

# EM406 M-Bus

Single Phase 1 module energy meter with CT

## KEY FEATURES

Single phase metering

The EM406 is single phase kWh M-Bus meter with a LCD display in a 1 module (18mm) 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.

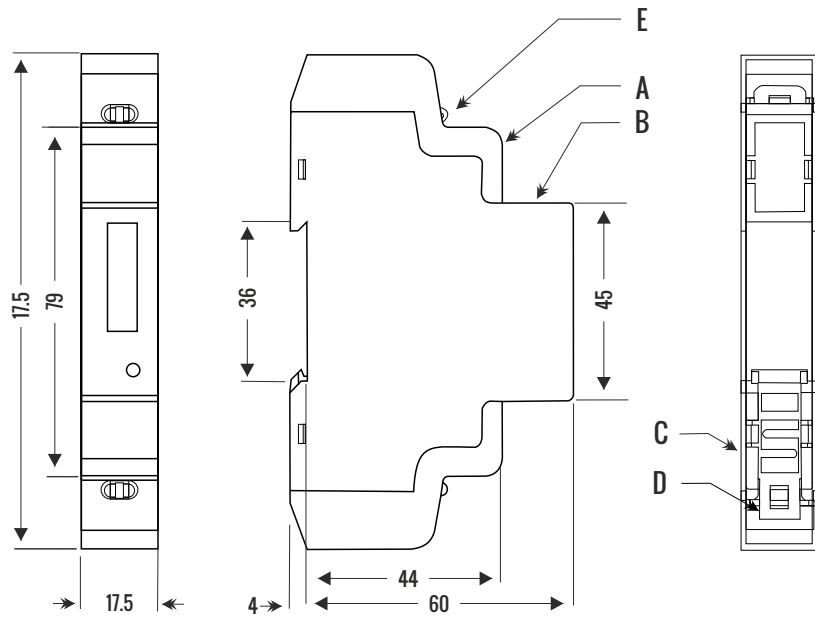


## METER SPECIFICATION

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
Protection against penetration dust and water	IP51
Insulating encased meter of protective class	II
The mechanical and electromagnetic environmental classes	B
Specifications	
Nominal Voltage (Un)	230V AC
Operational Voltage	(-15% ~ +10%)Un
AC voltage withstand	2KV for 1 minute
Impulse voltage withstand	6KV - 1.2μs waveform
Basic Current (Ib)	1.5/5A
Max. rated current (Imax)	6/100A
Operational current range	0.4% Ib-Imax
Over current withstand	30Imax for 0.01s

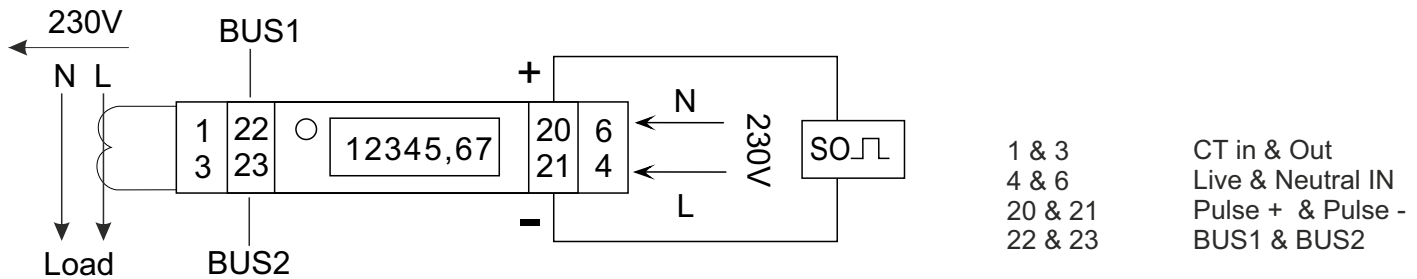
Operational frequency range	50Hz ±10%
Internal power consumption	≤2W /10VA
Test output flash rate (RED LED)	1000 or 2000imp/kWh
Pulse output rate (pins 20&21)	1000 or 2000imp/kWh
Consumption indicator (RED LED)	Flashing at load running
Dimensions	
Width x Height x Depth (mm)	17.5 x 112 x 60

## 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



## TECHNICAL DESCRIPTION

### Energy Use indicator

There is a LED which has two colors (green and red) while flashing in the front panel of EM406. 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

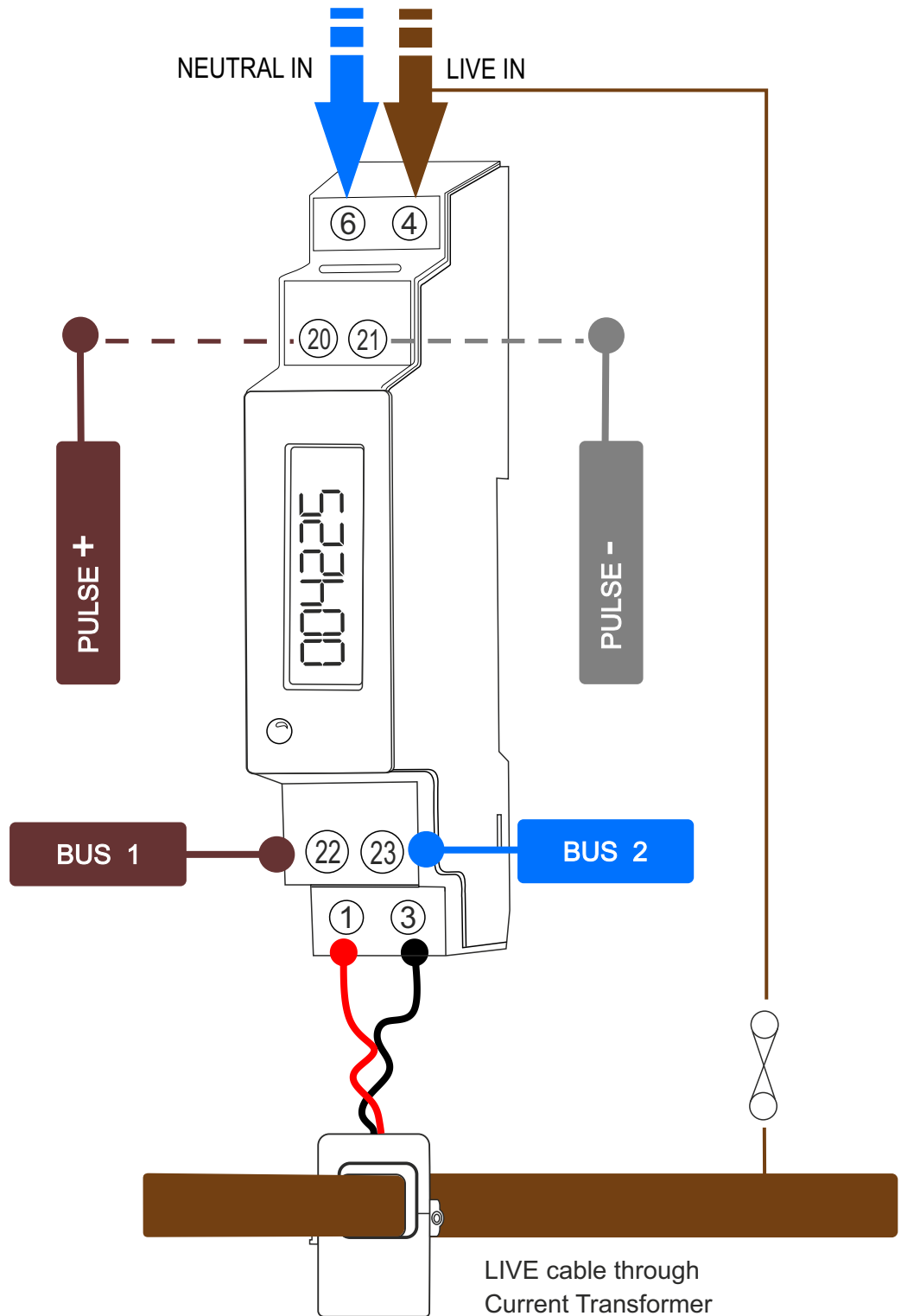
The EM406 energy meter is equipped with 5+2 LCD display which displays the amount of energy used. This meter cannot be reset to Zero. The reading accuracy is 1/10 kWh (1/100 kWh).

### Pulse output

The EM406 DIN rail 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



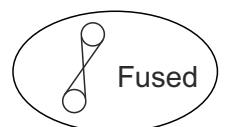
230V

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

4 & 6 = Live & Neutral

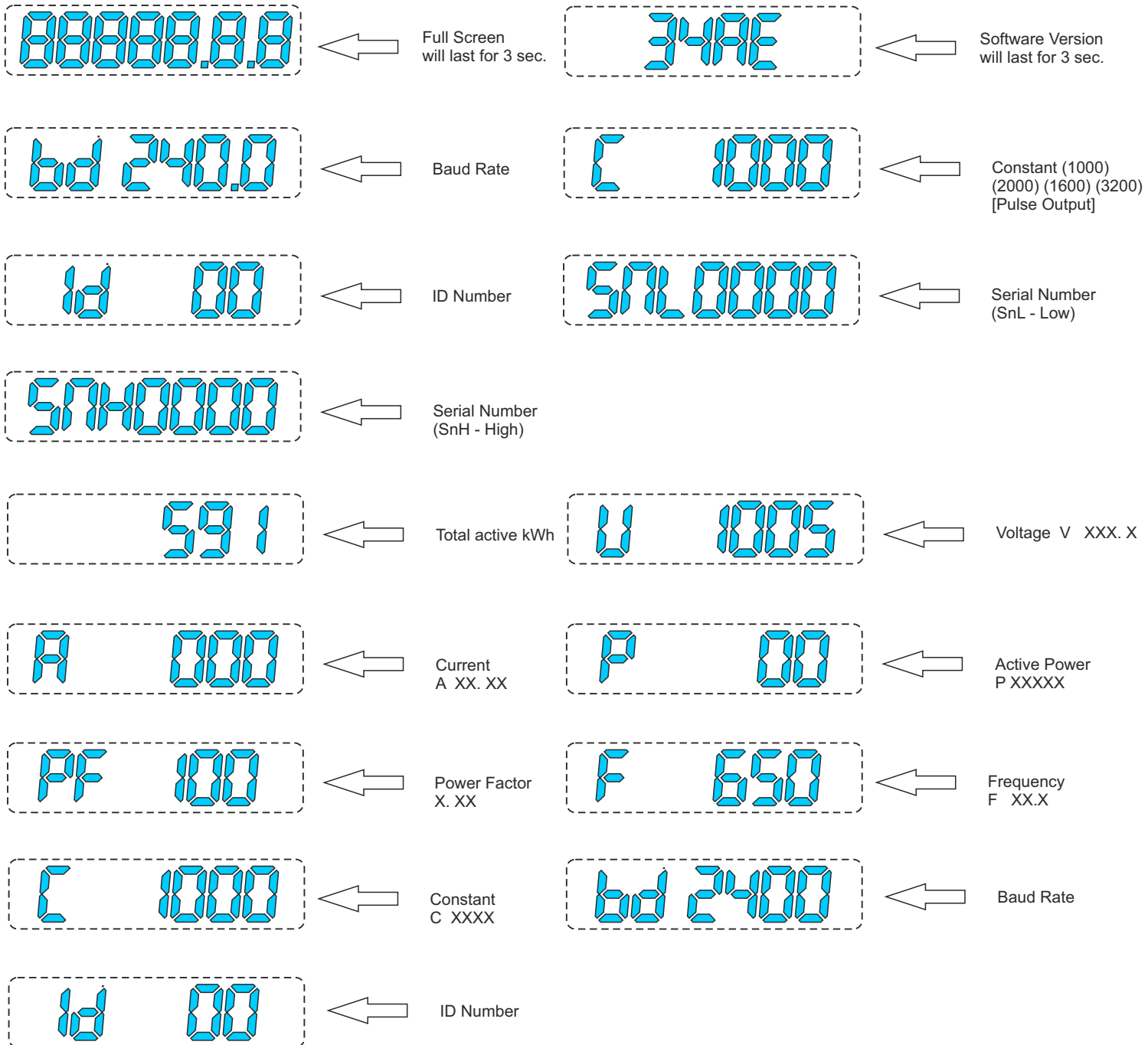
20 & 21 = Pulse Cables Set 2000 imp/kWh (20+ | 21 -)

22 & 23 = BUS 1 & BUS 2



## 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

### M-Bus Communication Specifications

Bus Type	M-bus
Baud Rate	2400 (default), 4800, 9600
Range	≤ 1000m 64PCS
Downlink signal	Master to slave, Voltage modulation
Uplink signal	Slave to master, Current modulation
Cable	JYSTY (n x 2 x 0.8)
Protocol	EN13757-3
Max. number of meters	64*

*\* Note that the maximum number of meters is dependent on the converter, baud rate (the higher the baudrate the smaller the number of meters which can be used) and the circumstances under which the meters are installed).*