

# SOCKET & SEE™

USER MANUAL 06/06



**PDL 200A/PDL 234 SERIES**  
**MULTIFUNCTION ELECTRICAL TESTERS**  
Tests no-trip loop, socket, mains voltage & polarity

# PDL SERIES

## Caution

**We strongly advise reading and understanding this guide before the instrument is used. In particular note the safety issues that follow:-**

- Although fully protected up to 600V AC this tester is for use on 230V AC circuits only
- Always check the tester on a known correctly wired live socket outlet before and after use.
- The loop test notes given on page 8 are for guidance only - full reference to the IEE Wiring Regulations must be made.
- Before use - check your tester for any damage to the plug, leads and cabinet.



At Socket & See our Engineers constantly look for improvement. If there is any aspect of your Socket & See tester you would like to comment on please visit our website at

**[www.socketandsee.co.uk](http://www.socketandsee.co.uk)**

or email [davidh@kewt.co.uk](mailto:davidh@kewt.co.uk) or Free Fax at 0800 7831385 with any suggestions.

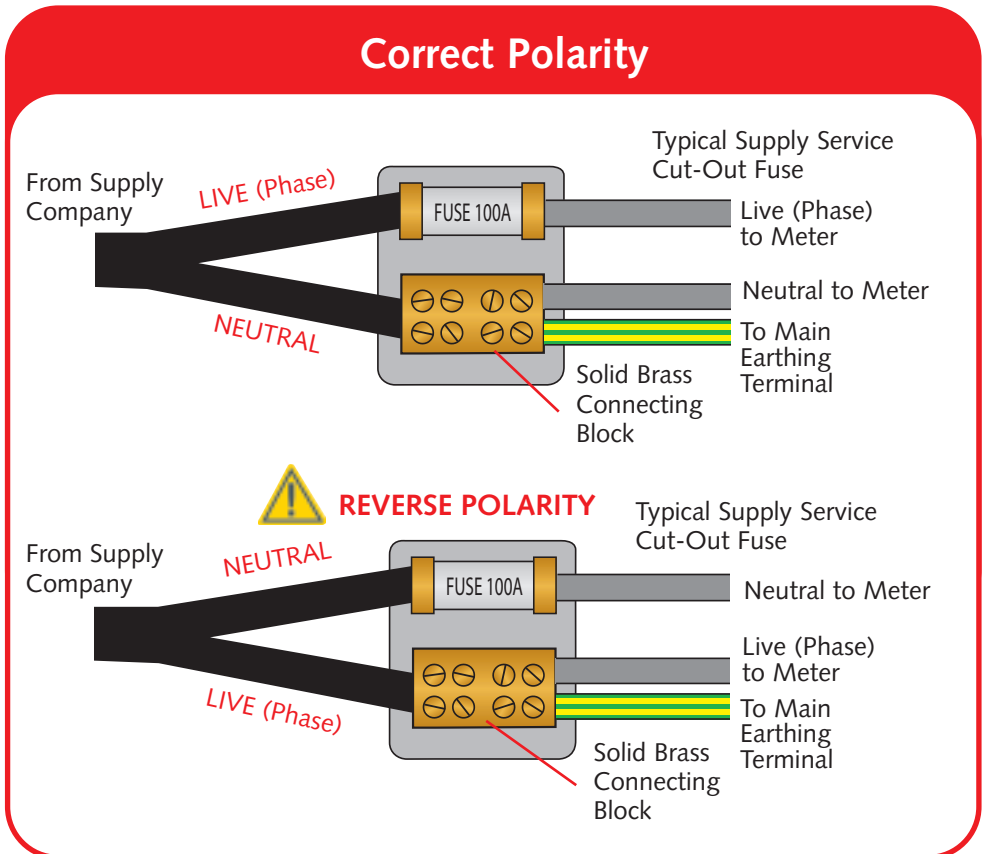
We promise all communications will be acknowledged.  
We value YOUR opinion.

# Operation overview

Your Socket & See tester has a special polarity test function.

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 show and test that everything is correct despite this very dangerous wiring condition.

Although extremely rare, this miswire condition can exist so if your test shows this fault do not proceed - if in any doubt advise your customer to contact their supply company immediately.



## Operation overview continued

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The PDL 200A and PDL 234 are multifunction testers, testing no-trip loop, mains voltage, correct socket wiring and polarity.

### Correct socket wiring and correct polarity

The difference between the PDL 200A and PDL 234 is that the PDL 200A uses a fixed lead and plug, and the PDL 234 uses an IEC connector interface to enable use with alternative lead sets.

On plugging in and powering up your Socket & See PDL 200A and PDL 234 Loop Testers the tester will first go through a brief self check routine and then check that the socket is correctly wired by showing three green (green for GO) LED's with a continuous tone - if there is anything other than three green LED's do not proceed (the testers will be automatically inhibited from further tests).

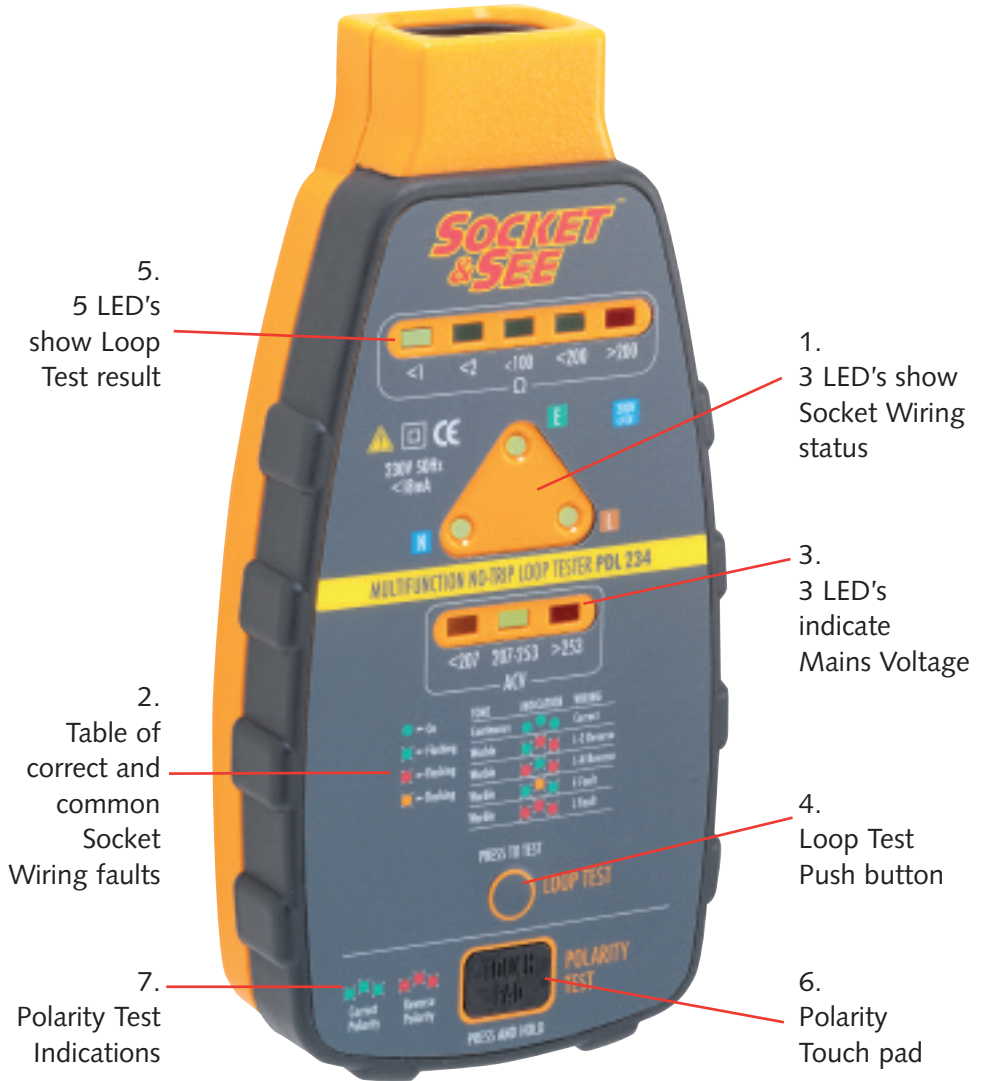
In addition the tester will show the live-neutral voltage by LED indication.

If everything is correct pushing the test button will carry out a no-trip loop test and display the result by LED indication.

Finally - always touch the polarity test pad to double check the total system is correctly wired (see previous page).

# Operation - a detailed view of the PDL 234 (PDL 200A)

Note numbers also indicate sequence of test.



## Operation overview continued

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**PLEASE NOTE:** The PDL 200A is supplied with a fixed 13A moulded plug for direct connection to sockets only.



Your tester is equipped with 2 methods of connecting to a socket or a spur. This test lead is used for sockets.

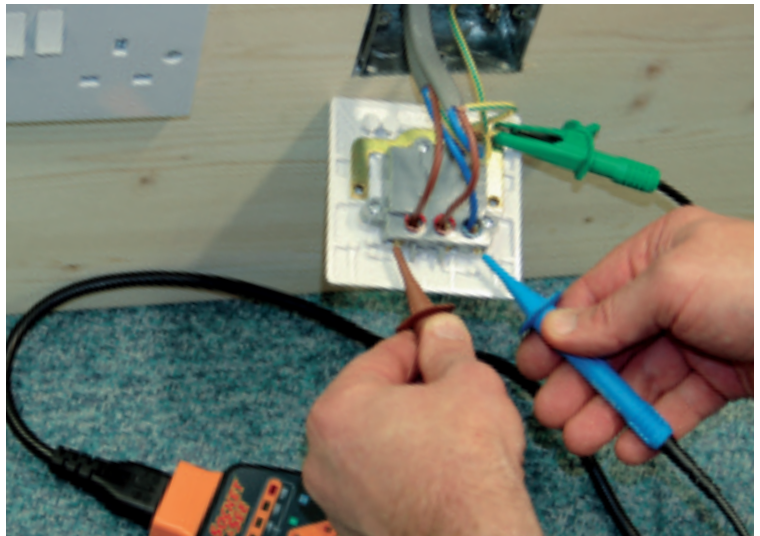
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This fused test lead is used to connect to switched or unswitched spurs.

**WARNING** you are strongly advised to switch off the MCB or disconnect the fuse feeding the spur before removing it or making any first connections.

Please note:  
The test lead is colour coded to the new standards  
Brown=live  
Blue=neutral  
Green=earth.

(As a reminder the strain relief at the back of the prod is in the old colours of black and red).



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At the Socket Test stage the PDL 200A and PDL 234 also accurately measures and displays the Mains Voltage on one of the 3 LED's.

The voltage is banded to directly reflect the new Mains Supply Harmonised Standards BS 7697 HD 42S1.

The measurement result is



**LOW**  
less than 207 V AC

**CORRECT**  
207-253 V AC

**HIGH**  
greater than 253V AC

If the Voltage Range is outside of this standard, stop testing - your customer should notify their electricity supply company of the problem.

The Front panel of the tester gives a short reminder of Correct Socket Wiring (3 GREEN LED's and continuous tone) and also indicates 4 of the most common Socket Wiring problems (RED LED(s) and warble alarm tone).

If the three socket LED's are GREEN (correct) and the GREEN Mains Voltage LED is illuminated (correct) you can proceed to Loop Test by pressing the Loop Test Button.


# Loop Test

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The 3 Socket Test LED's will flash ORANGE to indicate a (no-trip) Loop Measurement Test is being made and unlike other no-trip Loop Testers the result will be given in a few seconds - if you wish the test can be repeated to check the result.

**For Guidance Only - Refer to the IEE Wiring Standards BS 7671.**

1 of 5 LED's will illuminate to display the Loop Test result.

 Less than 1 Ohm.

< 1 A good result and typical of a correctly wired TN (PME) system.

 Less than 2 Ohms.

< 2 A result that would be worth pushing the plug in and out a few times to see if it is just tarnished socket contacts or checking where the socket is located - if it is the furthest point from the distribution board you may expect it to be a higher reading.

 Less than 100 Ohms.

< 100 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 result should cause concern and urgent investigation is required.

 Less than 200 Ohms.

< 200 The same as above, but assuming it is a TT supply 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

 Greater than 200 Ohms.

> 200 There are very real problems with this system and urgent further investigation is required.



# Loop Test

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The reasons for Polarity Test are covered in detail at the front of this User Guide.

To carry out the test apply firm (thumb) pressure to the Polarity Test Pad. (Please note this is a fixed pad it will not depress). The 3 Socket Test LED's should flash GREEN - everything is correctly wired **including Polarity** (live and earth/neutral are in the right place).

If the LED's change to RED when you operate the Touch Pad - it is possible a very dangerous condition is present and the relevant electricity supply company should be informed immediately of this indication.

This Polarity indication diagram is a reminder for the correct and incorrect polarity condition.



**Correct  
Polarity**

**GOOD**



**Reverse  
Polarity**

**POSSIBLE  
FAULT**

# Socket Test Technology

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The PDL 200A and PDL 234 use our well proven Socket Testing patented technology to indicate the socket is correctly wired.

Plugging the unit in and switching on mains supply automatically initiates the socket test sequence.

If the socket is correctly wired the LED's will be GREEN on this check.

If the socket is incorrectly wired one or more LED's will go to FLASHING RED to indicate there is a a socket miss-wire or other fault.

If flashing red (or orange) occurs using the touch pad at this stage, this should show where the socket wiring problem is – as per the example below.

A unique feature of your tester is the ability to display by the position of the red LED(s) where the problem is, EARTH, LIVE (Phase) or NEUTRAL.

A full list of wiring faults is shown on the back cover of this User Guide.



This is an example of 'Fault Locate' showing Live (Phase), neutral reverse.

# Specifications

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## Wiring Test

Detects missing E or N (>15k  $\Omega$ )

Detects L-E or L-N swap

Detects Live - Earth/Neutral reversal by use of Polarity Test Pad

Fault indicated by chart on front of instrument

Phase voltage measurement accuracy 1% and displayed on 3 LED's

<207V AC	LOW
207-253V AC	STANDARD
>253V AC	HIGH

## Loop Test

Continuous reading loop resistance (RI + Re) with result displayed on 5 LED's

Test current <15mA at 253V AC

Range

<1 $\Omega$

<2 $\Omega$

<20 $\Omega$

<200 $\Omega$

>200 $\Omega$

Each breakpoint has an accuracy of  $\pm 10\%$

Test stops within 30ms if measured EARTH potential

>25V AC and 'Earth Fault' indication displayed

## Environmental

Operating Temperature Range ..... 0  $^{\circ}\text{C}$  to 40  $^{\circ}\text{C}$

Storage Temperature Range ..... -10  $^{\circ}\text{C}$  to 60  $^{\circ}\text{C}$

Operating Humidity ..... 80% @ 31  $^{\circ}\text{C}$  to 50% @ 40  $^{\circ}\text{C}$

Size ..... 140mm x 80mm x 31mm with fixed lead

Weight ..... 250g

## Standards

CE Marked

Complies with BS EN 61010-1: 300V Cat III

Complies with BS EN 61326 (with amendment A1)



















## Socket & See Industrial

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Condition Number	Wiring Condition	Supply Terminal			LED Display	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 fault condition**  
**NC=No Connection**