

1650B Series Multifunction Installation Testers

FLUKE®



Fluke 1653B



Fluke 1652B



Fluke 1651B



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 ¹
Users manual on CD-ROM

¹ In the United Kingdom and Ireland: 1652B & 1653B only

Ordering Information

Fluke 1651B Multifunction Installation Tester
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Check the Fluke website for the various software modules

Extra functionality, faster testing, and as rugged as ever

Safer, easier installation testing. The new 1650B 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 1650B Series continues to set the standard in installation testers. The 1650B 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.

1653B - 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 knows) how to use.

1652B - 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.

1651B - 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

| | 1653B | 1652B | 1651B |
|---------------------------------------|-------|-------|-------|
| Zero adapter | ● | ● | ● |
| Volts (V) | ● | ● | ● |
| Frequency (Hz) | ● | ● | ● |
| Insulation (RISO) | ● | ● | ● |
| Continuity (RLO) | ● | ● | ● |
| Fast high current loop test (ZI) | ● | ● | ● |
| Loop test non trip mode (ZI) | ● | ● | ● |
| Short Circuit Current (PSC, PEFC, IK) | ● | ● | ● |
| RCD FI Trip TimeTest (FI, DDR) | ● | ● | ● |
| Variable RCD current setting | ● | ● | ● |
| Tests time-delayed RCD's (S-type) | ● | ● | ● |
| RCD Ramp Test (FI, DDR) | ● | ● | ● |
| RCD Auto Test (FI, DDR) | ● | ● | ● |
| Test of pulse sensitive RCD's | ● | ● | ● |
| Earth Resistance (RE) | ● | ● | ● |
| Phase Sequence | ● | ● | ● |
| Internal Memory | ● | ● | ● |
| IR Interface for downloading data | ● | ● | ● |
| Remote probe | ● | ● | ●* |

* Not in the UK

Recommended Accessories

See also page 48 for more details



TLK290
Test Probe Kit



MTC1363 (UK)
Mains Test Cord



MTC77 (Europe)
Mains Test Cord



ES165X (1653)
Earth Spike Test Kit



FVF-SC2 (1653)
See page 120

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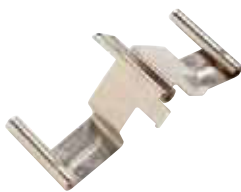
Specifications

(Check the Fluke web for detailed specifications)



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 Adapter

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 1650B 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.

| 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 | | | | |
|---------------------|------------|--------------|----------------------|-------------------|
| Range (autoranging) | Resolution | Test Current | Open Circuit Voltage | Accuracy |
| 20 Ω | 0.01 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 | 50 V | 10 kΩ to 50 MΩ | 0.01 MΩ | 1 mA @ 50 kΩ | ± (3%+ 3 digits) |
| 1653B | 100 V | 20 MΩ to 100 MΩ | 0.01 MΩ 0.1 MΩ | 1 mA @ 100 kΩ | ± (3%+ 3 digits) |
| 1653B 1652B 1651B | 250 V | 20 MΩ to 200 MΩ | 0.01 MΩ 0.1 MΩ | 1 mA @ 250 kΩ | ± (1.5%+ 3 digits) |
| 1653B 1652B 1651B | 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 1652B 1651B | 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 |
| 20 Ω | 0.01 Ω | No trip mode: ± (3% + 6 digits) Hi current mode: ± (2% + 4 digits) |
| 200 Ω | 0.1 Ω | |
| 2000 Ω | 1 Ω | |

| 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 | | 1651B | 1652B | 1653B |
| ¹ AC | ² G | ● | ● | ● |
| AC | ³ S | ● | ● | ● |
| ⁴ A | G | | ● | ● |
| A | S | | ● | ● |

¹AC – responds to AC ²G – General, no delay ³S – Time delay ⁴A – Responds to pulsed signal

| 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 – Fluke 1653B and 1652B only | | | | |
|---|--------------|-------------|-------------|-----------------------------------|
| Current Range | Step size | Dwell time | | Trip Current Measurement Accuracy |
| | | Type G | Type S | |
| 50% to 110% of RCD's rated current | 10% of I Δ N | 300 ms/step | 500 ms/step | ± 5% |

| Earth Resistance Test (RE) – Fluke 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: 1.17 kg
Three Years Warranty