

KWh METERS

1. General

1.1 Application

- The product is intended for active energy metering for both domestic and industrial users connected to the single-phase alternating current network.

1.2 Ordering code

- Single-phase electronic watt-hour meter with stepper motor counter CSM - C [X][X][X][X]

The meter can work at maximum current for indefinite period of time.

Reference Documents:

IEC 61036 : 2000

CSM C [X] [X] [X] [X]

Single-phase electronic watt-hour meter with stepper motor counter

Advantages

- low price
- high reliability
- mechanical display with 6 digits, high reliable step by step motor
- data retention ensured by the mechanical counter
- visual signal of wrong connection or of theft attempt
- fast data reading
- The measurement method of the active power consists in the multiplying and numerical integration of the current and voltage values provided by two digital-analog converters with automatic offset cancellation. The active energy is metered no matters its sense, direct or inverse and the meter maintains the declared precision.

Information Display

- The display is on mechanical counter with 6 digits, the first represents 1/10 KWh and has a different colour.
- The meter is provided with the following optical signalling on the front panel:
 - ◆ red LED [1000(1600) pulses/kWh] - impulses proportional pulses to the consumed energy;



- ◆ green LED (DIRECT) - signals the correct connection of the meter (energy in direct sense);
- ◆ red LED (INVERSE) - signals the wrong connection of the meter (energy in inverse sense).

Optional outputs

- Optionally the meter can be equipped with B class electric test output according to IEC 62053-31:1998.

Warranty

- 12 months after delivery.

No.	Product Variant	Voltage [V]	Reference current [A]	Maximum current [A]	Frequency [Hz]	Constant [imp/kWh]	Electric test output	Constant of electric test output [Wh/imp]
1.	CSM CCA	230	10	40	50	1.000	No	-
2.	CSM CCB		10	40		1.000	Yes	10
3.	CSM CDA		15	60		1.000	No	-
4.	CSM CDB		15	60		1.000	Yes	10
5.	CSM CEA		10	40		1.600	No	-
6.	CSM CEAE		5	40		1.600	No	-
7.	CSM CEB		10	40		1.600	Yes	10
8.	CSM CEBE		5	40		1.600	Yes	10
9.	CSM CEB-P		10	40		1.600	Yes	5
10.	CSM CEBEP		5	40		1.600	Yes	5
11.	CSM CFA		15	60		1.600	No	-
12.	CSM CFAE		10	60		1.600	No	-
13.	CSM CFB		15	60		1.600	Yes	10
14.	CSM CFBE		10	60		1.600	Yes	10
15.	CSM CFB-P		15	60		1.600	Yes	5
16.	CSM CFBEP		10	60		1.600	Yes	5

Static watt-hour meter

MECHANICAL INTEGRATOR



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Meter classification in accordance with IEC

■ Accuracy class	class 1
■ Working mode	continuous
■ Main type	single phase
■ Meter connection	directly connected
■ Number of main wires	two wires (phase and neutral)
■ Ratio between I_{max} and I_b	high measuring capacity

Electric characteristics

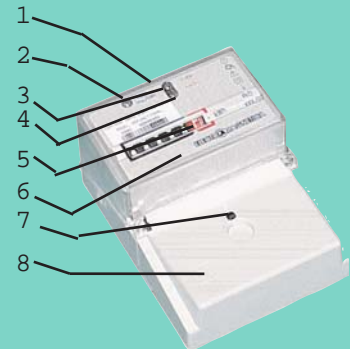
■ Reference voltage	U_{ref}	230 V
■ Reference current	I_b	10 A or 15 A
■ Maximum current	I_{max}	4 I_b
■ Reference frequency	F_{ref}	50 Hz
■ Meter constant	K	1000 imp/kWh
■ Sensitivity		0.004 I_b
■ Short time over currents influence		30 I_{max} for 10 ms
■ Starting		max. 5 seconds

Constructive data

■ Meter case	UV and fire-resisting polycarbonate
■ Meter cover	transparent, UV, fireproof polycarbonate
■ Terminal block	non-hygroscopic insulating material, according to ISO 75-2:1993 (for $t = 135^{\circ}\text{C}$ and $p = 1.8 \text{ Mpa}$)
■ Terminal	connection of 6 mm maximal diameter wire
■ Dimensions	129 x 100 x 66 mm
■ Weight	max. 0.35 Kg
■ Lifetime	20 years

Environmental conditions

■ Microclimatic zone	N
■ Working category	2
■ Atmosphere aggressiveness degree	3
■ Temperature range	$-25^{\circ}\text{C} \dots +55^{\circ}\text{C}$
■ Transport and storage temperature	$-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$
■ Relative humidity	80% at 20°C
■ Altitude	2000 m
■ Protection degree	IP 54

KWh METERS

1. Metrological seal
2. Red LED - 1000; 1600 imp / kWh
3. Green LED - forward direct energy
4. Red LED - inverse sense energy
5. Mechanical Display
6. Transparent cover
7. Terminal block cover seal
8. Terminal block cover