# EU-type examination certificate

Number **T11259** 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 2M 100A 1T, Ex9EMS 1P 2M 100A 2T, Ex9EMS 1P 2M 100A MB 2T and EX9EMS 1P 2M 100A 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<br>- single-phase two-wire network |
| Accuracy class | : | A or B |
| Environment classes | : | M1 / E2 |
| Temperature range | : | -40 °C / +70 °C |

Further properties are described in the annexes:
- Description T11259 revision 0;
- Documentation folder T11259-1.

Valid until

19 January 2028

Issuing Authority

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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 | 11259/0-05 | |
| printed circuit board:<br>- Ex9EMS 1P 2M 100A 1T<br>- Ex9EMS 1P 2M 100A 2T<br>- Ex9EMS 1P 2M 100A MB 2T<br>- EX9EMS 1P 2M 100A MO 2T | 11259/0-10<br>11259/0-11<br>11259/0-12<br>11259/0-13<br>11259/0-14 | 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 T11259 revision 0 and the characteristics mentioned below.

1.2.2 Approved meter types : Ex9EMS 1P 2M 100A 1T, Ex9EMS 1P 2M 100A 2T, Ex9EMS 1P 2M 100A MB 2T and Ex9EMS 1P 2M 100A MO 2T
An explanation of all type designations is presented in document no. 11259/0-03.

1.2.3 Frequency : 50 Hz and 60 Hz

1.2.4 Meter constant : 10.000 imp./kWh

1.2.5 Number of registers : 14

1.2.6 Error messages : An overview of error codes is presented in document no. 11259/0-09.

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

1.2.8 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 | 005CD170 | The checksum is displayed in the display sequence. The software version can be read with 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. 11259/0-02.

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 documents no. 11259/0-01 and 11259/0-07.

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. 11259/0-04 and 11259/0-01.

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. 11259/0-08.
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 (optional)
The meter can be equipped with Mbus or Modbus communication modules whereby the EMC-requirements are fulfilled as described in Annex V of Directive 2014/32/EU. Via the communication no legally relevant data can be altered.

## 1.5 Conditional characteristics

1.5.1 Maximum current:
smaller than or equal to 100 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 and it is also glued for life.
An example of the sealing is presented in document no. 11259/0-06.

## 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 2M 100A 1T:

| Current | Power factor | -40°C [%] | -25°C [%] | -10°C [%] | +5°C [%] | +23°C [%] | +40°C [%] | +55°C [%] | +70°C [%] |
|---|---|---|---|---|---|---|---|---|---|
| Imin | 1 | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 |
| Itr | 1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 |
| | 0,5 ind. | 0,2 | 0,2 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 |
| | 0,8 cap. | 0,1 | 0,1 | 0,0 | 0,0 | 0,0 | 0,1 | 0,1 | 0,2 |
| 10 Itr | 1 | 0,0 | 0,0 | 0,1 | 0,0 | 0,0 | 0,1 | 0,1 | 0,2 |
| | 0,5 ind. | 0,2 | 0,2 | 0,2 | 0,1 | 0,0 | 0,0 | 0,1 | 0,2 |
| | 0,8 cap. | 0,1 | 0,1 | 0,0 | 0,0 | 0,0 | 0,1 | 0,1 | 0,2 |
| Imax | 1 | 0,2 | 0,2 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 |
| | 0,5 ind. | 0,5 | 0,4 | 0,3 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 |
| | 0,8 cap. | 0,3 | 0,2 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 |

Ex9EMS 1P 2M 100A MO 2T:

| Current | Power factor | -40°C [%] | -25°C [%] | -10°C [%] | +5°C [%] | +23°C [%] | +40°C [%] | +55°C [%] | +70°C [%] |
|---|---|---|---|---|---|---|---|---|---|
| Imin | 1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 |
| Itr | 1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 | 0,1 |
| | 0,5 ind. | 0,3 | 0,3 | 0,2 | 0,1 | 0,1 | 0,1 | 0,2 | 0,1 |
| | 0,8 cap. | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,2 | 0,1 |
| 10 Itr | 1 | 0,1 | 0,1 | 0,1 | 0,0 | 0,0 | 0,0 | 0,2 | 0,1 |
| | 0,5 ind. | 0,3 | 0,3 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 |
| | 0,8 cap. | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,2 | 0,1 |
| Imax | 1 | 0,2 | 0,2 | 0,1 | 0,1 | 0,0 | 0,1 | 0,1 | 0,1 |
| | 0,5 ind. | 0,5 | 0,4 | 0,3 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 |
| | 0,8 cap. | 0,3 | 0,2 | 0,1 | 0,0 | 0,0 | 0,0 | 0,1 | 0,0 |