

Megger®



MS033, MS400, MS1200

Non-Contact Voltage Detector

User guide

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Megger India Private Limited

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For Patent information about this instrument refer to the following web site:

megger.com

This manual supersedes all previous issues of this manual. Please ensure that you are using the most recent issue of this document. Destroy any copies that are of an older issue.

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1. Introduction

This manual contains basic instructions for the operation of MS series, Non-Contact voltage detector. For this reason, it is important to ensure that the manual is always available to the trained users. He / She needs to read the manual thoroughly. The manufacturer is not liable for damage to material or humans due to non-observance of the instructions and safety advice provided by this manual.

1.1 Product description

The MS series, Non-Contact Voltage Detectors (**NCVD**), are hot-stick mounted device, which is used for the detection of the electric fields (voltage) across bare conductor terminations. The detector uses capacitive coupling principle for identifying the electric fields across bare conductor. The distance between the detector and the conductor should be around 40 ± 10 cm.

Note: The main purpose of MS series non-contact voltage detector is to “detect” the presence of voltage, not to “measure” the voltage. The proximity of nearby lines or terminations at different voltage levels may affect the device’s indication due to electrical interference.

1.2 Company website

Occasionally an information bulletin may be issued via the Megger website. This may concern new accessories, new usage instructions or a software update. Check on the Megger website for anything applicable to your Megger instruments.

www.megger.com

2. Safety, Warnings and Standards

These safety warnings must be read and understood before the instrument is used. Retain for future reference.

- The MS series NCVD unit should only be operated by suitably trained and competent people.

• The equipment testing is to be carried out in accordance with relevant requirements for live operation laid by the safety work regulations of utilities.

- The testing is to be carried out in clear, non-rainy weather.

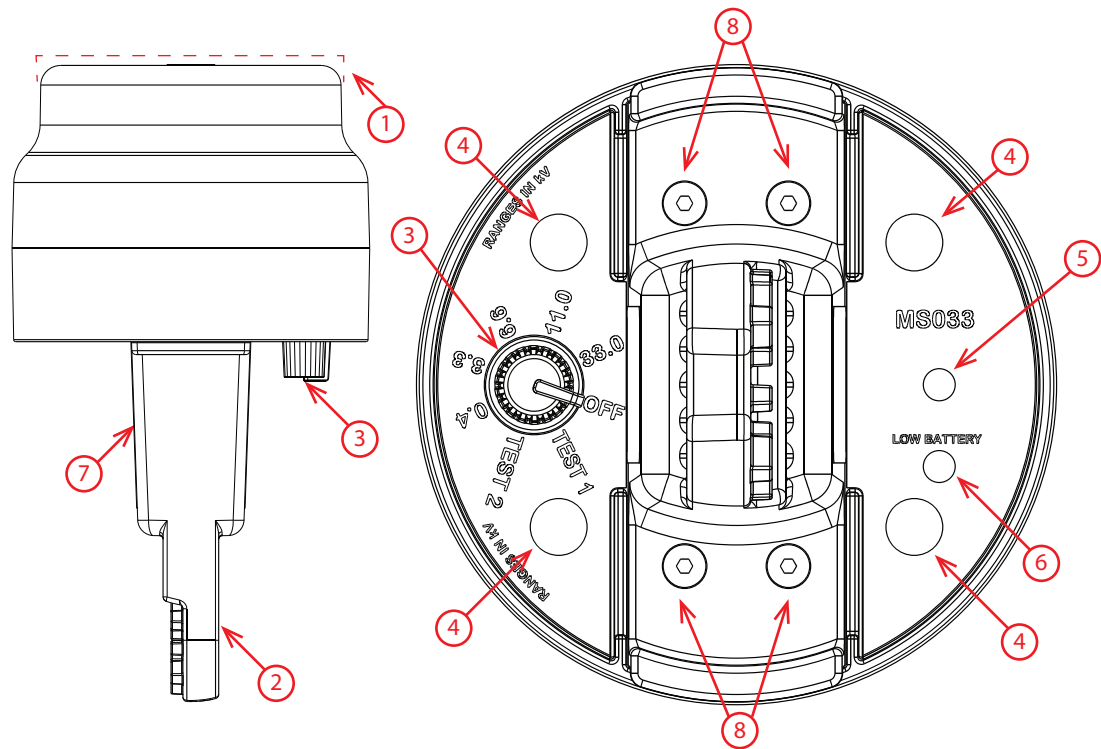
• While testing, operator must wear appropriate electrical PPE kit, recommended equipment will be insulation gloves, safety shoes, helmet, electrical suit.

- Use only certified hot-stick (IEC 61235 or equivalent certification applicable in your region) with detector.
- Do not use the NCVD if precipitation is present on sensing region of detector, wipe off if condensation forms.
- **In any circumstance, user is instructed not to make direct contact of the NCVD unit to the bare conductor or termination, even using the hotstick & necessary safety gear.**

Symbol	Description
	Serves to highlight warnings and safety instructions. As a warning label on the product it is used to draw attention to potential hazards which have to be avoided by reading the manual.
	Serves to highlight warnings and safety instructions that explicitly indicate the risk of an electric shock.
	Equipment complies with Current EU directives
	Suitable for live working

3. Instrument Overview

The figure below shows the various parts & product details of NCVD models.



Item No.	Description	Item No.	Description
1	Sensing Region	5	Indicative Buzzer
2	Universal Holder	6	Low Battery Indicative LED - Blue Colour
3	Voltage Selection Switch	7	Battery Compartment
4	Indicative LED - Red Colour	8	Battery Removal Screw

4. Operation

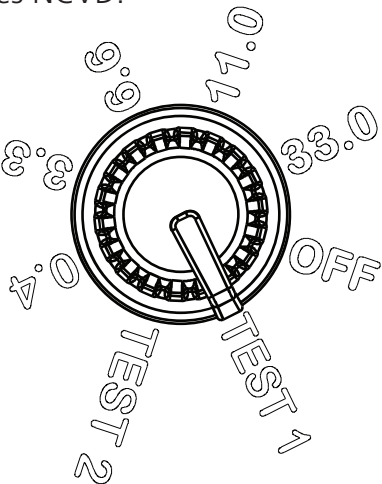
This section will help the user to understand the standard operating method and procedure of NCVD.

The user must properly verify the model number & voltage range of the NCVD before detection for suitable voltage value.

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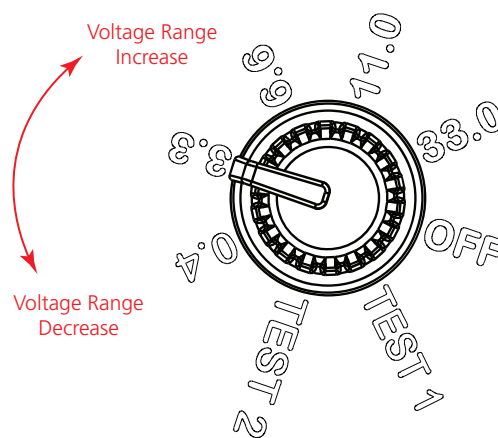
The below points will help the user to ensure the working of MS series NCVD:

1. Select '**TEST 1**' using voltage selector switch. Red LEDs will glow and Buzzer will audible. This indicates that the indicative circuit is operational.
2. Select '**TEST 2**' on the rotary switch and place the detector near 230 V terminal or equivalent AC source using certified hot-stick or use MPU690 Proving Unit (refer section 9 for MPU690 unit). If the detector shows indication, this ensures the complete unit of NCVD is operational.

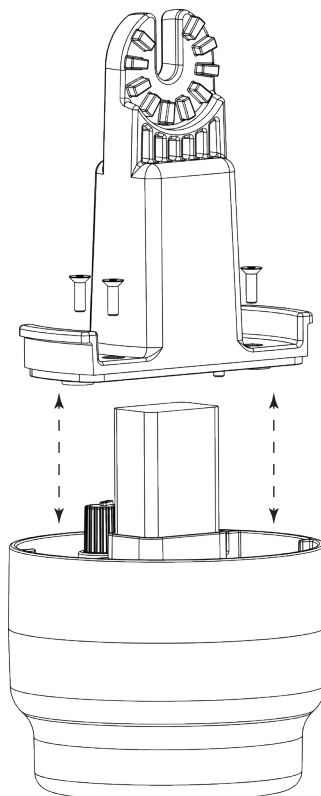


 ***Follow above steps before every use.**

3. Place the sensing region of the detector perpendicular to equipment under test using a certified hot-stick with recommended safety gears. (Refer section 2)
4. If the voltage of the overhead transmission line is known, then set voltage selection switch (Item no. 3) to the corresponding voltage setting. The detector will show the indication in case of live line.
5. **When the detector is not indicating the audio & visuals signals, the line under test is not live. To confirm this, set the voltage selection switch to a lower voltage range or TEST 2 position & observe the indication. The user can also verify the operational status of the NCVD using MPU690 Proving Unit (recommended method). The detector should not indicate the presence of voltage in either of these scenarios.**



6. The detector can detect the presence of higher voltage by setting it to a lower voltage adjustment (accordingly sensing distance will change).
7. In case of battery replacement, open the screws (Item no. 8), and replace the battery in the battery compartment (Item no. 7).



8. **DO NOT** use the NCVD to detect low voltages using higher voltage adjustment
(For example, sensing 11 kV using 132 kV setting, the detector needs to place very close to the bare conductor, which is dangerous)



9. If LOW BATTERY indication LED turns on, the user must replace the existing battery with new one and perform TEST 1 & TEST 2 as described at the beginning of this section.



5. Measurement Advice

- For the known voltage detection, the user can select the required voltage setting using the rotary switch. Bring the detector near the equipment under test. The minimum distance between the equipment and the detector should be distance around 40 ± 10 cm. If the equipment is charged to the selected voltage value, the red LEDs will glow and a buzzing sound is heard, indicating the presence of voltage.
- If the voltage on the transmission line is unknown, first set the detector to the lowest voltage setting. Check if the detector is detecting. The detector will detect from a long distance. In single switch increments increase the detector setting to the next higher voltage range and repeat the test.. This will give more precise detection and the detection distance from the live conductor will decrease. Repeat the process to the next higher settings until the detector is very close (40 ± 10 cm) to the live conductor.

6. Maintenance, Storage and Support

Keep MS series NCVD clean. Use anti-static cloth to clean the NCVD unit when not in use for a longer period of time, remove the battery and store it in the bag provided.

Always carry MS series NCVD in the provided bag to avoid damages during transportation. Refer Technical Specifications for other details.

7. E-waste Management

Do not dispose of this product with household waste. At end-of-life, please return it to an authorised e-waste collection or recycling centre as required under India's E-Waste Management Rules. The crossed-out wheeled bin symbol indicates separate disposal.



8. Warranty

The NCVD unit comes with one year warranty. The warranty will be void if the warranty seal is tempered.

If unit does not operate on **TEST 1** and **TEST 2** position. The user is advised to return the unit to the manufacturer for service

9. Accessories

The MPU690 Proving Unit safely generates high voltages to energise NCVD unit thus allowing verification of their correct operations.



10. Technical Specifications

Parameter	Specification	Environmental
Model Variants	MS033 MS400 MS1200	Operating Temperature : -25 °C to +55 °C Storage Temperature : -10 °C to +60 °C Relative Humidity : 95 % RH at ambient Temp.
Voltage Detection Range	MS033 : 415 V, 3.3 kV, 6.6 kV, 11 kV, 33 kV. MS400 : 66 kV, 110 kV, 132 kV, 220 kV, 400 kV. MS1200 : 132 kV, 220 kV, 400 kV, 765 kV, 1200 kV.	Safety Standards: IEC 61326-1
Detection Type	Non-Contact (Capacitive Sensing Technology)	Mechanical
Frequency Compatibility	50Hz / 60Hz	Product Dimensions: Height: 161.0 ± 3 mm Diameter: Ø90.0 ± 0.5 mm
Visual Indication	Super Bright LED - Red colour	Product Weight: 300 ± 10% gms
Audible Indication	Buzzer with output level of 80–85 dB	
Self-Test Function	Manual	
Voltage Sensitivity	Adjustable (Model-dependent)	
Power Supply	9 V Battery (Type 6F22 or equivalent), field-replaceable	
Low Battery Voltage Threshold	< 6 V	
Battery Low Indication	Dedicated LED indication - Blue colour	
Ingress Protection Rating	IP64	
Compliance	Type tested as per relevant electrical safety standards	

Notes

Notes



Local sales office

Megger India Private Limited

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Manufacturing site

Megger Instruments India Private Limited

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MS033, MS400, MS1200 Non-Contact Voltage Detector

WARRANTY CARD

MS033 **MS400** **MS1200**

PRODUCTION SERIAL CODE

is warranted against defects arising from faulty design, workmanship and materials for One year from the date of invoice.

Subjected to following conditions:

1. The company's liability under the warranty will be limited to defects only, which occur under the standard operating method and procedure as mentioned in user guide. It excludes defects occurring due to abuse handling, improper maintenance, modifications & warranty seal tempered.
2. The company will be entitled to retain any defective part placed under the warranty.
3. Megger reserves the right to alter the specification of its products from time to time without imposing any obligations on the company to incorporate the same in products which are already manufactured / sold.
4. No warranty on protection bag and battery (9V power supply)