

TECHNICAL DATA

Fluke 1660 Series Multifunction Installation Testers



The new Fluke 1660 Series Installation Testers are the only installation testers that help prevent damage to connected appliances and also allow users to send test results wirelessly via smartphone directly from the field.



FLUKE CONNECT COMPATIBLE (1664 FC ONLY)

View test results on your smartphone via Fluke Connect® mobile app and Data Management Software (Fluke DMS, sold separately). Download the free Fluke Connect app to enable wireless data transmission and Fluke Cloud™ storage.

INSULATION PRETEST (1664 FC ONLY)

The new Fluke 1660 Series Installation Testers are the only installation testers that help prevent damage to connected appliances.

AUTO TEST SEQUENCE (1664 FC ONLY)

Start a sequence of seven critical tests with one press of the TEST button.

HEAVY DUTY, SINGLE INPUT LINE CORD

Guards against failures in the field.

WARRANTY

Three-year standard warranty.

Reduce test time up to 40% with Auto Test

Auto Test does 5 required installation tests in one sequence, including selectable Type A, AC & RCD Auto Test, ensuring compliance with local installation regulations. It reduces the number of manual connections, decreases the possibility of making errors and reduces test time up to 40% from previous Fluke models.

Insulation PreTest

Protect the installation. Avoid costly mistakes.

The Fluke 1664 FC Installation Tester is the only installation with “Insulation PreTest,” which warns you about potentially serious and costly mistakes. If the tester detects that appliances are connected to the system during test, it will stop the insulation test and provide a visual and audible warning. This helps eliminate accidental damage to peripheral equipment and keeps your customers happy.

Fluke Connect®, ShareLive™ calling and Fluke Cloud™ storage

Share from anywhere

Save time—eliminate data entry by wirelessly syncing measurements directly from your installation tester and share with your team using the Fluke Connect system. Having access to measurements simultaneously at the inspection site and from the office or an off-site location enables faster decision making and real time collaboration between team members.

Fluke Cloud™ storage

Retrieve stored results from anywhere

Cloud storage allows you to retrieve stored results whether you are in the office or in the field to make decisions in real time. Fluke Connect uses radio-enabled test tools and a mobile app to transfer measurements straight from the field to a secure cloud location, where the data can be accessed by team members. Plus you can import the data into Fluke DMS to process and generate certificates.



Key product capabilities

The 1660 Series testers verify the safety of electrical installations in domestic, commercial and industrial applications. They can ensure that fixed wiring is safe and correctly installed to meet the requirements of IEC 60364 and all relevant local standards.

Fluke 1664 FC

The Fluke 1664 FC is the only installation tester that protects connected appliances from damage during insulation tests, and allows you to share your test results wirelessly by smartphone with coworkers or customers. Fluke’s patent pending Insulation PreTest stops you from performing tests with appliances that are connected to the system during test. This helps eliminate accidental damage and keeps your customers happy.

In addition, the Fluke 1664 FC offers you the power of Fluke Connect. Now you can send test results straight from your Fluke 1664 FC to your smartphone, and transmit those results to other members of your

team. You can get feedback, suggestions and even have work orders sent to your job site.

You can also save your test results to Fluke Cloud™ storage. No more writing down data on paper with the possibility of transcription errors. Cloud storage gives you a fast, secure and accurate way to storing all your test data and create test certificates with Fluke DMS.

Fluke 1663

The ideal tester for professional trouble-shooters. This instrument is ideal for professional users—high-end functionality, advanced measurement capability, yet it is still easy to use. Operation is intuitive and easily mastered by all levels of field workers.

Fluke 1662

A solid, basic installation tester. The Fluke 1662 gives you Fluke reliability, simple operation and all the testing power you need for basic installation testing.

Features by model

Measurement function	1662	1663	1664 FC
Insulation-PreTest™ safety function NEW			•
Insulation at L-N, L-PE, N-PE inputs NEW			•
Auto Test sequence NEW			•
Loop and line resistance—mΩ resolution			•
Continuity at L-N, L-PE, N-PE inputs NEW		•	•
Test smooth dc sensitive RCDs (Type B/B+)		•	•
Earth resistance		•	•
Voltage trms (ac and dc) and frequency	•	•	•
Wiring polarity checker, detects broken PE and N wires	•	•	•
Insulation resistance	•	•	•
Continuity and resistance	•	•	•
Measure motor windings with continuity test (@ 10 mA)	•	•	•
Loop and line resistance	•	•	•
Prospective Earth Fault Current (PEFC/IK)	•	•	•
Prospective Short-Circuit Current (PSC/IK)	•	•	•
RCD trip time	•	•	•
RCD trip current (ramp test)	•	•	•
Measures trip time and current for RCD type A and AC in one test	•	•	•
RCD variable test current	•	•	•
Automatic RCD test sequence	•	•	•
Phase sequence test	•	•	•

Other features	1662	1663	1664 FC
Fluke Connect® compatibility NEW			•
ShareLive™ calling NEW			•
Fluke Cloud™ storage NEW			•
On/Off switchable Auto Start for RCD and Loopstest NEW	•	•	•
Self-test	•	•	•
Illuminated display	•	•	•
Memory, interface			
Z Max memory NEW		•	•
Memory	•	•	•
IR-USB and BLE interface (use with optional Fluke DMS software and FVF)		IR-USB	IR-USB/BLE
Included Accessories			
Heavy duty mains cord with single input connector NEW	•	•	•
Hard case	•	•	•
Remote control probe	•	•	•
Zero adapter	•	•	•

General specifications

Specification	Characteristic
Size	10 cm (L) x 25 cm (W) x 12.5 cm (H)
Weight (incl. batteries)	approx. 1.3 kg
Battery size, quantity	1.5 V type AA (IEC LR6), 6 pcs.
Sealing	IP 40
Safety	Complies with IEC/EN61010-1, UL61010, ANSI/ISA –s82.02.01 and CAN/CSA c22.2 No. 1010
Overvoltage	CAT III 500 V, CAT IV 300 V
Performance	IEC/EN61557-1 to IEC/EN61557-7 and IEC/EN61557-10

AC and DC voltage measurement trms

Range	Resolution	Input Impedance	Overload Protection
500 V	0.1 V	3.3 MΩ	660 V rms

Continuity testing (R_{LO})

Range (Autoranging)	Resolution	Open Circuit Voltage
20 Ω/200 Ω/2000 Ω	0.01 Ω/0.1 Ω/1 Ω	> 4 V

Insulation resistance measurement (R_{ISO})

Test voltages	
1662	1663/1664 FC
100-250-500-1000 V	50-100-250-500-1000 V

Test Voltage	Insulation Resistance Range	Resolution	Test Current
50 V	20 MΩ/50 MΩ	0.01 MΩ/0.1 MΩ	1 mA @ 50 kΩ
100 V	20 MΩ/100 MΩ	0.01 MΩ/0.1 MΩ	1 mA @ 100 kΩ
250 V	20 MΩ/200 MΩ	0.01 MΩ/0.1 MΩ	1 mA @ 250 kΩ
500 V	20 MΩ/200 MΩ/500 MΩ	0.01 MΩ/0.1 MΩ/1 MΩ	1 mA @ 500 kΩ
1000 V	20 MΩ/200 MΩ/1000 MΩ	0.01 MΩ/0.1 MΩ/1 MΩ	1 mA @ 1 MΩ

Insulation pretest

Insulation safety pretest	Requires to connect the Tester to L, N and PE.
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Loop and line impedance (Z_l)

Range	Resolution
10 Ω (Hi current mΩ mode)/20 Ω/200 Ω/2000 Ω	1 mΩ/ 0.01 Ω/ 0.1 Ω/1Ω

Prospective earth fault current, PSC test

Range	Resolution
1000 A/10 kA (50 kA)	1 A/0.1 kA

Computation: Prospective Earth Fault Current (PEFC) or Prospective Short Circuit Current (PSC) determined by dividing measured mains voltage by measured loop (L-PE) resistance or line (L-N) resistance, respectively.

RCD testing, RCD types tested

RCD Type		Model 1662	Model 1663/1664 FC
AC ¹	G ² , S ³	A/F ⁴ , AC ¹ , G ² , S ³	A/F, AC, B/B+ ⁵ , G, S

¹Responds to AC. ²General, no delay. ³Time delay. ⁴Responds to pulsed signal. ⁵Responds to smooth DC signal.

RCD trip time test (ΔT)

Current Settings ¹	Multiplier	Measurement Range	
		RCD Type G	RCD Type S
10-30-100-300-500-1000 mA – VAR	x ½, x 1	310 ms	510 ms
10-30-100 mA	x 5	50 ms	160 ms

¹1000 mA type AC only. 700 mA maximum type A in VAR mode, VAR mode not available for type B.

RCD trip current measurement/ramp test (I_{ΔN})

Current Range	Step Size	Dwell Time		Measurement Accuracy
		Type G	Type S	
30 % to 110 % of RCD rated current ¹	10 % of I _{ΔN} ²	300 ms/step	500 ms/step	± 5 %
Notes 30 % to 210 % for Type A I _{ΔN} = 10mA 20 % to 210 % for Type B		Specified trip current ranges (EN 61008-1): 50 % to 100 % for Type AC 35 % to 140 % for Type A (>10 mA) 35 % to 200 % for Type A (≤10 mA) 50 % to 200 % for Type B		

¹30 % to 150 % for Type A I_{ΔN} > 10 mA. ²5 % for Type B

Earth resistance test (RE) Model 1664 FC and 1663 only

Range	Resolution	Frequency	Output Voltage
200 Ω/2000 Ω	0.1 Ω/1Ω	128 Hz	25 V

Phase sequence indicator

Icon 	Range	Display
Phase Sequence indicator is active	100 to 500 V	"1-2-3": or "3-2-1"



Included Accessories

6x AA (IEC LR6) cell batteries,
C1600 hard carrying case, zero
adapter, heavy duty mains cord,
STD standard test lead set,
padded carrying and waist strap,
quick reference guide, TP165X
remote control probe and lead set
(FTP/UK fused probes, UK only),
User's manual on CD-ROM

Ordering Information

Fluke 1664 FC Multifunction
Installation Tester with Auto Test,
Insulation PreTest, Fluke
Connect® compatibility

Fluke 1663 Multifunction
Installation Tester

Fluke 1662 Multifunction
Installation Tester

Preventive maintenance simplified. Rework eliminated.

Save time and improve the reliability of your maintenance data by wirelessly syncing measurements using the Fluke Connect® system.

- Eliminate data-entry errors by saving measurements directly from the tool and associating them with the work order, report or asset record.
- Maximize uptime and make confident maintenance decisions with data you can trust and trace.
- Access baseline, historical and current measurements by asset.
- Move away from clipboards, notebooks and multiple spreadsheets with a wireless one-step measurement transfer.
- Share your measurement data using ShareLive™ video calls and emails.
- **Fluke 1664 FC** is part of a growing system of connected test tools and equipment maintenance software. Visit the website to learn more about the Fluke Connect® system.

Find out more at flukeconnect.com



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Smartphone wireless service and data plan not included with purchase.
Fluke Connect® is not available in all countries.

Fluke. *Keeping your world up and running.®*

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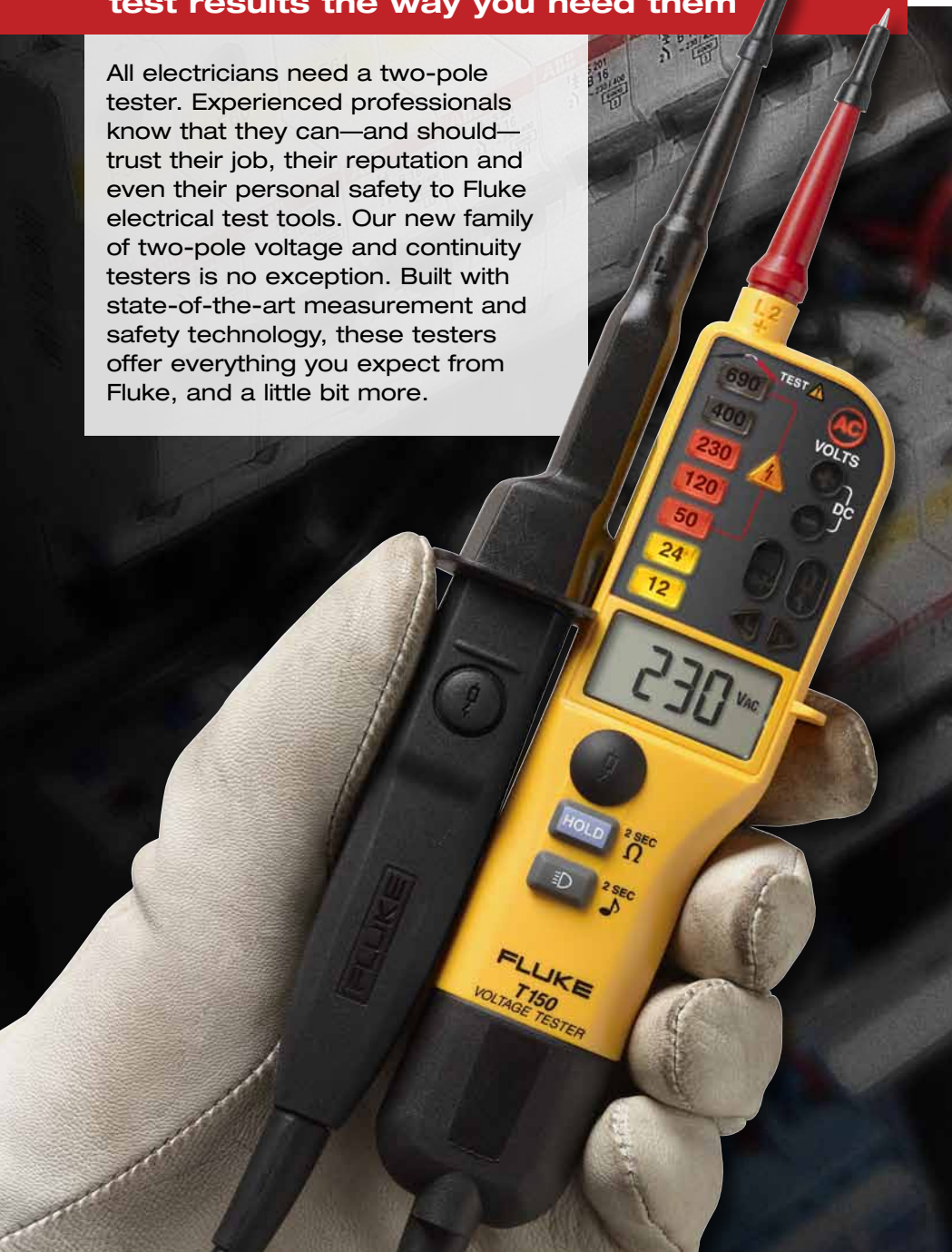
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T90/T110/T130/T150 Voltage and Continuity Testers

Rugged, high-quality testers for fast test results the way you need them

All electricians need a two-pole tester. Experienced professionals know that they can—and should—trust their job, their reputation and even their personal safety to Fluke electrical test tools. Our new family of two-pole voltage and continuity testers is no exception. Built with state-of-the-art measurement and safety technology, these testers offer everything you expect from Fluke, and a little bit more.



Technical Data

Listening to customers. Making better tools.

The new Fluke two-pole voltage and continuity testers are now more rugged and easier to use than ever before.

- Fast test results the way you need them, with large, easy-to-use buttons, bright backlights, and clear audible and physical indicators designed for any work situation.
- Rugged, high-quality construction is built to last. This includes a heavy duty molded case, a thicker cord with wear indicator, sturdy battery case, and well-fitting and durable probe protector.
- Enhanced ergonomic design feels good in your hand, is easy to use (even with gloves) and quick, secure probe docking.
- A complete family of testers with the features, functions, and price/performance to fit your applications and preferences.

Built to work the way you work

Fluke's new two-pole testers are built with you in mind. They give you the best combination of safety, ease-of-use and fast answers available anywhere.

- **CAT IV 600 V, CAT III 690 V safety rating.**

Fluke's new family of two-pole testers comply with both regulation HSE GS 38 (tip caps) and IEC EN 61243-3: 2010, the most recent and applicable standards for this type of test equipment.

- **4 ways to detect ac/dc voltage.**

Fluke two-pole testers make answers easy to understand, indicating voltage four ways: A clear, instantly visible LED indicator, a bright digital display of the measurement value, an audible continuity test, and vibration to give tactile feedback (vibration indicator on T110, T130, T150). It's your preference. Use the most effective method for each situation.



- **Backlit graduated scale and backlit indicators.** Bright backlights ensure that the buttons and the indicators are visible under any lighting conditions—and you can easily see and understand the answers.

- **Vibration provides tactile feedback (T110, T130, T150).** Even when viewing the display or hearing the beeper is difficult, you'll know voltage is present. This is especially useful in noisy environments, or when you can't take your eyes off the probes.

- **Audio on/off for testing in quiet areas.**

If you're working in quiet surroundings, such as a medical or office setting, you don't want to disturb people in the vicinity with noises. The tester's acoustic alert switches on or off to fit your environment.

- **Never guess whether your batteries are in good working order.** The low battery indicator gives you advance warning when they fall below proper working voltage.

- **Detects voltage even with discharged batteries.**

The tester can still detect the presence of voltage (>50 V ac, >120 V dc) even with dead batteries, an important safety feature. You should always use your two-pole tester with working batteries, but for that rare time when your batteries fail in the field, it's nice to know you still have this one indication of live voltage.

- **Improved probe docking for secure storage.**

When the probes are docked, the two-pole tester is ready to use, with proper spacing for instant testing on standard outlets. If you've ever been frustrated with wobbly probes that slowed you down, you'll appreciate Fluke's rugged design.

- **Phase rotation indicator for 3-phase systems.**

Where three-phase power supplies feed motors, drives and electrical systems, use Fluke's innovative three-phase rotation detection system to quickly determine phase sequence. Ensure the system is wired correctly, without reaching for another tool.

- **RCD functionality.** Convenient two-button controls allow you to draw more current from the circuit under test and intentionally trip Residual-Current Devices (RCDs) remotely and determine if they are wired correctly. A Quick Start Guide covering the basics of RCD testing is included with the product.

- **Display hold (T130, T150).** Focus on placing your probes, take the measurement, then read the LC display.

- **Built in electric torch (T110, T130, T150).**

Light up dim testing environments at the touch of a button for faster, safer probing.



- **Single-phase voltage offers fast identification of live conductors.** Need to verify that a row of “hot” conductors are indeed connected to power? The two-pole tester can tell with you a single touch of the main probe. Simply touch a live conductor and the probe instantly give an audible and visual signal if the power is on. A great timesaver before you begin actual testing.

- **Probe tip protection adapts to your changing environment.** Push-on probe tips reduce metal exposure from 19 mm to 4 mm, reducing the chance of accidentally touching the wrong conductor when probing in tight spaces. The probe tips of the two-pole tester are threaded, taking optional screw-on 4 mm diameter tips for applications where more sturdy probing may be required.



- **Probe tip protector and storage accessory.** Never lose the push-on caps and 4 mm diameter tips again. As a bonus, the tool’s storage serves as an extra hand when opening UK electrical safety outlets.

- **Resistance testing (T150).** Testers measure and display resistance up to 1999 ohms, adding more power and versatility to this essential tester.

- **WearGuard™ insulation shows damage to test leads.** The two-pole tester’s rugged, durable test leads have two layers of insulation for added durability. But if the inner, contrasting-colored layer is showing, that’s a sign that the test leads have been damaged and replacement is in order.

Selection table

Features	T90	T110	T130	T150
Backlit LED indicator	•	•	•	•
Backlit LCD digital display			LCD	LCD
Continuity test—visual results	•	•	•	•
Continuity test—audible results	•	with on/off	with on/off	with on/off
Vibratory indicator under load		•	•	•
Display hold			•	•
Voltage test	•	•	•	•
Indication of polarity	•	•	•	•
Resistance measurement				•
Switchable load		•	•	•
Single pole test for phase detection	•	•	•	•
Rotary field indicator		•	•	•
Probe tip protection	•	•	•	•
Voltage display with discharged batteries	•	•	•	•
Electrical torch function		•	•	•
Wear indicator test lead wire	•	•	•	•

Specifications

	T90	T110	T130	T150
Voltage ac/dc	12 V to 690 V	12 V to 690 V	6 V to 690 V	6 V to 690 V
Continuity	0 to 400 kΩ			
Frequency	0 / 40 to 400 Hz			
Phase rotation	–	100 V to 690 V		
Resistance measurement	–	–	–	Up to 1999 Ω
Response time (LED indicator)	< 0.5 s			
200 kΩ input impedance	Current draw 3.5 mA @ 690 V, Current draw 1.15 mA @ 230 V			
7 kΩ input impedance (with load buttons pressed)	–	Current draw 30 mA @ 230 V		
Safety rating	CAT II 690 V CAT III 600 V	CAT III 690 V, CAT IV 600 V		
IP rating	IP54	IP64	IP64	IP64

General specifications

Power requirement	2-AAA batteries
Net weight	180 g (6.4 oz) (T90) 280 g (9.9 oz) (T110, T130, T150)
Size (LxWxH)	23 cm x 6.5 cm x 3.8 cm (T90) 26 cm x 7 cm x 3.8 cm (T110, T130, T150)
Warranty	2 years
Country of origin	Romania

Ordering information

- FLUKE-T90** Voltage/Continuity Tester
FLUKE-T110 Voltage/Continuity Tester With Switchable Load
FLUKE-T130 Voltage/Continuity Tester With LCD, Switchable Load
FLUKE-T150 Voltage/Continuity Tester With LCD, Ohms, Switchable Load

Fluke. *Keeping your world up and running.*®

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