

TECHNICAL DATA

Fluke 1653B Multifunction Installation Tester



Key features

Safer, easier installation testing.

The 1653B Installation Tester verifies the safety of electrical installations in domestic, commercial and industrial applications. It can ensure that fixed wiring is safe and correctly installed to meet the requirements of IEC 60364, HD 384 and all relevant local standards.

Faster

- 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.
- Unique zero adapter for fast, always reliable and accurate test lead and mains cord compensation.
- Fast voltage measurement between L-N, L-PE and N-PE using the mains cord. No need to change measurement connections.

Safer

- Earth Volt Touchpad detects raised earth voltages 50 V, indicating potential dangerous situations.
- Supplied with the SureGrip™ test leads and clips which gives the user a comfortable, reliable grip

Easy

- Rotary dial knob indicates clearly which function is selected, all functionalities on one spot and no complex multi level menus.
- Large display with backlight, clear symbols and exceptionally wide viewing angle for easy and safe readings.
- PASS/FAIL indication for RCD test results.
- Variable RCD current mode for customized settings.
- Extended Memory
- Extended documentation mode (UK only)

Rugged & lightweight Withstands a drop of 1 meter.

Compact, lightweight (less than 1.3 kg) and padded neck-strap to free your hands for all day testing.

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.

Slim probe design with test button

Keeps your eyes on the panel while probing hard to reach points. 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 of 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.

Product overview: Fluke 1653B Multifunction Installation Tester

Extra functionality, faster testing, and as rugged as ever

The 1653B Installation Tester builds upon the rugged reputation of the earlier 1650 Series, only it's re-designed to meet your need for more productive test tools.

This installation tester offers the following new capabilities:

- Fast high current loop test
- Variable RCD current mode for customized settings
- PASS/FAIL indication for RCD tests
- Select voltage measurement between L-N, L-PE and N-PE
- Zero adapter for easy test lead compensation, available as new accessory and also included with standard scope of supply
- Extended Memory
- Extended documentation mode (UK only)

Specifications: Fluke 1653B Multifunction Installation Tester

Specifications

AC Voltage Measurement	Range:	500 V
	Resolution:	0.1 V
	Accuracy (50 - 60 Hz)	$\pm (0.8\% + 3 \text{ digits})$
	Input Impedance	3.3 M Ω
	Overload Protection	660 Vrms
Continuity Testing	Range (autoranging):	20 Ω , 200 Ω , 2000 Ω
	Resolution:	0.01 Ω , 0.1 Ω , 1 Ω
	Test Current:	> 200 mA
	Open Circuit Voltage:	> 4 V
	Accuracy:	$\pm (1.5\% + 3 \text{ digits})$

Insulation Resistance Measurement	Test Voltage:	250 - 500 - 1000 V
	Test Voltage:	50 V
	Test Current:	1 mA @ 50 kΩ
	Insulation Range:	10 kΩ - 50 MΩ
	Resolution:	0.01 MΩ
	Accuracy:	± (3% + 3 digits)
	Test Voltage:	100 V
	Test Current:	1 mA @ 100 kΩ
	Range/Resolution:	20 MΩ/0.01 MΩ
	Range/Resolution:	100 MΩ/0.1 MΩ
	Accuracy:	± (3% + 3 digits)
	Test Voltage:	250 V
	Test Current:	1 mA @ 250 kΩ
	Range/Resolution:	20 MΩ/0.01 MΩ
	Range/Resolution:	200 MΩ/0.1 MΩ
	Accuracy:	± (1.5% + 3 digits)
	Test Voltage:	500 V
	Test Current:	1 mA @ 500 kΩ
	Range/Resolution:	20 MΩ/0.01 MΩ
	Range/Resolution:	200 MΩ/0.1 MΩ
	Accuracy:	± (1.5% + 3 digits)
	Range/Resolution:	500 MΩ/1 MΩ
	Accuracy:	10%
	Test Voltage:	1000 V
	Test Current:	1 mA @ 1 MΩ
	Range/Resolution:	20 MΩ/0.01 MΩ
	Range/Resolution:	200 MΩ/0.1 MΩ
	Accuracy:	± (1.5% + 3 digits)
	Range/Resolution:	500 MΩ/1 MΩ
	Accuracy:	10%
	Auto Discharge:	Discharge time constant, 0.5 second for C = 1 μF or less
	Live Circuit Detection:	Inhibits test if terminal voltage > 30 V prior to initiation of test
	Maximum Capacitive Load:	Operable with the 5 μF load

Loop Impedance Measurement (High Current Mode and Non-Trip Mode)	Range:		100 - 500 VAC (50/60 Hz)
	Input connection:		Soft Key selection
	Loop impedance:		Phase to earth
	Line impedance:		Phase to neutral
	Limit on consecutive tests:		Automatic thermal shutdown after 50 consecutive tests at 10 second intervals (typical)
	Max. Test Current. High Current and Non-Trip Modes:		
	Maximum Test Current @ 400 V		20 A sinusoidal for 10 ms
	Maximum Test Current @ 230 V		12 A sinusoidal for 10 ms
	Range/Resolution:		20 Ω /0.01 Ω
	Range/Resolution:		200 Ω /0.1 Ω
	Range/Resolution:		2000 Ω /1 Ω
	Accuracy (no Trip mode):		\pm (3% + 6 digits)
	Accuracy (Hi Current mode):		\pm (2% + 4 digits)
PFC, PSC Test	Computation:	PFC or PSC determined by dividing measured mains voltage by measured loop (L-PE) resistance or line (L-N) resistance	
	Range:	0 - 25 kA	
	Resolution ($I_k < 1000$ A):	1 A	
	Resolution ($I_k \geq 1000$ A):	0.1 kA	
	Accuracy:	Determined by accuracy of loop resistance and mains voltage measurements.	
RCD Testing ¹	G	General, no delay	
	S	Time delay	
	A	Responds to pulsed signal	
	AC	Responds to AC	

Tripping Time Test (ΔT)	Trip Time Accuracy	$\pm(1\% \text{ Reading} + 1 \text{ digit})$
	Multiplier:	x 1/2
	Current Settings:	10, 30, 100, 300, 500, 1000 mA
	Current Accuracy:	+0% - 10%
	RCD Type ¹ :	G
	Measurement Range:	310 ms (Europe), 2000 ms (UK)
	RCD Type ¹ :	S
	Measurement Range:	510 ms (Europe), 2000 ms (UK)
	Multiplier	x 1
	Current Settings:	10, 30, 100, 300, 500, 1000 mA
	Current Accuracy:	+10% - 0%
	RCD Type ¹ :	G
	Measurement Range:	310 ms
	RCD Type ¹ :	S
	Measurement Range:	510 ms
	Multiplier:	x 5
	Current Settings:	10, 30 mA
	Current Accuracy:	$\pm 10\%$
	RCD Type ¹ :	G
	Measurement Range:	50 ms
	RCD Type ¹ :	S
	Measurement Range:	160 ms
Tripping Current (ramp)	Current Range:	50% - 110% of RCD's rated current
	Step Size:	10% of $I_{\Delta N}$
	Dwell time (Type G): ¹	300 ms / step
	Dwell time (Type S): ¹	500 ms / step
	Trip Current Measurement Accuracy:	$\pm 5\%$
Earth Resistance Test (R_E) - Fluke 1653B + 1654B	Range/Resolution:	200 Ω /0.1 Ω
	Accuracy:	$\pm(2\% + 5 \text{ digits})$
	Range/Resolution:	2000 Ω /1 Ω
	Accuracy:	$\pm(3.5\% + 10 \text{ digits})$
	Frequency:	128 Hz
	Compliance Voltage:	+25 V

Phase Sequence Indication	Icon:	Icon Phase Sequence indicator is active	
	Display of Phase Sequence:		
		Displays '1-2-3' in digital display field for correct sequence.	
		Displays '3-2-1' for incorrect phase.	
		Dashes in place of a number indicate a valid determination could not be made.	
Environmental Specifications			
Operating Temperature		<div></div> -10 °C to 40 °C	
Humidity (Without Condensation)		10 to 30 °C:	95%
		30 to 40 °C:	75%
Safety Specifications			
Safety Rating		<div></div> EN 61010-I CAT III 500V, CAT IV 300V	
Mechanical & General Specifications			
Size	(L x W x H):		10 x 25 x 12.5 cm
Weight	<div></div>	1.3 kg	
Baeries	Type AA:		6
Warranty	<div></div>	3 years	
Baery type	<div></div>	Alkaline supplied, usable with 1.2V NiCD or NiMH rechargeable baeries	

Ordering information



FLUKE 1653B

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

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