EM-408CT Modbus

Single Phase 1 module energy meter with CT

KEY FEATURES

Single phase metering

The EM-408CT is single phase kWh Modbus meter with an LCD display in a 1 module (17.5mm) casing, ensuring a high accuracy class (Class1)

Low starting current which makes it exceptionally suited for photovoltaic energy

Excellent long-term stability which is designed for DIN, IEN and EN standards and 1 year warranty

MID B & D approval which ensures the meter is produced to the highest European and International standards and the meter is legally suited for all applications.

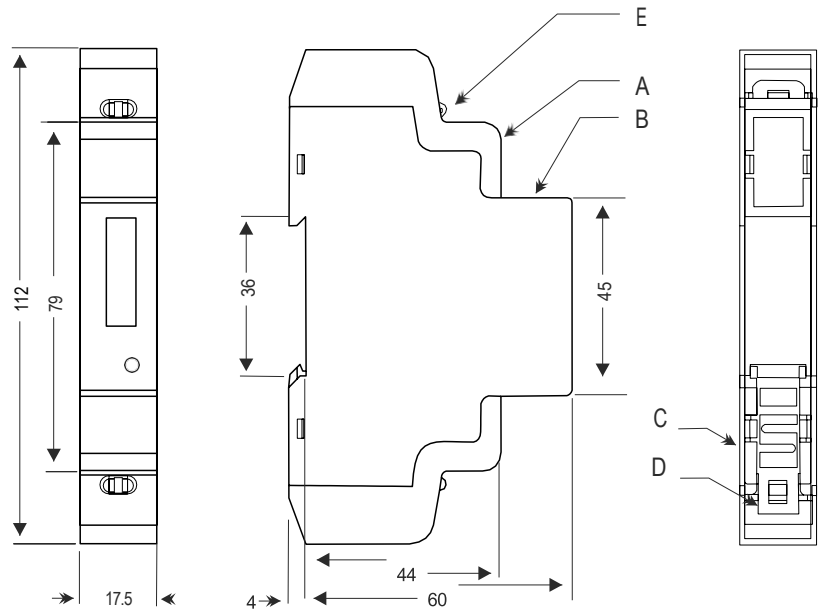
For connection rate of up to 100A.

METER SPECIFICATION

Performance Criteria	
Operating Humidity	≤ 75%
Storage Humidity	≤ 95%
Operating Temperature	-25°C to +55°C
Storage Temperature	-30°C to +70°C
International Standard	EN50470-1 EN50470-3
Accuracy Class	B
Ingress Protection rating	IP51
Insulating encased meter of protective class	II
The mechanical and electromagnetic environmental classes	B

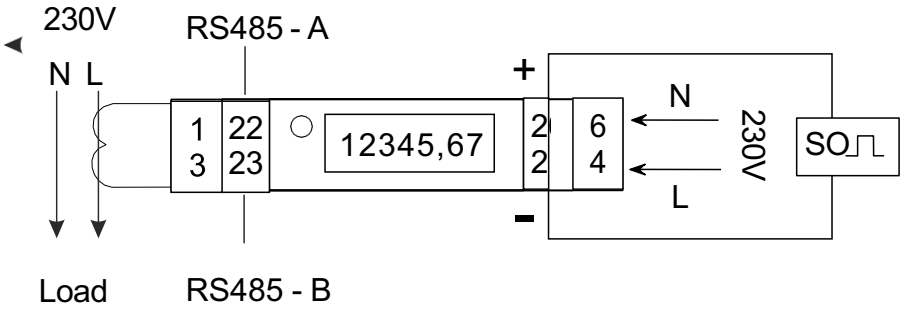
Specifications			
Nominal Voltage (Un)	230V AC	**Operational frequency range**	50Hz ±10%
Operational Voltage	(-15% ~ +10%) Un	**Internal power consumption**	≤2W /10VA
AC voltage withstand	2KV for 1 minute	**Test output flash rate (RED LED)**	1000 or 2000imp/kWh
Impulse voltage withstand	6KV - 1.2μ S waveform	**Pulse output rate (pins 20&21)**	1000 or 2000imp/kWh
Basic Current (Ib)	1.5/5A	**Consumption indicator (RED LED)**	Flashing at load running
Max. rated current (Imax)	6/100A		
Operational Current range	0.4% Ib-Imax	**Dimensions**	
Over current withstand	30Imax for 0.01s	**L x W x H (mm)**	112 x17.5x 64

DIMENSIONS AND INSTALLATION



A LCD
B Terminal block
C Case
D Protection Cover
E Security Clasp

Register material: PC inflammable retarding
Case/Terminal Block/Cover: ABS inflammable retarding



1 & 3	CT in & Out
4 & 6	Live & Neutral IN
20 & 21	Pulse + & Pulse -
22 & 23	RS485 A & B

TECHNICAL DESCRIPTION

Energy Use indicator

There is a LED which has two colors (green and red) while flashing in the front panel of EM-408CT Modbus.
When energy is being used, the LED will flash and display red. The quicker the LED flashes, the more energy is being used.

Reading the meter

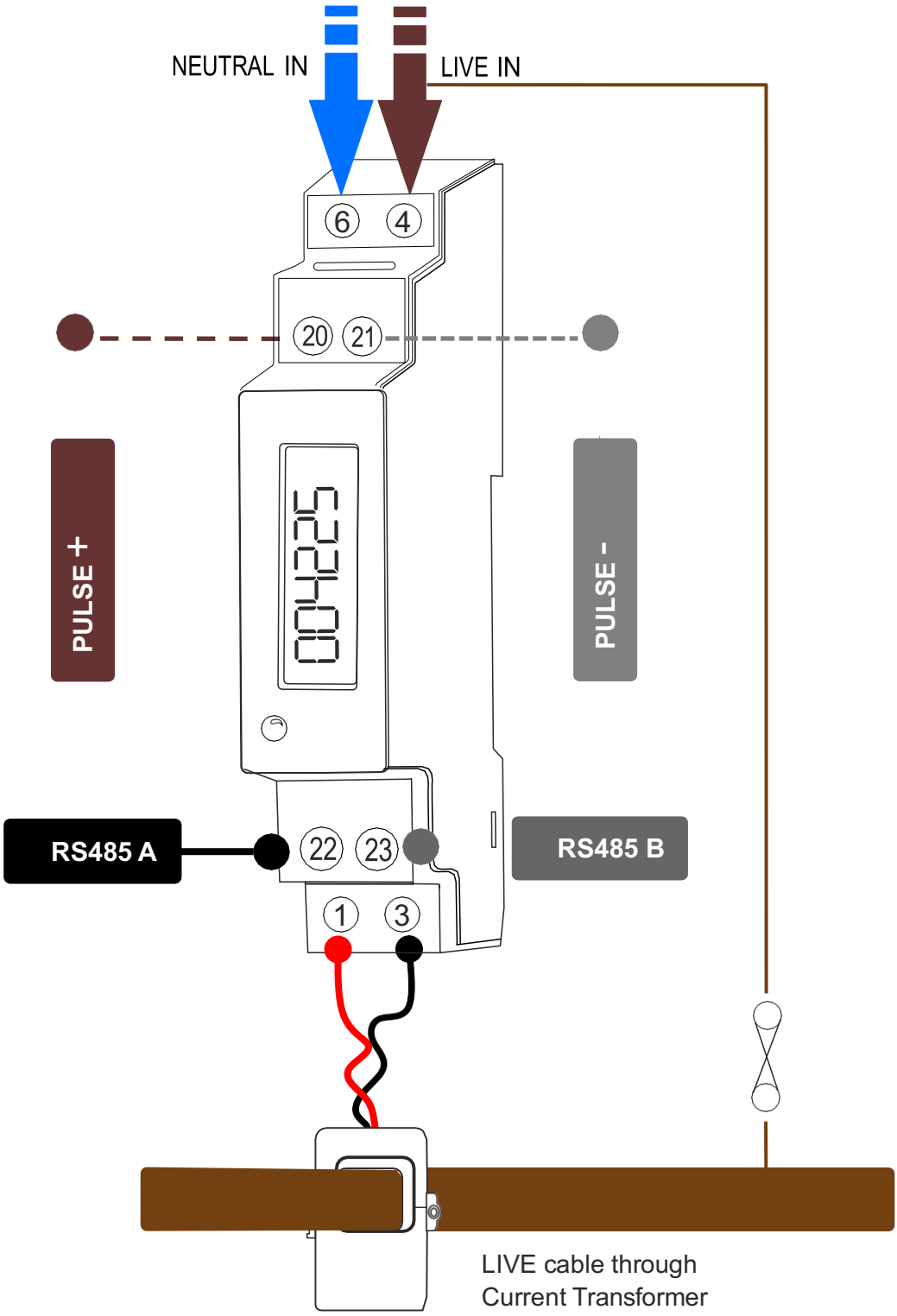
The EM-408CT Modbus energy meter is equipped with 5+2 LCD display which displays the amount of energy used.

Pulse output

The EM-408CT Modbus energy meter is equipped with a pulse output which is fully isolated.
The pulse output is a polarity dependent, passive transistor output requiring an external voltage source for correct operation.

For this external voltage source, the voltage (Ui) should be 5-27V DC, and the maximum input current (Imax) is 27mA DC.
To connect the impulse output, connect 5-27V DC to connector 20 (anode), and the signal wire (S) to connector 21 (cathode).

INSTALLATION DIAGRAM



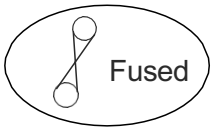
230V

1 & 3 = CT (Red (1), Black (3))

4 & 6 = Live & Neutral

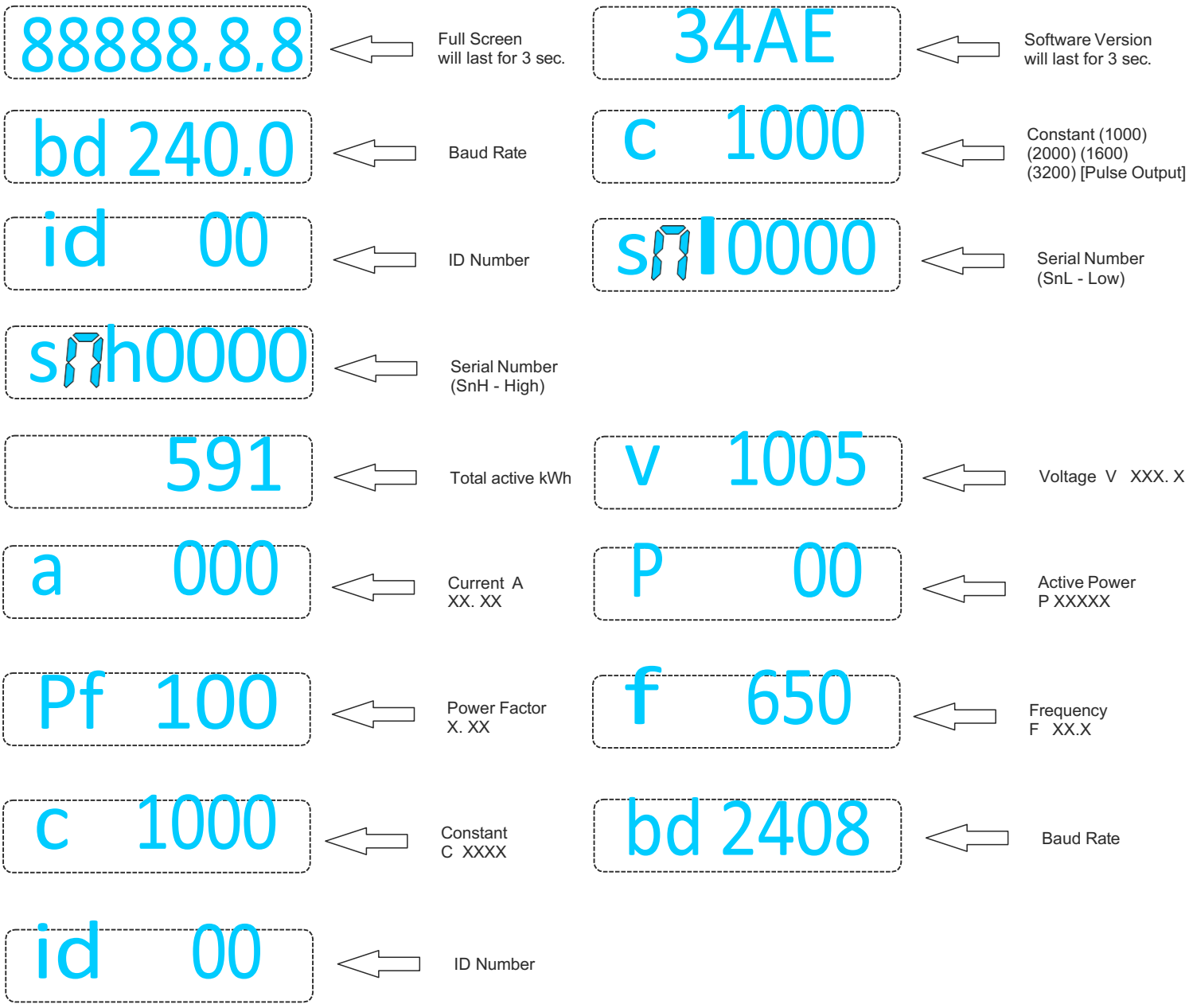
20 & 21 = Pulse Cables Set 2000 imp/kWh (20+ | 21 -)

22 & 23 = RS485 (A) & RS485 (B)



DISPLAY FUNCTION

Cycle display status, Display cycle can be set within 5~20 seconds, the default is 5 seconds. The display items as following:



SO Output
0.001kWh/imp (default), 0.001kWh/imp, 0.01kWh/imp, 0.1kWh/imp, 5kWh/imp, 10kWh/imp

RS485 Communication Specifications

Bus Type	RS485
Protocol	MODBUS RTU with 16-bit CRC 1200,
Baud Rate	2400 (default), 4800, 9600
Address Range	1-255 user settable 64
Bus Loading Range	meters per bus 1000m

BASIC ERRORS

0.05Ib	Cosφ = 1	± 1.5%
0.1Ib	Cosφ = 0.5L	± 1.5%
	Cosφ = 0.8C	± 1.5%
0.1Ib - Imax	Cosφ = 1	± 1.0%
0.2Ib - Imax	Cosφ = 0.5L	± 1.0%
	Cosφ = 0.8C	± 1.0%