SOCKET & SEE™

USER MANUAL 06/06

PART P MULTIFUNCTION DIGITAL LOOP TESTER

Tests no-trip loop, PFC, socket, mains voltage & polarity

PDL 310

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.
- Before use - check your tester for any damage to the plug, lead and cabinet.

Important calibration/check box note

- Because of the Super Smart Loop Test System the test is immune to sudden value changes (such as voltage spikes).
- As a result when changing calibration or check box loop values the unit must be switched off between changes.

CE BS EN 61010-1

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

or email davidh@kewt.co.uk or Free Fax at 0800 7831385 with any suggestions.

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

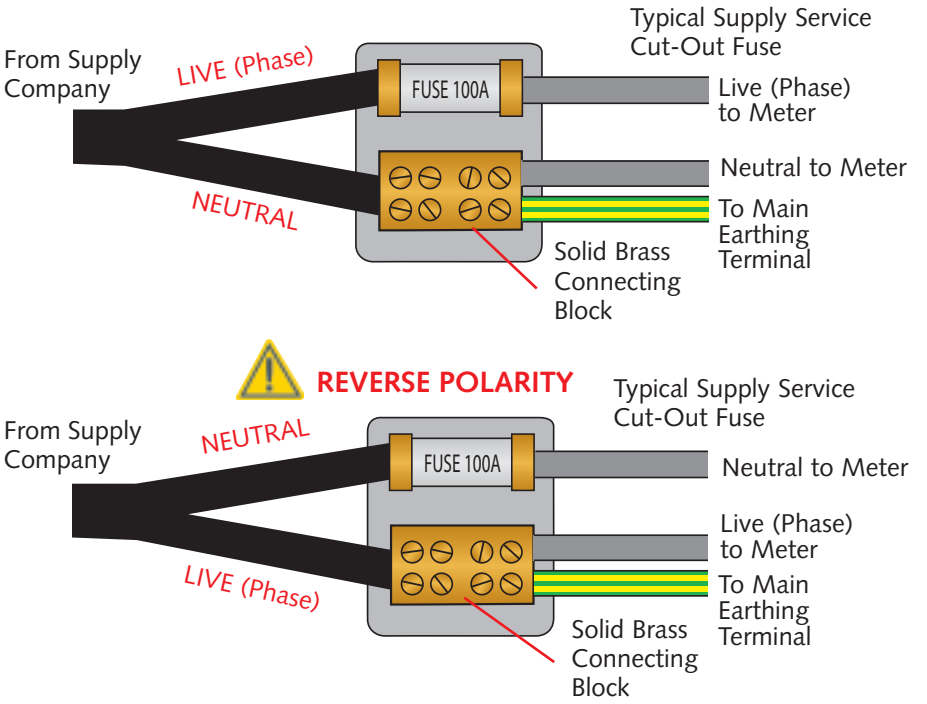
Operation overview

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.

Correct Polarity



Operation overview continued

The PDL 310 is a multifunction tester testing for no trip loop, no-trip PFC (Prospective Fault Current), mains voltage (L-N), correct socket wiring, and polarity.

Correct socket wiring and correct polarity

At the Socket Test stage the PDL 310 also accurately measures and displays the mains voltage in the LCD (Liquid Crystal Display).

A reminder of the correct voltage range 207-253V AC (Harmonised Standard BS 7697 HD 42S1) is given above the display.

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

If the three socket LED's are GREEN (correct) and the correct voltage is displayed you can proceed to Polarity Test.

The reasons for Polarity Test are covered in detail on the previous page of this User Guide.

To carry out the test apply firm (thumb) pressure to the Polarity Test Pad, note this pad does not depress. The three Socket Test LED's should remain 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.

If everything in this section is a good test result you can proceed to the next sequence of testing (see page 7).

Operation - a detailed view of the PDL 310

Note numbers also indicate sequence of test.

2.
Three LED's show socket wiring status

3.
LCD (Liquid Crystal Display) display (default L-N voltage measurement)

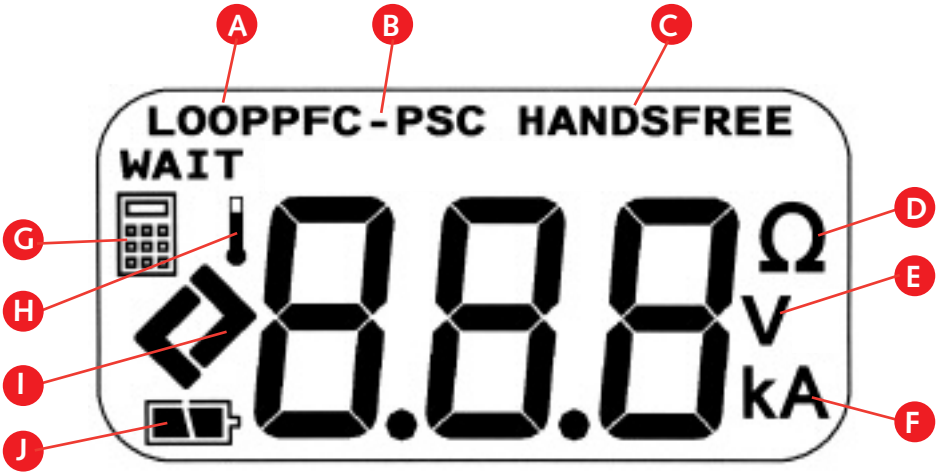
1.
On/off button

7.
PFC (Prospective Fault Current Result)

5/6.
Test push button (loop test reading default)

4.
Polarity test pad

Overview of the display



A. (No-trip) loop test function selected
B. PFC-PSC (prospective fault current - prospective short circuit current selected)
C. HANDSFREE operation
D. Ohms symbol
E. Volts (AC) (L-N)
F. Fault current
G. Wait - result calculation in progress
H. Tester has gone over operating temperature
I. Greater than (>) less than (<) indication
J. Battery Condition (=good)

Loop-PFC testing

Plug the tester in and switch on the mains supply.

1. Power ON/OFF - Pressing and releasing this button turns the PDL 310 on - holding down for longer than two seconds turns the unit off (plus intelligent Auto Power Off is incorporated).

2. All three LEDs GREEN = CORRECT wiring status, any other indication (see back cover) - DO NOT PROCEED -investigation is required.

3. Check mains voltage is correct 207-253VAC
   Important note:
   All tests are inhibited until the mains voltage appears in the display

4. Polarity Test - this important test is discussed in full on pages three and four of this manual, please read.

5/6. The push to test switch must be operated to initiate test (except if this button is held down for approx two seconds HANDSFREE testing is selected which is very useful for testing at DB's (Distribution Boards), luminaires or similar connecting strips.

   Your tester defaults to no-trip loop testing when you first switch on - button five re-selects no-trip loop test (and retests) if you have selected other functions.

7. Having carried out a (no-trip) loop test - pressing this button calculates the PFC (Prospective Fault Current) by dividing the measured loop result into the measured L-N voltage.

Specifications

Wiring Test

Detects missing E or N (>15kΩ)	
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 - Neutral voltage measurement	± 1% ± 1V

Loop Test

No trip mode 3 wire testing Phase - Neutral - Earth all connected

Test current <15mA at 253V AC

Range	Accuracy
0.00 to 9.99Ω	± 5% ± 5 digits
10.00 to 99.9Ω	± 4% ± 4 digits
100.00 to 500Ω	± 4% ± 4 digits

PFC Measurement

10A - 9.99kA This is a calculated measurement whose accuracy is derived from the Loop Test result

Over Voltage Protection

440V AC	No damage - complete recovery

Power

4 x AA batteries (not included)

Battery life (BS EN 61557) > 10,000 test (or shelf life of batteries installed)

Environmental

Operating Temperature Range	0ºC to 40ºC
Storage Temperature Range	-10ºC to 60ºC
Operating Humidity	80% @ 31˚C to 50% @ 40˚C
Size	157mm x 89mm x 39mm
Weight	400g

Socket Test Technology

The PDL 310 uses 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.

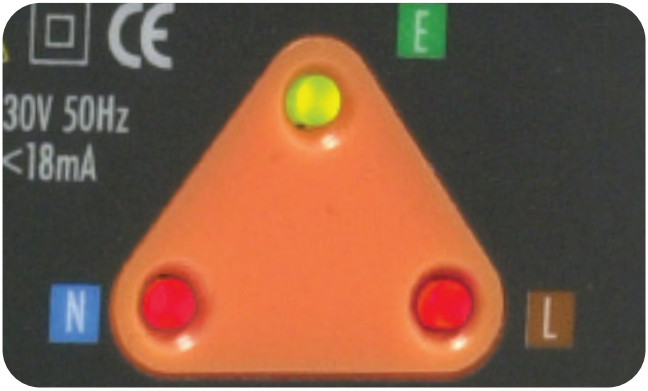
If the socket is correctly wired the LED's will be GREEN on this check.

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.

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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