



INSTRUCTION MANUAL
MT275"
NON-CONTACT HIGH VOLTAGE DETECTOR



CONTENTS	PAGE
1. Introduction.....	4
2. Product Registration.....	4
3. Warranty.....	5
4. Calibration.....	6
5. Safety Information.....	7
6. Safety Symbols.....	7
7. Specifications.....	7
7.1. General Information.....	7
7.2. Electrical Specifications.....	8
8. Parts & Controls.....	9
9. Battery Voltage Check	10
10. Battery Replacement.....	10
11. Self Check	10
12. Meter Shutdown	10
13. Operation Guidance.....	10
14. Low Voltage Testing	11
15. Faults in Open Cables	11
16. High Voltage Testing	12
17. High Voltage Illustration	13
18. Limitations on the High Voltage Detector	13
19. High Voltage Link Stick Illustration	14

1. INTRODUCTION

The MT275 is a safe and reliable high-voltage proximity detector featuring a non-contact design. It is used to detect both high and low voltages, with eight selectable voltage ranges from 380V AC to 500kV AC. The MT275 provides wide-angle non-contact detection through an internal pickup sensor plate that senses the radiated electric field surrounding live conductors. Field strength increases with voltage and decreases rapidly with distance or the presence of grounded shielding.

The instrument features audible and visual alarms, as well as a self-test function. For high-voltage testing applications, the MT275 can be used in conjunction with insulated link sticks or hot sticks for increased operator safety.

The MT275 Non-Contact High Voltage Detector is built with an IP65-rated enclosure and a shock-resistant structure, making it suitable for harsh working environments. It is ideal for non-contact live voltage detection, cable fault detection, inspection of energized high-voltage cables, overhead line tracing, residual and induced voltage detection, and other electrical testing applications.

As a high-precision professional instrument, the MT275 offers a wide detection range, stable performance, strong anti-interference capability, ease of use, and convenient portability.

Features

- 8 voltage range settings from 380V to 500kV AC
- Bright visual and audible indication
- IP65 shockproof and waterproof housing
- Compatible with most hot sticks
- Suitable for indoor and outdoor use
- Self test function
- Automatic zero adjustment for test lead resistance
- Lock down test button for continuous use
- Complies with EN 61326-1, CISPR 11, EN 61000-4-2, EN 61000-4-3, EN 61000-4-8

2. PRODUCT REGISTRATION

Scan the QR code to activate your warranty.



3. WARRANTY

Warranty Coverage

Major Tech warrants its test instruments to be free from defects in materials or workmanship under normal use and service for a period of two (2) years from the date of shipment. This warranty is extended exclusively to the original purchaser, provided the online Product Registration has been completed on either www.major-tech.com or www.majortech.com.au depending on which country the product was purchased. This warranty is non-transferable.

Exclusions

This warranty does not cover:

- Disposable batteries and fuses.
- Damage caused by leaking batteries (damaging the meter and components).
- Normal wear and tear of mechanical components.
- Failures caused by use outside the product's specifications.
- Any product which, in the opinion of Major Tech, has been misused, contaminated, or damaged due to neglect.

Check Procedure

Prior to contacting Major Tech or a distributor regarding a warranty claim, please check the following:

- Batteries are installed correctly.
- Battery condition – either replace disposable batteries or ensure rechargeable batteries are charged where applicable.

Contact Information

For any warranty claims or inquiries, please contact either Major Tech or the distributor from whom the product was purchased.

4. CALIBRATION NOTICE

1. Test instruments are precision measuring devices and, by their nature, are subject to normal measurement drift over time due to usage, environmental conditions, and handling.
2. Calibration is the process of verifying that a test instrument is measuring within its specified accuracy when compared against a traceable reference standard. Calibration confirms measurement accuracy but if out of the measurement specification, it will need to be calibrated into specification.
3. Calibration is not a warranty matter. The need for calibration does not indicate a defect in materials or workmanship and does not constitute a product fault under this Policy, the Standard Product Warranty, the Test Instrument Warranty, or any Extended Product Warranty.
4. An instrument may continue to operate and function correctly while being outside its stated accuracy. In such circumstances, the instrument is considered operational but not calibrated.
5. The responsibility for ensuring that a test instrument is calibrated at appropriate intervals rests solely with the instrument owner or user. Calibration intervals are determined by usage, application, environmental conditions, and workplace or regulatory requirements.
6. From time to time, instruments may be checked on site by mobile testing or calibration service providers to verify whether they are within specification at the time of testing. If an instrument is found to be outside specification, this does not necessarily mean the instrument is faulty. It indicates that calibration is required to restore measurement accuracy.
7. Where an instrument is found to be outside specification during such testing, it is the responsibility of the instrument owner or user to remove the instrument from service if required and arrange for calibration or repair as appropriate.
8. Major Tech does not accept responsibility for incorrect measurements, test results, compliance outcomes, or safety decisions arising from the use of instruments that are not maintained and calibrated in accordance with manufacturer recommendations and industry practice.
9. Major Tech's recommendation for Calibration is a minimum once every 12 months.

5. SAFETY INFORMATION

- Read the following safety information carefully before operating or servicing the meter.
- To avoid damage to the instrument, do not apply signals that exceed the maximum limits specified in the technical specifications.
- Do not use the meter or test leads if they appear damaged. Exercise extreme caution when working near bare conductors or bus bars.
- Accidental contact with conductors may result in electric shock.
- Use the meter only as specified in this manual; otherwise, the protection provided by the meter may be impaired.
- Read this instruction manual thoroughly before use and follow all safety guidelines.
- Use caution when working with voltages above 60V DC or 30V AC RMS, as these levels pose a shock hazard.
- Before taking resistance measurements or testing acoustic continuity, disconnect the circuit from the main power supply and remove all loads from the circuit.

6. SAFETY SYMBOLS



Caution refer to this manual before using the meter.



Dangerous voltages.



Meter is protected throughout by double insulation or reinforced insulation.

When servicing, use only specified replacement parts.
CE Comply with EN-61010-1

7. SPECIFICATIONS

7.1. General Information

Environment conditions:

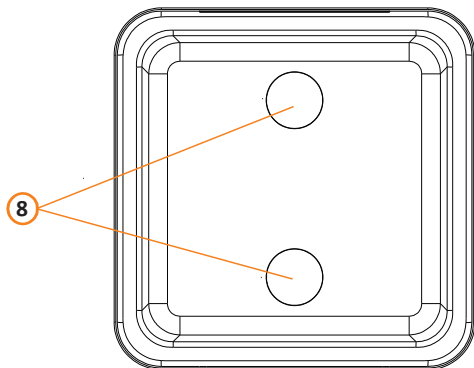
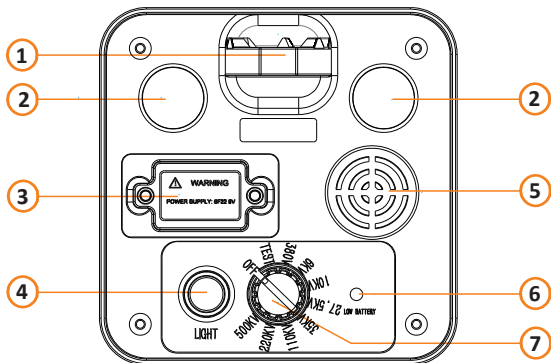
1. Complies with EN 61326-1, CISPR 11, EN 61000-4-2, EN 61000-4-3, EN 61000-4-8
2. Installation Categories
3. Pollution Degree 2
4. Altitude up to 2000 meters
5. Indoor and outdoor use
6. Relatively humidity 85% max.
7. Operation Ambient -10°C to +50°C
8. Storage Temperature -15°C to +55°C

7.2. Electrical Specifications

Function	Range
Sound & LED Light Indication	Indicates when the detection voltage exceeds the set voltage
Voltage Range	380V (80V Min Detection Voltage)
	6kV (660V Min Detection Voltage)
	10kV (1.1kV Min Detection Voltage)
	27.5kV (3kV Min Detection Voltage)
	35kV (3.5kV Min Detection Voltage)
	110kV (12kV Min Detection Voltage)
	220kV (24kV Min Detection Voltage)
	500kV (55kV Min Detection Voltage)
Measurement Method	Non-Contact Test
Wire Location	The measured wire facing the side with the lighting lamp
Operating Temperature	-10°C to +50°C (32°F to 104°F) and Humidity below 85% RH
Storage Temperature	-15°C to +55°C (14°F to 140°F) and Humidity below 90% RH
Power Consumption	65mA Max
Low Battery Indication	When the battery power is low, the instrument emits a low-battery warning light
Battery Voltage	When the battery voltage drops to approximately 5.5V, a low-battery warning signal indicates that the battery should be replaced.
Battery	1 x 9V 6F22 Alkaline Battery
Dimensions	169 x 115 x 115mm
Weight	Approx. 365g include battery
Accessories	6x Batteries & Instruction Manual

8. PARTS & CONTROLS

- | | |
|-------------------------|---------------------------|
| 1. Insulating Rod Joint | 5. Buzzer |
| 2. LED Indicator | 6. Low Battery Indicator |
| 3. Battery Cover | 7. Range Selection Switch |
| 4. Light Switch | 8. LED Light |



9. BATTERY VOLTAGE CHECK

1. When the battery power is low, the instrument displays a low-battery warning signal. Please replace the battery.

10. BATTERY REPLACEMENT

1. Turn the switch to the OFF position to power off the instrument.
2. Confirm that the instrument is completely turned off, then open the battery cover.
3. Remove the depleted battery and replace with a new 9V 6F22 Alkaline battery. Do not mix new battery with the old one.
4. Refit the battery cover and ensure all screws are securely tightened. Do not operate the meter without the battery cover installed.

Warning:

Ensure batteries are inserted with the correct polarity. Incorrect installation may cause battery leakage and potential damage to the meter.

11. SELF-CHECK

1. Rotate the switch to the TEST position to perform a self-check.
2. The buzzer and LED indicator will emit sound and light signals, indicating that the instrument is functioning normally.

12. METER SHUTDOWN

1. Turn the switch to the OFF position to power off the instrument.
2. If the low-battery indicator light turns on, replace the battery promptly.

13. OPERATION GUIDANCE

1. Connect the instrument to the insulating rod and turn the switch to the corresponding voltage range to begin testing.
2. Place the LED side of the instrument close to the object being tested.
3. If the instrument emits sound and light signals, the object has the corresponding voltage or a higher voltage, and the test is complete.

Warning:

- a. Before testing, connect the insulating rod securely. Ensure it is fully and properly assembled. Finally, attach the detector and handle it carefully to avoid impact between the instrument and the ground.
- b. Always use a dedicated insulating rod to connect the instrument.
- c. After testing is complete, tilt the insulating rod in the direction of its alignment. First remove the detector, then detach the insulating rod to prevent the detector from striking the ground.

14. LOW VOLTAGE TESTING

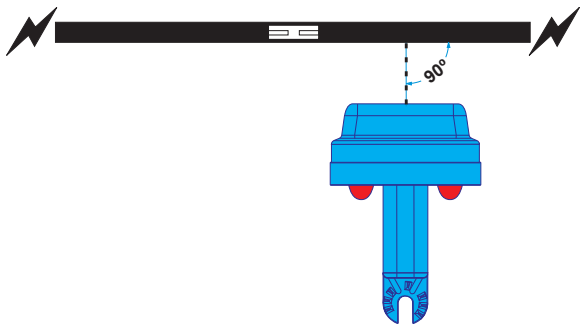
1. The non-contact high-voltage detector operates by proximity and does not require physical contact with electrical conductors when testing for live lines.
2. Its sensor detects the radiated electric field surrounding live conductors.
3. It is recommended not to touch high-voltage wires with the non-contact high-voltage detector.
4. The strength of the radiated field increases with voltage and decreases rapidly with distance or earth shielding.
5. In cables with closely bundled conductors supplied by three-phase power, the radiated fields tend to cancel each other out (see “Limitations of the Non-Contact High-Voltage Detector” on page 13).
6. Set the range selector switch to 380V
7. The detection distance for a 380V AC or less on a single live wire is approximately 10 cm.

15. FAULTS IN OPEN CABLES

1. Faults in damaged flexible cables can be identified by applying a low voltage to each conductor.
2. Earth the remaining conductors that do not need to be traced.
3. Do not earth the live wire, so it can be detected by the non-contact high-voltage detector.
3. Move the tester along the cable until a change in indication is detected.

Note:

Flexible cables used in the mining and construction industries can often be repaired once the break in the cable has been located.



16. HIGH VOLTAGE TESTING

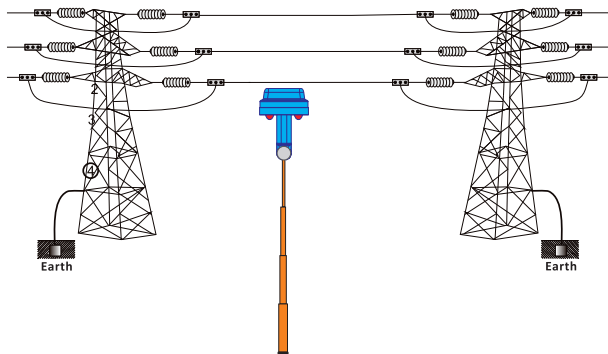
1. The rotary switch (attenuator) is used to identify and differentiate various high-voltage live cables.
2. The non-contact high-voltage detector must be used together with a long insulating rod or hot stick when measuring high voltage (kV).
3. The non-contact high-voltage detector should never come into direct contact with live conductors.
4. Live conductors emit a radiated electric field that can be detected by the detector's sensor.
5. Higher voltage produces a stronger radiated field.
6. The radiated field strength decreases rapidly with distance and/or ground shielding.
7. In cables where conductors supplying three-phase power are closely grouped together, the radiated fields tend to cancel each other out.
8. The rotary switch (attenuator) is used to identify and distinguish different high-voltage live cables.
9. Check that the non-contact high-voltage detector is in good operating condition before use.
10. Select the appropriate test range.
11. It is recommended to begin with a lower test range setting than the actual working voltage.
12. Repeat the test using higher voltage settings if necessary.
13. The user may also select a lower setting to check for lower voltages on a conductor.
14. Using the hot stick, gradually move the non-contact high-voltage detector toward the live conductor until the warning signal is activated. Do not allow the detector to touch the live conductor.

Warning

The detector should only be used in conjunction with an insulated rod or hot stick when measuring high voltage.

When working with high-voltage systems, always wear insulating gloves and rubber-soled shoes. Do not touch live conductors with the non-contact high-voltage detector.

17. HIGH VOLTAGE TESTING ILLUSTRATION



18. LIMITATIONS ON THE NON-CONTACT HIGH VOLTAGE DETECTOR

It is recommended that this non-contact high-voltage detector not be used in high-voltage yards with mixed voltages, as the presence of mixed voltages may affect the reliability of the tester.

Problems may occur when testing the tertiary circuit of a 275/133/11kV transformer. The electric fields generated by the HV and MV bus bars can trigger the detector when it is approximately 3m above ground level. This behavior is common with most electric-field voltage detectors, and users should be aware of it.

The tester may also detect adjacent circuits instead of the circuit being tested, which could result in incorrect indications.

19. HIGH VOLTAGE LINK STICK TESTING ILLUSTRATION



Check and detect live high voltage cables using extension link stick.



MAJOR TECH (PTY) LTD

South Africa

 www.major-tech.com

 sales@major-tech.com

Australia

 www.majortech.com.au

 info@majortech.com.au

