EU-type examination certificate

Number **T12314** revision 4
Project number 4040632

Issued by

NMi Certin B.V.,
designated and notified by the Netherlands to perform tasks with respect to conformity assessment procedures 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

Schneider Electric
35 rue Joseph Monier
92500 Rueil Malmaison
France

Measuring instrument

A static **Active Electrical Energy Meter**

Type	:	iEM2435 / iEM2455/ EM2214
Manufacturer's mark or name	:	Schneider Electric
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	:	-40 °C / +70 °C

Further properties are described in the annexes:
– Description T12314 revision 4;
– Documentation folder T12314-4.

Valid until

12 April 2032

Initially issued

12 April 2022

Remark

This revision replaces the earlier versions, including its documentation folder.

Issuing Authority

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Certification Board

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PRODUCTS RvA C 681

Description

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	12314/0-04	
printed circuit board - iEM2435 V2.34 V2.341 V2.35	 12314/0-11; 12314/0-12; 12314/2-01; 12314/2-02	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.
- iEM2455 V2.34 V2.341 V2.35 V2.36	 12314/0-09; 12314/0-10; 12314/2-03; 12314/2-04; 12314/3-03; 12314/3-04	
- EM2214 V1.12.01	 12314/4-03; 12314/4-04	

1.2 Essential characteristics

1.2.1 See EU-Type examination certificate T12314 revision 4 and the characteristics mentioned below.

1.2.2 Approved meter types : iEM2435, iEM2455 and EM2214
An explanation of all type designations is presented in document no. 12314/4-01.

1.2.3 Frequency : 50 Hz and 60Hz

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.12314/0-08.

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, O, D, S and T are not applicable.

Software version	Identification number (checksum)	Remarks
V1.0.001 (iEM2435)	008A3E69	Update of Software version and checksum. The checksum is displayed in the display sequence. The software version readout as replay 1.0.001 or 1.0.002 in Mbus.
V1.0.002 (iEM2435)	009B5C26	
V3.44 (iEM2455)	008A3E69	Update of Software version and checksum. The checksum is displayed in the display sequence. The software version readout as replay 34400, 34500 or 34900 in Modbus.
V3.45 (iEM2455)	009B5C26	
3.49 (iEM2455)	009A51B7	
2.18 (EM2214)	005CD170	

The checksum is displayed in the display sequence and 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. 12314/0-02, 12314/3-01, 12314/3-02 and 12314/4-02.

This measuring instrument was previously placed on the market under the name Schneider Electric Industries SAS.

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. 12314/0-01 and 12314/0-06.

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. 12314/0-03.

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. 12314/0-07.
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 port no legally relevant data can be altered.

1.4.7 Electrical communication
The meter is provided 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 (0,5 x I_{tr})

1.6 Non-essential parts

1.6.1 Pulse output

2 Seals

The meter housing is sealed with a destructible sealing sticker.
Optionally the meter terminal covers can be sealed with a lead and wire installation sealing method.

An example of the sealing is presented in document no.12314/0-05.

3 Conditions for conformity assessment according to module D or F

This measuring instrument was previously placed on the market under the name Schneider Electric Industries SAS.

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 2.4.6, 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.

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