SOCKET & SEE™

DLM PRO

Combined DMM, Loop and Socket Tester

Instruction Manual & Specification

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1. Safety

1.1 Equipment Markings

⚠	Caution - refer to the instruction manual
⧈	Construction is double insulated
🗑	Product should be recycled as electronic waste
CE	Conforms to EU standards
CAT III 300V	Measurement Category III is applicable to test and measuring circuits connected after the source of the building's low-voltage MAINS installation. This part of the installation is expected to have a minimum of two levels of over-current protective devices between the transformer and connecting points of the measuring circuit. Examples of CAT III are measurements on devices installed after the main fuse or circuit breaker fixed within the building installation. Such as distribution boards, switches and socket outlets.

1.2 Operational Safety

The DLM PRO is designed to be used by skilled persons in accordance with safe methods of work. If the DLM PRO is used in a manner not specified by Socket & See, the protection provided by it may be impaired.

Inspect the product before using. If any damage is visible; such as cracks in the casing, damage to any accessories, leads or probes, the unit should not be used.

This tester has been designed to be used with suitable PPE, including insulated gloves if required.

The red VOLTS PRESENT LED will illuminate whenever a hazardous voltage is present at either the top or front terminals. This will illuminate irrespective of the rotary dial position. Safety related faults will cause the tester to give an audible and warbling warning tone.

Do not operate the DLM PRO with the battery cover off as this will compromise the insulated safety barrier.

To maintain safety, check the tester on a known source or a proving unit such as the Socket & See SP400 before and after use. To ensure serviceability and to monitor accuracy of the DLM PRO, a checkbox such as the Socket & See CB400 can be used.

2. Description

The DLM PRO is a combined AC/DC Voltmeter, Continuity, Socket and Earth Loop Impedance tester.

2.1 Features

- Volts AC 0-500V, 40-200Hz (Includes automatic ghost voltage suppression)
- Volts DC 0-500V
- Continuity Tester 0-2MΩ
- Socket wiring tester
- Mains voltage check
- No trip Earth Loop Impedance Check
- Clear and simple LCD display
- Auto Null function
- Hazardous voltage present warning LED
- Auto switch off function for battery preservation
- Fabric carrying case
- 4mm test leads and SS130 Socket Adaptor

2.2 Indication

The display backscreen is **BLUE** during normal operation. To preserve battery life this is limited to 8 seconds. If a reading changes by more than 3% after this 8 second period, the **BLUE** backscreen illuminates again.
When a fault condition occurs the display backscreen will illuminate **RED**.

∗ LCD display shown in the SOCKET function.

3. Usage

4mm sockets for Live Earth Loop and Socket testing.

LCD Display (Shown in LOOP function)

Volts Present LED. Illuminated if a voltage over 50VAC or 70VDC is detected.

Socket test/Earth Loop Impedance test selection. Functions operate from the top three 4mm sockets

DMM Functions selection. AC Volts, DC Volts, Continuity, Auto Null. Functions operate from the front two 4mm sockets.

4mm sockets for VAC, VDC, Continuity, Auto Null functions.

∗The DLM PRO is shown in the loop test function

3.1 Battery Installation

Unit requires 4 x AA batteries.

Ensure that all test leads are removed before installing batteries. Remove the battery cover on the reverse of the unit. Install the new batteries ensuring correct polarity as indicated. After installing batteries and before use ensure the battery cover is correctly fitted, switch on the unit and check for correct operation.

Dispose of used batteries as per the local authorities guidelines.

3.2 Operation

3.2.1 Digital Multi Meter (DMM) Functions.

Use the two front 4mm sockets when using the DMM functions.

ACV
Turning the rotary dial to the ACV position selects the AC voltage measurement. The tester will measure from 0-500 Volts RMS, 40-200Hz. If the tester detects a DC voltage greater than 70V on the terminals an audible warning will be given and the LCD backscreen will illuminate RED. If a voltage of less than 50VAC is detected a low impedance is introduced by the tester for automatic ghost voltage suppression.

DCV
Turning the rotary dial to the DCV position selects the DC voltage measurement. The tester will measure from 0-500 Volts DC . If the tester detects an AC voltage greater than 50V on the terminals an audible warning will be given and the LCD backscreen will illuminate RED.

CONT
Turning the rotary dial to the CONT position selects the continuity measurement. The tester will measure from 0.1Ω-2MΩ.
Continuity checks must be conducted on dead circuits. If a voltage is detected on the terminals while switched to continuity an audible warning will be given and the LCD backscreen will illuminate RED. The DLM PRO is fully protected against accidental mains connection.

AUTO NULL
Before taking a continuity measurement turn the rotary dial to AUTO NULL and touch the tips of the test leads firmly together. The tester will then conduct an auto null as long as the resistance value is less than 5Ω. The tester will bleep once the auto null has been completed and the NULL icon will show on the LCD. All of the continuity measurements are then relative as the resistance of the test leads is taken into account. The NULL value is cleared when the tester is switched off.

3.2.2 Socket and Loop Test Functions.

Use the top three 4mm sockets when using the Socket and Loop Test functions.

SOCKET
Turing the rotary dial to the SOCKET position selects the socket test and incoming voltage check. The tester will check the LIVE, NEUTRAL and EARTH arrangement at the socket to check for correct wiring and open circuits. The results are diagrammatically shown on the LCD. The LCD will also show the measured voltage at the socket, (phase to neutral) to the nearest 1V . If the measured voltage is less than 150V the LCD will display >50V. If all measurements are correct the LCD backscreen will illuminate BLUE. If any fault condition is present the backscreen will illuminate RED.

LOOP
Turning the rotary dial to the LOOP position selects the Earth Loop Impedance test. The tester performs a Live - Neutral and a 'No Trip' Live - Earth loop test on a 13Amp socket.

The tester will monitor the Earth voltage rise, if over 50V is detected the LCD will display FAIL, The RED backscreen will illuminate and an audible warning will be given as this is a safety related issue.

The tester will not allow a loop test to be carried out if the socket test function detects a fault or if the incoming voltage is not between 195V and 253V AC.

Once the Earth Loop Impedance has been measured the DLM PRO backscreen will illuminate and clear written indication of GOOD, CHECK or FAIL will accompany the numerical value displayed. The values that these written indications are displayed at are shown in the below table.

Indication	Impedance Value (Ω)	LCD Backscreen
GOOD	>1.8	BLUE
CHECK	1.8 - 199	BLUE
FAIL	<200	RED

If a CHECK or FAIL indication is given this may not be a dangerous condition. It is dependant upon the numerical value measured on the tester, the earthing arrangement of the installation and the protective devices being used.

Checks must be carried out to confirm the earthing arrangement to ensure the earth loop impedance value meets the current wiring regulations.

4. Maintenance and Service

If required, clean with a damp cloth and mild detergent. Do not use abrasives or solvents.

With the exception of the batteries there are no user serviceable parts.

Contact Socket and See for parts and technical assistance.

Socket & See
Century Road
High Carr Business Park
Newcastle
Staffordshire, UK
ST5 7UG

Tel: +44 (0) 1782 567096
Fax: +44 (0) 1782 567095

Email: sales@socketandsee.co.uk
Website: www.socketandsee.co.uk

Specification	
Wiring Test	
Detects missing E or N (>15kΩ)	
Detects L-E or L-N swap	
Phase - Neutral voltage measurement accurate to ±1%	
Loop Test (No trip mode, 3 wire testing, Phase - Neutral - Earth all connected)	
Test current <15mA at 253V AC	
Auto Range	**Accuracy**
0.00 to 9.99 Ω	± 5% ± 1 digits
10.00 to 99.9 Ω	± 4% ± 1 digits
100.00 to 500 Ω	± 4% ± 1 digits
DMM SETTINGS	
Auto Range	**Accuracy**
Volts AC 0-500V, 40-200Hz	±3% +1 digit
Volts DC 0-500V	±1.5% +1 digit
Continuity 0.1Ω-2MΩ	0.1Ω - 1MΩ ± 3% +1 digit 1MΩ - 2MΩ ± 10% +1 digit
Zero Offset Adjust (Auto Null)	0-5Ω

Specification Continued	
Power Supply	4 x AA LR6 Batteries
Battery Life	50 Hours
Overvoltage category	CAT III 300V
Operating Temperature	0 - 40°C
Storage Temperature	-20 to 65°C
Operating Humidity	0 - 95% @ RH non-condensing
Safety Compliance	BSEN 61010-2-030:2010
EMC Compliance	BSEN 61326-2-2:2013
Probes	GS38 Compliant
Dimensions (mm)	180 x 55 x 85
Weight (g)	430

Ordering Information	
Item	**Supplier Code**
Socket and See DLM PRO. Combined DMM, Loop and Socket Tester	SOC/DLMPRO
Socket and See PDL234Plus. Part P Loop testing kit	SOC/PDL234Plus
Socket and See SS130. Socket Adaptor	SOC/SS130
Socket and See SP400. Proving Unit with Non-Contact Voltage Check.	SOC/SP400
Socket and See iVolt. Non-Contact voltage detector.	SOC/iVolt
Socket and See EPF PRO. Hazardous Voltage and Phase Finder.	SOC/EPFPRO
Socket and See CB400. Professional non trip check box	SOC/CB400

t: 01782 567096 | e: sales@socketandsee.co.uk
Century Road, High Carr Business Park, Newcastle Under Lyme, Staffordshire, ST5 7UG
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