

**SOCKET  
&SEE™**





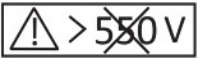
**PDL PRO**  
High Resolution Loop  
Tester

## Instruction Manual & Specification



# 1. Safety

## 1.1 Equipment Markings

|                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Caution - refer to the instruction manual.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|  | Construction is double insulated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|  | Product should be recycled as electrical waste.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|  | Conforms to EU standards.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|  | Prohibited to use on Electrical Systems which use voltages above 550V.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>CAT IV<br/>300V</b>                                                            | Measurement Category IV is applicable to testing and measuring circuits at the origin of the installations supply. They are utility level checks. This part of the installation is expected to have a minimum of one level of over-current protective device between the transformer and connecting points of the measuring circuit. This tester's voltage rating for CAT IV location is 300V where the voltage is Phase (line) to Earth.                                                                                                                                                                                                                 |
| <b>CAT III<br/>500V</b>                                                           | Measurement Category III is applicable to testing 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.<br>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.<br>This tester's voltage rating for CAT III location is 500V where the voltage is Phase (line) to Earth. |

## 1.2 Operational Safety

The PDL PRO is designed to be used by skilled persons in accordance with safe methods of work. If the PDL 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.

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

To maintain safety, ensure serviceability and to monitor accuracy of the PDL PRO the tester should be checked on a checkbox such as the Socket & See CB400 at regular intervals.

Although fully protected against over voltage up to 440V, the tester should only be used on 230V systems.

## 2. Description

The PDL PRO is a no trip and high current, high resolution digital earth loop impedance tester.

### 2.1 Features

- No Trip loop L-E test
- High current L-E loop test
- High current, High resolution L-E loop test
- High current, High resolution L-N loop test
- AC Voltage VLN - VLE - VNE
- Distribution network operator polarity test pad
- PFC / PSC measurements
- Hands free function
- Polarity, voltage present LED
- Auto switch off function for battery preservation

## 2.2 Indication

The white display backlight will illuminate when switching on and during testing. To preserve battery life the backlight will switch off after approximately 4 seconds of inactivity. The unit will automatically power off after approximately 3 minutes of inactivity. To switch the tester back on after auto power off, press any button..



\*LCD display shown in the no trip loop function.

## 3. Usage



### **3.1 Battery Installation**

Unit requires 4 x AA batteries.

Ensure that all test leads are removed before installing batteries. Remove the rubber over mould and 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 and over mould are correctly fitted, switch on the unit and check for correct operation.

Dispose of used batteries as per the local authorities guidelines.

### **3.2 Operation**

#### **Loop No Trip L-E**

This is a three wire test to measure  $Z_s$  where the circuit is protected by a RCD. Where possible, non-essential electrical equipment should be disconnected to reduce the chance of the RCD tripping as a result of leakage build up.

Turn the rotary dial to the Loop No Trip L-E position. Allow the tester to conduct a self test and check the incoming voltage and polarity. Voltage L-N will be displayed and Volts Present LED will illuminate green. Push TEST. Loop result will be displayed with voltage L-N.

#### **Loop High Current L-E**

This High current test is used to measure  $Z_e$  at the distribution board downstream of any RCD or  $Z_s$ , where the circuit is not protected by a RCD.

Turn the rotary dial to the Loop High L-E Position. Voltage L-N will be displayed and volts present LED will illuminate green if conditions are correct. Push TEST. Loop result will be displayed with Voltage L-N.

#### **High Resolution L-E / L-N**

These High current tests are used to measure  $Z_e$  or  $Z_s$ , where the circuit is not protected by an RCD. Results will be displayed to 1 m $\Omega$  resolution.

Turn the rotary dial to the Loop High Resolution L-E or L-N as required. Voltage L-N will be displayed and volts present LED will illuminate green if conditions are correct. Push TEST. Loop result will be displayed to 1 mΩ resolution with Voltage L-N.

## **Hands Free**

The Hands Free function can be used with any loop measurement. Select the loop measurement required with the rotary dial. Press the Hands Free button and HANDSFREE will be displayed on the screen. Once the tester is connected, correct voltage and polarity is confirmed and a loop test will be conducted without TEST being pressed.

## **Volts L-N/ L-E / N-E**

Voltage L-N is the tester's default setting. By pressing VOLTS LN-LE-NE the voltage displayed will be toggled. The voltage displayed can be toggled before or after a loop test is carried out.

## **PFC / PSC**

After a loop test has been carried out the calculated PFC or PSC can be displayed by selecting PFC L-E / PSC L-N.

## **Polarity Test Pad**

It is a little known fact that a system can be reverse wired with Live (Phase) to earth/neutral and earth/neutral to Live (Phase). The sockets will all work and conventional loop testers will test and show that everything is correct despite this very dangerous wiring condition. Although extremely rare, this dangerous condition can exist, so if your test shows this fault do not proceed.

Touch the touchpad area next to the test button. There should be no change in the indication given. If the Voltage/Polarity LED flashes Red and a warning tone is emitted when the touchpad is touched, a potentially dangerous polarity reversal exists. Do not proceed. If in any doubt advise the customer to contact the electricity supply company immediately.

#### 4. Maintenance and Service

If required, clean with a soft 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 & See for parts and technical assistance.

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| Specification                                                                                             |                                  |
|-----------------------------------------------------------------------------------------------------------|----------------------------------|
| <b>Voltage</b>                                                                                            |                                  |
| <b>Range</b>                                                                                              | <b>Accuracy</b>                  |
| 0 to 260 V                                                                                                | $\pm (3\% + 3 \text{ digits})$   |
| <b>No Trip L-E Loop Test</b><br>(No trip L-E mode, 3 wire testing, Phase - Neutral - Earth all connected) |                                  |
| <b>Range</b>                                                                                              | <b>Accuracy</b>                  |
| 0.00 to 99.99 $\Omega$                                                                                    | $\pm (5\% + 5 \text{ digits})$   |
| 100.0 to 499.9 $\Omega$                                                                                   | $\pm (3\% + 3 \text{ digits})$   |
| <b>High I L-E Loop Test</b><br>(High I L-E mode, 3 wire testing, Phase-Neutral-Earth all connected)       |                                  |
| 0.000 to 9.999 $\Omega$                                                                                   | $\pm (3\% + 30 \text{ m}\Omega)$ |
| 10.00 to 99.99 $\Omega$                                                                                   | $\pm (3\% + 3 \text{ digits})$   |
| 100.0 to 500.0 $\Omega$                                                                                   | $\pm (3\% + 3 \text{ digits})$   |

### Specification Continued

|                              |                                        |
|------------------------------|----------------------------------------|
| <b>Power Supply</b>          | 4 x AA LR6 Batteries                   |
| <b>Battery Life</b>          | 50 Hours                               |
| <b>Overvoltage Category</b>  | CAT III 500V<br>CAT IV 300V            |
| <b>Operating Temperature</b> | 0 - 40°C                               |
| <b>Storage Temperature</b>   | -10 to 60°C                            |
| <b>Operating Humidity</b>    | 80% @ 31°C to 50% @ 40°C               |
| <b>Safety Compliance</b>     | BSEN 61010-2-030:2010                  |
| <b>EMC Compliance</b>        | BSEN 61326-2-2:2013                    |
| <b>Performance Standard</b>  | BSEN 61557-1:2007<br>BSEN 61557-3:2007 |
| <b>Probes</b>                | GS38 Compliant                         |
| <b>Dimensions (mm)</b>       | 180mm x 85mm x 50mm                    |
| <b>Weight (g)</b>            | Approximately 450g                     |