

Smart Tweezers with rechargeable Battery and mini-USB Charger • Fluke DMMs

Measuring miniature SMD Chip Inductors, Capacitors & Resistors was never so easy



FLUKE ★
Fluke 115 True RMS 6000 counts, Digital Multimeter

FLUKE ★
Fluke 15B 4000 Counts Digital Multimeter

now with rechargeable battery

Other fluke models, if needed by customer, are available on request

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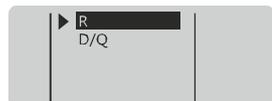
Stainless Steel Probe Set for SMD chips handling during soldering/desoldering

ESD Safe Soft Tip Cross action Tweezers for handling static sensitive SMD Chips

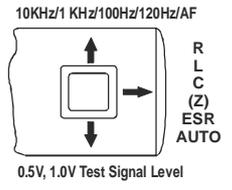
New Smart Tweezers provides a perfect solution to test and identify SMD Chip Inductors, Capacitors and Resistors as well troubleshoots complex electronic circuits. Its unique mechanical and electronic design combines a pair of precise gold-plated fine tip Tweezer and digital LCRZ Meter with rechargeable battery in a handy instrument. The probe is able to measure R, L & C SMD Chip components with higher accuracy and also has in-built automatic component recognition provision.

Additional Functions

Smart Tweezers test various components including secondary components:
- Dissipation Factor (D)
- Quality Factor (Q) and also includes other functions that result in a more detailed component analysis.



The Quick Controls allow changing test parameters or modes without entering the general menu by moving the Navigation Controller UP, DOWN, LEFT and RIGHT



In Diode Mode, Smart Tweezers tests the polarity of the diodes and also indicates whether the diode is short or not.



Visible and audible Tolerance Mode is used for component sorting. It checks whether the measured component is within preset tolerance from the reference components. Available tolerance ranges are 1%, 5%, 10% & 20%



The built-in Equivalent Series Resistance (ESR) mode helps to understand resistive behavior of capacitors.



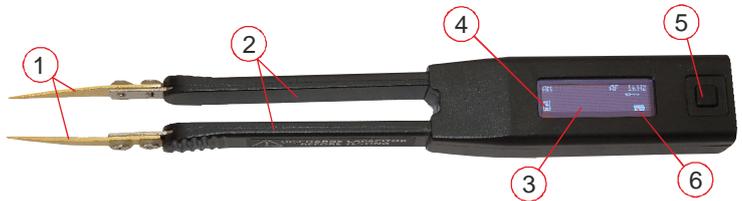
In Manual Mode, specific circuit parameters like L/C/R/Z/ESR. This mode improves component identification for in-circuit testing.



Null Menu allows storing of measurement offsets to perform relative measurements. When relative measurements are performed, also called null, each reading is the difference between a stored relative value or offset & the input value.



- ① Gold Plated Replaceable Steel Tips
- ② Shielded Handles
- ③ Display
- ④ Mode Selection
- ⑤ Switch
- ⑥ Battery Indication



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SmartTweezers Packages includes:

Scope of Supply	ST5-S	SMD-ST5S	SMD-ST5S-FL115-01	SMD-ST5S-FL1B-01
Smart Tweezers with rechargeable battery	●	●	●	●
Fluke115 DMM	-	-	●	-
Fluke15B DMM	-	-	-	●
ESD Safe Cross Action Soft Tip Tweezer	-	●	●	●
4 PCS SMD Probe Set	-	●	●	●
Battery Charger	-	●	●	●
Operating Manual	-	●	●	●

Specifications

Test Frequencies	:	1kHz, 10kHz, 120Hz, 100Hz
Test Frequency Accuracy	:	50PPM (0.005%)
Test Signal Level	:	0.5/1.0 Vrms Sine wave
Source Impedance	:	100Ω
Auto Mode Read-out	:	Dominant parameter
Equivalent Circuit Diagram	:	Series/Parallel for C; Series for L/R
Manual Mode Read-out	:	Dominance of secondary parameter
Measurement update rate	:	upto 4 measurements per second
Battery type	:	3.7V rechargeable 180mAh

Resistance, Impedance

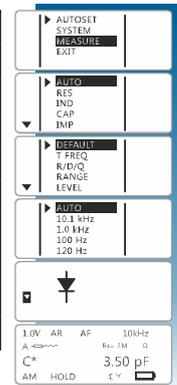
Range	Resolution	100Hz	1kHz	10kHz
1Ω	0.001Ω	0.7%+50	0.7%+50	0.7%+50
10Ω	0.01Ω	0.7%+8	0.7%+8	0.7%+8
100Ω	0.01Ω	0.2%+3	0.2%+3	0.2%+3
1000Ω	0.1Ω	0.2%+3	0.2%+3	0.2%+3
10kΩ	0.001kΩ	0.2%+3	0.2%+3	0.2%+3
100kΩ	0.01kΩ	0.5%+5	0.5%+5	0.5%+5
1000kΩ	0.1kΩ	0.5%+5	0.5%+5	0.5%+5
10MΩ	0.001kΩ	2.0%+8	2.0%+8	5.0%+8

Accuracy for the ranges 1 R ~ 100 R is specified after subtract of the offset resistance.

Capacitance

Range	Resolution	100Hz	120Hz	1kHz	10kHz
1000μF	0.1μF	0.5%+5	0.5%+5	NA	NA
100μF	0.01μF	NA	0.3%+3	0.5%+5	NA
10μF	0.001μF	NA	0.2%+3	0.2%+3	NA
1μF	0.1nF	NA	0.2%+3	0.2%+3	0.2%+3
100nF	0.01nF	NA	0.2%+3	0.2%+3	0.5%+3
10nF	0.001nF	NA	0.5%+5	0.2%+3	0.5%+3
1000pF	0.1pF	NA	NA	0.5%+5	0.5%+3
100pF	0.01pF	NA	NA	0.5%+10	0.8%+20
10pF	0.001pF	NA	NA	NA	1.0%+50

Accuracy for the ranges of 10 pF-1000 pF is specified after subtract of the stray capacitances for test leads.



Inductance

Range	Resolution	100Hz	1kHz	10kHz
10μH	0.001μH	NA	NA	1.0%+5
100μH	0.01μH	NA	1.0%+5	0.7%+3
1mH	0.1μH	0.7%+10	0.5%+3	0.5%+3
10mH	0.001mH	0.5%+3	0.2%+3	0.5%+3
100mH	0.01mH	0.5%+3	0.2%+3	NA
1H	0.1mH	0.2%+3	NA	NA

at optimum test frequency & ranges without calibration offset

Automatic Measurement

Smart Tweezers automatically determines the type of chip component (resistance/capacitance/inductance) and selects appropriate range for high accuracy measurements. LCD displays the type of the component, measurement result and test conditions.

Testing Surface Mount Devices

SMD chips are tiny in size (without wire leads) making them more difficult to hold/identify/measure than old type leaded components. Smart Tweezers gives users an easy way to sort and evaluate such loose SMD components and to perform on-board debugging and measurements. Precise gold-plated SMD tips are able to pick and hold even miniature SMD chips as small as 0402 size and make measurements on both loose and already mounted chips.

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Comparison with older model

The main difference between the old and new models of Smart Tweezers is 4-wire connection upto gold plated tweezer tips. This significantly reduces noise and therefore improves accuracy. The model also features charging via USB port. Below is the table which summarizes the differences between old and new models

Feature	Old ST5R/ST5 Model	New Model ST5S
Auto LCR Measurement	Yes	Yes
Manual LCR Measurement	Yes	Yes
Diode Test	Yes	Yes
Rechargeable Batteries	rechargeable	rechargeable
Designated ESR Measurement	No	Yes
Automatic Offset Subtraction	No	Yes
Component Sorting	No	Yes
Measurement Range & Accuracies		
Resistance	0.1Ω to 10 MΩ	0.05Ω to 9.9MΩ
Capacitance	0.5pF to 5 mF	0.5pF to 999uF
Inductance	0.5uH to 1H	0.5uH to 999mH
Others		
Display	LCD	OLED
Display Resolution	96x40	128x32
Size		smaller & ergonomic



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