

OB115-MOD-V2

Single Phase Multi-function
Energy Meter



VIEW & BUY
ONLINE



OB115-MOD-V2

Single phase
Multi-function
energy meter

USER MANUAL

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MAIN FEATURES AND BENEFITS

Energy meter with serial Modbus interface 333 mV CT ac output
Solid core sensor and open core sensor, 333 mV ac input 100A.

- 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 100A.
- 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 and 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

1 METER SPECIFICATION

VOLTAGE/CURRENT INPUTS:

Nominal voltage(v):	230V AC
Voltage range:	(120-275)V
Power consumption:	0.5W 2VA
Primary Current(A):	100A
Second input(mV):	333mV (Primary current=100A)
RS485 cable:	AWG18
Terminal flexible 1xmm ² :	0-2.5mm ²

GENERAL DATA:

Frequency (Hz):	50 or 60Hz
Accuracy:	B

MECHANICAL:

Material:	ABS+PC
Weight:	100g

ENVIRONMENTAL:

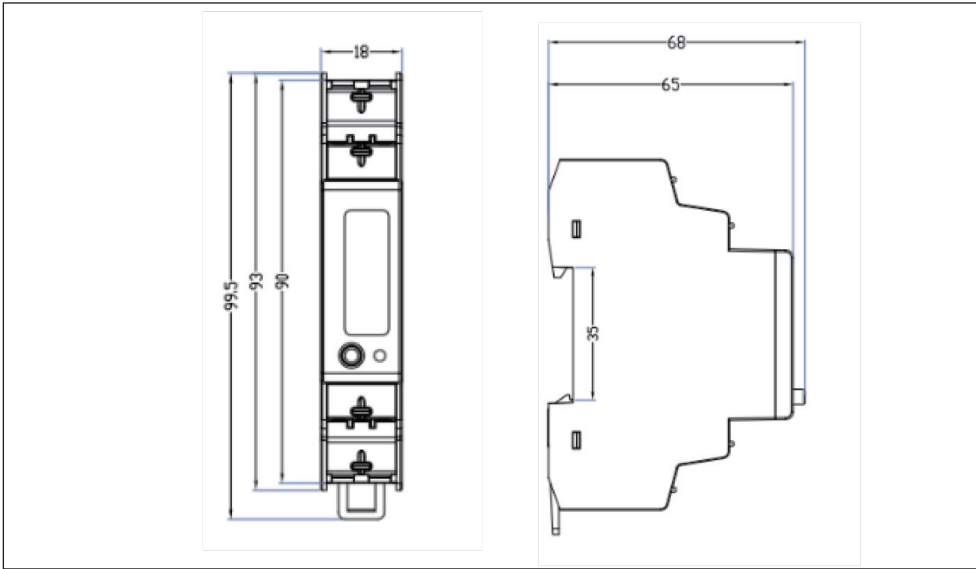
Operating temperature:	-25°C~+55°C
Storage temperature:	-40°C~+70°C
Humidity:	75% yearly average, 95% on 30 days/year, non-condensing

DIMENSIONS:

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.

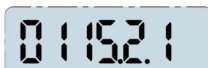
3.2 ELECTRICITY PARAMETERS MEASUREMENT

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

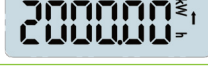
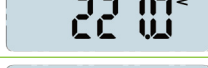
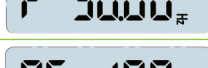
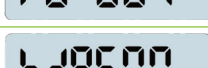
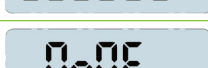
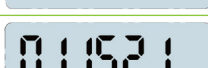
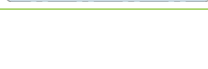
3.3 DISPLAY FUNCTION

When the power on, the smart meter will initialise 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.

3.3 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		Software version

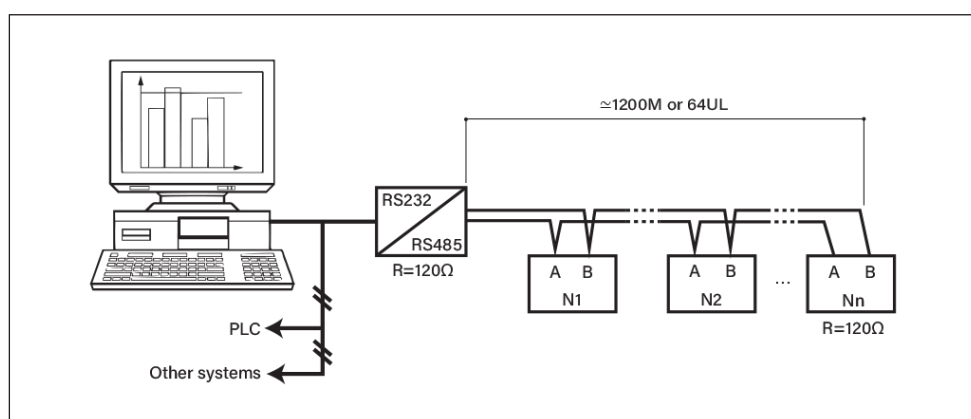
3.5 COMMUNICATION FUNCTION

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, 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

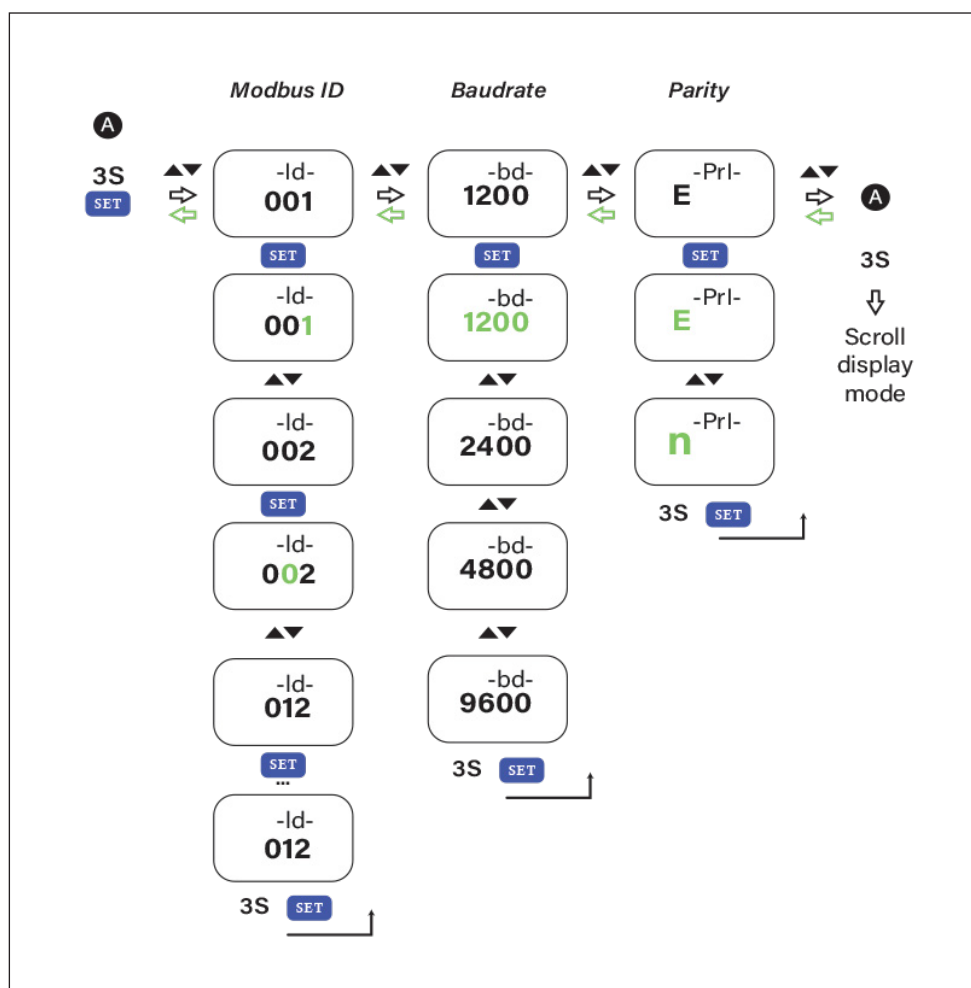
The meter has two pulse outputs. Both outputs are passive type. Pulse output 2 is configurable. Constant can be select: 0.001/0.01/0.1/1 imp/kWh, default is 1imp/kWh.

Pulse width: 60/100/200ms. Pulse output 1 is a fixed value and the constant is 1000 imp/kWh.

3.7 CHANGE DEFAULT SETTINGS VIA BUTTONS

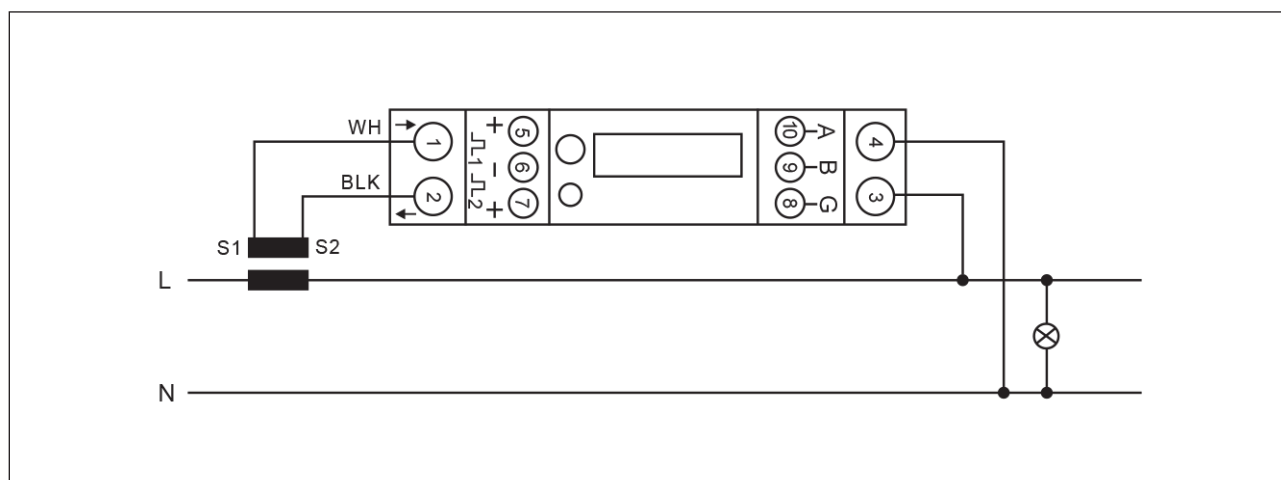
After a long press (3 seconds) on SET button in the scroll display, the Set-up screen will appear.

Steps:



GENERAL	UNIT	DEFAULT	RANGE
MODBUS ID	/	001	001---254
BAUD RATE	bps	9600	1200---9600
PARITY	/	None	None, Even

4 WIRING DIAGRAM



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

5 REGISTER MAP

5.1 FUNCTION CODE 04 TO READ INPUT PARAMETERS (00 BROADCAST ID)

NO.	COMMENTS	R/W	COMMAND	BYTES	TYPE	ADDRESS	UNITS	COMMENTS	RANGE
01	Voltage	R	04	4	F32	0x0000	0.1V	/	/
02	Current	R	04	4	F32	0x0004	0.01A	/	/
03	Active Power	R	04	4	F32	0x000C	0.1W	/	/
04	Apparent power	R	04	4	F32	0x0012	0.1VA	/	/
05	Reactive power	R	04	4	F32	0x0018	1VAR	/	/
06	Power factor	R	04	4	F32	0x001E	0.01PF	/	/
07	Frequency	R	04	4	F32	0x0046	0.01Hz	/	/

NO.	COMMENTS	R/W	COMMAND	BYTES	TYPE	ADDRESS	UNITS	COMMENT	RANGE
08	Import active energy	R	04	4	F32	0x0048	kWh	/	0-9999.99-99999.9 -999999-0
09	Export active energy	R	04	4	F32	0x004A	kWh	/	0-9999.99-99999.9 -999999-0
10	Import reactive energy	R	04	4	F32	0x004C	kvarh	/	0-9999.99-99999.9 -999999-0
11	Export reactive energy	R	04	4	F32	0x004E	kvarh	/	0-9999.99-99999.9 -999999-0
12	Total power demand	R	04	4	F32	0x0054	0.1W	5 min total kW dmd	/
13	Max total power demand	R	04	4	F32	0x0056	0.1W	Total kW dmd Peak	/
14	Import power demand	R	04	4	F32	0x0058	0.1W	5 min import kW demand	/
15	Export active energy	R	04	4	F32	0x005A	0.1W	+kW dmd Peak	/
16	Import reactive energy	R	04	4	F32	0x005C	0.1W	5 min export kW demand	/
17	Export reactive energy	R	04	4	F32	0x005E	0.1W	-kW dmd Peak	/
18	Total power demand	R	04	4	F32	0x0102	0.01A	5 min current dmd	/
19	Max total power demand	R	04	4	F32	0x0108	0.01A	Current dmd Peak	/
20	Import power demand	R	04	4	F32	0x0158	kWh	/	0-9999.99-99999.9 -999999-0
21	Export active energy	R	04	4	F32	0x005E	kvarh	/	0-9999.99-99999.9 -999999-0

5.2 FUNCTION CODE 10 TO SET HOLDING PARAMETER

FUNCTION CODE 03 TO READ HOLDING PARAMETER (00 BROADCAST ID)

NO.	COMMENTS	R/W	COMMAND	BYTES	TYPE	ADDRESS	DEFAULT	COMMENT	RANGE
22	S01 pulse width	R/W	03/10	4	F32	0x000C	FLOAT (42C80000)	Milliseconds: 60, 100 (default) or 200	/
23	The network port parity/stop bits	R/W	03/10	4	F32	0x0012	FLOAT (00000000)	0: One stop bit and no parity 1: One stop bit and even parity 2: One stop bit and odd parity 3: Two stop bits and no parity	/
24	Modbus ID	R/W	03/10	4	F32	0x0014	FLOAT (3F800000)	Modbus ID (default: 001)	001--247
25	Baudrate	R/W	03/10	4	F32	0x001C	FLOAT (40000000)	Bandrate 0: 2400 baud 1: 4800 baud 2: 9600 baud (default) 5: 1200 baud	120-1960
26	CT	R	03/10	4	F32	0x0032	FLOAT (42C80000)	CT Primary current	/
27	S01 output mode	R/W	04	4	F32	0x0056	FLOAT (40800000)	01: Import active energy 02: Import + Export active energy 04: Exp active energy (default) 05: Import reactive energy 06: Import + Export reactive energy 08: Export reactive energy	/
28	Reset Max demand	W	10	2	U16	0x0564	/	S02: Reset max demand values, Other: non-active	/

NO.	NAME	R/W	COMMAND	BYTES	TYPE	ADDRESS	DEFAULT	COMMENT	RANGE
29	Display time in cycle statue	R/W	03/10	2	U16	0xF900	3S	S00: Always displays Total kWh, Other: all parameters each screen display time	0-30S
30	S01 output constant	R/W	03/10	2	U16	0xF910	\$01	S00: 0.001kWh/imp S01: 0.01kWh/imp S02: 0.1kWh/imp S03: 1kWh/imp	/
31	Active total energy measurement type	R/W	03/10	4	U16	0xF920	\$02	S01: Total=Import S02: Total=Import+Export S03: Total=Import-Export	/
32	Reactive total energy measurement type	R/W	/	2	U16	0xF930	\$02	S01: Total=Import S02: Total=Import+Export S03: Total=Import-Export	/
33	Meter serial number	R	03	4	U32	0xFC00	/	/	/
34	Meter code	R	03	2	U16	0xFC02	\$0020	/	/
35	Meter software version	R	03	2	U16	0xFC03	\$0204	/	/

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

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