EU-type examination certificate

Number **T11258** revision 0
Project number 1901797

Issued by	NMi Certin B.V., designated and notified by the Netherlands to perform tasks with respect to conformity modules mentioned in article 17 of Directive 2014/32/EU, after having established that the Measuring instrument meets the applicable requirements of Directive 2014/32/EU, to:
Manufacturer	NRKsM Pondweg 7 2153 PK Nieuw-Vennep The Netherlands
Measuring instrument	A static **Active Electrical Energy Meter**

Type	:	Ex9EMS 1P 1M 45A 1T, Ex9EMS 1P 1M 45A 2T, Ex9EMS 1P 1M 45A MB 2T and Ex9EMS 1P 1M 45A MO 2T
Manufacturer's mark or name	:	NRKsM
Reference voltage	:	230 V
Reference current	:	5 A
Destined for the measurement of	:	electrical energy, in a - single-phase two-wire network
Accuracy class	:	A or B
Environment classes	:	M1 / E2
Temperature range	:	-25 °C / +55 °C

Further properties are described in the annexes:
– Description T11258 revision 0;
– Documentation folder T11258-1.

Valid until 19 January 2028

Issuing Authority **NMi Certin B.V., Notified Body number 0122**
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INSPECTION RvA I 122

1 General information about the instrument

All properties of the static active electrical energy meter, whether mentioned or not, shall not be in conflict with the legislation.

1.1 Essential parts

Description	Document	Remarks
measuring sensor	11258/0-05	
printed circuit board - Ex9EMS 1P 1M 45A 1T - Ex9EMS 1P 1M 45A 2T - Ex9EMS 1P 1M 45A MB 2T - Ex9EMS 1P 1M 45A MO 2T	11258/0-09 11258/0-10 or 11258/0-11 or 11258/0-12 or 11258/0-13	All parts of the printed circuit boards are essential, except the components which are related to parts as described in paragraph 1.4 or 1.6.

1.2 Essential characteristics

1.2.1 See EU-type examination certificate T11258 revision 0 and the characteristics mentioned below.

1.2.2 Approved meter types : Ex9EMS 1P 1M 45A 1T, Ex9EMS 1P 1M 45A 2T, Ex9EMS 1P 1M 45A MB 2T and Ex9EMS 1P 1M 45A MO 2T
An explanation of all type designations is presented in document no. 11258/0-02.

1.2.3 Frequency : 50 Hz

1.2.4 Meter constant : 10.000 imp./kWh

1.2.5 Number of registers : 14

1.2.6 Export energy : the meter is capable of measuring energy in 2 directions.

1.2.7 Software specification (refer to WELMEC 7.2):

- Software type P;
- Risk Class C;
- Extensions L, D, S and T are not applicable.

Software version	Identification number (checksum)	Remarks
V2.18	005FD96E	The checksum is displayed in the display sequence (auto scroll mode) or via the bush buttons (button mode) and the software version can be read via the IR interface.

1.3 Essential shapes

1.3.1 The nameplate is bearing at least, good legible, the information as mentioned in the regulations on energy meters. An example of the markings is shown in document no. 11258/0-03.

1.3.2 Sealing: see chapter 2.

1.3.3 The registration observation is executed by means of a LED.

1.4 Conditional parts

1.4.1 Terminal block
The connections for the current cables on the terminal block have a diameter of at least 7 mm. The cables are connected with the terminal block via 1 screw. See document no. 11258/0-08.

1.4.2 Housing
The meter has got a dustproof housing, which has sufficient tensile strength. The cover is made of synthetic material. An example of the housing is presented in document no. 11258/0-01 and 11258/0-04.

1.4.3 Terminal cover
The terminal cover is made of synthetic material.

1.4.4 Register
The quantity of measured energy is presented by means of a display with at least 6 elements. The way of presentation is described in document no. 11258/0-06.
For test purposes an indication with a least significant element of at least 0,01 kWh, can be arranged via the communication interface.

1.4.5 Tariff control
When the meter is provided with more than one register, a tariff control is available by means of tariff inputs, whereby the EMC-requirements are fulfilled as described in Annex V of Directive 2014/32/EU.

1.4.6 Optical communication
The meter is provided with optical communication. Via the communication no legally relevant data can be altered.

1.4.7 Electrical communication
The meter can be equipped with Mbus or Modbus communication modules whereby the EMC-requirements are fulfilled as described in Annex V of Directive 204/32/EU. Via the communication no legally relevant data can be altered.

Description	Document	Remarks
Mbus	11258/0-09, 11258/0-12	Ex9EMS 1P 1M 45A MB 2T
Modbus	11258/0-09, 11258/0-13	Ex9EMS 1P 1M 45A MO 2T

1.5 Conditional characteristics

1.5.1 Maximum current:
smaller than or equal to 45 A, and at least 5 times higher than the reference current.

1.5.2 Minimum current: 0,25 A

1.6 Non-essential parts

1.6.1 Pulse output

2 Seals

The meter is sealed by a sticker while the bottom case is glued.
An example of the sealing is presented in document no. 11258/0-07.

3 Conditions for conformity assessment according to module D or F

The influence factors for temperature, frequency and voltage, which are necessary to perform the conformity assessment according to module D or F, are presented in Annex 1, belonging to this EU-type examination certificate.
Based on the WELMEC 11.1, section 2.5.6, the sum of the square values is presented.

Annex 1

Influence factors for temperature, frequency and voltage

During the type approval examination the influence factors for temperature, frequency and voltage are determined per load point. The values depicted in the table below present the root sum square values per load point, determined via the following formula:

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

with:

- $\delta e(T, I, \cos\varphi)$ = the additional percentage error due to the variation of the temperature at a certain load;
- $\delta e(U, I, \cos\varphi)$ = the additional percentage error due to the variation of the voltage at the same load;
- $\delta e(f, I, \cos\varphi)$ = the additional percentage error due to the variation of the frequency at the same load.

Ex9EMS 1P 1M 45A 1T:

Current	Power factor	-25°C [%]	-10°C [%]	+5°C [%]	+23°C [%]	+40°C [%]	+55°C [%]
Imin	1	1,0	1,0	1,0	0,5	0,6	0,7
Itr	1	0,4	0,3	0,2	0,1	0,215	0,3
	0,5 ind.	0,6	0,5	0,3	0,2	0,2	0,4
	0,8 cap.	0,3	0,3	0,2	0,2	0,2	0,4
Imax	1	0,3	0,2	0,1	0,1	0,2	0,3
	0,5 ind.	0,6	0,4	0,2	0,1	0,2	0,4
	0,8 cap.	0,3	0,2	0,2	0,2	0,2	0,3

Ex9EMS 1P 1M 45A MB 2T:

Current	Power factor	-25°C [%]	-10°C [%]	+5°C [%]	+23°C [%]	+40°C [%]	+55°C [%]
Imin	1	0,6	0,6	0,6	0,6	0,7	0,7
Itr	1	0,2	0,2	0,2	0,2	0,2	0,3
	0,5 ind.	0,3	0,3	0,2	0,2	0,2	0,3
	0,8 cap.	0,3	0,3	0,3	0,3	0,3	0,3
Imax	1	0,3	0,2	0,1	0,1	0,1	0,3
	0,5 ind.	0,6	0,4	0,2	0,1	0,2	0,3
	0,8 cap.	0,3	0,2	0,2	0,2	0,2	0,3

Remark: The value for Imin has been tested with 3% of Iref.