1650 Series Multifunction Installation Testers

FLUKE

New
RCD Type B Compatibility

Fluke 1654B

Fluke 1653B

Fluke 1652C

EN 61557 COMPLIANT

500V CAT III

BS7671 17th Edition IEE Wiring Regulations IEC 60364.6.61, HD 384

Included Accessories
6 AA Cell batteries
C1600 Hard carrying case
Zero Adapter
Mains test cord
TL165X STD Standard Test Lead Set
TL165/UK Fused Test Lead Set (UK only)
Padded carrying strap
Quick reference guide
TP165X Remote control probe and lead
Users manual on CD-ROM

Ordering Information
Fluke 1652C Multifunction Installation Tester
Fluke 1653B Multifunction Installation Tester
Fluke 1654B Multifunction Installation Tester

Check the Fluke website for the various software modules

11641-eng   Rev. 01

Extra functionality, faster testing, and as rugged as ever

Safer, easier installation testing. The new 1650 Series builds on the rugged reputation of the earlier 1650 Series, only it's re-designed to meet your need for more productive test tools. With new features like the fast, high current loop test (including a non-trip test) and a variable RCD trip current setting, accuracy is even better and the test cycle even faster. And with the addition of a unique zero adapter accessory for accurate mains test lead compensation, the 1650 Series continues to set the standard in installation testers. The 1650 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, HD 384 and BS 7671 17th Edition wiring regulations.

1654B - The complete tester for advanced users
This is the instrument that has it all, in a word: it's complete. From all the test functions you need to in-built memory for documenting results. This makes it the complete solution for professionals,

especially contractors, everyone who would want to have the best tool available and always understands (or know) how to use.

1653B - The ideal tester for professional trouble-shooters
This is the instrument that is indeed ideal for professional users due to its additional functionality. It is also ideal since even though it has high-end features, it is still easy to use – even after longer periods of non-use; because operating it is intuitive and not forgotten easily.

1652C - The everyday tester, for every electrical installer
This is the instrument that can be used every single day (day in, day out), and covers all the basic needs. It is the preferred tester for every front-line electrician/installer.

Features

Measurement Function	1652C	1653B	1654B
Voltage & Frequency	●	●	●
Wiring polarity checker	●	●	●
Insulation Resistance	●	●	●
Continuity & Resistance	●	●	●
Loop & Line Resistance	●	●	●
Loop & Line Resistance–mΩ resolution			●
Prospective Earth Fault Current (PEFC/IK) Prospective Short-Circuit current (PSC/IK)	●	●	●
RCD switching time	●	●	●
RCD tripping level	ramp test	ramp test ●	ramp test ●
RCD variable current	●	●	●
Automatic RCD test sequence	●	●	●
Test pulse current sensitive RCDs (Type A)	●	●	●
Test smooth dc sensitive RCDs (Type B)			●
Earth Resistance		●	●
Phase Sequence Indicator	●	●	●
Other Features			
Self-test	●	●	●
Illuminated Display	●	●	●
Memory, Interface			
Memory		●	●
Extended Memory			●
Computer Interface		●	●
Time and date (When used with FlukeView software)		●	●
Software		●	●
Included Accessories			
Hard case	●	●	●
Remote control probe	●	●	●
Zero Adapter	●	●	●

Recommended Accessories

TLK290
Test Probe Kit

MTC1363 (UK)
Mains Test Cord

MTC77 (Europe)
Mains Test Cord

ES165X 1653B & 1654B
Earth Spike Test Kit

FVF-SC2

Extra functionality, faster testing, and as rugged as ever

Slim probe design
Thanks to its slim probe with integral test button, you can safely make one-handed measurements on hard to reach points, while keeping your eyes on the panel. This remote probe is powered by the tester so always operable (does not require additional batteries!).

Zero Adaptersign
For easy, always reliable and accurate compensation for test leads and mains cords. This adapter can be used for all different kind of mains plugs as well as test accessories like probes, alligator clips etc.

Complete kit
All 1650 models are equipped with detachable leads that can be replaced in case of damage or loss. A durable hard case will protect your instrument in tough field conditions.

Specifications
(Check the Fluke web for detailed specifications)

AC Voltage Measurement

Range	Resolution	Accuracy 50 Hz - 60 Hz	Input Impedance	Overload Protection
500 V	0.1 V	± (0.8% + 3 digits)	3.3 MΩ	660 Vrms

Continuity Testing

Ratnge (autoranging)	Resolution	Test Current	Open Circuit Voltage	Accuracy
20 Ω	00.1 Ω	> 200 mA	> 4 V	± (1.5%+3 digits)
200 Ω	0.1 Ω			
2000 Ω	1 Ω			

Insulation Resistance Measurement

Model	Test Voltage	Insulation Resistance Range	Resolution	Test Current	Accuracy
1653B / 1654B	50 V	10 kΩ to 50 MΩ	0.01 MΩ	1 mA @ 50 kΩ	± (3%+ 3 digits)
1653B / 1654B	100 V	20 kΩ to 100 MΩ	0.01 MΩ 0.1 MΩ	1 mA @ 100 kΩ	± (3%+ 3 digits)
1653B / 1654B 1653B / 1654B	250 V	20 kΩ to 200 MΩ	0.01 MΩ 0.1 MΩ	1 mA @ 250 kΩ	± (1.5%+ 3 digits)
1653B / 1654B 1652C 1653B / 1654B	500 V	20 MΩ 200 MΩ 500 MΩ	0.01 MΩ 0.1 MΩ 1 MΩ	1 mA @ 500 kΩ	± (1.5%+ 3 digits) + 10%
1653B / 1654B 1652C	1000 V	20 MΩ 200 MΩ 1000 MΩ	0.1 MΩ 1 MΩ	1 mA @ 1 MΩ	± (1.5%+ 3 digits) + 10%

Loop Impedance Measurement

Range	Resolution	Accuracy [1]
10 Ω	0.001 Ω	Hi Current mΩ mode: ± (2 % + 15 digits)
20 Ω	0.01 Ω	No Trip mode: ± (3 % + 6 digits)
		Hi Current mode: ± (2 % + 4 digits)
200 Ω	0.1 Ω	No Trip mode: ± (3 %)
		Hi Current mode: ± (2 %)
2000 Ω	1 Ω	±6 % [2]

Notes
[1] Valid for resistance of neutral circuit <20 Ω and up to a system phase angle of 30°. Test leads must be zeroed before testing.
[2] Valid for mains voltage >200 V.

PFC. PSC Test

Range	1000A / 10kA(50kA)
Resolution and Units	1A / 0.1kA
Accuracy	Determined by accuracy of loop resistance and mains voltage measurements

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 Type [6]		Model 1652C	Model 1653B	Model 1654B
AC [1]	G [2]	•	•	•
AC	S [3]	•	•	•
A [4]	G	•	•	•
A	S	•	•	•
B [5]	G			•
B	S			•

Notes
[1] AC – Responds to ac
[2] G – General, no delay
[3] S – Time delay
[4] A – Responds to pulsed signal
[5] B – Responds to smooth dc
[6] RCD test inhibited for V >265 ac
RCD tests permitted only if the selected current, multiplied by earthing resistance, is <50 V.

Tripping Time Test (ΔT)

Current Settings	Multiplier	Test Current Accuracy	Trip Time Accuracy
10, 30, 100, 300, 500, 1000 mA, VAR	x 1/2	+ 0% – 10%	± (1% Reading + 1 digit)
10, 30, 100 mA	X 5	+ 10% – 0%	± (1% Reading + 1 digit)

Tripping Current (Ramp) Test

Current Range	Step Size	Dwell Time		Measurement Accuracy
		Type G	Type S	
30 % to 110 % of RCD rated current [1]	10 % of I Δ N [2]	300 ms/step	0 ms/step	±5 %

Notes
[1] 30 % to 150 % for Type A ΔN >10 mA
[1] 30 % to 210 % for Type A ΔN =10 mA
[1] 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
[2] 5% for Type B

Earth Resistance Test (RE) – Fluke 1654B and 1653B only

Range	Resolution	Accuracy
200 Ω	0.1 Ω	± (2% + 5 digits)
2000 Ω	1 Ω	± (3.5% + 10 digits)

Battery type: Alkaline supplied. usable with 1.2 V NiCD or NiMH rechargeable batteries

Size (HxWxD):
100 mm x 250 mm x 125 mm

Weight: 1.3 kg
Three Years Warranty

Accessories for Fluke 1650 Series Installation Testers

ES165X Earth Spike Test Kit (Fluke 1653B and 1654B)
Earth Spike Test kit contents:
• Auxiliary earth probes
• Test connection leads and crocodile clips
• Purpose-made carry case

FVF-SC2 Fluke ViewForms Software
To address the increasing demands for reporting and documentation, Fluke presents FlukeView Forms documenting software. Download the data from the Fluke 1653B and create an easy report. The Fluke ViewForms Software also supports other Fluke tools.

TLK 290 Test Probe Kit
• Kit includes three flexible socket probes and a large alligator clip
• To be used on three phase sockets
• Probes have flexible width test points that fit securely in 4 to 8 mm sockets
• CAT III 1000 V, 8 A

MTC1363   *MTC77*

Mains Test Cord for 1650B series
MTC1363   UK plug
MTC77   Schuko plug

Accessories for Fluke 6500 Series Portable Appliance Testers

PASS560R Appliance Pass Labels
Quantity 500

APP1000/APP2000 Bar Code Appliance Number Labels
APP1000: Labels numbered 0001-1000
APP2000: Labels numbers 1001-2000
Label number >2000 on request

BDST3/BDST4 Snap Tags
BDST3: Cable Tie
BDST4: Clip On
Quantity 20. Without labels.

EXTL100-02 (UK plug)   *EXTL100-02 (Schuko plug)*

EXTL100 Extension Lead Test Adaptor
Adaptor for testing extension leads. Allows the earth test lead to be connected to the extension leads to perform insulation and earth bond tests.

SPScan15 Barcode Scanner
Easy to use, low current, intelligent barcode reader. SPScan15 can be used to scan barcodes attached to curved surfaces or where actual contact with the barcode surface is difficult.

SP1000 Mini Printer
Without using any additional software the SP1000 can be used to directly printout stored test records on to thermal paper. The printer is compact and easily transported and is ideal for test professionals who need to issue an immediate written account of work carried out. The printer is powered by a rechargeable battery and comes complete with mains charger and RS232 Printer Lead.

SP1000 Paper
Replacement thermal paper for the SP1000 Mini Printer

Fluke DMS software for 1650/6000 Series

The Fluke DMS (Data Management Software) is an efficient program for administration and reporting of installation tests in compliance with EN 60364, DIN VDE 0100/0105, BS7671 17th edition wiring resulation and appliance tests in compliance with DIN VDE 0701/0702, ÖVE E 8701.

DMS 0100/INST Software for Installation Tester Fluke 1653B and 1654B
Supporting reports for Austria, Germany, UK, Switzerland, Netherlands

DMS 0702/PAT Software for Portable Appliance Tester Fluke 6500
Supporting reports for Austria, Germany, UK, Netherlands

DMS COMPL PROF Software for the Fluke 1654B, 1653B and Fluke 6500
Supporting reports for Austria, Germany, UK, Switzerland, Netherlands

New Kit Fluke-1654B+ DMS software

Extra functionality, faster testing, as rugged as ever
Available now with a complete software package

NEW
RCD type B compatibility

The new 1654B series builds on the rugged reputation of the earlier 1650 series, only it's re-designed to meet your need for more productive test tools.

Key-Features

RCD type B compatibility. Applications :
- Mains systems with frequency converters (i.e. building sites), appliances including switch mode power supplies, solar systems must be protected with RCD type B (draft IEC 60364-5-53 / DIN VDE 0100-530, IEC 60364-7-712 / DIN VDE 0100-712).
- The Fluke 1654 B covers full RCD testing function which is including RCD type AC, A and the new RCD type B.

Fast
- **Two measurements at once and a dual display**. PEFC/PSC and loop impedance are measured and displayed in parallel, saves you more than 50% of test time compared to other loop testers
- **Additional new high current loop mode**. Faster measurements compared to loop tests with non-trip mode for RCD's
- **Fast voltage measurement** between L-N, L-PE and N-PE using the mains cord. No need to change measurement connections.

faster   lighter   rugged

Rugged & Lightweight
- **withstands a drop from 1 m**
- **Compact, lightweight (less than 1.3 kg)** and padded neck-strap to free your hands for all day testing

Safe
- **Earth Volt Touchpad** detects raised earth voltages >50 V, indicating potential dangerous situations
- **Standard supplied with fused test leads** to comply with GS38 -> UK versions only
- **Supplied with the SureGrip™ test leads and clips** which gives the user a comfortable, reliable grip -> non UK versions

Easy
- **Rotary dial knob** indicates clear which function is selected, all functionalities on one spot and no complex multi level menus
- **Large display with backlight**, clear symbols and with exceptionally wide viewing angle for easy and safe readings
- **PASS/FAIL indication for RCD test** results,
- **Variable RCD current mode** for customized settings
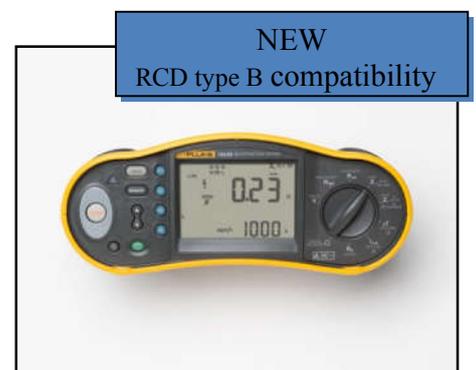
Fluke Software DMS version 1.5.13

The software packages support the installation tester Fluke 1654.

The software is available as the single modules Fluke DMS 0100/INST, Fluke DMS 0702/PAT and a complete package Fluke DMS COMPL including both modules for installation- and appliance tester.

Equipped with additional functions are the software packages of the professional version „PROF".
Available are the single module Fluke DMS 0100/INST PROF, Fluke DMS 0702/PAT PROF and the complete package Fluke DMS COMPL PROF including the two single modules.

Description:

- Comfortable, extensible software for administration and reporting of installation tests in compliance with EN 60364, DIN VDE 0100/0105,
- Clear and logic hierarchy
- Easy to handle directory structure (customer, installation, test, distribution, and circuit) is always visible
- Measurement data transfer from test instrument to PC
- New data records for tests will be automatically created. Test results can be printed out quickly and easily
- Printing of test reports according to IET or NICEIC computer friendly certificates
- Export function for listings in text or Excel format