

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 Bemko Sp. z o. o.
ul. Bocznicowa 13
05-850 Jawczyce
Poland

Measuring instrument **A static Active Electrical Energy Meter**
Type : SL015-M-MID, SL01A-MBUS-MID,
SL01A-MID
Manufacturer's mark or name : Bemko Sp. z o. o.
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 T11951 revision 0;
– Documentation folder T11951-1.

Valid until 17 September 2030

Issuing Authority

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Certification Board

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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 | 11951/0-06 | |
| main board SL015-M-MID SL01A-MBUS-MID SL01A-MID | 11951/0-10, 11951/0-11 11951/0-14, 11951/0-17 11951/0-12, 11951/0-13 | 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. |
| power board SL015-M-MID SL01A-MBUS-MID SL01A-MID | 11951/0-10, 11951/0-11 11951/0-15, 11951/0-17 11951/0-12, 11951/0-13 | |

1.2 Essential characteristics

- 1.2.1 See EU-type examination certificate T11951 revision 0 and the characteristics mentioned below.
- 1.2.2 Approved meter types : SL015-M-MID (mechanical register), SL01A-MBUS-MID or SL01A-MID (digital register). An explanation of all type designations is presented in document no. 11951/0-05.
- 1.2.3 Frequency : 50 Hz
- 1.2.4 Meter constant : 1.000 or 2.000 imp./kWh
- 1.2.5 Number of registers : 1
- 1.2.6 Export energy : the meter is not capable of measuring energy in 2 directions.
- 1.2.7 Software specification (refer to WELMEC 7.2):
- Software type P;
 - Risk Class C;
 - Extension L, D, S and T are not applicable.

| Meter type | FW version / checksum | Remarks |
|---------------------|-----------------------|--|
| SL015-M-MID-1000* | 7c3b | SL015-M-MID: the software version is printed on the name plate |
| SL015-M-MID-2000 | 6B57 | |
| SL01A-MID-1000 | 7944 | SL01A-MID & SL01A-MBUS-MID: The software version and checksum are displayed at start-up. |
| SL01A-MID-2000 | 3bE8 | |
| SL01A-MBUS-MID-1000 | 34AE | |
| SL01A-MBUS-MID-2000 | 34AE | |

* the 1000 or 2000 refers to the meter constant of the meter

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. 11951/0-02, 11951/0-03 and 11951/0-04.

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 4 mm. The cables are connected with the terminal block via one screw. See document no. 11951/0-07.

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. 11951/0-01 and 11951/0-07.

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. For test purposes an indication with a least significant element of at least 0,01 kWh is available.

1.4.5 MBUS or MODBUS communication (optional for SL01A-MBUS-MID)

The meter can be provided with MBUS or MODBUS communication 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.

| Description | Document | Remarks |
|--------------|------------------------|---------|
| MBUS board | 11951/0-16, 11951/0-17 | |
| MODBUS board | 11951/0-16, 11951/0-17 | |

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.

Terminal block:

| Maximum current | Document no. | Remarks |
|-----------------|--------------|---------|
| 45 A | 11951/0-07 | |

- 1.5.2 Minimum current: 0,25 A (0,5 I_{tr})

1.6 Non-essential parts

- 1.6.1 Pulse output

2 Seals

The meter is sealed with a wire seal and a void label or a wire seal.
 An example of the sealing is presented in document no. 11951/0-08 or 11951/0-09.

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.

SL015-M-MID / SL01A-MID

| Current | Power factor | -25°C [%] | -10°C [%] | +5°C [%] | +23°C [%] | +40°C [%] | +55°C [%] |
|--------------------|----------------------|------------|------------|------------|------------|------------|------------|
| I _{min} | 1 | 0,6 | 0,5 | 0,4 | 0,4 | 0,4 | 0,4 |
| I _{tr} | 1 | 0,5 | 0,4 | 0,3 | 0,2 | 0,2 | 0,3 |
| | 0,5 ind. 0,8 cap. | 0,6 0,5 | 0,5 0,4 | 0,4 0,3 | 0,4 0,3 | 0,4 0,3 | 0,4 0,3 |
| 10 I _{tr} | 1 | 0,4 | 0,3 | 0,1 | 0,1 | 0,1 | 0,2 |
| | 0,5 ind. 0,8 cap. | 0,4 0,4 | 0,3 0,3 | 0,2 0,2 | 0,1 0,1 | 0,1 0,2 | 0,1 0,2 |
| I _{max} | 1 | 0,5 | 0,3 | 0,2 | 0,1 | 0,1 | 0,2 |
| | 0,5 ind. 0,8 cap. | 0,8 0,6 | 0,7 0,4 | 0,7 0,1 | 0,4 0,1 | 0,5 0,1 | 0,5 0,2 |

SL01A-MBUS-MID

| Current | Power factor | -25°C [%] | -10°C [%] | +5°C [%] | +23°C [%] | +40°C [%] | +55°C [%] |
|--------------------|----------------------|------------|------------|------------|------------|------------|------------|
| I _{min} | 1 | 1.0 | 0.8 | 0.4 | 0.2 | 0.4 | 0.7 |
| I _{tr} | 1 | 1.0 | 0.7 | 0.4 | 0.1 | 0.4 | 0.6 |
| | 0,5 ind. 0,8 cap. | 1.0 1.0 | 0.8 0.7 | 0.4 0.4 | 0.1 0.1 | 0.4 0.3 | 0.8 0.6 |
| 10 I _{tr} | 1 | 1.0 | 0.7 | 0.4 | 0.1 | 0.3 | 0.6 |
| | 0,5 ind. 0,8 cap. | 1.0 1.0 | 0.7 0.6 | 0.4 0.4 | 0.1 0.1 | 0.4 0.3 | 0.7 0.6 |
| I _{max} | 1 | 0.9 | 0.6 | 0.4 | 0.1 | 0.3 | 0.6 |
| | 0,5 ind. 0,8 cap. | 0.8 0.7 | 0.5 0.5 | 0.3 0.3 | 0.1 0.1 | 0.4 0.3 | 0.6 0.5 |