

User Manual

ULTRA PHONE
(Ultrasonic partial discharge detector)
TYPE SE-8

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WARRANTY


Important Notice

This certificate shall be presented in case of warranty services. Retain this certificate after filling the part marked with *.


Should defects appear under normal usage during warranty period, the product is to be repaired free of charge according to our warranty rules.

*Warranted during
One Year after purchase Month _____ Year _____
*Customer Name
Serial Number


IMPORTANT SAFETY INSTRUCTIONS

	Keep sufficient distance in case of searching discharge for the high voltage electric apparatus such as power transmission lines or electric railway. This may cause you being shocked.
	Pay attention to keeping safe from accidents when the product is used on the road, etc.

CAREFULLY FOLLOW THESE INSTRUCTIONS TO REDUCE RISK

	Do not expose the product to rain or moisture. The product is not water-proof.
	Take safety measure for fall prevention when the product is used at high place, etc. Also, be sure to use the hand strap for preventing the product to drop off a hand so as not to be damaged or injure persons.
	Do not store or use the product in a location subject to dust, high humidity and temperatures where they are exposed to direct sunlight.
	Replace the batteries only with the same or equivalent type recommended by the company.

INSTRUCTIONS FOR USE

	Do not drop or strike strongly the product. This may cause the product malfunction or is damaged.
	Do not clean with benzene, thinner or alcohol, etc. The dirt or stain of the body can be cleaned with a mild detergent and dried with a soft cloth.
	Pay attention to the polarity in loading batteries to the product in order to avoid malfunction.
	Remove the batteries from the product which will not be used for a long time and store them in order to avoid stain or malfunction by leakage.

Thank you for purchasing ULTRA PHONE (SE-8).

This product detects and displays magnitude of the ultrasonic wave emitted in discharge phenomenon caused by either pollution or insulation degradation of insulators, metallic parts, and accessory electric equipment of transmission lines on which high electric potential is imposed.




Introduction

- Do not use the product until the instructions in this document are read and thoroughly understood.
- Save these instructions after being read in the location where they are accessible whenever necessary.
- The company shall not be liable of any loss of any kind including, but not limited to, claims arising out of the use of the product or defects of the product.

Safety Precautions

The following instructions are provided to prevent harm or any damages to you and other parties so as for the product to be used properly and safely.

Follow these instructions carefully.

	WARNING This icon warns of a situation or condition that can lead to personal injury or death. Do not proceed until the warning is read and thoroughly understood.
	CAUTION & IMPORTANT INFORMATION This icon indicates important information regarding equipment operation or maintenance, or a situation or condition that can lead to equipment malfunction or damage. Do not proceed until the warning is read and thoroughly understood.
	NOTE This icon indicates important supplementary information about an activity or concept.

Product outline

The discharge phenomenon happens by either pollution or insulation degradation of insulators, metallic parts, and accessory electric equipment of transmission lines.

This product detects the ultrasonic wave emitted in such discharge phenomenon remotely so as to locate the discharge place.

The characteristics of ultrasonic wave detection can also be applied to detect and locate the place of air or gas leakage from pipes.

ULTRA PHONE (SE-8) features:

- Excellent sensitivity and directivity locates the point of occurrence.
- The sighting device provides easy recognition of the point.
- The digital display of the occurrence magnitude provides easy management.

Specification

Items	Specifications
Reception Frequency	40kHz \pm 1kHz
Sensitivity	30dB to 90dB at 4m distance from the product
Display Resolution	1dB
Measurement distance	4 to 20m (Distance from the product)
Display device	7 segment LED
Battery	4 AA batteries
Battery life	Approx. 24hrs (No signal, alkaline battery)
Operating temperature	0 to 40 °C, Not greater than 85%RH (non-condensing)
Storage temperature	-10 to 50°C, Not greater than 85%RH (non-condensing)
Material	Plastics
Physical dimension	Refer to the dimensional outline drawing
Weight	Approx. 700g (With batteries, Storage case not incl.)

Accessories

- 4 AA batteries
- User Manual (This document)
- Storage Case
- ※The life time of attached batteries may be shorter than normal.
- ※A part of the specifications may be modified without notice for improvement of the product.

How to Handle

●Preparation

- ①Four AA batteries are used.
Remove the cover at back, and load batteries per polarity guide.
- ②The battery voltage is normal, if the “LEVEL” display lamp is lit after pushing the switch button. When the lamp is blinking, replace batteries with new ones. Also replace batteries with new ones when the lamp is blinking during measurement.
- ③Push the switch button and confirm small noise from the speaker. Then rub fingers in front of the parabola antenna to hear its noise and confirm the loudness by the display.

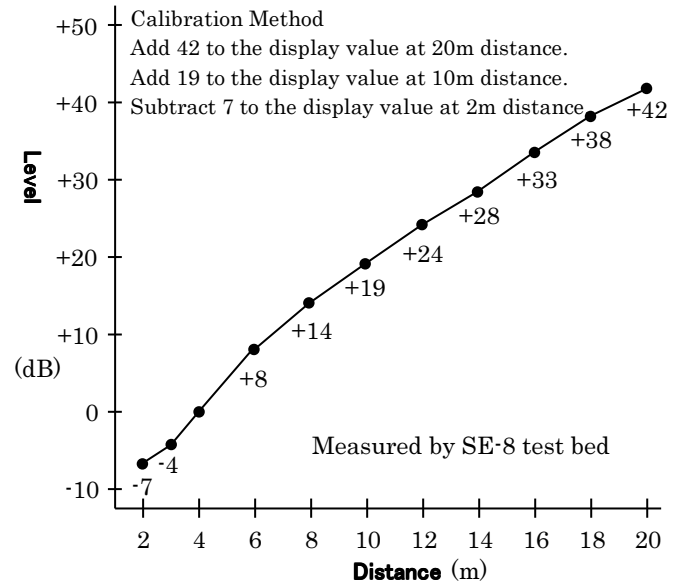
●Measurement

- ①Searching for the fault location
The product is powered while the power switch is pushed. It is turned off if you release the switch button. However, it remains showing the level displayed before switched off for a few seconds.
Look for the point where either the loudness of the speaker output or the value of the level display is at the maximum for locating the discharge point. The center of the range visible through the sighting device at the position of the maximum value is the point of discharge.
- ②Measuring the acoustic pressure at the fault location
The acoustic pressure level is the value which corresponds to the measured value at 4 meter distant from the product.
- ③Measurement distance
Use the product at the range of 4 to 20 meters from the product.
Refer to the Attenuation Relation Diagram which shows the relation between the level and distance in order to compensate level readings.
If the distance is out of range, precise measurement is not expected because of the directivity of the parabolic antenna.

Attenuation Relation Diagram

The following diagram is a typical example of measurement.

The attenuation characteristics may vary by air pressure, temperature, and humidity.



Measurement Range

The below table shows relation between the distance and measurement range.

The measurement range is the area where the measured value is within 3dB smaller than the maximum.

Distance(m)	Measurement range (cm/ diameter)
4	Approx. 16
8	Approx. 31
12	Approx. 47
16	Approx. 62
20	Approx. 78

●Cautions

The product measures ultrasonic wave of 40 kHz. Therefore, when a target of measurement is enclosed by metals or plastics, it may not be able to measure correctly. In case of detecting reflected sound, changing the direction or location of the measurement may be required after confirmation.

The ultrasonic wave is emitted by leakage of compressed air, wind noise from windows, raindrops, electronic devices, and fluorescent lamps, etc. Paying attention to remove above noise sources as much as possible is highly welcome.

The discharge by insulation degradation occurs more in high humidity. It is recommended to measure in or after the rain, in addition to the sunny day. On the contrary, the discharge from the insulators of power lines sometimes occurs more often in dry and windy conditions. You are advised to record weather, temperature, and humidity, etc. with measurement records.

Trouble shooting

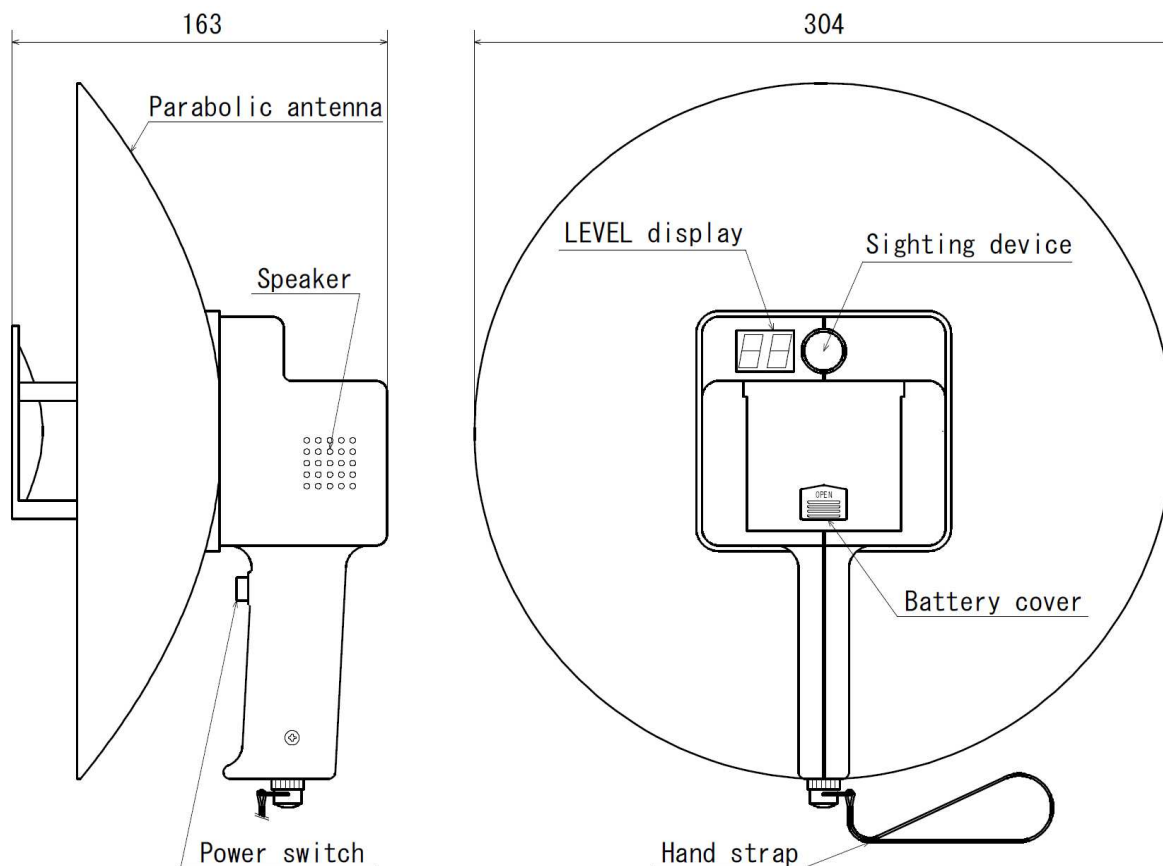
Issues	Cause	Solution
No display appears	Batteries have died. Batteries are not properly loaded	Replace batteries Load batteries properly.
Display lamp blinks	Batteries are dying.	Replace batteries

If issues are not fixed yet after above solutions, the product may be damaged. Please contact the agent you purchased the product or our sales department.

CAUTIONS in handling batteries

- Do not expose batteries to heat or fire nor recharge them.
- The waste batteries shall not be treated as household waste
Follow the regulations when disposing waste batteries or hand them over to the applicable collection point.
- Remove batteries from the product which will not be used for a long time

Dimensional Outline Drawing



Sighting Device

When you use the product with eyes are 30 cm off, visible field through the sight generally corresponds to measurement range.

