



EN

Original Instructions
Version 1

AC/DC

HIGH VOLTAGE TESTER

21250



1. Preface

These are the original product instructions. This document is part of the product; retain it for the life of the product, passing it on to subsequent holders. Read this manual in full before attempting to assemble, operate or maintain this product.

This Draper Tools manual describes the purpose of the product and contains all the necessary information to ensure its correct and safe use. Following all the instructions and guidance in this manual will ensure the safety of both the product and the operator and increase the lifespan of the product.

All photographs and drawings within this manual are supplied by Draper Tools to help illustrate correct operation of the product.

Every effort has been made to ensure the information contained in this manual is accurate. However, Draper Tools reserves the right to amend this document without prior warning. Always use the latest version of the product manual.

1.1 Product Reference

User Manual for: AC/DC High Voltage Tester

Stock No: 21250

Part No: AC/DC

1.2 Revisions

Version 1: January 2024

First release

As our manuals are continually updated, always ensure that the latest version is used.

Please visit drapertools.com/manuals for the latest version of this manual and the associated parts list, if applicable.

1.3 Understanding the Safety Content of This Manual



WARNING! – Situations or actions that may result in personal injury or death.



CAUTION! – Situations or actions that may result in damage to the product or surroundings.

Important: – Information or instructions of particular importance.

1.4 Copyright © Notice

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In all cases, this copyright notice must remain intact.

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3. Product Introduction

3.1 Intended Use

This High voltage Circuit Tester is designed for checking and testing whether circuits are live. Use for checking domestic wiring, automobile circuitry and electronic equipment.

Suitable for testing on 6V-1,000V DC systems and 24V-1,000V AC Systems. Supplied with a self-test function and light for illuminating testing point.

Compatible with most vehicle including hybrid and electric cars, motorcycles, commercial vehicles, trailers, boats & agricultural machinery.

Any other application beyond the conditions established for use will be considered misuse. Draper Tools accepts no responsibility for improper use of this product.

Read this manual in full before attempting to assemble, operate or maintain the product, and retain it for later use.

3.2 Specification

Stock No.	21250
Part No.	AC/DC
Net weight	285g
Maximum Operation	3 minutes
Ingress Protection	IP65
CAT Category	CAT IV 1000V
AC Voltage Range	24 – 1,000V
DC Voltage Range	6 – 1,000V
Voltage Increments	1V
Voltage Accuracy	+/-3%V
Response Time	<1sec at 90% each voltage
Maximum Current	<3.5mA @1000V
Phase Rotation Measurement	
System	3 phase
Voltage range	100 – 1000V
Phase Angle	120+/-5°
Non Contact Voltage Sensing	
Voltage Range	>90VAC
Continuity	
Resistance	0 – 1.3MΩ
Conducting Current	≤5uA
Battery	
Type	2 X AAA
Temperature during operation	0 - 50°C
Temperature during storage	-1 - 60°C

Important: Read all Health and Safety instructions before attempting to operate, maintain or repair this product. Non-compliance with these instructions may result in injury or damage to the user or the product.

4.1 General Health and Safety Precautions



WARNING!

- After measuring AC/DC voltage for 3 minutes, switch off and allow the tester to rest for 1 minute.
- **DO NOT** exceed the maximum rated capacity for this device as it may expose you to a shock.
- **DO NOT** operate the tester near flammable gases.
- Never operate the tester with wet hands.
- Take extreme caution when operating with a live circuit.
- **ALWAYS** keep your fingers behind the barriers on the probes at all times during use.
- **NEVER** open the battery compartment during operation.
- **ONLY** trained and competent personnel may operate this device.
- Use this product **ONLY** as instructed in this manual.
- Observe all standard precautions and good practice when working with live electrical currents.
- Inspect the product for damage before every use, particularly the probe tips.
 - **DO NOT** use this product if the device, casing or probes are damaged in any way or if there is evidence of battery leakage.
- **DO NOT** use this product if it is functioning abnormally. Have it checked by a qualified and authorised technician before next use.
- **DO NOT** modify the tester and use only for its intended purpose.
- Check the tester is functioning correctly with a known voltage source before measuring an unknown voltage source.
- Use **ONLY** accessories and spare parts supplied by Draper Tools.
- Before using the tester in a location with high degree of background noise, check that the audible indicator can be heard.

4.2 Battery Safety

- **DO NOT** abuse, mutilate or burn the battery.
- If the batteries must be replaced, use ones with the same specification.
- Remove the batteries when the product is stored for extended periods.
- Ensure that the batteries are fitted in the correct +/- orientation.

4.3 Residual Risk

The safety instructions in this manual cannot account for all possible conditions and situations that may occur. Exercise common sense and caution when using this product and protect against any additional conceivable risks.

4.4 Explanation of Symbols



Read the instruction manual



Warning!



Do not incinerate or throw onto fire



Keep out of the reach of children



Suitable for live working



CAUTION!

Risk of electric shock. Under normal usage hazardous voltages may be present.



WEEE – Waste Electrical & Electronic Equipment

Do not dispose of Waste Electrical & Electronic Equipment in with domestic rubbish



European conformity



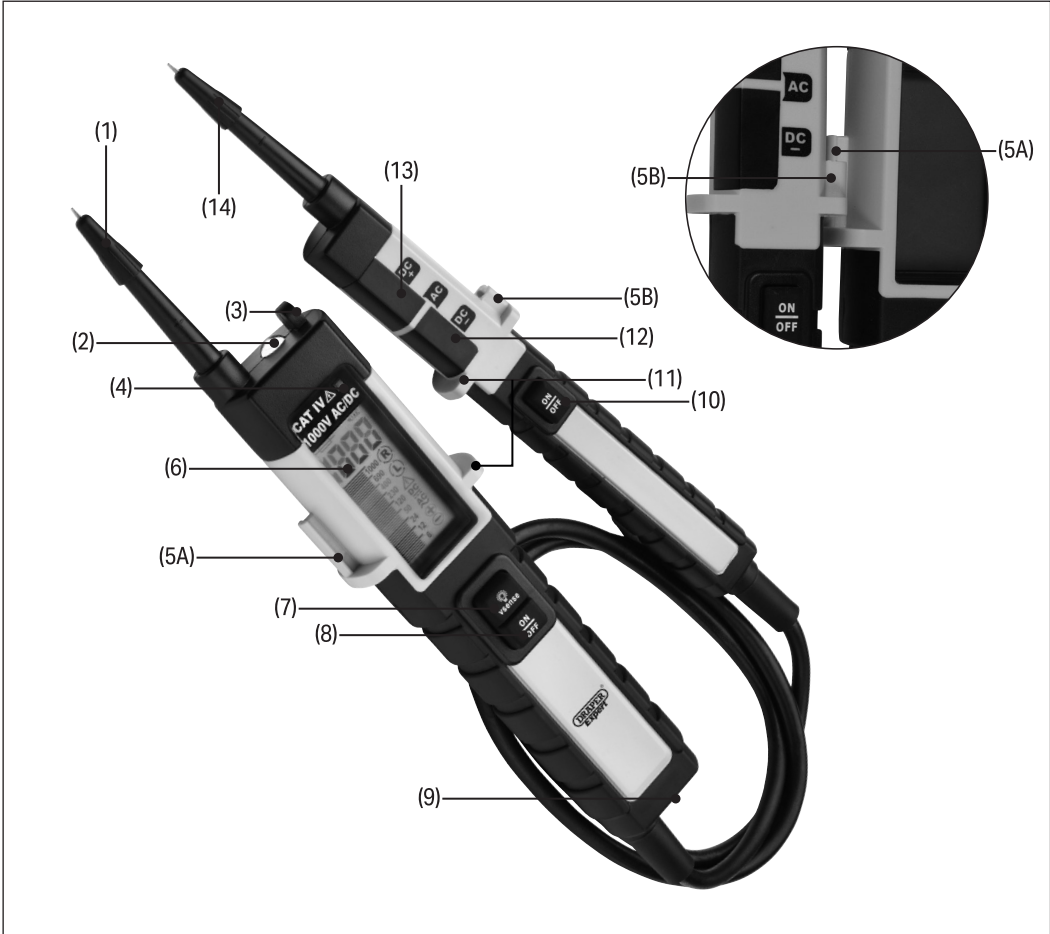
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5. Identification and Unpacking

Carefully remove the product from the packaging and examine it for any signs of damage that may have occurred during shipment.

If any part is damaged or missing, do not attempt to use the product. Please contact the Draper Helpline; contact details can be found at the back of this manual.

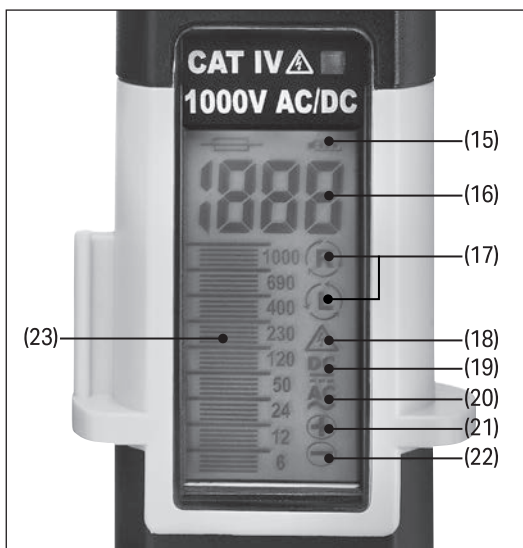
5.1 Product Overview



- | | |
|-----------------------------------|--------------------------------------|
| (1) Main probe (+) | (7) Light/non-contact sensing button |
| (2) Illumination light | (8) Main probe power button |
| (3) Non-contact voltage sensor | (9) Battery compartment |
| (4) Non-contact voltage indicator | (10) Second probe (-) power button |
| (5) Probe clip | (11) Probe barriers |
| (5A) Main probe (+) | (12) DC (-) indicator |
| (5B) Second probe (-) | (13) DC positive (+) indicator |
| (6) LCD display | (14) Second probe (-) |

5.2 Display Screen Explained

- (15) Battery power indicator
- (16) Voltage value
- (17) Phase direction
- (18) High voltage warning
- (19) DC indicator
- (20) AC indicator
- (21) DC positive (+) polarity
- (22) DC negative (-) polarity
- (23) Voltage range indicator



5.3 Packaging

Keep the product packaging for the duration of the warranty period in case the product needs to be returned for repair.



WARNING! Keep packaging materials out of reach of children. Dispose of packaging correctly and responsibly and in accordance with local regulations.

Please visit **[drapertools.com](https://www.drapertools.com)** for our full range of accessories and consumables.

6. Preparation Instructions

Important: Before preparing or adjusting this product, read and understand all the safety instructions listed in this manual.

6.1 Fitting or Replacing the Batteries (Batteries not supplied)

Use 2 X AAA batteries with this tester.



WARNING! DO NOT use the tester and move it away from the voltage source before fitting or replacing the batteries.

Note: If the battery power level is lower than 2.2V the display will flash five times. Change the batteries.

1. Use a coin to unlock the battery compartment cap (9) by turning it clockwise (Fig. 1).

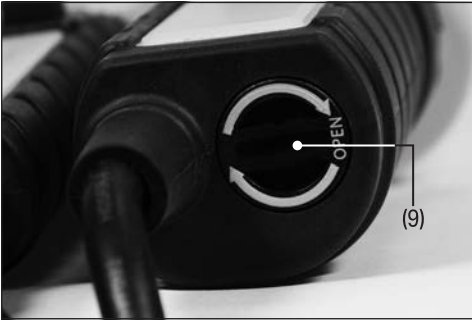


Fig. 1

2. Remove the cap and fit or replace the batteries (Fig. 2). Check that the batteries are fitted in the correct +/- orientation.
3. Refit the cap and lock using a coin.



WARNING! Check that the battery cap is locked securely before operating the tester.



Fig. 2

6.2 Self Diagnostic Function (Fig. 3)

Before operating the tester carry out the self-diagnostic function.

1. Press both **POWER** buttons (8) and (10) at the same time.
2. Then short both metal probe contacts (1) and (14) (Fig. 3).

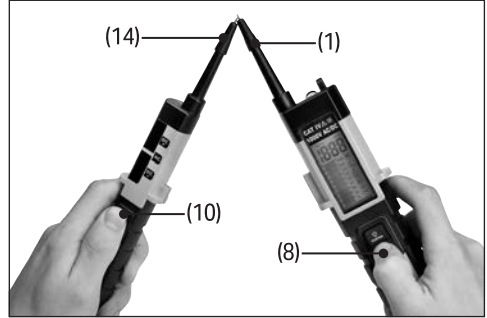


Fig. 3

3. The tester should turn on and automatically start the self-diagnostic function.



CAUTION! DO NOT use the tester if operating abnormally during the self- diagnostic function.

- All the indicators should light up on the screen and the buzzer will sound if diagnostics is normal.
- If the battery power level is lower than 2.2V the display will flash 5 times. Change the batteries.

7. Operating Instructions

Important: Before operating this product, read and understand all the safety instructions listed in this manual. Before using the tester always carry out the self-diagnostic function.

7.1 AC/DC Polarity Measurement (Fig. 4)

- 1. Connect the two probes to the two ports of the voltage source being tested.
- 2. Without turning the tester on, the AC/DC polarity (24 – 1000V) the indicators will light up on the 2nd Probe.

AC	Both polarity lights on
(+) DC	(DC+) light only (13)
(-) DC	(DC-) light only (12)

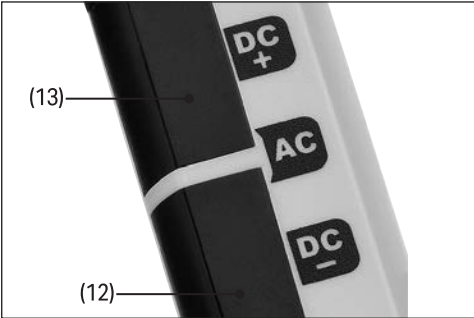


Fig. 4

Note: the direction of the main probe will determine whether (+) DC or (-) DC.

- 3. To cancel the function press either of the **POWER** buttons.

7.2 Voltage Measurement

7.2.1 Voltage & Polarity (Fig. 5)

- 1. Connect the two probes to the two ports of the voltage source being measured.
- 2. Press both **POWER** buttons (8) and (10) at the same time.
- 3. The voltage value (16) and polarity (21) or (22) will be displayed on the screen.

Note: If only one of the power buttons is pressed an error voltage value (AC 23V-AC 55V) will be displayed when voltage is greater than AC 300V.



Fig. 5

7.2.2 High Voltage Indication

 will be displayed on the screen if the voltage source is $\geq 100\text{VAC/VDC}$.

7.2.3 Phase rotation (3 Phase only) (Fig. 6)

- 1. Ensure that your hand is positioned behind the probe barrier (11) on the main probe and away from the sensing area (3).

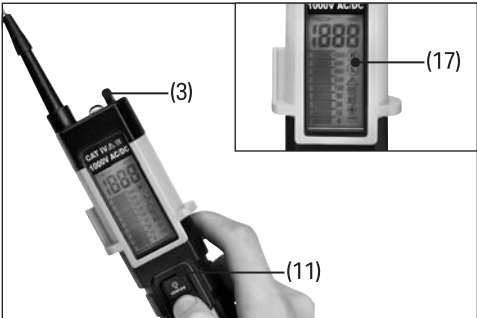


Fig. 6

- 2. The screen will display the voltage between the phases (17).
 - 'R' will be displayed if rotation is clockwise
 - 'L' will be displayed if rotation is anticlockwise

Note: If the equipment or user are not correctly insulated the measurement may be incorrect.

7. Operating Instructions

7.3 Continuity Measurement

 **CAUTION!** Ensure there is no live voltage in the circuit before measuring continuity.

- 1. Connect the probes to the circuit to be tested.
- 2. Press both **POWER** buttons at the same time. If the circuit is continued all the display screen indicators will flash and the buzzer will sound.

7.4 Non-Contact Voltage Sensing

- 1. Press the light/non-contact sensing button (7) and 'DE' will be displayed on the screen and the light (2) will be on (Fig. 7).



Fig. 7

- 2. When the sensor is near an electromagnetic field greater than 90V/AC the non-contact voltage indicator (4) will come on and the buzzer will sound (Fig. 8).



Fig. 8

- 3. Press the button (7) again to turn off the tester.

7.5 Illumination (Fig. 9)

- 1. Press and hold the Light/Non-contact sensing button (7) to turn on the light (2).
- 2. Press the button (7) again to turn the light off.

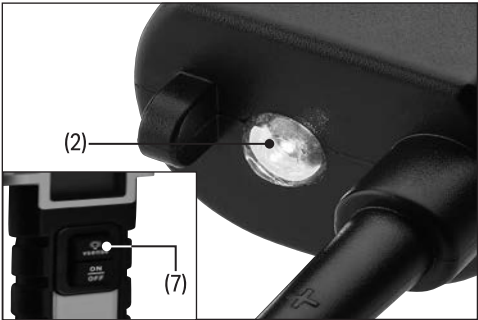


Fig. 9

8.1 General Maintenance

- Keep the product clean and free from dust, debris and grease.
- Use a damp cloth to clean the housing of this device.



CAUTION! DO NOT use abrasives, solvents or other aggressive chemicals as these may damage plastic or insulated parts.

- If the low battery indicator (1 bar) is shown on the display, replace the battery as soon as possible; see **6.1 section Fitting the battery.**
- Remove the battery when storing the device for extended periods.
- Store the device in a cool, clean and dry environment, out of direct sunlight and out of reach of children. The storage temperature should not exceed 60°C.

8.2 Spares, Returns and Disposal

For spare parts, servicing, and repair and replacement options, please contact the Draper Tools Product Helpline for details of your nearest authorised agent.

Draper Tools will endeavour to hold any spare parts, if applicable, for seven years from the date that it sells the final matching stock item.

Any servicing or repairs carried out by unauthorised personnel or installation of spare parts not supplied by Draper Tools will invalidate your warranty.

At the end of its working life, dispose of the product responsibly and in line with local regulations. Recycle where possible.

- **DO NOT** dispose of this product with domestic waste; most local authorities provide appropriate recycling facilities.
- **DO NOT** burn or mutilate batteries; this may release toxic or corrosive substances.



9. Warranty

Draper Tools products are carefully tested and inspected before shipment and are guaranteed to be free from defective materials and workmanship.

Should the tool develop a fault, return the complete tool to your nearest distributor or contact Draper Tools directly. Contact information can be found at the back of this manual.

Proof of purchase must be provided.

If, upon inspection, it is found that the fault occurring is due to defective materials or workmanship, repairs will be carried out free of charge. This warranty period covers parts and labour for 12 months from the date of purchase. Where tools have been hired out, the warranty period covers 90 days from the date of purchase.

This warranty does not apply to any consumable parts, batteries or normal wear and tear, nor does it cover any damage caused by misuse, careless or unsafe handling, alterations, accidents, or repairs attempted or made by any personnel other than the authorised Draper Tools repair agent.

In all cases, to make a claim for faulty workmanship or materials within the standard warranty period, please

contact or return the product to the place of purchase. Proof of purchase may be required.

If the place of purchase is no longer trading or if you experience any difficulties with your warranty, please contact Customer Services with the product details and your proof of purchase. Contact details can be found at the back of this manual.

If the tool is not covered by the terms of this warranty, repairs and carriage charges will be quoted and charged accordingly.

This warranty supersedes any other guarantees expressed or implied and variations of its terms are not authorised.

Your Draper Tools guarantee is not effective until you can produce, upon request, a dated receipt or invoice to verify your purchase within the guarantee period.

Please note that this warranty is an additional benefit and does not affect your statutory rights.

Draper Tools Limited

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