

VI13700/2 VOLTAGE INDICATOR



INSTRUCTION MANUAL



GENERAL SAFETY INFORMATION: Always read before proceeding.

Warning

These instructions contain both information and warnings that are necessary for the safe operation and maintenance of this product. It is recommended that you read the instructions carefully and ensure that the contents are fully understood. Failure to understand and to comply with the warnings and instructions can result in serious injury, damage or even death.

In order to avoid the danger of electrical shock, it is important that proper safety measures are taken when working with voltages exceeding 30V AC RMS, 42V AC peak or 60V DC.

This product must only be used by a competent person capable of interpreting the results under the conditions and for the purposes for which it has been constructed. Particular attention should be paid to the Warnings, Precautions and Technical Specifications. Always check the unit is in good working order before use and that there are no signs of damage to it. Do not use if damaged.

Where applicable other safety measures such as use of protective gloves, goggles etc. should be employed.

Please keep these instructions for future reference. Updated instructions and product information are available at: www.martindale-electric.co.uk

REMEMBER: SAFETY IS NO ACCIDENT

MEANING OF SYMBOLS:



Equipment complies with relevant EU Directives



End of life disposal of this equipment should be in accordance with relevant EU Directives.



Caution - risk of electric shock



Caution - risk of danger & refer to instructions



Equipment protected by double or reinforced insulation (Class II).



Suitable for live working



Both direct and alternating current

Thank you for buying one of our products. For safety and full understanding of its benefits please read this manual before use. Technical support is available from 01923 441717 and support@martindale-electric.co.uk.

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1. INTRODUCTION

1.1 Inspection

Examine the shipping carton for any sign of damage. Inspect the unit and any accessories for damage. If there is any damage then consult your distributor immediately.

1.2 Description

The VI13700/2 is the market leading two-pole voltage indicator used for proving circuits are dead i.e. not hazardous live. It is constructed in accordance with the latest safety standards.

The voltage tester has the following features:

- ◆ Testing for DC and AC Voltage up to 600V
- ◆ Automatic AC/DC detection
- ◆ Bright LED indication
- ◆ Full voltage indication function without batteries
- ◆ Ergonomic and robust housing
- ◆ Retractable shrouds
- ◆ HRC fuse protected
- ◆ Fully meets GS38 and BS EN 61010
- ◆ Measurement Category CAT IV 600V, CAT III 1000V

2. Product Specific Safety Information

Measurement Category III (CAT III) is applicable to test and measuring equipment connected to the distribution part of the building's low-voltage MAINS installation.

Measurement Category IV (CAT IV) is applicable to test and measuring equipment connected at the source of the building's low-voltage MAINS installation.

The specified measurement category means the voltage indicator will be safe to the user if inadvertently connected to a voltage up to 1000V AC/DC to earth within a CAT III environment. It does not mean it can be used to test for a voltage beyond its maximum specified limits.

2.1 Precautions

This product has been designed with your safety in mind, but please pay attention to the following warnings and cautions before use.

Warnings

The voltage indicator must only be used by a skilled and competent person who is familiar with the relevant regulations, the safety risks involved and the consequent normal safe working practices.

Before each use the voltage indicator should be examined for damage, cracks, cuts or scratches to the housing and cable. The cable has black outer and contrasting inner insulation, to allow damage to the cable to be easily identified. If there is any doubt the voltage indicator should **not be used**.

Make sure the voltage indicator is dry, clean and free from dust, grease and moisture while in use to avoid the danger from electric shock due to surface leakage.

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Before and after each use, the voltage indicator must be proven using a suitable proving device or a known good voltage source. Do not use the voltage indicator if any expected voltage indication LED's fail to illuminate correctly during proving.

Testing for a voltage that exceeds the specified limits of the voltage indicator may damage the voltage indicator and expose the operator to a shock hazard. Always check the voltage indicators specified limits before use. The voltage indicator must only be used in low voltage systems up to 600V and within the operating temperature and humidity range specified.

Always keep your fingers behind the finger guards. Never touch the exposed metal prod tips.

Do not use the voltage indicator in damp conditions.

The different indicating signals of the voltage detector (including the ELV limit indication) are not to be used for measuring purposes.

The voltage indicator must not be dismantled or modified in any way by unauthorized persons. The safety of the voltage indicator cannot be guaranteed under such circumstances and **must not be used**.

Cautions

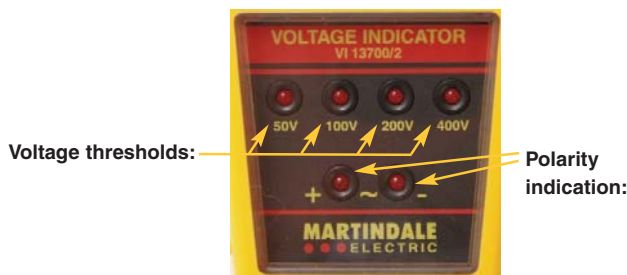
Avoid severe mechanical shock or vibration and extreme temperature.

If the voltage indicator has been stored or transported in temperatures outside its normal operating range it should be given sufficient time to stabilise in the environment where it is to be used. An acclimatisation time of at least 2 hours is required prior to operation of the voltage indicator.

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3. OPERATION

3.1 Description of LED Indicators



Polarity indication:

When connected across a DC voltage source either the + or – LED will illuminate dependant on polarity. The prods are marked red (positive input) and black (negative input).

When connected across an AC voltage source both the + and – LED's will illuminate.

The polarity LED's will illuminate when the voltage source is approx. 12V AC rms or DC.

Voltage thresholds:

The voltage threshold LED's will illuminate when the magnitude of the voltage source is at a value approaching or greater than the corresponding marked voltage. For example if the voltage source is 55V AC rms then only the 50V LED will illuminate, if 450V AC rms all four LED's will illuminate.

3.2 Use of Test Prod Shrouds

The shrouds around the test prods are normally sprung forwards to IP 2X rating and are retractable.

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For optimum safety, the shrouds should be allowed to spring forward freely whenever the prod tips are removed from a location under test.

If desired, and before the unit is connected to any source of voltage, the shrouds can be locked back by pushing and twisting 90°.

The prod tips will be exposed by $3 \pm 0.5\text{mm}$. In this position they are GS38 compliant.



3.3 Operating Duty Ratio

The voltage indicator should be operated (ON) for a maximum period of 30 seconds. This should be followed by a recovery period (OFF) of 4 minutes.

The operating duty ratio is 8 to 1, so if the voltage indicator is only ON for 2 seconds then the OFF period need only be 16 seconds.

3.4 Proving Check

Before and after use, verify the voltage indicator is functioning correctly with a proving device (PD430 or PD440 is recommended), or a known good voltage source. **Do not use** the voltage indicator if any expected voltage indication LED's (50, 100, 200, 400V) fail to illuminate correctly during proving.

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Note: The LED's that illuminate during proving will depend on the magnitude of the proving device output or the voltage source. For example if the voltage source is 230V AC rms then all LED's except the 400V LED must illuminate. If a PD430 or PD440 is used then all LED's should illuminate. Illumination of the polarity LED's depends on the type of proving device used.

Any unexpected display should be investigated and the VI13700/2 not used unless all expected voltage indication lights illuminate.

Warning

If the proving device or voltage source exceeds the specified limits of the voltage indicator the voltage indicator may be damaged and the operator exposed to a shock hazard. Always check the specification of the proving device or the voltage magnitude of the voltage source before proceeding with a proving check.

During this verification emphasis should also be placed upon the flexing of the voltage indicators cable along its length, and particularly at the entry points to the hand held elements, to confirm that the cable has not been fractured.

3.5 Testing for the Presence of Hazardous Live Voltage

Warning

Hold the voltage indicator and test prod behind the finger guards in a manner that will not obscure the voltage indication LED's. Never touch the exposed metal test prods or any part of the voltage indicator forward of the finger guards while applied to hazardous voltages.

While taking all required safety precautions connect the test prods across the test points where a voltage difference may be present. 6

The polarity and voltage level of any voltage present between the test points will be indicated by the illumination of the voltage indicator LED's.

3.6 Interference (Phantom) Voltage

It is possible for wiring that is 'dead' to indicate the apparent presence of voltage at power frequency.

If wiring that is live is running in close proximity to the 'dead' wiring being tested, there can be capacitive or inductive coupling between the two, thereby causing interference (phantom) voltages.

Voltage indicators that draw a relatively low current (the VI13700/2 draws below the safety limit of 3.5mA) when testing for hazardous live voltages may not be able to suppress the interference voltage sufficiently to avoid indicating the presence of a hazardous live voltage when none is present.

The VI13700/2 will not suppress typical levels of interference voltage as defined by the test for interference voltage in the standard EN 61243-3:2010.

If there is any doubt as to whether a voltage indication is hazardous live or interference, then an alternative voltage indicator capable of distinguishing between the two should be used, or alternative tests should be performed.

4. MAINTENANCE

4.1 Fuse Replacement

Warning To avoid shock, injury or damage to the voltage indicator, disconnect it from any external circuits before proceeding.

Warning Replace only with the fuse specified.

The prod is fitted with a 600V 0.5A 50KA HRC rated fuse (6x32mm) that can be replaced by unscrewing the black prod tip.

Martindale order code: FUSE500 (pack of 3).



4.2 Cleaning

Wipe the voltage detector with a cloth soaked with alcohol or mild non conductive detergent. Do not use abrasives, abrasive solvents, or detergents which can cause damage to the voltage detector. Allow the voltage detector to thoroughly dry before use.

4.3 Repair & Service

There are no user serviceable parts in this unit other than those that may be described in section 4. Return to Martindale Electric if faulty. Our service department will quote promptly to repair any fault that occurs outside the guarantee period.

Before the unit is returned, please ensure that you have checked the unit and the fuse.

4.4 Storage Conditions

The instrument should be kept in warm dry conditions away from direct sources of heat or sunlight, and in such a manner as to preserve the working life of the unit. It is strongly advised that the unit is not kept in a tool box where other tools may damage it.

5. Warranty and Limitation of Liability

This Martindale product is warranted to be free from defects in material and workmanship under normal use and service. The warranty period is 2 years and begins on the date of receipt by the end user. This warranty extends only to the original buyer or end-user customer, and does not apply to fuses, disposable batteries, test leads or to any product which, in Martindale's opinion, has been misused, altered, neglected, contaminated, or damaged by accident or abnormal conditions of operation, handling or storage.

Martindale authorised resellers shall extend this warranty on new and unused products to end-user customers only, but have no authority to extend a greater or different warranty on behalf of Martindale.

Martindale's warranty obligation is limited, at Martindale's option, to refund of the purchase price, free of charge repair, or replacement of a defective product which is returned to Martindale within the warranty period.

This warranty is the buyer's sole and exclusive remedy and is in lieu of all other warranties, expressed or implied, including but not limited to any implied warranty of merchantability or fitness for a particular purpose. Martindale shall not be liable for any special, indirect, incidental or consequential damages or losses, including loss of data, arising from any cause or theory.

Since some jurisdictions do not allow limitation of the term of an implied warranty, or exclusion or limitation of incidental or consequential damages, the limitations and exclusions of this warranty may not apply to every buyer. If any part of any provision of this warranty is held invalid or unenforceable by a court or other decision-maker of competent jurisdiction, such holding will not affect the validity or enforceability of any other provision or other part of that provision.

Nothing in this statement reduces your statutory rights.

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Specification VI13700/2 Voltage Indicator



ELECTRICAL SPECIFICATIONS

Nominal voltage range: 50 - 600V DC/AC rms
Nominal voltage threshold indications: 50, 100, 200, 400 V DC/AC rms
Nominal Voltage threshold tolerance: < 85% of marked threshold indication
Polarity indication: from approx 12V DC/AC rms
AC/DC voltage detection: automatic
Range detection: automatic
Response time: < 0.1s

Frequency range: DC, 1 - 400 Hz

Test current: < 3.5mA at 600V DC/AC rms

Duty ratio: 30s ON (operated) / 240s OFF (recovery)

GENERAL SPECIFICATIONS

Temperature & Humidity:

Operating: -10°C to 55°C ≤ 85% R.H.

Storage: -10°C to 55°C ≤ 85% R.H.

Altitude: up to 2000m

Power: from circuit under test

Dimensions: 205(L) x 67(W) x 27(D) mm

Weight: 130g approx.

Includes: instructions

Safety: Conforms to BS EN 61010-1 CAT IV 600 V, CAT III 1000V
Class II Double Insulation
Pollution Degree: 2
IP rating: IP54

EMC: Conforms to BS EN 61326-1

Check out what else you can get from Martindale:

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- Pat Testers & Accessories
- Phase Rotation Testers
- Proving Devices
- Socket Testers
- Thermometers & Probes
- Test Leads
- Voltage Indicators
- Specialist Metrohm Testers (4 & 5kV)
- Specialist Drummond Testers



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