



Instruction Manual

IPT 1800

Digital LOOP / PSC Tester

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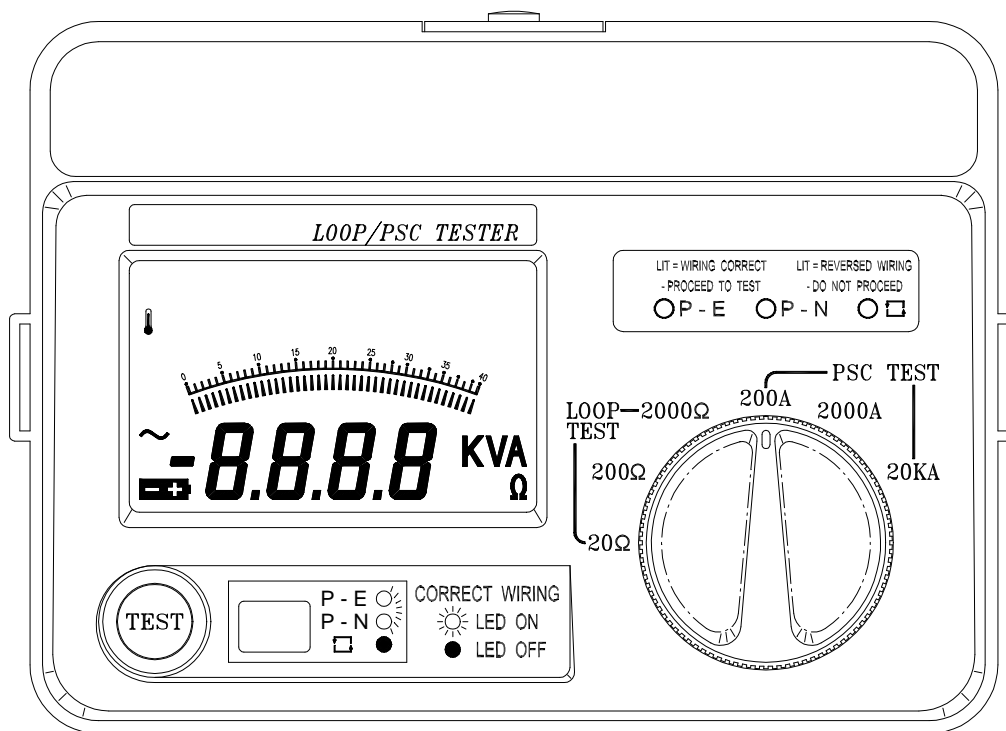


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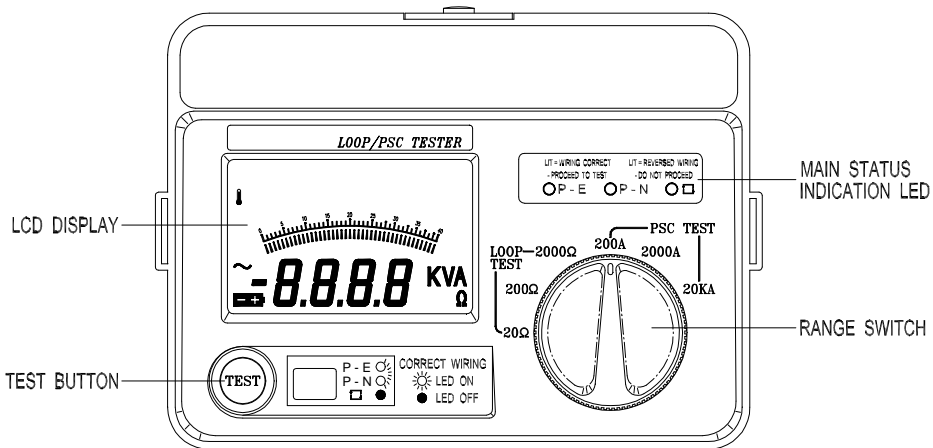
I. WARNING

- This instrument must only be used by a competent, trained person and operated in strict accordance with the instructions. We will not accept liability for any damage or injury caused by misuse or non-compliance with the instruction or safety procedures.
- It is essential to read and understand the safety rules contained in the instructions. They must always be observed when using the instrument.
- This instrument is only intended for single phase operation, 230V±10% AC phase to earth or phase to neutral operation. It must never be connected phase to phase-damage will result.
- When conducting a test, particularly on earth spikes, do not touch any exposed metal work. This is because the earth has a current flowing through it for the duration of the test (approx. 20ms).
- Never open the instrument case - there are dangerous voltages present.
- This instrument is primarily protected by HRC Ceramic fuses. DO NOT ATTEMPT to replace them if they fail. Should they fail please consult qualified service personnel.
- If the overheat symbol appears in the display (🔥) disconnect the instrument from the mains and allow to cool down.
- This unit is designed to give minimum “splash” when connecting to an earth point using the external earth probe. To reduce this effect further, always connect the probe in a firm and positive manner.

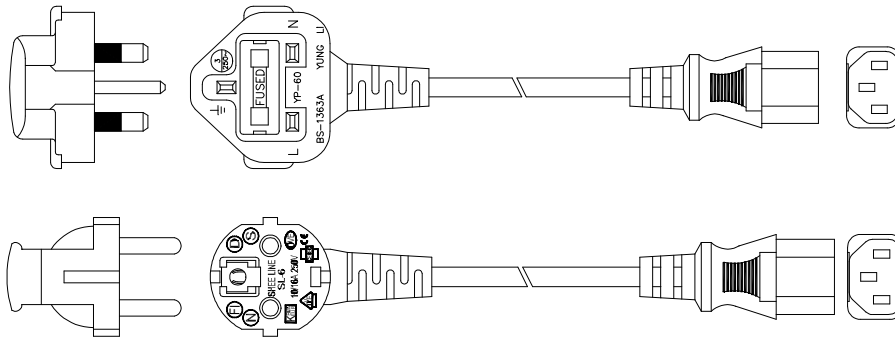
II. FEATURES

- Custom microprocessor controlled for highest accuracy and reliability.
- 3 neons for checking correct wiring status.
- Direct reading of Prospective Short Circuit Current (PSC).
- Large custom digital display readout on all models.
- Measures low loop impedance (resolution of 0.01 Ohm).
- High impedance ranges permit direct measurements of ground spikes.
- Automatic lock-out if test resistor overheats.
- Safe voltage measurement function.
- Audible confirmation on completion of a test.
- Visual indication of reversed phase and neutral wiring at socket.
- Minimum “splash” when connecting to an external earth point.
- Resilient case made from modern plastics to take everyday knocks and bangs.

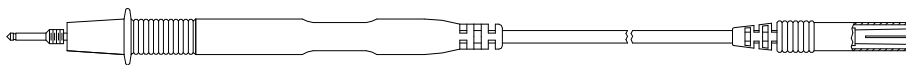
III. INSTRUMENT LAYOUT



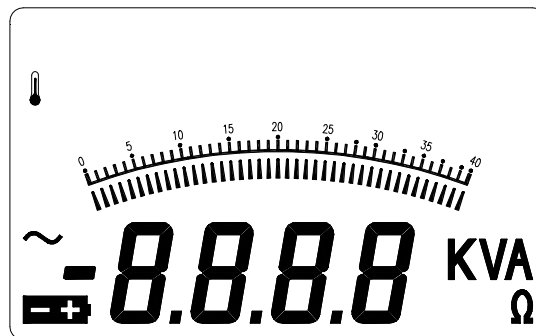
AC CORD




EATERNAL EARTH PROBE



LCD DISPLAY



IV. SPECIFICATIONS

Rated Voltage :	230V±10% 50Hz.
Operating Temperature :	0°C ~ 40°C
Storage Temperature :	-5°C ~ 60°C
Operating Humidity :	85% Maximum.
Storage Humidity :	85% Maximum.
Accuracy of Mains Voltage Display :	±(2% + 2digit).
Accuracy (Loop Impedance) :	±(2%±3digit)
Fuse Protection :	240V/13A, 6kA HRC ceramic fuses.
General Dimensions :	180(L) x 130(W) x 70(H)mm.
Weight :	Approx.800g include battery.
Test Current :	25A approx. (20Ohm).
Display :	Large style 3 1/2 digit custom LCD.
AC Test Period :	2 half cycles of AC (20ms).
Display Hold on Mains Loss :	Approx. 1 second.
Over Range Indication :	“OL” in display.
Over Temperature Indication :	“  ” in display.
Accessories :	Test Lead with IEC Connector (AC cord), External Earth Probe, Neck Strap, Instruction Manual.

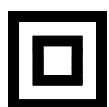
Environmental Conditions

The product is designed for indoor use and up to a maximum altitude of 2000m.

Installation Category : 300V CAT III (single phase 230V)

Pollution Degree 2

This manual and product may use the following symbols adopted from International Safety Standards.



Equipment protected throughout by DOUBLE INSULATION or REINFORCED INSULATION.



Caution, risk of electric shock.



Caution (refer to accompanying documents)



Comply with IEC 1010-1

4-1 Voltage Measurement

When the Loop and PSC Testers are first powered up by connecting them to the mains, they automatically display the mains voltage. The voltage display is updated automatically every 0.5s. When the test button is depressed (see section 5.1 first) the voltage mode is cancelled. To recall the voltage measurement mode, the power to the instrument must be removed and then restored again.

4-2 Manual and Autotest

Manual-Press and release the “Test Button”. The result will be displayed for 3s and then the display will revert to zero.

4-3 Automatic Overheat Cut-Out

To test in accordance with the IEE regulations Loop and PSC testers may dissipate up to approximately 6kW of energy during the test period, so that after repeated use the test resistor may overheat. When the temperature reaches a level that may damage the resistor the instrument automatically locks out. This is indicated by the appropriate over temperature symbol in the digital display.

When the resistor has cooled down, normal testing may continue.

V. OPERATING INSTRUCTIONS

5-1 Correct Wiring


Before pressing the “Test Button” always check the P-E, P-N, neon lamps for the following light sequence :

P-E Neon must be ON

P-N Neon must be ON

 Neon must be OFF

If the sequence of lights is not as above DO NOT PROCEED with further testing.

The wiring at the socket must be checked. If the  neon is ON there is reversed phase and neon is ON there is reversed phase and neutral wiring.

5-2 Measurement of the Loop Impedance

- ① Set the instrument to the $200\ \Omega$ or $2000\ \Omega$ range.
If the instrument is set to the $20\ \Omega$ range slight sparking may occur when testing with the external earth probe although the unit has been designed to minimize this.
- ② Connect the lead to the instrument.
- ③ Plug the mounded mains plug to the socket being tested.
- ④ Check the neons are lit as indicated in section 5-1.
If not DO NOT PROCEED – check wiring.
- ⑤ Note the mains voltage if required.

- ⑥ Press the “Press to Test” button. The value of loop impedance will be displayed with the appropriate units. A bleep will sound on completion of the test.

For best results always test on the lowest possible range.

No harm will be done to the instrument by selecting too low a range.

5-3 External Earth Probe

The phase earth loop impedance of exposed metal of bonding, portable appliances or metal conduit etc., can be tested using the external earth probe provided.

Connect the unit to the socket as normal. Plug the external earth probe into the instrument. This breaks the earth continuity at the socket and the P-E lamp should go out. When the probe is connected to any other earth point the P-E lamp should light up.

The point at which the probe is connected becomes the earth point (instead of at the socket).

5-4 Measurement of Prospective Short Circuit Current

Note : There units are only intended for single phase operation.

- ① Set the instrument to the 20kA range.
- ② Connect the test lead to the instrument.
- ③ Attach the plug to the socket to be tested.
- ④ Check that the neons are lit in the sequence indicated in section 5-1.
If not, disconnect from the mains and check the wiring at the socket.
- ⑤ Press the “Press to Test” button. The prospective short circuit current (PSC) will be directly displayed on the LCD with the appropriate units. This will remain for 3s and then revert to zero.

An audible beep will sound on completion of the test.

For best results always test on the lowest possible range.

Note : For loop impedance greater than 50Ω (prospective short circuit current $< 5A$) it is not possible to obtain an accurate reading of prospective short circuit current and the unit is designed to lock out all psc ranges by showing the over-range symbol “ OL ”.

Normally PSC tests are conducted at point of origin, e. g. distribution boards, between phase and neutral.

When conducting PSC tests at socket outlets, a test will be conducted between phase and earth due to the fixed wiring of the moulded mains plug.

