EU-type examination certificate

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	ZTE Corporation NO.55 Hi-Tech Road South NanShan District Shenzhen City, Guangdong Province, P.R.China

Measuring instrument — A static **Active Electrical Energy Meter**

Type	:	ZX AE220
Manufacturer's mark or name	:	ZTE Corporation
Reference voltage	:	3x220/380V, 3x230/400V, 3x240/415V
Reference current	:	5A
Destined for the measurement of	:	electrical energy, in a - three-phase four-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 T11613 revision 1
– Documentation folder T11613-1

Valid until	19 July 2029
Remark	This revision replaces the previous version, except of its documentation folder.
Issuing Authority	**NMi Certin B.V., Notified Body number 0122** 22 July 2019

C. Oosterman
Head Certification Board

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	11613/0-04	HD01-120
Printed circuit board - Main board ET-6023+8302B-Z V1.1-180702	11613/0-10, 11613/0-11	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.
- Power board ET-6023+8302B-D1 V1.1-180626	11613/0-12, 11613/0-13	

1.2 Essential characteristics

1.2.1 See EU-type examination certificate T11613 revision 1 and the characteristics mentioned below.
1.2.2 Approved meter types : ZX AE220
1.2.3 Frequency : 50 Hz or 60 Hz
1.2.4 Meter constant : 1.000 imp./kWh
1.2.5 Number of registers : Max. 6
1.2.6 Error messages : The meter is equipped with an Alarm LED for alarm status indication. The error codes are presented in document no. 11613/0-06.
1.2.7 Export energy : The meter is capable of measuring energy in 2 directions. The meter can also be used with 2 phases loaded with import energy and 1 phase loaded with export energy.
1.2.8 Registration methods :

The following registration methods are allowed:
• Measurement of import energy only (A+, with reverse stop);
• Measurement of import and export energy by means of summation by sign (sum of import energy per phase and sum of export energy per phase);
• Measurement of energy as the sum of import and export (absolute import energy + absolute export energy).

1.2.9 Software specification (refer to WELMEC 7.2):
• Software type P;
• Risk Class C;
• Extension L, S, D while extension T is not applicable.

Software version	Identification number (checksum)	Remarks
V10.17	DDCC472E	The software version is displayed at start up and in the display sequence.

Firmware validation and activation events can be read with the OBIS code: 0.0.44.0.1.255, class: 18, event code: firmware validation success: 17, firmware activation success: 18.

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. 11613/0-01 and 11613/0-02.

1.3.2   Sealing: see chapter 2.

1.3.3   The registration observation is executed by means of an 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 2 screws. See documents no. 11613/0-08 and 11613/0-09.

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. 11613/0-03.

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. 11613/0-05.
For test purposes an indication with a least significant element of at least 0,01 kWh, can be arranged via the user interface.

1.4.5   Tariff control
When the meter is provided with more than one register, a tariff control is available remotely or locally, 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   Communication

The meter can be provided with RS485, Wired M-BUS, G3-PLC (optional) or GPRS (optional) communication modules. The EMC-requirements are fulfilled as described in Annex V (MI-003) of Directive 2014/32/EU. Via the communication no legally relevant data can be altered.

Description	Document	Remarks
G3-PLC communication module	11613/0-14, 11613/0-15	PL18-G3MST-CPX2-2.02-180611
GPRS communication module	11613/0-16, 11613/0-17	MC18-ZTEDLMST0-M72D-2.02-180611

1.4.8   Breaker

The meter is equipped with a circuit breaker. See documentation 11613/0-04.

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 and relay output.

2   Seals

The meter cover is sealed with one main cover seal.
An example of the sealing is presented in document no. 11613/0-03.

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.

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	0,3	0,2	0,1	0,0	0,0	0,1	0,3	0,4
Itr	1	0,3	0,2	0,1	0,0	0,0	0,1	0,3	0,4
	0,5 ind.	0,3	0,3	0,1	0,1	0,0	0,1	0,3	0,4
	0,8 cap.	0,3	0,2	0,1	0,1	0,0	0,1	0,2	0,3
Itr phase R	1	0,2	0,2	0,1	0,0	0,0	0,1	0,2	0,3
	0,5 ind.	0,2	0,2	0,1	0,1	0,0	0,1	0,3	0,4
Itr phase S	1	0,3	0,3	0,1	0,1	0,0	0,1	0,3	0,4
	0,5 ind.	0,4	0,3	0,2	0,1	0,0	0,1	0,3	0,4
Itr phase T	1	0,2	0,2	0,1	0,1	0,0	0,1	0,3	0,4
	0,5 ind.	0,3	0,2	0,1	0,1	0,0	0,1	0,3	0,4
10 Itr	1	0,3	0,2	0,1	0,1	0,0	0,1	0,3	0,4
	0,5 ind.	0,3	0,2	0,1	0,1	0,0	0,1	0,3	0,4
	0,8 cap.	0,3	0,2	0,1	0,0	0,0	0,1	0,3	0,4
10 Itr phase R	1	0,2	0,2	0,1	0,0	0,0	0,1	0,2	0,3
	0,5 ind.	0,2	0,2	0,1	0,0	0,0	0,1	0,3	0,4
10 Itr phase S	1	0,3	0,3	0,1	0,1	0,0	0,1	0,3	0,4
	0,5 ind.	0,4	0,3	0,2	0,1	0,0	0,1	0,3	0,4
10 Itr phase T	1	0,3	0,2	0,1	0,1	0,0	0,1	0,3	0,4
	0,5 ind.	0,3	0,2	0,1	0,1	0,0	0,1	0,3	0,4
Imax	1	0,3	0,2	0,1	0,1	0,0	0,1	0,3	0,4
	0,5 ind.	0,3	0,2	0,1	0,1	0,0	0,1	0,3	0,4
	0,8 cap.	0,3	0,2	0,1	0,1	0,0	0,1	0,3	0,4
Imax phase R	1	0,3	0,2	0,1	0,0	0,0	0,1	0,2	0,4
	0,5 ind.	0,3	0,2	0,1	0,0	0,0	0,1	0,3	0,4
Imax phase S	1	0,3	0,3	0,1	0,1	0,0	0,1	0,3	0,4
	0,5 ind.	0,3	0,3	0,1	0,1	0,0	0,1	0,3	0,5
Imax phase T	1	0,3	0,2	0,1	0,1	0,0	0,1	0,3	0,4
	0,5 ind.	0,3	0,2	0,1	0,1	0,0	0,1	0,3	0,4