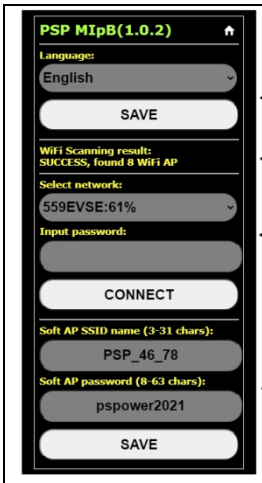
Re1. Status bar: Status bar: device name (software version), menu or return.
Re2. WiFi information, energy counters.

Screen – Energy meters



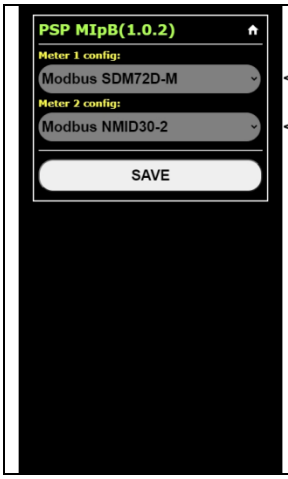
Parameters returned by configured meters 1/2.
Description and meaning of parameters according to the meter manufacturer's documentation.

Screen – Settings WiFI&WWW



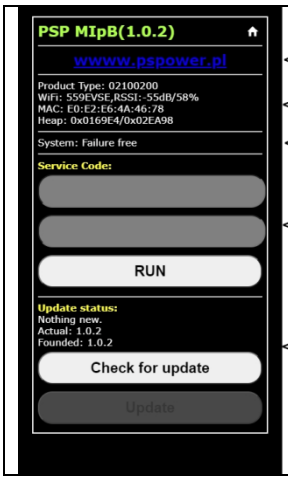
Re1. WWW interface language configuration.
Re2. After scan results for WiFi access points (SSID:Signal strength [%]).
Re3. Selection of WiFi networks and entering the password.
Re4. Parameters for operation in the access point mode, configured SSID and access password. The default SSID is PSP_XX_YY, where XX, YY are the last MAC bytes.

Screen – System settings



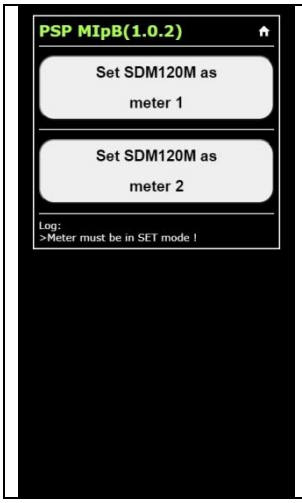
Ad1. Energy meter 1 configuration.
Ad2. Energy meter 2 configuration.

Screen – System information



Re1. Manufacturer website link.
Re2. Information about:
Product type: <product tag>
WiFi: SSID:RSSI dB/%
MAC: <network interface mac address>
Heap: memory allocation (service data)
Re3. Current health of the system.
Re4. Field for activating service codes.
Re5. Firmware update.

Screen – Tools



Tools settings the configuration of SDM120 energy meters. Meter for configuration should be connected to the RS485 / Modbus bus, individually assigning a role by selecting the appropriate button.

Warning!

The device is still improve by remote updates. Individual screens may slightly differ from those presented.

WebAPI

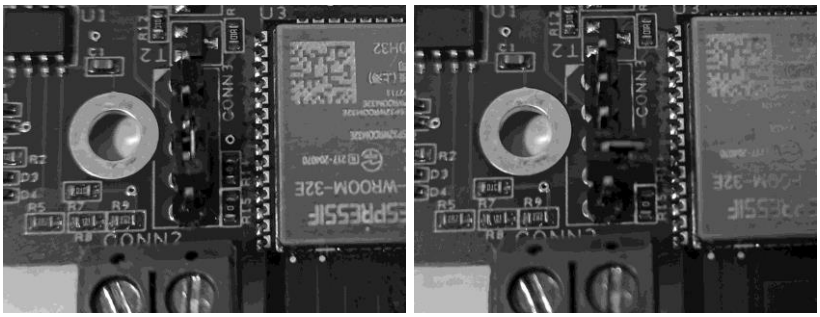
Look for -> document „WebAPI Programming guide”.

Factory settings restoration

Method 1: Service code from menu level „System information”
Run service code „FactoryDefault”.

Method 2: Jumper on the bridge PCB.
Procedure:

1. Power off the bridge,
2. Close the factory reset jumper (pin 3-4, CONN3),
3. Power on the bridge,
4. Wait about 20 seconds, while the status LED flashes,
5. Power off the bridge,
6. Open the factory reset jumper,
7. Once again power on the bridge



Warning

After restating farcical settings and system restart, it will boot up in WiFI AP mode.
SSID = PSP_XX_YY.

Periodic maintenance

Recommended periodic maintenance:

- Verification of electrical connections.
- Verification of software update.

Utilization

Used electric and electronic equipment according to applicable law in Poland, is subject to utilization in strictly defined way. Information about collection points available at www.pspower.pl