

## **Acoustic shock generator** **GUA-100E**

The GUA-100E shock generator has been developed as a portable, special device of normal construction, used to locate faults in power cables and tire cables with a rated voltage of up to 6kV.

It can be used for locating cables and wires, transporting devices, portable devices, transportable devices and manual installation of underground mine workings (rooms).

When using a shock generator GUA-100E in workings (rooms) classified as grade "b" and / or "c" of the methane explosion hazard pursuant to the Regulation of the Minister of Energy of November 23, 2016. on the detailed requirements for running underground mining plants - point 5.11, the following conditions must be met:

- a) the location will be performed by persons on the basis of a written order or in the manner specified in the detailed instructions for safe performance of these works and tests, approved by the manager of the mining plant operations,
- b) the dispatcher will be notified about the commencement and completion of the localization,
- c) the location does not begin or it is interrupted if a methane content greater than 0.5% is found along the route of a damaged cable or wire



The use of a shock generator allows personnel to visually or audibly locate a damaged cable or conductor. The GUA-100E shock generator is not intended for the location of damage to cables and buried cables. The generator has been designed to ensure full safety for the operator.

### **Construction**

The GUA-100E shock generator is made in a dustproof, rectangular metal casing. Handles for carrying it are welded to the housing. The generator also has a metal cover for the housing. The housing is protected against corrosion with varnish coats.

The integral equipment of the generator is:

- three-core power cord,
- test leads terminated with clamps,
- ground wire with clamp.

### **Technical data of the GUA-100E acoustic shock generator:**

|                                   |                       |
|-----------------------------------|-----------------------|
| Rated voltage of the supply $U_N$ | 230 [V]               |
| Range of supply voltage changes   | $(0,85 \div 1,1) U_N$ |
| Rated phase current $I_N$         | 1,5 [A]               |
| Rated frequency $f_N$             | 50 [Hz]               |



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#### Technical data of the GUA-100E acoustic shock generator:

|  |                                  |
|--|----------------------------------|
| Test voltage U   | 9 [kV] and 18 [kV] DC $\pm 25\%$ |
| Nominal energy of the test pulse                                   | 55 [J] by 18 [kV]                |
| Duration of the test pulse   | 450 [ms] + 10%                   |
| The frequency of the test pulses / the adjustment of the spark gap | electric control                 |
| Test frequency setting range                                       | (10÷40) min <sup>-1</sup>        |
| Level of security  | IP54                             |
| Dimensions   | 330x280x185 [mm]                 |
| Mass   | (28 + 0,5) kg                    |
| Working temperature  | -5°C ÷ +40°C                     |
| Location during work   | face up                          |
| Length of the power cord   | (2,5 $\pm$ 0,25) [m]             |
| Length of test leads   | (2,5 $\pm$ 0,25) [m]             |

After research and positive feedback:

- Center for Testing, Certification and Attestation OBAC in Gliwice, nr **OBAC/077/TE/10**,
- Institute of Communications in Wrocław, Department of Electromagnetic Compatibility, nr **Z21/21400050/1338/10**,

the GUA-100E Acoustic Shock Generator has been given the mark **CE**

The GUA-100E Acoustic Shock Generator meets the requirements of the following standards and regulations:

- Regulation of the Minister of Energy of November 23, 2016. on detailed requirements for the operation of underground mining plants, together with attachments.
- Operation and control of machinery, equipment and electrical installations in excavations - point 5 of the above-mentioned regulation.
- **PN-EN 61557-1:2009** – Electrical safety in low-voltage power networks with alternating voltages up to 1000V and direct voltages up to 1500V - Devices intended for checking, measuring or monitoring protective measures. Part 1: General requirements.
- **PN-EN 61557-9:2015-03** – Electrical safety in low-voltage power networks with alternating voltages up to 1000V and direct voltages up to 1500V - Devices intended for checking, measuring or monitoring protective measures. Lot 9: Equipment for isolation fault localization in IT networks.
- **PN-EN 61010-1:2011** – Safety requirements for electrical measuring instruments, automation and laboratory devices. Part 1: General requirements.
- **PN-EN 60664-1:2011** – Coordination of the insulation of electrical devices in low voltage systems. Part 1: Principles, Requirements and Research.
- **PN-EN 61000-6-2:2008** – Electromagnetic Compatibility (EMC). Part 6-2: General standards. Resistance in industrial environments.
- **PN-EN 61000-6-4:2008** – Electromagnetic Compatibility (EMC). Part 6-4: General standards Emission standard for industrial environments.
- **PN-EN 61326-1:2013-06** – Electrical equipment for measurement, control and use in laboratories - Electromagnetic compatibility (EMC) requirements - Part 1: General requirements.
- **PN-EN 60529:2003** – Degrees of protection provided by enclosures (IP CODE)