



EC-TYPE EXAMINATION CERTIFICATE

Number: TCM 221/13 - 5041

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In accordance: with Directive 2004/22/EC of the European Parliament and of the Council as amended implemented in Czech Republic by Government Order No. 464/2005 Coll. as amended that lays down technical requirements on measuring instruments.

Manufacturer: POLIER INGENIERE
40 rue des Binelles
F-92310 SEVRES
FRANCE

For: active electrical energy meter - single-phase
type: MM32LM
Accuracy class: A or B
mechanical environment class: M1
electromagnetic environment class: E2
temperature range: -25°C...+55°C

Valid until: 3 April 2023

Document No: 0511-CS-A018-13

Description: Essential characteristics, approved conditions and special conditions, if any, are described in this certificate.

Date of issue: 4 April 2013

Certificate approved by:



RNDr. Pavel Klenovský

1. Characteristic of meter

Meter MM32LM is a single phase 1-tariff static electric energy meter for measurement of active energy in residential, commercial and/or light industrial area. Meter is intended for connection to the distribution network directly. It measures active energy in import direction in class A or B as per EN 50470-1 and EN 50470-3. Measurement data are displayed on the LCD. Meter is installed to the DIN-rail mounting. The case of meter is decomposable.

The meter is equipped with an output S0 pulses.

On the nameplate is placed test LED for testing purposes.

Hardware version: V 1

Software version: V 1

2. Main metrological characteristic

Measurement	active energy in single phase 2-wire distribution network
Method of measurement	static meter with current shunt
Class	A or B
Reference voltage	240 or 230 V
Reference frequency	50 Hz
Reference current	5 A
Transitional current	0,5 A
Minimum current	0,25 A
Starting current	0,020 A
Maximum current	32 A; 45 A or 50 A
Constant of test LED	1 000 imp/kWh
Operating temperature	-25°C...+55°C (class 3K6)
Degree of protection	IP51
Mechanical environment	M1
Electromagnetic environment	E2

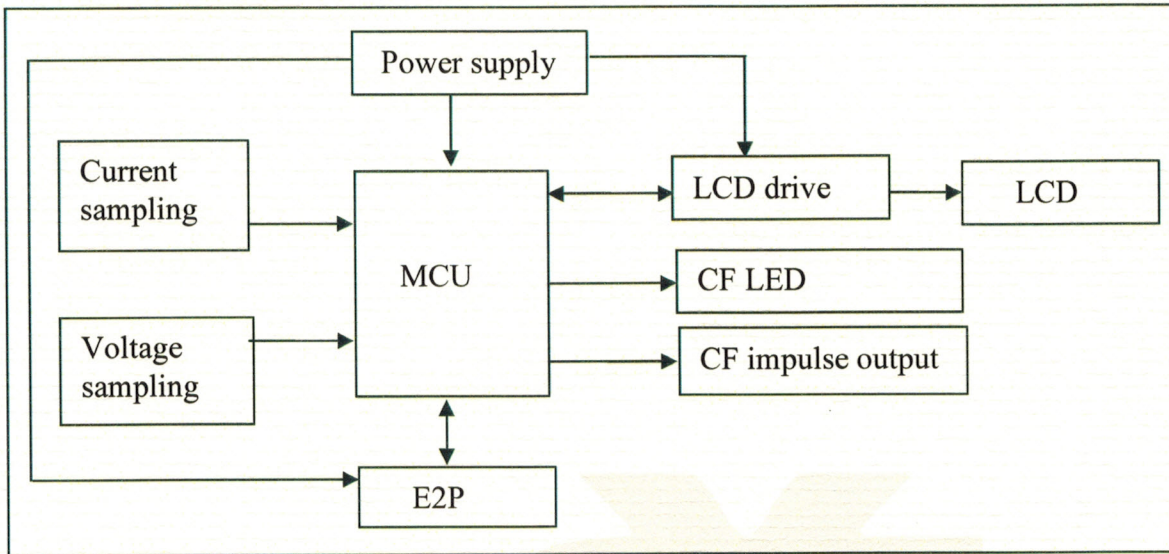
3. Pulse outputs and interfaces

- S0
- There is not any interface in the meter

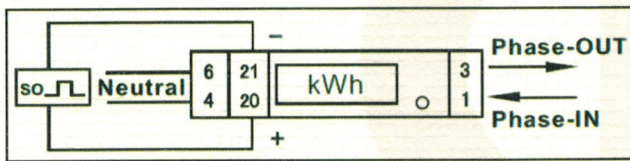
4. Non-essential features

- 1 tariff
- LCD display, 7 digits (resolution 0,01 kWh) or 6 digits (resolution 0,1 kWh)

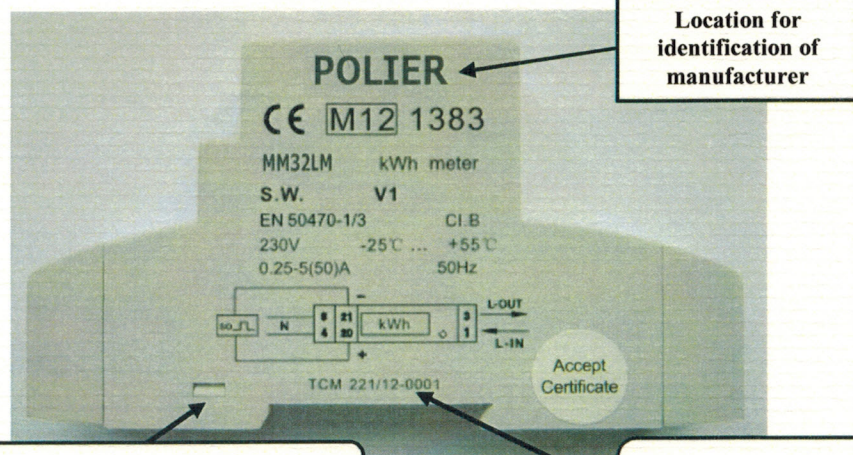
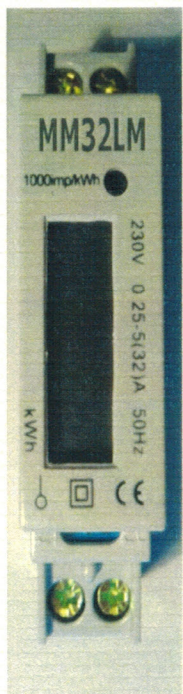
5. Meter block diagram



6. Connection diagram



7. Pictures of meter



Location for securing mark; another one is on the other side of the meter.

Location for identification of manufacturer

Approval mark; TCM 221/12-0001 is an example only.



8. Marking

8.1 Name-plate

There are following data on the meter name-plate:

- Designation of type
- The "CE" marking and supplementary metrology marking
- Number of EC-type examination certificate
- Serial number and year of manufacture
- Class index
- Operating temperature range
- Kind of power line
- Reference voltage
- Reference current
- Maximum current
- Minimum current
- Reference frequency
- Constant of meter
- Software version
- Sign of double square for meters of protective class II

8.2 Information documentation

Meter shall be accompanied by information documentation. Groups of identical meters intended for one customer can be accompanied only by 1 copy of information documentation. This documentation shall include at least data on the name-plate (see 8.1, but without serial number and the production year) and:

- Description of meter including quantities to be measured and possibility of presentation of results
- Connection diagram (connection diagram shall be drawn also on the case of meter)
- Storage conditions
- EMC data
- Starting current
- Transitional current
- Consumption of voltage and current circuit
- Max. cross-section of connecting conductors
- Mass and dimensions
- Possibility of meter liquidation

8.3 Securing marks

The meter is furnished with two manufacturer's official securing marks or by two securing marks of notified body (module F of MID). There are adhesive labels pasted on the side of the meter case (refer to Pictures of meter)

9. Tests for EC-Type Examination Certificate

Test results are presented in the Test Report No. 6011-PT-K031-11 and 6011-PT-TS008-13. Meters complied with all test requirements.



10. Testing for conformity assessment

Conformity assessment procedure consists from these tests at reference conditions:

1. Test of no-load
2. Test of starting
3. Accuracy of meter (using of test output)
4. Test of meter constant

Tests are performed in accordance with standard EN 50470-1 and EN 50470-3. Intrinsic errors $e(I, \cos\varphi)$ are measured at reference voltage and currents and $\cos\varphi$ according under-mentioned table. After the test, the composite errors e_c are calculated at rated operating conditions according the formula:

$$e_c = \sqrt{e^2(I, \cos\varphi) + \delta^2(T, I, \cos\varphi) + \delta^2(U, I, \cos\varphi) + \delta^2(f, I, \cos\varphi)}$$

where

- $e(I, \cos\varphi)$ - intrinsic error at given current and $\cos\varphi$;
 $\delta(T, I, \cos\varphi)$ - additional percentage error due to variation of temperature in rated temperature range and at given current and $\cos\varphi$; value was determined at type examination
 $\delta(U, I, \cos\varphi)$ - additional percentage error due to variation of voltage $\pm 10\%$ U_{ref} at given current and $\cos\varphi$; value was determined at type examination
 $\delta(f, I, \cos\varphi)$ - additional percentage error due to variation of frequency $\pm 2\%$ f_{ref} at given current and $\cos\varphi$; value was determined at type examination

The meter is complying, if composite errors are smaller than maximum permissible errors (MPE).

Data for calculation of composite error									
Load		Additional error (%)					MPE (%) for class B in temperature ranges		
Current	$\cos\varphi$	$\delta(T, I, \cos\varphi)$			$\delta(U, I, \cos\varphi)$	$\delta(f, I, \cos\varphi)$	1	2	3
		1	2	3					
I_{min}	1	0,15	0,40	1,00	0,05	0,10	$\pm 2,0$	$\pm 2,5$	$\pm 3,5$
I_{tr}	1	0,15	0,40	1,00	0,05	0,10	$\pm 2,0$	$\pm 2,5$	$\pm 3,5$
	0,5ind.	0,15	0,40	1,00	0,05	0,10			
	0,8cap.	0,15	0,40	1,00	0,05	0,10			
I_{ref}	1	0,15	0,40	1,00	0,05	0,10	$\pm 2,0$	$\pm 2,5$	$\pm 3,5$
	0,5ind.	0,15	0,40	1,00	0,05	0,10			
	0,8cap.	0,15	0,40	1,00	0,05	0,10			
I_{max}	1	0,15	0,40	1,00	0,05	0,10	$\pm 2,0$	$\pm 2,5$	$\pm 3,5$
	0,5ind.	0,15	0,40	1,00	0,05	0,10			
	0,8cap.	0,15	0,40	1,00	0,05	0,10			

Temperature range 1: 5 °C...30 °C

Temperature range 2: -10 °C...5 °C and 30 °C...40 °C

Temperature range 3: -25 °C...-10 °C and 40°C...55 °C

MPE values for class A – see EN 50470-3, Table 8.

