



LKZ-1000 cable and pipe locator



Earthworks that consist not only in various excavations but also in laying sewer pipes, water supply pipes, and cables involve a high risk of damage to underground utilities, which may result in dangerous accidents. European Union laws require the contractor to ensure the safety of workers, third parties, and their private property. In order to limit the risk of an accident, a number of actions must be taken, which must include determination of the location of the existing underground utilities. To do so, surveyors use plans and maps so as to determine the directions of gas and water supply pipelines, as well as power and telecommunication cables. However, one can never be sure if all the underground utilities are shown on the map. In order



to make sure that all potentially dangerous utilities have been identified and marked, an additional check must be performed. This can be done with LKZ-1000, a new product offered by SONEI S.A.

The location kit, which includes the LKO-1000 locator and the LKN-1000 transmitter (signal generator) makes possible precise determination of the depth and the directions of utilities that conduct electricity (power and telecommunication cables, metal pipes, etc.) as well as plastic and concrete pipes, using additional probes. Earthworks are conducted in difficult conditions (moisture, dirt, etc.); this is why both devices have the IP54 protection rating, and the rating of the transmitter with the cover closed is IP67.

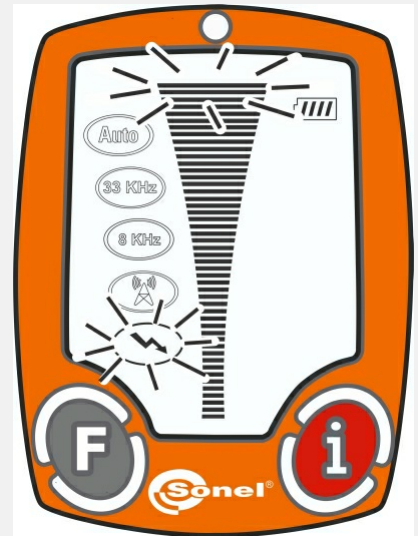


Determination of the location and the directions of underground utilities is performed in various conditions. To meet the needs of the customers, the LKZ-1000 kit can work in several different modes, depending on the situation:

- Power – this mode is intended to determine the location of electrical cables. This is a passive mode, as the signal is generated by the live cable, without the need to activate the transmitter.
- Radio – this mode is used to determine the location of metal objects (pipes, reinforcements, etc.) which re-emit radio signals. This is also a passive mode, as the signal is generated by the object which re-emits radio waves.
- 8 kHz – this mode is used for accurate determination of the location of a specific utility (cable, pipe, etc.). The frequency of the generated signal (8 kHz) ensures longer range and lower tendency for signal transmission to other objects. The method requires using the signal generating transmitter and, thus, is an active method.
- 33 kHz – this mode is used to determine the location of a specific utility (cable, pipe, etc.). This frequency is used the most often to determine the location of underground utilities; it provides the highest effectiveness, although it also has the greatest tendency of signal transmission to other objects. The method also requires using the signal generating transmitter and, thus, is an active method.
- Automatic – this mode provides the advantages of both the Power and the Radio mode; it is very convenient for preliminary scanning of the area.

The LKZ-1000 kit also enables accurate determination of the depth of specific utilities, down to 3 m. To do so, the equipment must work in the 8 kHz or 33 kHz active modes where both the transmitter and the locator are used.

The LKN-1000 generator (transmitter) generates a traced signal in the utility whose direction is being determined. In metal utilities, the signal can be generated in a wireless manner by induction, or by connecting the transmitter to the utility directly or using transmitter clamps. In non-conductive utilities, the signal can be generated by introducing a transmitter probe (taking the form of a rolled or “floating” cable) directly into the utility (plastic and concrete pipes, etc.). By using additional probes, one can determine not only the direction and depth of the pipes, but also the location of potential obstructions.

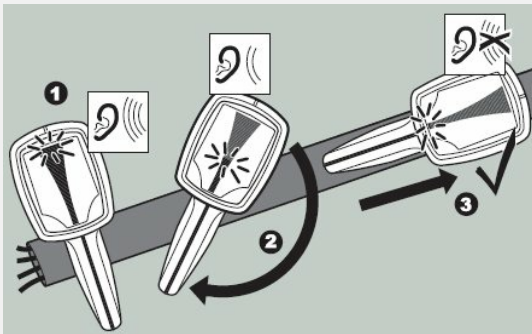


The LKO-1000 locator was designed with special attention paid to ease of use and safety of the user. Thanks to its intuitive menu and clear graphic display, the LKO-1000 locator is very user-friendly. It also has a number of options and functionalities that enhance the safety and ease of work:

- Hazard zone – This functionality generates an alarm signal that indicates close location of conduits (approx. 30 cm). It works in the Power, 8 kHz, and 33 kHz, and automatic operating modes.
- Auto-test – this functionality enables a self-test of the locator. After successful completion of the test, the display shows the PAS message; otherwise, ERR is displayed.
- Automatic mode – this functionality has the advantages of both simultaneous detection in the Power mode and the Radio mode, and makes it possible to confirm the presence of underground utilities in the initial stage of the test, which makes utility detection easier and safer.
- Automatic illumination of the display – the light sensor automatically switches on the illumination of the display whenever it is needed.
- Digital indication of signal strength – this functionality switches on the digital indication of the signal strength on the display,

thus facilitating the detection of underground utilities.

Moreover, the locator always switches on in the “Power” mode which is intended to detect live electrical cables, which constitute a very high risk in the event of their damage. It is also possible to determine the direction of the detected utility. In order to determine the direction of a cable or a pipe, the detector must be placed immediately over the utility (1) and must be turned around its axis (2). When the locator’s body is located over the utility’s centerline, the signal strength indicator shows the minimum value (3). The maximum value means that the locator is perpendicular to the utility line.



Thanks to its additional probes, the LKZ-100 locator can be used to determine the direction of sewer pipelines

and to accurately locate any obstructions.

The kit is delivered in a very durable cover with an extra-strong bottom which protects the locator and the transmitter from water, mud, dust, and accidental impact.



The LKZ-1000 is indispensable when it comes to comparing the true location of underground utilities with that shown on maps and plans. Thanks to its easy and intuitive operation and several operation modes to choose from, the locator enhances the safety of any type of excavation works. This allows for significant reduction of the risk and gives the contractors performing earth works the certainty that they did everything to protect the health and lives of their employees.