

OB115-Mod Single phase 1 module energy meter With Serial Modbus interface 330mV CT ac input



Owen Brothers Metering UK, LTD.

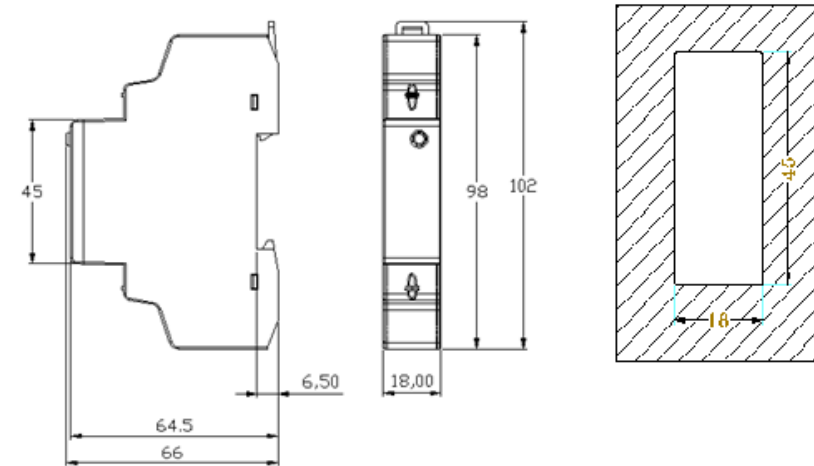
Benefits and Main Features

- MID approved with module B & D certification.
- Bidirectional energy metering 1 DIN modules, 230V AC 50/ 60Hz.
- Solid-core sensor & open-core sensor, 330mV ac input 100A
- Display of Voltage, Ampere, kW, PF, Hz, +kWh, -kWh, kWh
- Total energy usage can be calculated via 5 different modes.
- Display Modbus RTU Interface data: baud rate, Modbus id, Parity
- Reactive power and reactive energy available through interface
- S0 pulse output, transmission of measured values via pulses.
- LCD display, 5 integer 1 decimal
- Clear green backlight display
- Accuracy class B according to EN50470-3
Accuracy class 1 according to IEC62053-21
- Memory back-up (EEPROM)
- The meter is intended to be installed in a Mechanical Environment 'M1', with Shock and Vibrations of low significance, as per 2014/32/EU Directive and should be installed in Electromagnetic Environment 'E2', as per 2014/32/EU Directive.

1 Meter specification

Voltage/current inputs	
Nominal Voltage(v)	230V AC
Voltage range	(85-275)V
Power consumption	0.5W 2VA
Primary Current(A)	100A
Second input(mV)	330mV (Primary current=100A)
RS485 cable	AWG18
Terminal flexible 1xmm ²	0-2.5mm ²
General data	
Frequency	50 or 60 Hz
Accuracy	Cl.1
Mechanical	
Material	ABS+PC
Weight	100g
Environmental	
Operating temperature	-25°C - +55°C
Storage temperature	-40°C - +70°C
Humidity	75% yearly average,95% on 30 days/year, non-condensing
Dimension	
Width (mm)	18
Height (mm)	104.5
Depth (mm)	88

2 Dimensions and panel cut-out



3 Main functions

3.1 Measuring Functions

OB115-MOD can measure import active energy, export active energy, total active energy. Import reactive and export reactive energy available through interface

3.2 Electricity parameters measurement



Measured parameters from mains:

Voltage	0.5% of range maximum
Current	0.5% of nominal FS solid-core sensor
Current	1.0% of nominal FS open-core sensor
Frequency	0.2% of MID-frequency
Power factor	1.0% of unity (0.01)
Active power (W)	± 1.0% of range maximum

Reactive power (VAR)	± 2.0% of range maximum
Apparent power (VA)	± 1.0% of range maximum
Active energy (kWh)	Class B EN50470-3
Reactive energy (kvarh)	± 2.0% of range maximum



3.3 Display function








When the power on, the smart meter will initialize and do self-checking..



1		Full screen It will last for 3 seconds
2		Software version It will last for 3 seconds

OB115-MOD has two display functions: cycle display status and button press. When pressing the button, total active energy, import active energy, export active energy, voltage, current, active power, frequency, power factor, Modbus id, baud rate , parity are displayed.

LCD content

1		Total active energy
2		Import active energy

3		Export active energy
4		Voltage (V)
5		Current (A)
6		Active power(W)
7		Frequency
8		Power factor (PF)
9		Modbus id (default 001)

10		Baud rate (default 9600bps)
11		Parity (default: None)

3.4 Communication Function

OB115-MOD includes RS485 port for remote communication. Communication parameters can be selected in set mode.

RS485 communication transfer rates allow 1200bps, 2400bps, 4800 bps, 9600bps and 19200bps, default is 9600bps.

Parity: None/Even, default is none.

Modbus address: 001—255, default is 001

.The max quantity of meters on one RS485 Modbus network is 64 Units, max communication distance is 1.2Km.

3.5 Pulse output function

This meter has two pulse outputs. Both outputs are passive type.

Pulse output 2 is configurable. Constant can be selected @: 0.001/0.01/0.1/1 imp/kWh or imp/kvarh, default is 1imp/kWh.

Pulse width: 60/100/200ms.

Pulse output1 is fixed to total kWh. Constant is 1000imp/kWh

3.6 Programming

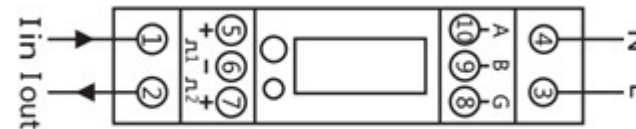
By holding the "SET" key pressed for at last 3 sec., starts menu programming mode.

LCD will show



The user can program the meter parameters by sending commands via the RS485 port.

4 Wiring diagram



1/2	CT in &Out
3/4	Phase/Neutral
5/6	S01 1000imp/kWh
7/6	S02 Configurable
8/9 /10	RS485 Communication contact
	TX/RX (+) Terminal 10
	TX/RX (-) Terminal 9
	G485 (⊥) Terminal 6

5 Register map

Instantaneous values

No	Parameter	Read	Write	Bytes	Starting address
1	Voltage	Y	N	4	0002/0010
2	Frequency	Y	N	4	0004/004E
3	Current	Y	N	4	0006/0052
4	Active power	Y	N	4	0008/0092
5	Apparent power	Y	N	4	000A/00D2
6	Reactive power	Y	N	4	000C/ 0112
7	Power factor	Y	N	4	000E/0152

Total energy accumulator

8	Import active energy	Y	N	4	0160/0800
9	Import reactive energy	Y	N	4	0162/0A00
10	Reserve (default 0)	Y	N		0164
11	Export active energy	Y	Y	4	0166/0900
12	Export reactive energy	Y	Y	4	0168/0B00
13	Total active energy	Y	N	4	016A/0700/0618

Production data and identification

No	Parameter	Read	Write	Bytes	Starting address
14	Serial number	Y	Y	4	FF00
15	Manufacture code	Y	Y	4	FF02 (SHFQ ASCII)
16	Type code	Y	Y	2	FF04
17	Hardware version	Y	Y	2	FF05
18	Software version	Y	Y	2	FF06
19	Reference voltage	Y	N	2	FF07
20	Reference current	Y	N	2	FF08
21	SO1 constant	Y	N	2	FF09
22	SO2 output mode 0000: kWh 0001 kvarh	Y	Y	2	FF0A
23	SO1 output 0000 0.001kWh/imp 0001 0.01kWh/imp 0002 0.1kWh/imp 0003 1kWh/imp(default)	Y	Y	2	FF0B
24	SO1 pulse width 0000 60ms 0001 100ms	Y	Y	2	FF0C

	0002 200ms (default)				
25	Active energy measurement type	Y	Y	2	FF19 01 : Total=Import 04: Total=Export 05: Total=Import + Export 06: Total=Export-Import 09: Total=Import-Export
26	Modbus id	Y	Y	2	0524
27	Baud rate Hex(04B0) 1200bps Hex(0960) 2400bps Hex(12C0) 4800bps Hex(2580) 9600bps Hex(4B00) 19.2kbps	Y	Y	2	0525
28	Network Parity Stop 0000 None parity 0001 Even parity	Y	Y	2	0526

6 .Technical support

Any questions, please contact:

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