

TECHNICAL DATA

Fluke SMFT-1000/LITE Solar Multifunction Tester Kit



Key features

- Ensures compliance with IEC 62446-1 Category 1 standards
- Quick, automatic, and accurate safety checks during PV solar installations
- Measures solar panel output in <45 seconds
- User-friendly interface
- Streamlined reporting with TruTest™ Solar Data Management Software

Product overview: Fluke SMFT-1000/LITE Solar Multifunction Tester Kit

Elevate your safety standards

The Fluke SMFT-1000/LITE Solar Multifunction Tester Kit was designed to meet the requirements of solar installers seeking a professional instrument capable of ensuring safety and compliance with IEC 62446-1 Category 1 standards for PV solar installations. With a CAT III 1000V rating (IEC 61010-2) and a clear voltage exceeded alert, this solar kit will keep you and your coworkers safe on the jobsite.

Quick, automatic and accurate mandatory safety verification

With the "Keep the Leads" system and the Auto Test feature, the SMFT-1000 provides quick and accurate testing, saving time and money during PV solar installations while ensuring safety and compliance with IEC 62446-1 Category 1 standards.

PV system performance testing

Measure the output of a solar panel to create an I-V curve that shows the maximum power output, in less than 45 seconds. Analyze the curve to identify performance issues and perform functional tests. The SMFT-1000 allows you to compare on-location I-V curve results to manufacturer specifications, ensuring that the panel is working efficiently. Additionally, the Fluke TruTest™ Solar Database App is available for use with the SMFT-1000 and features specifications of over 120,000 different types of PV panels that can be loaded into the SMFT-1000 (available on the Google Play Store).

Intuitive user interface

The high-definition color screen and color-coded inputs and test leads allows SMFT-1000 users to test with confidence and safety. The analyzer also includes a visual inspection feature, allowing for easy compliance with PV system IEC regulations.

Comprehensive reporting

The TruTest™ Solar Data Management Software simplifies solar testing and reporting. Manage data, perform I-V curve analysis and create compliant reports quickly and easily.

Specifications: Fluke SMFT-1000/LITE Solar Multifunction Tester Kit

| Protective conductor resistance (Rlo) | | | |
|---------------------------------------|--------------------------------|---------------|--------------------------------|
| Display range | Measuring range | Resolution | Accuracy |
| 0.00 Ω - 19.99 Ω | 0.20 Ω - 19.99 Ω | 0.01 Ω | $\pm (2 \% + 2 \text{ Digit})$ |
| 20.0 Ω - 199.9 Ω | 20.0 Ω - 199.9 Ω | 0.1 Ω | $\pm (2 \% + 2 \text{ Digit})$ |
| 200 Ω - 2000 Ω | 200 Ω - 2000 Ω | 1 Ω | $\pm (5 \% + 2 \text{ Digit})$ |

| | |
|------------------------|---|
| Test current | $\geq 200 \text{ mA } (\leq 2\Omega + R_{\text{comp}})$ |
| Test voltage | 4 V DC ... 10 V DC |
| Polarity reversing | Yes |
| Test lead zero (Rcomp) | Up to 3 Ω |

| PV module/PV string, open-circuit voltage (Voc) | | | |
|---|-----------------|------------|----------------------------------|
| Display range | Measuring range | Resolution | Accuracy |
| 0.0 V - 99.9 V | 5.0 V - 99.9 V | 0.1 V | $\pm (0.5 \% + 2 \text{ Digit})$ |
| 100 V - 1000 V | 100 V - 1000 V | 1 V | |

| | |
|---------------|-----|
| Polarity test | Yes |
|---------------|-----|

| PV module/PV string, short-circuit current (Is/c) |
|---|
|---|

| Display range | Measuring range | Resolution | Accuracy |
|----------------|-----------------|------------|-------------------|
| 0.0 A - 20.0 A | 0.2 A - 20.0 A | 0.1 A | ± (1 % + 2 Digit) |

Insulation resistance (RINS)

| Display range | Measuring range | Resolution | Accuracy |
|----------------------|----------------------|------------|---------------------|
| 0.00 MΩ - 99.99 MΩ | 0.20 MΩ - 99.99 MΩ | 0.01 MΩ | ± (5 % + 5 Digit) |
| 100.0 MΩ - 199.99 MΩ | 100.0 MΩ - 199.99 MΩ | 0.1 MΩ | ± (10 % + 5 Digit) |
| 200 MΩ - 999 MΩ | 200 MΩ - 999 MΩ | 1 MΩ | ± (20 % + 10 Digit) |

| | Measuring range | Resolution | Accuracy |
|------------------------|--------------------------------------|------------|---------------|
| Test voltage @ no load | 50 V / 100 V / 250 V up to 199.9 MΩ | 1 V | 0 % to + 25 % |
| Testing current | Min. 1 mA (@ 250 kΩ / 500 kΩ / 1 MΩ) | | |

Blocking diode checking (Vbd)

| Display range | Measuring range | Resolution | Accuracy |
|-----------------------|-----------------------|------------|--------------------|
| 0.00 V DC - 6.00 V DC | 0.50 V DC - 6.00 V DC | 0.01 V DC | ± (5 % + 10 Digit) |

Overvoltage protective devices (BV)

| Display range | Measuring range | Resolution | Accuracy |
|--------------------|---------------------|------------|--------------------|
| 0 V DC - 1000 V DC | 50 V DC - 1000 V DC | 1 V DC | ± (10 % + 5 Digit) |

AC/DC voltage measurement via 4 mm test sockets

| Display range | Measuring range | Resolution | Accuracy |
|----------------------|----------------------|------------|---------------------|
| 0.0 V AC - 99.9 V AC | 5.0 VAC - 99.9 V AC | 0.1 V | ± (2.5 % + 2 Digit) |
| 100 V AC - 700 V AC | 100 V AC - 700 V AC | 1 V | |
| 0.0 V DC - 99.9 V DC | 5.0 V DC - 99.9 V DC | 0.1 V | |
| 100 V DC - 1000 V DC | 100 V DC - 1000 V DC | 1 V | |

| Detection AC/DC | Yes (Automatic) |
|-----------------------|-----------------|
| '+ / - polarity check | Yes |

General Specifications

| | |
|------------------|---------------------------|
| SMFT-1000 size | 10 cm x 25.0 cm x 12.5 cm |
| SMFT-1000 weight | 1.4 kg |

| | |
|-----------------------|-----------------------------------|
| Battery | 6 AA IEC LR6 |
| Operating temperature | 0 °C to 50 °C |
| Storage temperature | -30 °C to 60 °C batteries removed |
| Operating altitude | up to 2000 m |
| Storage altitude | up to 2000 m |

Safety

| | |
|-----------------------------------|---|
| SMFT-1000 PV Analyzer | IEC 61010-1 Pollution Degree 2 IEC 61010-2-034 CAT III 1000 V dc, CAT III 700 V AC |
| Accessories | IEC 61010-031 |
| TL-1000-MC4 | CAT III 1500 V, 20 A |
| TP1000 Remote Probe (with cap) | CAT IV 600 V, CAT III 1000 V, 10 A |
| TP1000 Remote Probe (without cap) | CAT II 1000 V, 10 A |
| TL-1000 Test Leads | CAT III 1000 V, 10 A |
| TP74 Test Probes (with cap) | CAT III 1000 V, 10 A |
| Frequency Range | CAT II 1000 V, 10 A |
| AC285 Alligator Clip | CAT III 1000 V, 10 A |
| Performance | IEC 61557-1, IEC 61557-2, IEC 61557-4, IEC 61557-10 |

Electromagnetic Compatibility (EMC)

| | |
|---------------|--|
| International | <p>IEC 61326-1: Portable Electromagnetic Environment, CISPR 11: Group 1, Class A</p> <p>Group 1: Equipment has intentionally generated and/or uses conductively-coupled radio frequency energy that is necessary for the internal function of the equipment itself.</p> <p>Class A: Equipment is suitable for use in all establishments other than domestic and those directly connected to a low-voltage power supply network that supplies buildings used for domestic purposes. There may be potential difficulties in ensuring electromagnetic compatibility in other environments due to conducted and radiated disturbances.</p> <p>Caution: This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.</p> |
|---------------|--|

Wireless Radio Module

| | |
|-----------------|------------------------|
| Frequency Range | 2.402 GHz to 2.480 GHz |
| Output Power | 8 dBm |

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