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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
-  Caution - refer to accompanying documents
-  Caution - risk of electric shock
-  Suitable for live working for up to 690V
-  End of life disposal of this equipment should be in accordance with relevant Local Directives

MARTINDALE
ELECTRIC

Specification

VII3700/2

Voltage Indication



Voltage Range: 50-600V AC/DC

LED Indication: +/-50,100,200,400 V

Polarity & Voltage Indication: from 12V

AC/DC voltage detection: automatic

Range detection: automatic

Response Time: <0.1s

Frequency Range: DC, 0-65Hz

Test Current: 3.5mA max at 600V AC/DC

Duty Ratio: 30s ON / 240s OFF

Temperature Range: -10°C to + 55°C

Humidity: max. 85% rel.H.

Altitude: up to 2000m

Overvoltage Category: CATIV/600V CATIII 1000V

Pollution Degree: 2

Environmental Protection: IP54

Safety: GS38, BS EN 61010

Weight: approx. 130g

Dimension: approx. 205 x 67 x 27mm

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.

7 Nothing in this statement reduces your statutory rights.

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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Specifications

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 a voltage indicator widely used for proving circuits dead. It is constructed in accordance with the latest safety standards.

The voltage tester has the following features:

DC and AC Voltage Tests 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 III 690V, CAT IV 690V

Transportation and Storage

Instruments must be stored in dry and closed areas. In the case of an instrument being transported in extreme temperatures, an acclimatisation time of at least 2 hours is required prior to instrument operation.

4. MAINTENANCE

4.1 Calibration

To maintain the integrity of measurements made using your instrument, Martindale Electric recommends that it is returned at least once a year to an approved Calibration Laboratory for recalibration and certification.

Martindale Electric is pleased to offer you this service. Please contact our Service Department for details.

Email: service@martindale-electric.co.uk Tel: 01923 650660

4.2 Cleaning

The unit may be cleaned using a soft dry cloth. Do not use moisture, abrasives, solvents, or detergents, which can be conductive.

4.3 Repair & Service

There are no user serviceable parts in this unit other than those described in section 3. 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, fuse, leads and poor connections.

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. A case (MARTC69) is available from Martindale Electric which can also hold any of the Martindale proving units.

- ◆ Voltage LEDs remain lit while an applied voltage exceeds their turn-on value, so that one, two, three or four LEDs may be lit simultaneously, depending on the applied voltage.

Shrouds around test prods are sprung forwards to IP 2X rating and are retractable.

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.



There are two LEDs to indicate polarity.

- ◆ For DC voltages, one polarity LED will be lit, which will indicate the polarity of the red prod tip on VI body.
- ◆ The probe handle/black prod tip will be the opposite polarity.
- ◆ For AC voltages, both polarity LEDs will be lit.
- ◆ The polarity LEDs will be strongly lit at approximately 12V.

2. PRODUCT SPECIFIC SAFETY INFORMATION

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.

Warning

Before use check the unit for cracks or any other damage. Make sure the unit is free from dust, grease and moisture. Also check any associated leads and accessories for damage. Do not use if damaged.

Normal safe working practices must be followed at all times.

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

The instrument may only be used within the operating ranges specified in the technical data section and in low voltage systems up to 600V.

Measurements in dangerous proximity to electrical systems should only be carried out by a qualified electrical technician, and never alone.

Do not use this instrument if any functions fail or if no functionality is indicated.

Do not use this instrument in damp conditions.

Perfect display is only guaranteed within a temperature range of -10°C up to $+55^{\circ}\text{C}$ at relative humidity $<85\%$.

Immediately before and after use, ensure the instrument is functioning correctly, e.g. by using a proving device (PD430 or PD440 recommended, but PD690 or PD700 can also be used).

Avoid exposing the instrument to direct sunlight to ensure perfect function and long instrument life.

Safety cannot be ensured if the instrument:

- ◆ shows obvious signs of damage
- ◆ does not carry out the desired measurements
- ◆ has been stored for too long under unfavourable conditions
- ◆ has been subjected to mechanical stress
- ◆ has been modified in any way

3. OPERATION

3.1 Replacing Fuses

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

Replacement fuse: Martindale order code FUSE500 (pack of 3)



3.2 How it Works

For any tests the safety precautions have to be observed as mentioned in section 2.1.

Only hold the unit and test leads behind the finger guards. Never touch the exposed metal prod tips.

3.2.1 Function Test

Test the voltage tester with a proving device (PD430 or PD440 recommended but PD690 or PD700 can also be used), or on a known live source. Connect test probes to the source. The LEDs must be illuminated.

3.2.2 Voltage Test

Connect both test probes to the unit or location under test.

The VI has four LEDs to indicate presence of voltage.

- ◆ Each voltage LED is marked to show the voltage at which it will be strongly lit.
- ◆ Each voltage LED will begin to turn on at a voltage slightly below the marked value.

PROVING UNITS



INSTRUCTION MANUAL

PD430

PD440

PD690 Mk2

PD700



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.

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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



equipment protected by double or reinforced insulation (Class II)



caution - risk of danger & refer to instructions



caution - risk of electric shock



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

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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Specifications

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

To install or replace batteries refer to section 3.1

PD430

The PD430 is a portable, battery powered proving unit for the testing of contact type voltage detectors up to 440V.

Suitable for: Drummond Test Lamps, Digital Multimeters, Low Impedance Voltage Testers (LCD display)

PD440

The PD440 is a portable, battery powered proving unit for the testing of contact type voltage detectors up to 440V.

Suitable for: Drummond Test Lamps, Digital Multimeters, Low Impedance Voltage Testers (LCD display)

PD690

The PD690 is a portable, battery powered proving unit for the testing of contact type voltage detectors up to 700V.

Suitable for: Martindale Voltage Indicators, High Impedance Voltage Indicators

PD700

The PD700 is a portable, battery powered proving unit for the testing of contact type voltage detectors up to 700V.

Suitable for: Martindale Voltage Indicators, High Impedance Voltage Indicators

MODEL	Low Voltage	High Voltage	Low Voltage LED	High Voltage NEON	High Current LED	Low Battery LED
PD700	50V	700V	✓	✓	✓	✓
PD690		700V		✓		✓
PD430	50V	440V	✓	✓		✓
PD440		440V		✓		✓

2. PRODUCT SPECIFIC SAFETY INFORMATION

2.1 Precautions

These products have been designed with your safety in mind, but please pay attention to the following warnings and cautions before use.

Do not use if the battery cover is not fitted.

Limit the test time to less than 10 seconds.

Do not short the output terminals.

Avoid severe mechanical shock or vibration and extreme temperatures.

Remove the batteries when not in use for an extended period to avoid corrosion from leaking batteries.

Warning

Before use check the unit for cracks or any other damage. Make sure the unit is free from dust, grease and moisture. Do not use if damaged.

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3. OPERATION

3.1 Installing or Replacing Batteries

Remove the rear battery cover by unscrewing the screw at the end of the cover. The screw is captive but once it is loose the cover can be slid downwards beyond the bottom end of the unit and lifted clear.

Fit 6 new LR6 (MN1500) 1.5V alkaline batteries, observing correct polarity.

Replace the battery cover by positioning it into the rear casing slots and sliding it upward into position, then tighten the screw. Do not over-tighten.

3.2 How it Works

Always make sure the precautions applicable to the unit being tested are observed.

PD430

The PD430 is a dual voltage proving unit which generates approximately 50V for 3 seconds and then generates 440V. Place one probe of the unit under test into the left hand socket until it makes contact with the terminal. Place the other probe into the right hand terminal and gently press down until the Low Voltage indicator illuminates and the probe makes contact with the terminal. This is the 50V test and will stay illuminated for a few seconds before switching to the 440V test when the High Voltage indicator will illuminate.

Observe that the required indicators on the unit under test illuminate then withdraw the probe from the right hand terminal first, then the left.

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If the PD430 lights fail to illuminate, check the condition of the batteries and replace if required (see paragraph 3.1).

PD440

Place one probe of the unit under test into the left hand socket until it makes contact with the terminal. Place the other probe into the right hand terminal and gently press down until the High Voltage (440V) indicator illuminates and the probe makes contact with the terminal.

Observe that the required indicators on the unit under test illuminate then withdraw the probe from the right hand terminal first, then the left.

If the PD440 lights fail to illuminate, check the condition of the batteries and replace if required (see paragraph 3.1).

PD690

Place one probe of the unit under test into the left hand socket until it makes contact with the terminal. Place the other probe into the right hand terminal and gently press down until the PD690 High Voltage (700V) indicator illuminates and the probe makes contact with the terminal.

Observe that the required indicators on the unit under test illuminate, then withdraw the probe from the right hand terminal first, then the left.

If the PD690 high voltage indicator fails to illuminate, check the condition of the batteries and replace if required (see paragraph 3.1).

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PD700

The PD700 is a dual voltage proving unit which generates approximately 50V for 3 seconds and then generates 700V AC.

Place one probe of the unit under test into the left hand socket until it makes contact with the terminal. Place the other probe into the right hand terminal and gently press down until the Low Voltage (50V) indicator illuminates and the probe makes contact with the terminal. This is the low voltage test and it will stay illuminated for 3 seconds before switching to the 700V test when the High Voltage indicator will illuminate.

Observe that the required indicators on the unit under test illuminate then withdraw the probe from the right hand terminal, then the left.

If the High Current light illuminates the unit under test is consuming more than 5mA. Typically Martindale voltage indicators draw 3 – 3.5mA but other manufacturers' instruments may vary.

If the PD700 lights fail to illuminate, check the condition of the batteries and replace if required (see paragraph 3.1).

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4. MAINTENANCE

4.1 Cleaning

The unit may be cleaned using a soft dry cloth. Do not use moisture, abrasives, solvents, or detergents, which can be conductive.

4.2 Repair & Service

There are no user serviceable parts in these units.

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

4.3 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.

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5. WARRANTY AND LIMITATION OF LIABILITY

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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.

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Specification PD430 & PD440 Proving Unit

PD430



Output Voltage:

first output = 50V nominal
second output = 440V nominal (see graph)
50Hz nominal

Operating Temperature Range:

-10 to 40C at max. 70% RH

Batteries: 6 x LR6 (MN1500) 1.5V Alkaline batteries or equivalent (included)

Dimensions: 143 x 84 x 50mm

Weight: 400g approx with batteries

PD440



Output Voltage:

output = 440V nominal (see graph)
50Hz nominal

Operating Temperature Range:

-10 to 40C at max. 70% RH

Batteries: 6 x LR6 (MN1500) 1.5V Alkaline batteries or equivalent (included)

Dimensions: 143 x 84 x 50mm

Weight: 400g approx with batteries



Specification PD690 & PD700 Proving Unit

PD690



Output Voltage:

700V nominal (see graph)
50Hz nominal

Operating Temperature Range:

-10 to 40C at max. 70% RH

Batteries: 6 x LR6 (MN1500) 1.5V Alkaline batteries or equivalent (included)

Dimensions: 143 x 84 x 50mm

Weight: 400g approx with batteries

PD700



Output Voltage:

first output = 50V nominal
second output = 700V (see graph)
50Hz nominal

Operating Temperature Range:

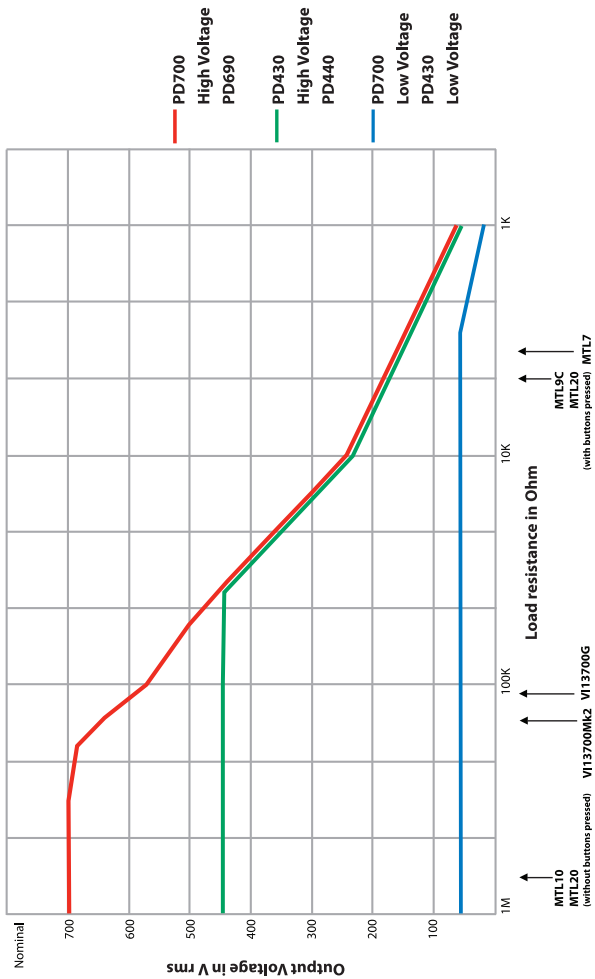
-10 to 40C at max. 70% RH

Batteries: 6 x LR6 (MN1500) 1.5V Alkaline batteries or equivalent (included)

Dimensions: 143 x 84 x 50mm

Weight: 400g approx with batteries

Output Voltage



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



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