SOCKET & SEE™

PDL 234Plus

Part P Loop Testing Kit

Instruction Manual & Specification

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	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 junction boxes, switches and socket outlets.

1.2 Operational Safety

The PDL234Plus is designed to be used by skilled persons in accordance with safe methods of work. If the PDL234Plus is used in a manner not specified by Socket and 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.

Although fully protected up to 600V AC, this tester is is for use on 230V AC 50Hz circuits only.

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

To maintain safety always check the tester on a known correctly wired live socket outlet before and after use. Or use a suitable checkbox such as the Socket and See CB400.

2. Description

The PDL234 is a multi function tester, testing no trip loop, mains voltage correct socket wiring and polarity.

2.1 Features

- Colour coded and simple to understand LED indication
- Quick and convenient non trip loop impedance test
- Mains voltage indication
- Incoming mains polarity test
- Socket wiring tester
- Carrying case included
- Contains 13A plug to IEC connector for use at 13A socket outlets.
- Contains ITLS 400. Three pole fused test leads that terminate with prods or crocodile clips. For use at fused spurs or distribution boards.

2.2 Indication

The PDL234 uses simple to understand colour coded LED indication.

Loop Testing Indication	
Value (Ω)	**LED INDICATION**
< 1	GREEN
< 2	GREEN
< 100	GREEN
< 200	GREEN
> 200	RED

Mains Voltage Indication	
Value (Volts AC)	**LED INDICATION**
< 207	AMBER
207 - 253	GREEN
> 253	RED

3. Usage

3.1 Operation

If the tester is to be used with on a fixed 13A socket outlet simply use the IEC 13 Amp lead and plug directly into the socket outlet.

If the tester is connected to a switched or unswitched spur via the fused test leads it is strongly recommended the supply is isolated before the first connections are made.

3.1.1 Socket Test

When the PDL234 is first connected to a live socket it will automatically test the socket wiring to confirm correct installation of the socket. If three GREEN LED's illuminate and a continuous tone is emitted the socket wiring is correct and you may proceed to the incoming supply polarity test, (step 3.2.2).

A fault with the socket wiring will be indicated by an audible alternating tone and flashing LED's, at least one of which will be red or orange. If a fault indication is given DO NOT PROCEED! Investigation and remedial action is required before any further tests can be carried out.

3.1.2 Incoming Supply Polarity Test

With all three LED's illuminated green place your thumb over the Polarity test touch pad. If the incoming supply polarity is correct the socket and wiring polarity LED's will flash green. If this indication is correct proceed to incoming voltage checks (step 3.1.3).

If the supply polarity has been reversed the three LED's will turn RED and flash. If this happens stop testing immediately and notify the supply company.

For further information on incoming supply polarity refer to the technical document on the Socket and See website.

3.1.3 Mains Voltage Test

The mains AC voltage will be displayed automatically on the Mains Voltage LED's. Check that the voltage is within the correct range 207 - 253 VAC. If the mains voltage is within the correct range a no trip loop test can be conducted. (Step 3.1.4)

If the voltage is outside of this range the electricity supply company should be contacted.

3.1.4 No Trip Loop Testing

A brief press of the test button will initiate the loop test. Three socket test LED's will flash orange to indicate a loop measurement is being taken. The result will then be displayed on the Fault loop results LED's . For a guide to results please see the below table.

FOR GUIDANCE ONLY: Refer to the IET Wiring standards BS 7671

< 1	Less than 1 Ohm: A good result and typical of a correctly wired TN (PME) system.
< 2	Less than 2 Ohm: A result that would be worth pushing the plug in and out to see if it is just tarnished socket contacts or checking where the socket is located. If it is at the furthest point of the end circuit a higher reading may be expected.
<100	Less than 100 Ohms: Now you must check the wiring system being used. If it is a TT system (earth rod) then it is a good result but if it is any other system this should cause concern and urgent investigation is required.
< 200	Less than 200 Ohms: As above. Assuming it is a TT system most codes of practice accept a Loop Test value of less than 200 Ohms for an earth rod for a system protected by a 30mA RCD as being acceptable.
>200	There are very real problems with this system and urgent further investigation is requited

Condition Number	Wiring Conditions	Supply Terminal			LED	Buzzer
		N	E	L		
		Socket Wiring				
1	Correct	N	E	L		Continuous
2	L-E reverse	N	L	E		Warble
3	L-N-E miswire	E	L	N		Warble
4	L-N reverse	L	E	N		Warble
5	L-N-E miswire	L	N	E		Warble
6	Faulty N/L-E miswire	NC	L	N		Warble
7	Faulty N/E miswire	NC	N	L		Warble
8	Faulty N	NC	E	L		Warble
9	Faulty N/L-E reverse	NC	L	E		Warble
10	Faulty E/L-N reverse	L	NC	N		Warble
11	Faulty E	N	NC	L		Warble
12	Faulty E/N miswire	E	NC	L		Warble
13	Faulty E/L-N miswire	L	NC	E		Warble
14	Faulty L/N-E miswire	L	N	NC		Warble
15	Faulty L/E miswire	N	L	NC		Warble
16	Faulty L/N-E miswire	E	L	NC		Warble
17	Faulty L/N miswire	L	E	NC		Warble
18	No mains	NC	NC	NC		None

LED's will flash to indicate a fault.
NC = No connection

4. Maintenance and Service

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

There are no user serviceable parts.

Contact Socket and See for parts and technical assistance.

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Specification	
Wiring Test	
Detects missing E or N (>15kΩ)	
Detects L-E or L-N swap	
Detects Network Supply Live - Earth/Neutral reversal by use of Polarity Test Pad.	
Phase - Neutral voltage measurement accuracy to 1% and displayed on 3 LED's	
< 207 VAC	LOW
207- 253 VAC	STANDARD
< 253 VAC	HIGH

Loop Test (No trip mode, 3 wire testing, Phase - Neutral - Earth all connected)	
Test current <15mA at 253V AC	
Range	**Accuracy**
<1Ω	Each breakpoint has an accuracy of ± 10%
<2Ω	Each breakpoint has an accuracy of ± 10%
<20Ω	Each breakpoint has an accuracy of ± 10%
<200Ω	Each breakpoint has an accuracy of ± 10%
>200Ω	Each breakpoint has an accuracy of ± 10%

Specification Continued	
Overvoltage Category	CAT III 300 V
Over Voltage Protection	440V AC No damage complete recovery
Operating Temperature	0°C to 40°C
Operating Humidity	80% @ 31°C to 50% @ 40°C
Safety Compliance	BS EN 61010-2-030:2010
Probes	GS38 Compliant
Dimensions	140mm x 80mm x 31mm
Weight	250g

Ordering Information	
Item	**Supplier Code**
Socket and See PDL234Plus Part P Loop testing Kit tester	SOC/PDL234Plus
Socket and See fused test leads	SOC/ITLS400

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