PROVING UNITS

Instruction Manual

PD430
PD440
PD690
PD700
PD710

MARTINDALE ELECTRIC

⚠ **ALWAYS READ THESE INSTRUCTIONS BEFORE PROCEEDING**

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.

CONTENTS

1 SAFETY INFORMATION

⚠ **REMEMBER: SAFETY IS NO ACCIDENT**

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.

Particular attention should be paid to the Warnings, Precautions and Technical Specifications.

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

1.1 Meaning of Symbols and Markings

⚠ **Caution - risk of danger & refer to instructions**

⚠ **Caution - risk of electric shock**

Equipment protected by double or reinforced insulation (Class II)

CE **Equipment complies with relevant EU Directives**

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

1.2 Precautions

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

⚠ **Warnings**
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.

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 accessories for damage. **Do not use** if damaged.

Do not use if the battery cover is not fitted.

Do not apply greater than 12V DC to the external power socket.

⚠ **Cautions**
Avoid severe mechanical shock or vibration and extreme temperature.

To avoid corrosion from leaking batteries, remove the batteries when the unit is not in use for an extended period.

Limit the test time to less than 10 seconds.

Do not short the output terminals.

2. INTRODUCTION

2.1 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.

2.2 Description

PD430 & PD440

The PD430 & PD440 are portable battery powered proving units for the testing of contact type voltage detectors up to 440V.

The PD430 is a dual voltage proving unit which generates 50V at 50Hz for 3 seconds and then generates 440V at 50Hz. The PD440 generates 440V only at 50Hz.

PD690 & PD700

The PD690 & PD700 are portable battery powered proving units for the testing of contact type voltage detectors up to 700V.

The PD700 is a dual voltage proving unit which generates 50V at 50Hz for 3 seconds and then generates 700V at 50Hz. The PD690 generates 700V only at 50Hz.

PD710

The PD710 is a portable battery powered proving unit for the testing of contact type voltage detectors up to 700V.

The PD710 generates 700V DC only.

Model	Low Voltage	High Voltage	Output Frequency	Low Voltage LED	High Voltage Neon	High Current LED	Low Battery LED
PD430	50V	440V	50Hz	✓	✓		✓
PD440		440V	50Hz		✓		✓
PD690		700V	50Hz		✓		✓
PD700	50V	700V	50Hz	✓	✓	✓	✓
PD710		700V	DC		✓		✓

2.3 Accessories

All units come with the following accessories:

- 6 x 1.5V AA alkaline batteries
- Instructions

Accessories not included:
PSUPD230 - mains powered 12V DC power supply
PSUHPAT12 - 12V DC in car fused charger adaptor

2.4 Battery Installation

Refer to Section 4.1 (Battery Replacement) for the battery installation instructions for all units.

3. OPERATION

⚠ Caution

Always make sure the precautions and limitations of the unit being tested are observed. If necessary refer to the specification of the unit being tested.

Also refer to the graph of typical output voltage under various load conditions at the rear of these instructions.

3.1 Proving Unit LED indications

LED	Proving unit model No.	LED illumination indicates
Low Voltage	PD430 & PD700	50V output at proving unit terminals for approx. 3 seconds
High Voltage	All models	High voltage output at proving unit terminals
Low Battery	All models	Proving unit batteries are low Replace batteries
High Current *	PD700	UUT current consumption > 5mA

* Typically Martindale voltage indicators draw < 3.5mA but other manufacturers' instruments may vary.

3.2 Using the External Power Socket

An external power jack socket is provided, allowing the use of an external 12V DC power source instead of the internal batteries.

Remove the rubber shroud from the jack socket access hole, and plug in a 12V DC source (2A minimum) using a 2.5mm jack plug (centre positive).

If internal batteries are fitted they will be disconnected by the insertion of the jack plug. If however, the internal batteries are not the intended primary power source, it is advisable to remove them to prevent damage from leaking batteries.

It is advisable to replace the rubber shroud after use to prevent the ingress of dust and moisture.

Two suitable units available from Martindale Electric for providing external power are the:

PSUPD230, a mains powered, 12V DC power supply;

PSUHPAT12, a12V DC in car fused adaptor.

3.3 Proving a Test Lamp, Voltage Tester/Indicator, DMM etc.
Place one probe of the unit under test into the left hand socket of the proving unit until it makes contact with the terminal. Place the other probe into the right hand terminal of the proving unit and gently press down.

On the PD440 and PD690 the high voltage indicator will illuminate.

On the PD430 and PD700 the low voltage indicator will illuminate for 3 seconds, then the high voltage indicator.

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

Do not operate the proving unit for periods longer than 10 seconds.

If none of the proving unit LED's illuminate when performing the above tests check the condition of the proving unit batteries and replace them if required (see section 4.1).

3.4 Test Lamp, Voltage Tester/Indicator Cables
During the above tests, emphasis should also be placed upon the flexing of the UUT cable along its length, and particularly at the entry points to the hand held elements, to confirm that the cable has not fractured.

It may be necessary to perform this test a number of times so as not to operate the proving unit for longer than 10 seconds in any one test episode.

4. MAINTENANCE

4.1 Battery Replacement
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.

Observing correct polarity fit 6 new 1.5V, AA alkaline batteries (IEC LR6, NEDA 15A).

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.

Note: Do not mix old and new batteries.

4.2 Cleaning
If contamination is found, clean with a damp soft cloth and if necessary a mild detergent or alcohol. Do not use abrasives, abrasive solvents, or detergents which can cause damage to the unit. If a mild detergent is used, the unit should subsequently be thoroughly cleaned with a water dampened soft cloth. After cleaning, dry and allow to remain in a dry environment for 2 hours before use.

4.3 Repair and 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 batteries.

4.4 Storage Conditions
The instrument should be kept in cool, dry conditions and not subjected to shock, scratching or other damage, prolonged direct harsh sunlight, extremes of temperature 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.

Specification
PD430 PD440 PD690 PD700 PD710 - Proving Units

Electrical

PD430	Output voltage:	First output level for 3s - 50V nominal Second output level - 440V nominal
	Output frequency:	50Hz nominal
PD440	Output voltage:	440V nominal
	Output frequency:	50Hz nominal
PD690	Output voltage:	700V nominal
	Output frequency:	50Hz nominal
PD700	Output voltage:	First output level for 3s - 50V nominal Second output level - 700V nominal
	Output frequency:	50Hz nominal
PD710	Output voltage:	700V nominal
	Output frequency:	DC

All Units

Output loading: See typical output voltage vs. loading graph

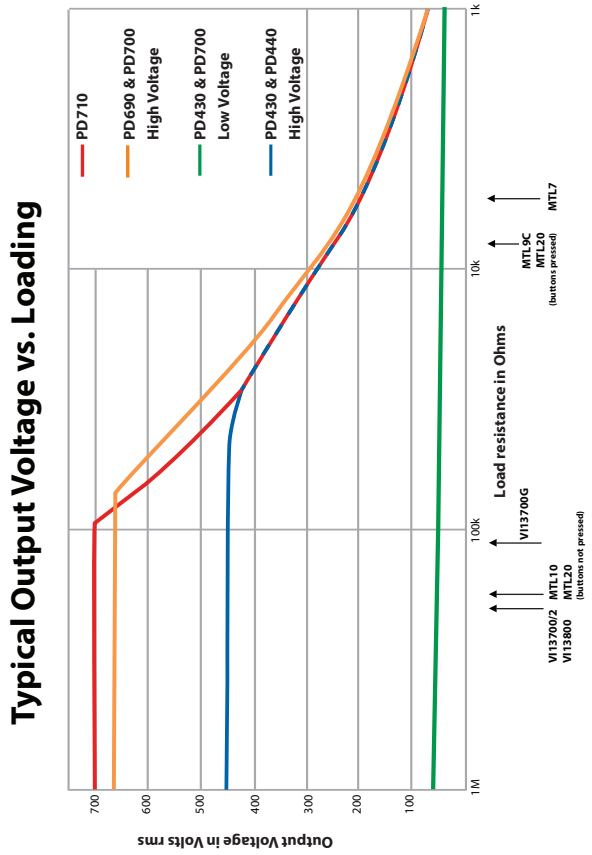
Environmental

Operating temperature: -10°C to 40°C at max. 70% R.H.
Altitude: up to 2000m
Pollution degree: 2

General

Power: Internal batteries or external power source
Internal batteries: 6 x 1.5V, AA alkaline batteries (IEC LR6, NEDA 15A)
External power source: 12V DC max. at 2A min.
External power socket: 2.5mm jack socket, centre positive
Dimensions: 143 x 84 x 50mm.
Weight packed: 400g approx. with batteries
Includes: 6 x 1.5V AA alkaline batteries, instructions

Specification
PD430 PD440 PD690 PD700
PD710 - Proving Units



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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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