OWEN BROTHERS
METERING UK LTD

OB115-Mod

Single phase
Multi-function energy meter

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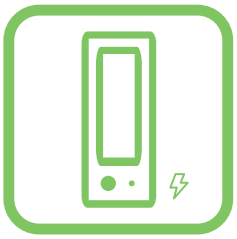
Contents

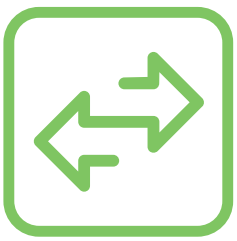
OB115-Mod

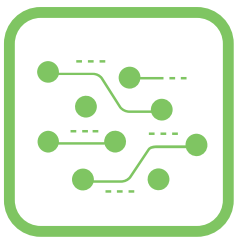
Energy meter with serial Modbus interface 333 mV CT ac output Solid core sensor and open core sensor, 333 mV ac input 60A

- MID approved with module "B" and "D" certification.
- Bidirectional energy metering 1 DIN modules,230V AC 50Hz/120V AC 60Hz.
- Solid-core sensor &open-core sensor,330mV ac input 60A
- Display of Voltage, Ampere, kW, PF, Hz, +kWh, -kWh,ΣkWh
- Total energy usage can be calculated via 5 different modes
- Display Modbus RTU Interface data:baud rate, Modbus id, Parity
- The key setting parameters are valid.
- S0 pulse output, transmission of measured values via pulses
- LCD display with green backlight
- Accuracy class B according to EN50470-3 Accuracy class 1 according to IEC62053-21
- 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


18mm


Security sealing


Import/Export Energy Measuring


Multi-Measurements


S0 Output : Programmable

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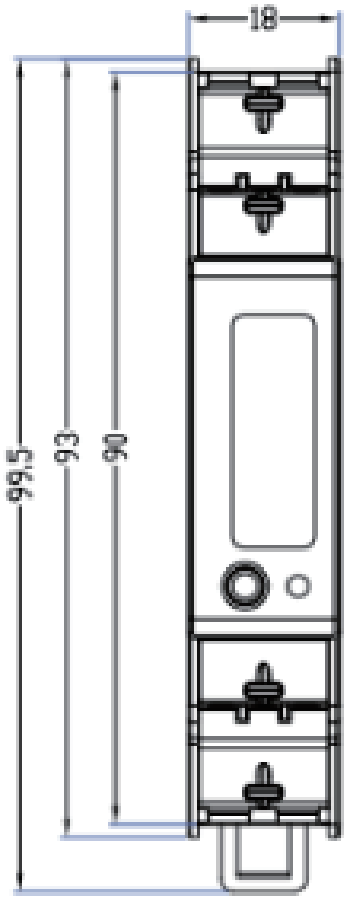
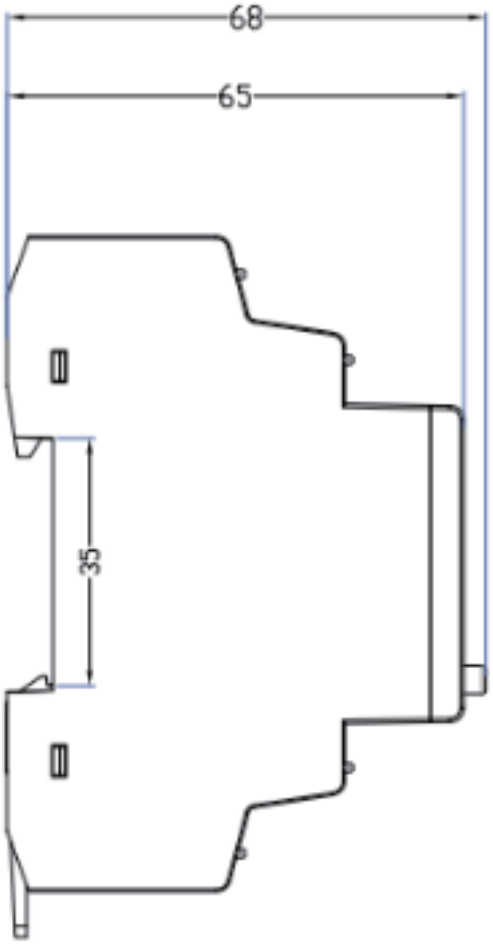
» 1.Meter specification

Voltage/current inputs	
Nominal voltage(v)	230V AC
Voltage range	(120-275)V
Power consumption	0.5W 2VA
Primary Current(A)	60A
Second input(mV)	333mV (Primary current=100A)
RS485 cable	AWG18
Terminal flexible 1×mm²	0-2.5mm²
» General data	
Frequency (Hz)	50 or 60Hz
Accuracy	B
» 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)	99.5
Depth (mm)	68

» 2.Dimensions





» 3.Main function

- 3.1 Measuring Function

Meter 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
	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

Smart Meter has two statuses: scroll display status and button press display .When pressing the button, will display total active energy, import active energy, export active energy, voltage, current, active power, frequency, power factor, Modbus id, baud rate , parity, software version.

- 3.4 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
10		Baud rate (default 9600bps)
11		Parity (default:None)

12	015.1.1	Software version

- 3.5 Communication Function

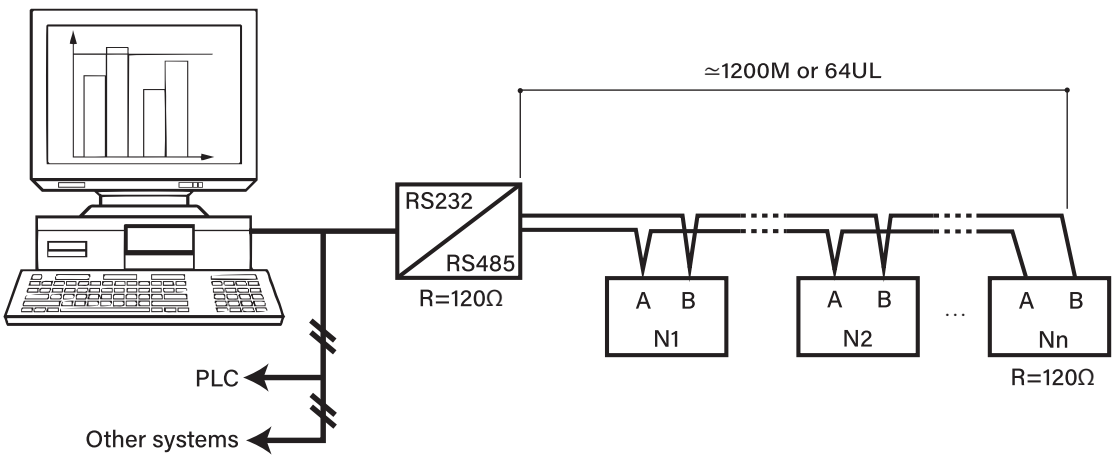
The meter provide RS485 port for remote communication. Communication parameters can be selected from the set mode.

RS485 communications transfer rates allow selected at 1200bps, 2400bps, 4800 bps, 9600bps, 19200bps, default is 9600bps.

Parity: None/Even, default is None.

Modbus address: 001—255, default is 001.

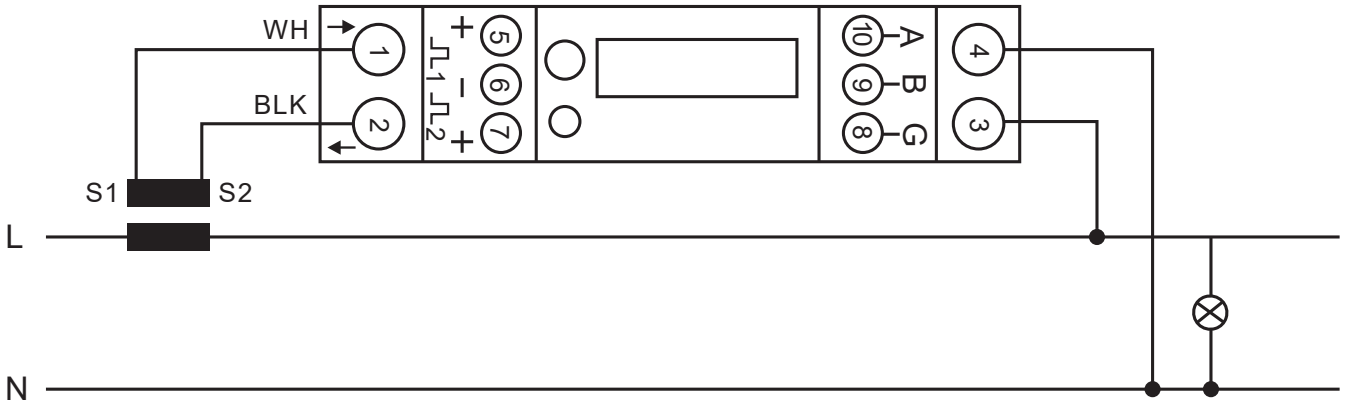
The max quantity of meters on one RS485 Modbus is 64 units, the longest communication distance is 1.2km.



- 3.6 Pulse output function

The meter has two pulse outputs. Both outputs are passive type. Pulse output 2 is configurable.
Constant can be select: 0.001/0.01/0.1/1 imp/kWh, default is 1imp/kWh.
Pulse width: 60/100/200ms,Pulse output1 is fixed up with total kWh. Constant is 1000imp/kWh.

» 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

- 5.1 Instantaneous values

No.	Comments	R/W	Command	Bytes	Type	Address	Units
01	Voltage	Y/N	03/04	4	F32	0002/0010	0.1V
02	Frequency	Y/N	03/04	4	F32	0004/004E	0.01Hz
03	Current	Y/N	03/04	4	F32	0006/0052	0.01A
04	Active power	Y/N	03/04	4	F32	0008/0092	0.1W
05	Apparent power	Y/N	03/04	4	F32	000A/00D2	0.1VA
06	Reactive power	Y/N	03/04	4	F32	000C/ 0112	1var
07	Power factor	Y/N	03/04	4	F32	000E/0152	0.001

- 5.2 Total energy accumulator

No.	Comments	R/W	Command	Bytes	Type	Address	Units
08	Import active energy	Y/N	03/04	4	F32	0160/0800	range: 0~999.999 ~1000~9999.99 ~10000~99999.9 ~100000~999999 ~0
09	Import reactive energy	Y/N	03/04	4	F32	0162/0A00	
10	Reserve (default 0)	Y/N	03/04	4	F32	0164	
11	Export active energy	Y/N	03/04	4	F32	0166/0900	
12	Export reactive energy	Y/N	03/04	4	F32	0168/0B00	
13	Total active energy	Y/N	03/04	4	F32	016A/0700/0618	

- 5.3 Communication Parameter

No.	Comments	R/W	Command	Bytes	Type	Address	Value
14	Modbus id	Y/Y	03/04/10	2	U16	0524	01~FF 01(default)
15	Baudrate	Y/Y	03/04/10	2	U16	0525	04B0 = 1200bps 0960 = 2400bps 12C0 = 4800bps 2580 = 9600bps 4B00 = 19200bps
16	Parity Setting	Y/Y	03/04/10	2	U16	0526	00 = None(default) 01 = Even

- 5.4 Production data and identification

No.	Comments	R/W	Command	Bytes	Type	Address	Value
17	Serial number	Y/Y	03/04/10	4	U32	FF00	
18	Manufacture code	Y/Y	03/04/10	4	ASCII	FF02	ASC Char 53 48 46 51
19	Type code	Y/Y	03/04/10	2	U16	FF04	0115 (default)
20	Hardware version	Y/Y	03/04/10	2	U16	FF05	0002 (default)
21	Software version	Y/Y	03/04/10	2	U16	FF06	0001 (default)
22	Reference voltage	Y/N	03/04	2	U16	FF07	00E6 (default)
23	Reference current	Y/N	03/04	2	U16	FF08	0064(default)
24	SO1 constant	Y/N	03/10	2	U16	FF09	03E8(default)
25	SO2 output mode	Y/Y	03/04/10	2	U16	FF0A	00 Active energy 01 Reactive energy
26	SO2 pulse output constant	Y/Y	03/04/10	2	U16	FF0B	00=0.001kWh/imp 01=0.01kWh/imp 02=0.1kWh/imp 03=1kWh/imp
27	SO2 pluse width	Y/Y	03/04/10	2	U16	FF0C	00=60ms 01=100ms 02=200ms (default)
28	Active energy measurement Method combination code	Y/Y	03/04/10	2	U16	FF19	01 Total=Import only 04 Total=Export only 05 Total=Import+Export (default) 06 Total=Export-Import 09 Total=mport-Export

» 6.Declaration of Conformity

We, Owen Brothers Metering UK Ltd.
Ensure and declare that apparatus:

Single phase multi-function energy meter:
OB115-Mod

EU Notified Body 0598
UK Notified Body 0120

Satisfy the appropriate requirements of the Directive 2014/32/EU with the following standards:
EN 50470-1: 2006, Electricity metering equipment (AC) Part 1: General requirements, tests and test conditions. Metering equipment (class indexes A, B and C)
And
EN 50470-3: 2006, Electricity metering equipment (AC) Part 3: Particular requirements - Static meters for active energy (class indexes A, B and C)

» 7.Technical support

Any questions, please contact:
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Email : sales@owen-brothers.com