

洩漏電流檢測計

DOMESTIC EARTH LEAKAGE AND WIRING TESTER

TEL-1是電器技師不可或缺的一種基本檢測工具。它是藉由強制觸發漏電斷路器，檢測電力線路連接和接地漏電殘留電流檢測裝置運作的測試儀器。

當電流高於一定的幅度到接地線路(通常約15mA)，TEL-1將啟動主電力供應電路的保護裝置，這將確保電氣裝置達到安全與規範要求。

線路檢查報告以發亮的氬燈，載明在檢測計的背面，如下表：

● = 氬燈亮 ○ = 氬燈不亮

A	B	C	狀況說明
●	●	●	接線正常
●	●	○	欠接地(對地)
○	●	●	欠中性接線(Neutral)
○	○	○	未接線
○	○	●	火線(Line) / 地線(Earth)顛倒
●	○	○	火線(Line) / 地線(NEUTRAL)顛倒

操作舉例

- 1.逆時針方向旋轉開關到最低電流設定。
- 2.插入測試器到牆壁插座，線路檢查會如同從插座所見顯示系統的線路狀況。檢查氬燈對應的表格。如果線路正常，繼續進行下一個測試。如果線路不正確，你必須在繼續進行下去之前解決問題。
- 3.如果線路正確，準備測試漏電斷路器/漏電保護器的敏感度。短時間地按下測試鍵並在按下時檢查I earth LED。如果I earth與氬燈沒有亮起，表示漏電斷路器/漏電保護器被觸發。如果燈仍然亮著，停止按下測試鍵並增加所選擇的短路電流，再按下測試鍵。當電流進入接地線路時I earth會亮起。大部分的家用斷路器敏感度在大約15mA觸發。



CE

TEL1-2, 220V

TEL1-3, 230V

TEL1-4, 240V

規格

應用電壓系統	TEL1-2 : 220V AC TEL1-3 : 230V AC TEL1-4 : 240V AC
適用頻率	50/60Hz
線路檢查的準確度	A.如果電壓在額定電壓5%以內，氬燈指示結果可依表格敘述採信。 B.如果電壓在額定電壓5%以外，則表格內說明將不正確。
接地電流模擬準確度	電流由選擇的電阻設定，電阻與電壓成正比，因此，電流設定不能超過10%，電阻自然不能超越10%



STANDARD

Test & Measuring Instruments

The **TEL1** is the Basic Test Equipment an Electrician cannot do without. **TEL1** is a **Dual Function Test Instrument** utilized to **Verify Electrical Wiring Connections** and the **Functioning of Earth Leakage / Residual Current Detectors** devices by forcing the ELCB/RCD to trip.

This verifies that the protection device open the mains power supply circuit when a current higher than a certain amplitude circulate into the ground/earth wire (generally around 15mA)

This ensure the electrical installation meet safety and regulation requirements.

The **Wiring Check** is reported on the **Bright Neon Lights** and the Key code is shown on the table located under the tester.

The table tells the user if the wires are connected correctly or not and guide the user to solve his fault, if any. However, it does not detect or show if a a short circuit is present between the Neutral and Earth/Ground wires as well as does not detect or show if a swap occured between the Neutral and Earth/Ground wires due to the fact that these wires are connected together at the supply transformer or some time, again, are connected together by a link, somewhere Else in the power distribution system.

The **WIRING INTEGRITY CHECKER** of the **TEL1** uses three **Large** and **Bright Neon Lights** to detect and display voltage conditions on and between powered electrical wires.

These neon lights will lit according to a different sequence related to the wiring conditions of the electrical system. The table located under the tester shows the wiring conditions.

The **Residual Current Detector** or **Earth Leakage Circuit Breaker Tester** injects and simulate a Ground/Earth Fault current into the Earth/Ground wire to trip the device under test. The fault current can be increased by rotating the switch to the new higher value to force the device to trip.

Once selected by the rotary switch, the user press the TEST button to inject the current. When the current is Flowing into the Earth/Ground wire, the I_{EARTH} LED lit, confirming that current is still flowing into the Earth/Ground wire. Power Resistors are utilized to inject the current and No Phase shift is introduced between voltage and current. When rotating the selector, different resistors are selected by the rotary switch, this in turn, change the current selection. The User need to select the current on the rotary switch and then, press the TEST button shortly to inject the Fault Current. This ensure the fault current is only temporary injected into the system.

An Example on How to use the device is as follow:

Rotate the switch anti-clockwise to the lowest current setting. Plug the tester into the wall socket. The wiring check will now indicate the wiring condition of the system as seen from the plug. Verify the Neon lights against the table. If the wiring is correct, carry on with the next test. If the wiring is not correct, then you need to solve the problem before continuing.

If the wiring is correct, then you are ready to test the ELCB/RCD sensitivity. Press TEST for a **short time** and check the I_{EARTH} LED while pressing. If the I_{EARTH} and the Neons lights are now OFF, that mean the ELCB/RCD tripped. If the lights are still ON, then, stop pressing the Test button and increase the selected fault current and press Test again.

I_{EARTH} LED lit when current is going into the Earth/Ground wire. Most domestic breakers trips around 15mA of sensitivity. **The TEL1 help the user finding the sensitivity at which the ELCB/RCD trips.**

SPECIFICATIONS

Nominal Voltage System : 110V-220V-230V-240Vac available - User Selectable at purchase.

System Voltage Frequency : 50-60Hz

Wiring Check Accuracy : Table Valid for Voltage within 5% of nominal voltage. If voltage differs from Nominal Voltage System by more than 5%, table may be incorrect.

Earth / Ground Current Simulator Accuracy : Current is set by Selected Resistors and therefore Proportional to Voltage. Resistance Accuracy is 10% Maximum.

Overall Rating : Intermittent Rated (Press TEST Shortly). DO NOT KEEP PRESSING TEST.

Resistance Rating : Current Injection System uses Resistors which are Not Continuously Rated.

Case Material : ABS

Safety Standard : EN 61010-1 EN 61326-1



SPECIFY PLUG TYPE WHEN ORDERING

TEL1-1 110V
TEL1-2 220V
TEL1-3 230V
TEL1-4 240V

WIRING CHECK TABLE

			● = ON	○ = OFF
A	B	C	CONDITION	
●	●	●	WIRING OK	
●	●	○	NO EARTH (GROUND)	
○	●	●	NO NEUTRAL	
○	○	○	NO LINE	
○	○	●	REVERSED LINE / EARTH	
●	○	○	REVERSED LINE / NEUTRAL	
DOES NOT DETECT N-E SWAPPED				