



GA222GB-06.16

INSTRUCTION FOR USE



ARCUSDISTANT
NON-CONTACT VOLTAGE DETECTOR
according to VDE V 0682-417

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This instruction for use, specially its safety information, is to be read and to be observed by everyone before working with the non-contact voltage detector !

Keep this instruction for use to have information available when required.
In case you will hand over the non-contact voltage detector to another person, include the instruction for use !

FIELD OF APPLICATION AND USAGE

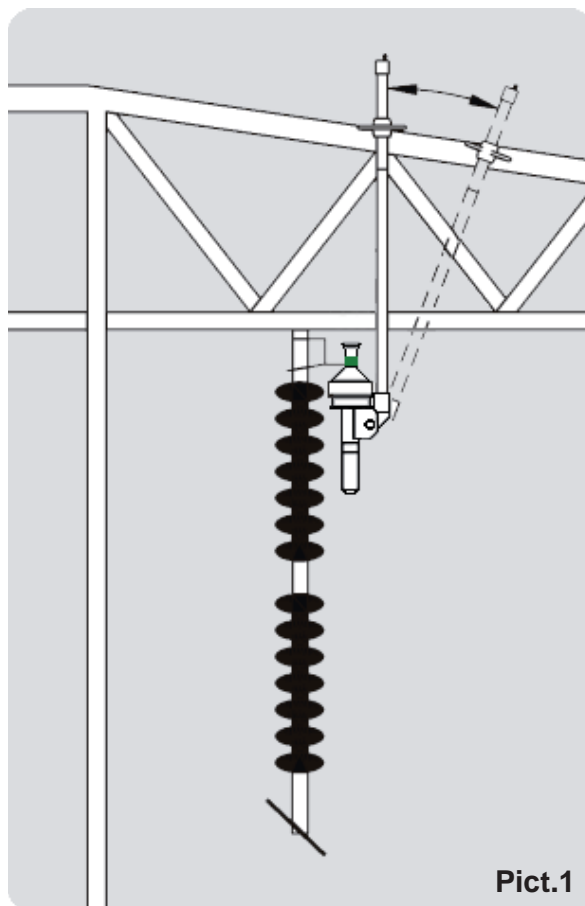
General

Your acoustic non-contact voltage detector ARCUSDISTANT is designed to determine absence of voltage on overhead lines, operating from the traverse of tower.



The non-contact voltage detector must be used only for the nominal voltage, nominal frequency, and network system marked on its housing, and for the insulator formation for which it was provided as a sample in advance !

For usage observe EN 50110-1 or standardised safety rules of your country and internal operational instructions to prevent dangers !



SAFETY INFORMATION

Instruction for use: special remarks

**Warning !**

All warnings are marked with this symbol. Do not ignore any warning. Failure in observance may lead to injuries or death.

**Attention !**

All safety hints are marked with this symbol. Do not ignore any safety hint. Failure in observance may lead to damage of devices or long-term health damages.

**Information !**

All information is marked with this symbol. Do not ignore any information. It contains important details to facilitate working and improve apprehension.

**Recommendation !**

All recommendations are marked with this symbol. They will contain details for optimum usage of the device.

Non-contact voltage detector: special remarks



Before use of this non-contact voltage detector, please examine labels for suitability of tester for its intended usage. For simplification symbols are explained as follows:

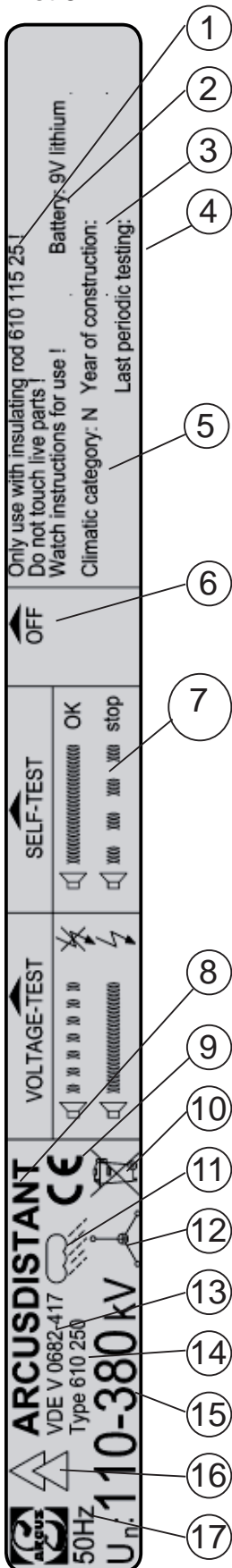
Label: insulating rod



1. Product name
2. Denomination of insulating rod part
3. Type number of insulating rod part

Label: head part

Pict.3



1. Assembly and handling information for non-contact voltage detector
2. Indication of battery type
3. Year of production
4. Date of last periodic testing
5. Climatic conditions (usage and storage)
Climatic category: Normal (N)
Temperature °C: -25 to +55
Humidity %: 20 to 96
6. Marking of switching position
7. Explanation audible indication
8. Product name
9. CE-marking according to EU Directive 2004/108/EG
10. Marking according to EU Directive 2002/96/EG
11. Model: for outdoor use
12. Network system:
 - ⌵ Effectively star point isolated neutral 3-phase system
 - ⌵ Effectively centre-isolated neutral 1-phase system
13. VDE-classification: DIN VDE V 0682-417
14. Type number of non-contact voltage detector
15. Nominal voltage
16. Marking of accessories and devices suitable for live working
17. Nominal frequency

Required qualification of operating personnel

Operation and maintenance of this non-contact voltage detector is to be carried out only by electricians or specially trained personnel following EN 50110-1 or the standardised safety rules of the respective country. Further it needs to be secured that before start of work the operating personnel was trained for this operation !



Prevention of dangers

The non-contact voltage detector must be used only for the nominal voltage, nominal frequency, and network system marked on its housing, and for the insulator formation for which it was provided as a sample in advance !

Non-contact voltage detectors must only be used with its designated insulating rod !

It is imperative to observe all safety regulations for operations on overhead line installations !

Be sure that measures to be taken for your safety have been carried out before beginning of your operation !

Operations on overhead lines require permanent attention and full concentration !

For operations on overhead lines the provided personal protection equipment is to be used !

Experienced personnel is required for verification of absence of voltage !

Absence of voltage at the working place always is to be verified on all phases !

Directly before each use non-contact voltage detectors are to be examined for faultless function. The built-in self-testing device is destined for this purpose !



Prevention of dangers (continued)

In case of condensation the non-contact voltage detector needs to be wiped off directly before use.

For use the non-contact voltage detector is to be held at the handle L_H (see page 10) only, and is to be operated in a way that the operating person remains at required safety distance to all live switchgear parts !

At any rate absence of voltage is to be verified at the point to be earthed !

Use of additional test electrodes is prohibited !

Use of a non-contact voltage detector does not relieve from observance of EN 50110-1 requirements regarding necessary steps to produce and secure a de-energised condition during work on electric installations !
Maintain the high voltage detector well !

Send it to periodic testing at least every 6 years !
The last date for periodic testing can be found on the head part label (→ page 7).

Relevant regulations of the professional association are to be observed !

NON-CONTACT VOLTAGE DETECTOR IN GENERAL

The non-contact voltage detector conforms to DIN VDE V 0682-417. ARCUSDISTANT consists of two parts, an electronic indicator (1) and an insulating rod (2).

Connection is made with a threaded coupling (3).

The ARCUSDISTANT indicator can be pivoted in assembled condition (6) with the insulating rod, in order to enable the user to place the detector in parallel to the insulator axis, independently from his position (see page 14).

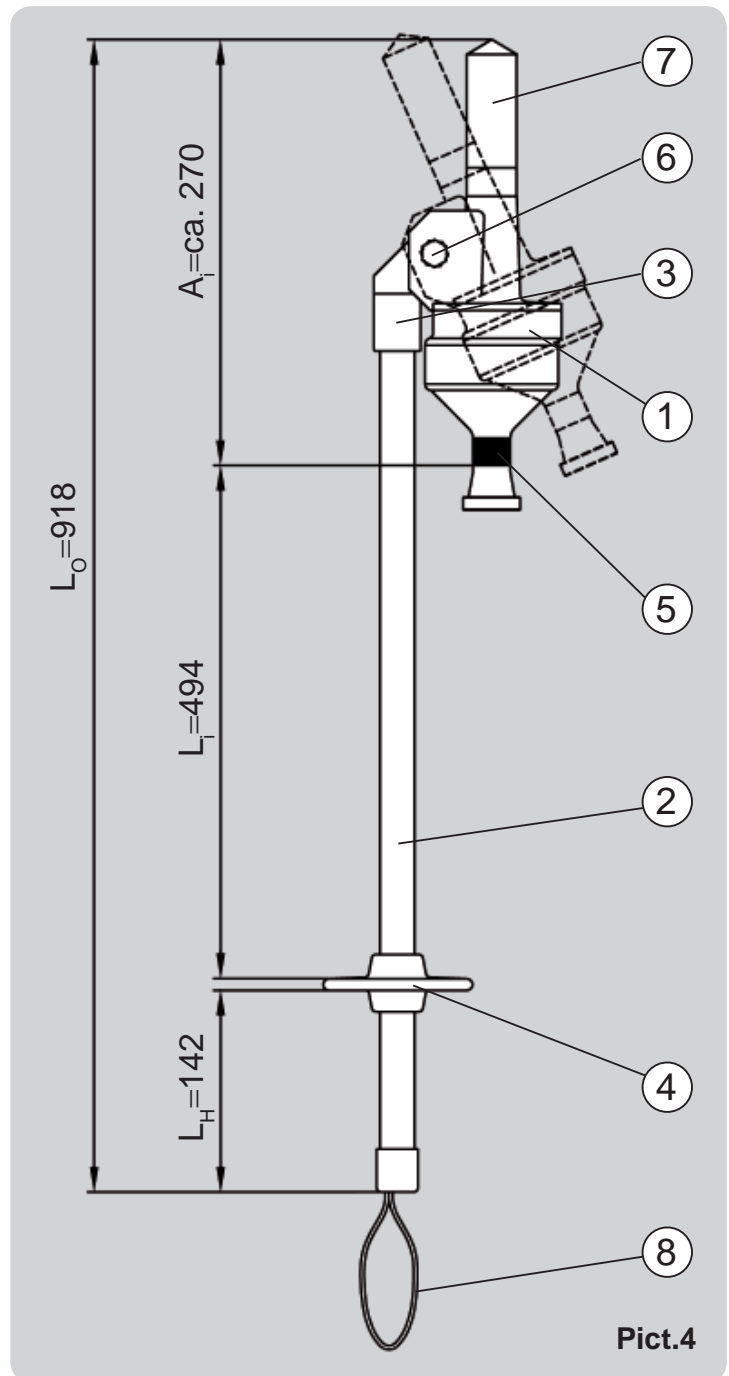
L_H = Handle

L_i = Insulating part

A_i = Insertion depth

L_O = Total length

1. Indicator
2. Insulating rod
3. Threaded coupling
4. Hand protection disc
5. Green application mark
6. Pivot joint
7. Antenna tube
8. Strap



Pict.4

On the sound horn a green application mark can be found (5). With this mark the indicator is to be in contact with the insulator armature which is earthed on the tower. Length A_i of the indicator extends into the electric field and determines whether the tested conductor is under nominal voltage or whether it is disconnected.

Model with sound indication

Your non-contact voltage detector offers the following characteristics:

- audible indication by means of a Piezo tone generator
- simple battery change (→ page 19)
- fully-tested extension tip

UNPACKING AND EXAMINATION

The non-contact voltage detector is packed to be protected against normal impact and damage during transport.

Unpack and examine the non-contact voltage detector as follows:

- Unpack the non-contact voltage detector and make sure you have received all parts listed on the packing list.
- Examine the non-contact voltage detector for damages from transportation. In case packing is damaged and you have to expect damage or loss of supplied parts, this is to be noted on the delivery documents, otherwise insurance will not pay ! If shipment is packed orderly and parts are damaged or missing, please contact ARCUS Schiffmann.



Recommendation !

Stock all packing material to be available in case the non-contact voltage detector needs to be returned to ARCUS Schiffmann.

STORAGE AND TRANSPORT

The non-contact voltage detector is to be stored in clean and dry condition. Make sure that the non-contact voltage detector is protected against shock, impact and damage of surface !

ASSEMBLY AND DISASSEMBLY

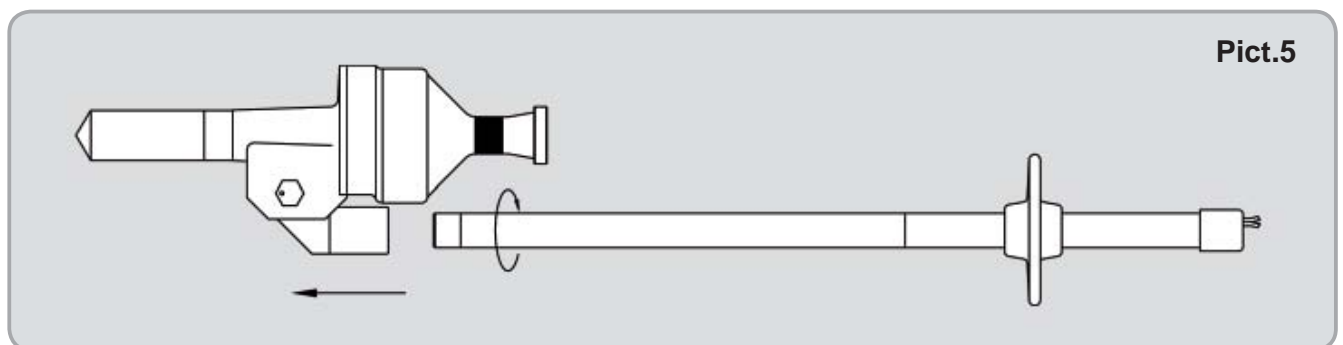
Warning !



The device is to be used only with its own insulating rod !
Examine labels on head part and insulating rod whether the insulating rod is suitable for its coming usage !

Assembly

Insert the insulating rod into the threaded joint of the indicator. Next tighten the insulating rod stoutly into the non-contact voltage detector.



Disassembly

Unscrew the insulating rod from the threaded joint of the indicator.

HANDLING



Handling of non-contact voltage detectors is permitted only for electricians or personnel with electrotechnical training to EN 50110-1.

Also one needs to secure that before start of work the operating personnel was instructed about the task !

The non-contact voltage detector must be used only for the nominal voltage, nominal frequency, and network system marked on its housing, and for the insulator formation for which it was provided as a sample in advance !

The non-contact voltage detector is to be used with its own suitable insulating rod only !

Use of additional test electrodes is prohibited !

In case of condensation the non-contact voltage detector needs to be wiped off directly before use.

Before each usage examine the non-contact voltage detector for visible damages or soiling. In case parts are damaged, function limited, or labels are illegible, do not use this non-contact voltage detector by any means !

Before each usage examine the non-contact voltage detector for faultless function. For this purpose your non-contact voltage detector is provided with a built-in self-checking-testing device. After positive function control you may start with the actual voltage test !

Always hold the non-contact voltage detector at the handle L_H only when using it !

As stray fields or stray voltages may occur at angular or complex conductor arrangements, clear indication is to be tested !

Operation of the non-contact voltage detector on the tower (page 14, Pict.6)

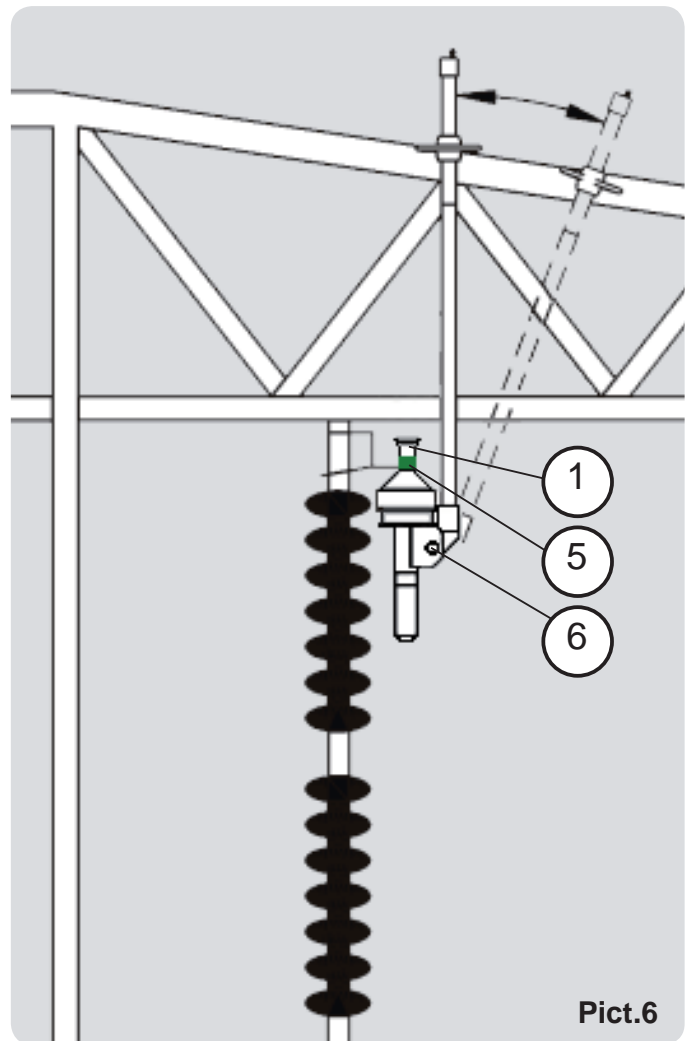
in order to determine the absence of voltage, the green application mark (5) of the indicator (1) is to be in contact with the arc protection armature earthed on the tower. Thereby the indicator is dipped into the insulation distance of the insulator up to the green mark.

The longitudinal axis of the indicator is to be directed in parallel to the insulator.

For this purpose the detector is equipped with a pivot joint (6). During detection of absence of voltage the antenna tube is to be directed towards the conductor. In this process the ARCUSDISTANT shall not touch the insulating part of the insulator.

Sufficient protection against bridging is guaranteed only when the non-contact voltage detector is not moved over the green application mark into the direction of the conductor.

Clear indications about the voltage state require a coupling of the electric field to be measured through the non-contact voltage detector to the earthed parts of the traverse. For this reason it is necessary to apply the green application mark to earthed parts.



Earthed parts which are located between conductor and indicator or its green ring, will screen the electronics against the electric field and cause faulty indications.

A clear voltage detection of an overhead line consists of the following steps:

- test of the non-contact voltage detector for faultless function (1st self-checking-test)
- Voltage test on the overhead line
- repeated test of the non-contact voltage detector for faultless function (2nd self-checking-test)

The correct voltage test procedure with your detector can be found in the following section.

INDICATION SIGNALS AND SELF-TEST

The ARCUSDISTANT is provided with a 3-position rotary switch. These switching positions are connected to the following functions:



Pict.7

Position 1 - OFF:
Detector is not in function, storage and transport position.



Pict.8

Position 2 - SELF-TEST:
Detector carries out a self-test of the electronic circuit and batteries. A permanent sound indicates faultless condition of electronics and batteries. In case of an intermittent sound the detector must be withdrawn from further use! Please see section „Help in case of malfunction“ (page 17 ff.)

Overview of signals in position - Self-test

Signal during self-test	Indication
	Positive self-test
	Attention: Change of battery - page 19 or malfunction - page 17

Attention !

Only after verification that in position 2 the self-test was successful, the ARCUSDISTANT is admitted for voltage detection in position 3 !



Pict.9

Position 3 - VOLTAGE-TEST:**Recommendation !**

We recommend to carry out voltage detection during disconnecting, then the change from permanent to intermittent sound can be taken as reliable hint to a de-energised conductor.

For this purpose turn the switching ring into the position voltage test. An intermittent sound indicates absence of voltage. A permanent sound indicates presence of voltage.

Star point isolated neutral 3-phase system:

A clear indication "voltage present" in general is secured when the conductor-earth voltage of the switchgear part to be tested is min.45% of the nominal voltage for which the high voltage live line tester is calibrated.





A clear indication "no voltage present" in general is secured when the conductor-earth voltage of the switchgear part to be tested is less than 10% of the nominal voltage for which the high voltage live line tester is calibrated.

Centre-isolated neutral 1-phase system:

A clear indication "voltage present" in general is secured when the conductor-earth voltage of the switchgear part to be tested is min.39% of the nominal voltage for which the high voltage live line tester is calibrated.

A clear indication "no voltage present" in general is secured when the conductor-earth voltage of the switchgear part to be tested is less than 9% of the nominal voltage for which the high voltage live line tester is calibrated.

Overview of signals in position - Voltage-test

Signal during voltage-test	Indication
 	No voltage present
 	Presence of voltage

End control:




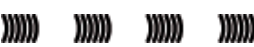

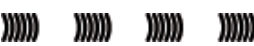
When detector is switched off the 2. self-test is tested compulsorily. When again a permanent sound is heard the ARCUSDISTANT is expected to have operated fault-free during the process of voltage test.

HELP IN CASE OF MALFUNCTION



In case of malfunction please only change battery !

Repair of electronics or of mechanic damages is to be effected by ARCUS Schiffmann only !

Malfunction	Possible reason	Remedy
Mechanical damage	Unappropriate handling	Return detector to ARCUS Schiffmann. In case of any interference or modification by third parties no liability or guarantee.
 No sound	Batteries empty	Exchange batteries (see page 19)
With new batteries no sound during "SELF-TEST"  No sound	Electronics faulty	Return detector to ARCUS Schiffmann. In case of any interference or modification by third parties no liability or guarantee.
In position "SELF-TEST" irregular intermittent sound  	Battery low capacity	Exchange batteries (see page 19)
with new batteries in position "SELF-TEST" irregular intermittent sound  	Electronics faulty	Return detector to ARCUS Schiffmann. In case of any interference or modification by third parties no liability or guarantee.

ROUTINE MAINTENANCE AND UPKEEP

The device is to be treated carefully. Protect it against damage and soiling (colour, metal dust, etc.) to maintain its insulation properties.

The non-contact voltage detector is to be stored in dry condition.

Cleaning

For cleaning use a watered cloth.

Before each use



The non-contact voltage detector is to be examined by a trained person for detectable damages and soiling !

In case parts are damaged and function is affected or labels are illegible, withdraw the non-contact voltage detector from further use !

Once a year

To keep the insulation properties we recommend to treat the non-contact voltage detector once a year with ARCUS Silicon Grease (Type No. 625 004).

Latest after 6 years (periodic testing)

Periodic testing is to be carried out latest after 6 years by ARCUS Schiffmann, except intra-company regulations specify an earlier time for testing. The last date for periodic testing can be found on the non-contact voltage detector label. (→ Seite 7)

SPARE PARTS AND ACCESSORIES

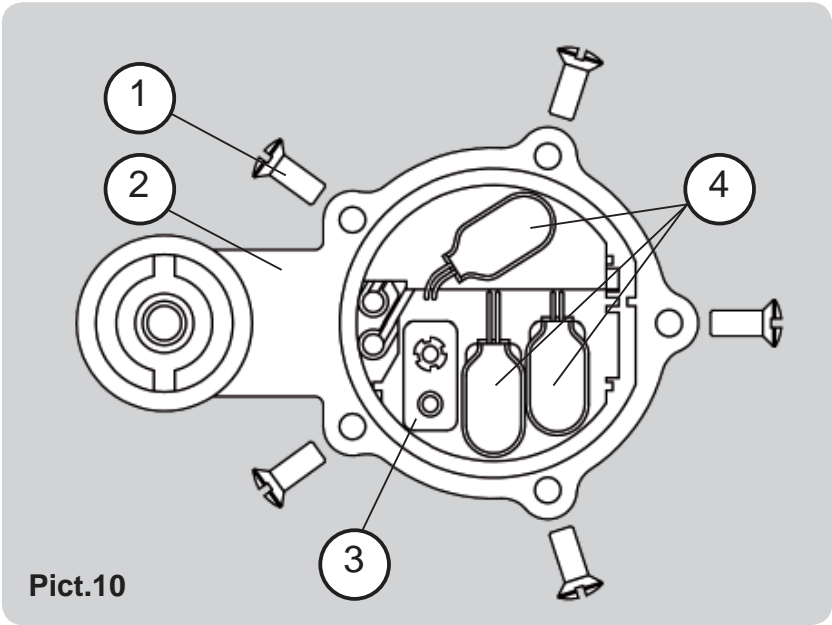
List of spare parts

Name of part	Type number
Battery(Lithium) (Change see page 19)	71 8263
Oval-head countersunk screw	61 3044
ARCUS Silicon Grease	625 004
Carrying bag with shoulder strap and zipper	61 5065

Change of battery

As the battery consumption depends on several factors it is impossible to state an exact battery life time.
The non-contact voltage detector is designed to only require a slotted screwdriver for battery exchange.

Battery should be changed in a clean and dry room only !
If this is impossible, secure that dirt, moisture and other foreign matter will not be enclosed in the housing when battery is changed.



To change batteries loosen the five oval-head countersunk screws (1). Open housing (2). Remove used batteries (3) and place three new ones.

Place battery connection (4) onto battery with the correct side. A good contact is to be secured.

WASTE DISPOSAL

Observe local regulations for disposal of non-contact voltage detector and packing. ARCUS Schiffmann will not be reliable for unsuitable disposal. For queries concerning used materials please contact ARCUS Schiffmann.

TECHNICAL DATA

Nominal voltage range:	see detector label
Frequency range:	see detector label
Network system:	see detector label
Humidity:	20 - 96%
Temperature range:	-25 °C to +55 °C
Type of battery:	9V (Lithium)
Standard:	DIN VDE V 0682-417
Weight:	1.2 kg
Total length:	918 mm

ANNEXURE

CE Conformity Declaration

ARCUS non-contact voltage detectors fulfil the requirements of the EU Directive: EMC Directive 2004/108/EG.

Conformity of the non-contact voltage detector with above directive is confirmed by the CE mark.

Product liability and guarantee

This instruction for use was written with greatest care and examined before publishing.

Basis for guarantee is the proven observation of this instruction for use for storage, operation, maintenance and care.

Valid are the “General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry“.

Phone

General

+49 (0) 89 / 436 04-0

Fax

General

+49 (0) 89 / 431 68 88

Fax

Sales Department

+49 (0) 89 / 436 04 73

Internet

www.ARCUS-Schiffmann.com

info@ARCUS-Schiffmann.com

Seat of the Company

Truderinger Str.199

D-81673 Munich



ARCUS ELEKTROTECHNIK
ALOIS SCHIFFMANN GMBH