

ELECTRICITY METER LOAD SIMULATOR

SZE10

Device is designed for crude testing of electricity meters. A current of around 10 A is forced into the meter current circuit. Current magnitude depends on mains actual voltage.

The equipment is intended for approximate checking of the operation of an energy meter installed in a distributor. The check is performed on an energy meter connected to the mains and the load in the usual setup; the load is still powered. After connection to the energy meter, SZE10 is also powered from the mains (it has no internal power supply). It injects a test current of approximately 12 A into the current circuit of the energy meter. The exact value depends on the variations of the mains voltage and on the amount of contact resistance between the current carrying terminals of SZE10 and the current carrying terminals of the energy meter. SZE10 is intended for 230 V / 50 Hz nominal voltage; it can be used to test energy meters connected to 120 V / 50 Hz mains, but in this case, the test current is reduced to about half. Its output circuit is protected with a 10 A fuse, which does not break in normal operation. For the energy meter to show a 0.1 kWh reading, SZE10 must be connected for approximately 2.5 minutes. This test can be shortened if electronic energy meters with a blinking arrow (showing that output consumption is registered) or even with a bar-graph (showing the approximate level of output consumption) are tested. During longer or repeated measurement, the device can overheat and in this case a resettable thermal protection interferes. The device seems completely dead until the thermal protection cools down. After cooling down, SZE10 is ready for subsequent use.



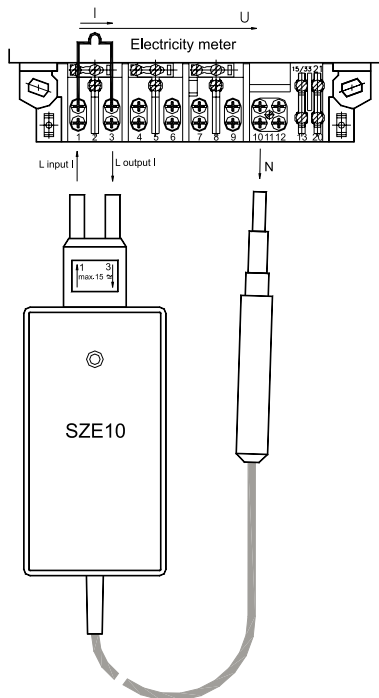
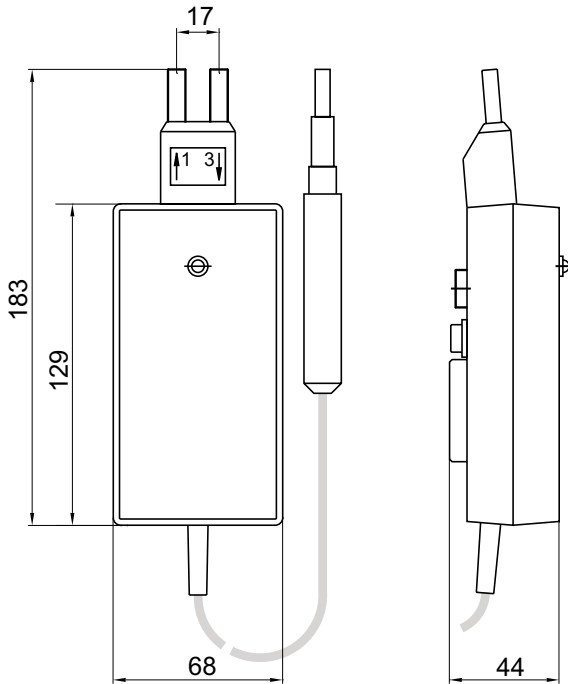
Warning

All terminals are galvanically connected and are connected to the mains during the test! It is absolutely necessary to comply with existing work safety standards and rules, including the rules for the performance of revision activities. The product can only be used by trained persons with an electrical engineering qualification, with the necessary knowledge of usual connection of distributors and energy meters.

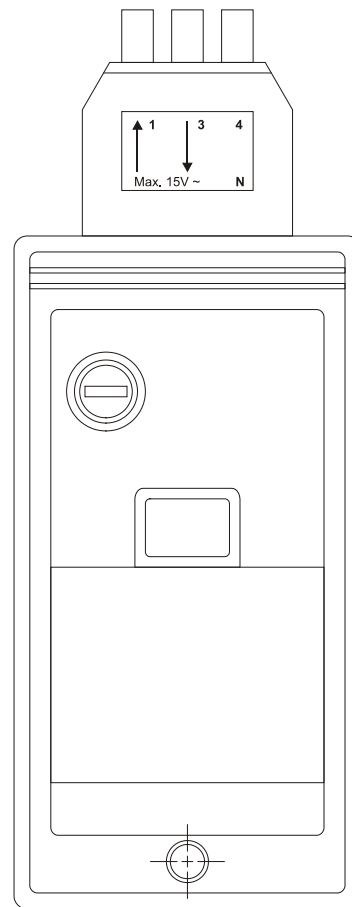
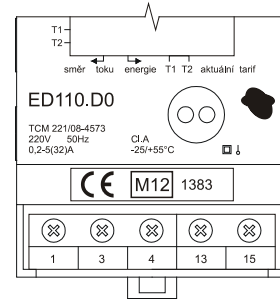
SZE10 is designed for 230 V~ (phase voltage between L and N terminals). When checking a poly-phase electricity meter, it is absolutely necessary to connect SZE10 properly, so that it is never connected to 400 V~ (between phases). Connection of both current terminals of SZE10 to the respective current circuit is mandatory. Maximum voltage between these terminals is 15 V~. Connection of current terminals of SZE10 between two phases leads to shortcircuiting and can result in irreparable destruction of SZE!

DIMENSIONAL DRAWING

SZE5, SZE10 a SZE10-2Z



SZE10-PH



DESIGN

SZE10 is placed in a plastic box measuring 68 x 129 x 44 mm.

Current terminals are fixed to the box; flexible wire is used to connect the device to the neutral terminal of the energy meter. The fuse is slow (T). If you use a fast fuse, it can be blown even if the device works correctly.

SZE5 and SZE10

Contacts for connecting the output terminals are connected firmly to the box. To connect to the neutral terminal of the meter is used moving insulated wire terminated contact protected. Button is located on the lower side and a yellow LED on the top of the box.

LED indicates blown fuse or insufficient contact in the circuit meter - SZE10.

The button is used to switch the load current approximately 10 A (5 A for type SZE5).

These versions are designed to control single- and poly-phase meters with dimensions terminals according to DIN 43857.

SZE10-2Z

Contacts for connecting the output terminals are connected firmly to the box. To connect to the neutral terminal of the meter is used moving insulated wire terminated contact protected. Button is located on the underside of a green - red LED on the top of the box.

Red LED indicates blown fuse or insufficient contact in the circuit meter - SZE10 green and connection load current.

Key toggles approximately 220 mA / 10 A (uncrushed / down).

This embodiment is intended for the control of single and three phase meters with dimensions terminals DIN 43857.

SZE10-PH

Contacts for connecting the output terminals and the neutral terminal are connected firmly to the box. Button and yellow indicator LEDs are located on the upper side of the box.

LED indicates blown fuse or insufficient contact in the circuit meter - SZE.

The button is used to switch the load current approximately 10 A.

This class is designed for control of single and three phase electricity meters with a pitch of 9.5 mm terminals mounted on DIN rail.

Technical Parameters

Mains voltage Un	100 V to 260 V for type SZE5, SZE10 and SZE10-PH 230 V + 15 % for type SZE10-2Z
Nominal current fn	50 Hz
Allowed tolerance fn	-5 Hz to 2 Hz
Resistance against voltage spikes	8 kV 1.2/50 μ s
Power consumption	max. 60 VA
Operating temperature	-20 °C to 60 °C
Protection	IP40
Dielectric strength terminals/cover	4 kV minimum
Operating position	any
Operation type	discontinuous: 3 min. of operation / 20 min. cooling down
Dimensions, incl. fixed measurement probes	68 x 183 x 44mm
Weight	0.57 kg

Maintenance And Storage

Care And Maintenance

The device is a maintenance-free product with determined minimum operation service life of 15 years. For possible cleaning of the outside surface from dust and other impurities, the manufacturer does not recommend using organic solvents, aggressive chemicals and abrasive cleaning agents. Prescribed storage temperatures shall be complied with: failure to do so can result in shortening of electronic components service life. The product shall be protected against wet and humid conditions. It is designed for internal use, i.e. it may be used only in places providing additional protection against the effects of external environment (e.g. in a building or cabinet). Precipitation, humidity and liquids containing minerals can cause corrosion of electric circuits if the device becomes wet. The product shall not be placed on and dried by a source of heat or inserted into a source of heat (e.g. microwave oven, classic oven or radiator / heater) as it can overheat and some of its parts explode. It shall not be exposed to excessive heat as it can lead to deformation of case / cover. The device shall not be stored in cold premises, especially with subsequent warming-up (to nominal operation temperature). Humidity can condensate inside and damage electronic components or isolation properties of the product can deteriorate.

Service

Service shall be ensured by: ZPA Smart Energy a.s., Komenskeho 821, 541 01 Trutnov, Czech Republic, Trademark Smart Energy, Tel. + 420 499 907 111, E-mail: zpa@zpa.cz, www.zpa.cz .

Transport

The device shall be packed for transport either in the original package, in which it was delivered by the manufacturer, or in a package causing / ensuring no damage due to handling or transport.

Safety

Manufacturer Warnings

The product is capable of safe operation. The manufacturer has issued the EU Declaration of Conformity as per Act 90/2016 Coll. Despite this fact, the manufacturer warns of the risk of possible danger resulting from incorrect handling or incorrect use of the product as follows:

- Installation and maintenance must be performed by a personnel with the corresponding electro-technical qualification and adequately trained, that shall inform the operator on conditions of safe operation;
- The product shall not be used for purposes other than those it was manufactured for;
- The product shall not be willfully modified contrary to the type design;
- The product shall not be operated with voltage, current or frequency other than those it was produced or professionally modified for;
- The product shall be located and secured so as to complicate or disable handling by persons with no electro-technical qualification, especially children;
- Before every new putting to operation, e.g. after repair, maintenance etc., Ingress Protection shall be restored in full, all safety measures taken and inspection done by a designated electrical inspector;
- During operation, premises where the device is installed, shall be free of danger of fire or explosion in case of development of gases, vapors of inflammable liquids and occurrence of inflammable dust,
- The product shall be handled by a qualified and adequately trained person only, and handling shall be performed without voltage with the exception of measurement by measuring meter with insulated tips;
- The product shall not be operated under conditions or in an environment not ensuring safe operation (e.g. location on flammable base, cover from inflammable material, insufficient protection from penetration of foreign elements, water or other liquids);
- The product shall be located and operated in an indoor environment, i.e. in places providing additional protection against effects of external environment (e.g. inside a building or cabinet).
- The product shall not be operated in an environment with major vibrations and oscillations or under such conditions.

Failure of the user to observe any of the aforesaid warnings renders the manufacturer not being liable for a defect occurring as an incidental consequence of this failure. Non-observance of storage and operation conditions recommended in article Care And Maintenance can have an adverse effect on the product service life.

Responsibility

The owner of the device is responsible for ensuring that all persons engaged in working and handling the product:

- Are knowledgeable and qualified as per national regulations;
- Have read and understood corresponding parts of this document;
- Strictly observe safety regulations and operation data stipulated in its individual articles.

The owner of the device is further responsible for:

- Protection of persons;
- Prevention of damage to material;
- Personnel training.

Safety Instructions

The following safety instructions shall be observed under all circumstances:

- Wires the device is connected to shall be powered neither during installation nor replacement. Powered contacts pose a life threat. For this reason, until the work is finished, the corresponding power supply fuses shall be removed and stored in a place, safeguarding against unnoticed reinstallation by a person holding no responsibility;
- Local safety regulations shall be observed. The device installation shall be executed solely by qualified and trained personnel;
- With no exception, prior to terminal cover opening, current transformer secondary circuits shall be short circuited. High voltage generated during current transformer circuit interruption poses a life threat and damages the transformer;
- The product shall by no means be cleaned under running water or by high-pressure equipment. Water penetration can cause a short circuit. It is necessary to respect ingress protection of the device.

Disposal

As per certificate ISO 14001 data, the components used in the device are mostly separable and so can be disposed of or recycled accordingly. At the end of its service life, the device shall be handed over to specialized companies dealing in used material separation and consequent recycling. An unused device shall be disposed of ecologically as per the Waste Act.

The device contains no radioactive, carcinogenic or other materials having an adverse effect either on human health or the environment. All plastic materials can be recycled.

Packing is recyclable and at the end of its service life shall be handed over to specialized companies as a source of secondary raw materials or energy.

Liquidation and Legal Regulations Concerning the Environment Protection

The product disposal shall strictly observe local regulations for environment protection.

Components	Disposal
Printed circuit boards, LED	Electronic waste. Dispose of as per local regulations.
Metal parts	Separate and hand over to the waste collection center for disposal as per local regulations.
Plastic components	Separate and hand over for disposal or re-granulation as per local regulations.

ZPA Smart Energy a.s.; Komenskeho 821; 541 01 Trutnov; Czech Republic

Phone: +420 499 907 111; Fax: +420 499 907 497

E-mail: zpa@zpa.cz; www.zpa.cz

Technical Specification Nr.: A - 7 • 8 • 02, November 2012

