

Fluke 1621

Basic Earth Ground Tester

Technical Data



The Fluke 1621 is an easy-to-use earth ground tester. The first line of defense in detecting reliable ground connections, the unit features basic ground testing methods including 3-pole Fall-of-Potential as well as 2-pole ground resistance. Its convenient size, rugged holster, and large, clear LCD display make it an ideal field earth tester, for most work environments. With a simple user interface and intuitive functionality, the Fluke 1621 is a handy tool for electrical contractors, utility test engineers, and earth ground specialists.

- 3-pole Fall-of-Potential earth testing for basic measurements
- 2-pole resistance measurements for added versatility
- Easily capture values with single-button operation
- Ensure accurate measurements with automatic 'noise' voltage detection
- Hazardous voltage warning offers increased user protection
- Clearly read and record data with a large, backlit display
- Rugged holster and design for tough work environments
- Portable size allows for easy transportation
- Instantly be alerted to measurements outside of your set limit, when you use the adjustable limit setting

General specifications

| | |
|--------------------------------|--|
| Measuring functions | 3-pole earth ground resistance, 2 pole ac resistance of a conductor, Interference voltage |
| Intrinsic error | Refers to the reference temperature range and is guaranteed for one year |
| Measuring rate | 2 measurements/second |
| Battery | One 9 volt alkaline (LR61) |
| Battery condition | LO-BAT is displayed if voltage drops below 6.5 V |
| Voltages | Between jacks H/C2 and E/C1: 250 Veff maximum (effective voltage) Between jacks S/P2 and E/C1: 250 Veff maximum |
| Climatic class | VDE/VDI 3540 RZ (conforming to KWG as per DIN 40040, 4/87) |
| Temperature performance | Working: -10 °C to +50 °C (+14 °F to +122 °F) Operating: 0 °C to +35 °C (+32 °F to +95 °F) Storage: -20 °C to +60 °C (+68 °F to +140 °F) Reference: +23 °C ± 2 °C (+73 °F ± 4 °F) |

Note: If the tester is not going to be used, or is being stored for a long period, remove the battery and store separately from the tester to avoid damage from battery leakage.

Note: The four temperature ranges for the tester exists to satisfy European Standards requirements; the instrument can be used over the full working temperature range by using the temperature coefficient to calculate accuracy at the ambient temperature of use.

General specifications cont.

| | |
|--------------------------------|--|
| Temperature coefficient | ± 0.1 % of range per degree Kelvin |
| Safety | IEC/EN 61010-1, 600 V CAT II, pollution degree 2 |
| Dimensions | 113 mm x 54 mm x 216 mm (4.5 in x 2.1 in x 8.5 in.), including holster |
| Weight | 850 g (1.9 lb), including standard accessories, volume approximately 600 cm ³ |

Electrical specifications

Maximum deviations

| Parameter | Influence factor | Deviation influence |
|----------------|---------------------------------------|---------------------|
| E ₁ | Position | 0 % |
| E ₂ | Supply voltage | 0 % |
| E ₃ | Temperature E ₃ | 2.3 % |
| E ₄ | Serial interference voltage (20 V) | 0.6 % |
| E ₅ | Probe- and auxiliary probe resistance | 10 % |

| | |
|--------------------------------------|--------------------------------|
| Test voltage | 3.7 kV |
| Protection type | IP 40; IEC/EN 60529 |
| Electromagnetic compatibility | Emission: IEC/EN 61326 Class B |
| | Immunity: IEC/EN 61326 Annex C |

R_E resistance measurement

| | |
|-------------------------------------|--|
| Measuring method | Current-voltage measurement with improved cross-talk attenuation, no compensation of measuring lead resistance, with probe (3-pole) or without probe (2-pole), as per IEC/EN 61557-5 |
| Open circuit voltage | 23 to 24 V ac |
| Short circuit current | > 50 mA ac |
| Measuring frequency | 128 Hz |
| Maximum permissible overload | 250 V _{eff} |

| Measuring range | Resolution | Display range | Intrinsic uncertainty | Operating uncertainty IEC 61557 ^[1] |
|-----------------|------------|---------------|--------------------------------|--|
| 0.15 Ω to 20 Ω | 0.01 Ω | 0 to 19.99 Ω | ± (6 % of measured value + 5D) | ± (18 % of measured value + 5D) |
| 200 Ω | 0.1 Ω | 20 to 199.9 Ω | | |
| 2 kΩ | 1 Ω | 200 to 1999 Ω | | |

Notes:

[1] Covers all deviations caused by influence quantities E₁-E₅.

If the deviation E₄ caused by high probe or auxiliary probe resistance is higher than specified Δ flashes. Measured values are outside of the specified operating uncertainty.

| | |
|-----------------------|---|
| Measuring time | 8 seconds (average from when START is pressed) |
| Limit input | Tester retains set value even if instrument is turned off (assuming battery power supply is sufficient) |

Note: If tester detects stray interference voltage ≥ 20 V, Ω is displayed and the measurement is not started.

Automatic changeover of resolution

| R _H | Resolution |
|----------------|------------|
| < 7 kΩ | 0.01 Ω |
| < 50 kΩ | 0.1 Ω |
| > 50 kΩ | 1 Ω |

Interference voltage display dc + ac

| | |
|------------------------------|-----------------------------------|
| V_{max} | 30 V _{eff} |
| Common mode rejection | > 80 dB at 50 Hz and 60 Hz |
| R_i | 680 kΩ |
| Measuring uncertainty | < 10 % for pure ac and dc signals |

Ordering information

Fluke-1621 Earth Ground Tester

Includes:

- Users manual
- Two measuring leads with alligator clips, 2 m (6 ft)
- One battery, 9 V alkaline (LR61)
- One protective holster, yellow
- One CD-ROM

Optional accessories

- Cable-Reel 50 m Ground/Earth Cable Reel 50 M Wire (162.5 ft)
- Cable-Reel 25 m Ground/Earth Cable Reel 25 M Wire (81.25 ft)
- Earth Stake Ground/Earth Stake
- ES-162P3 Stake Set for 3-Pole Measurement (includes three stakes, one 50 M cable reel, and one 25 M cable reel)

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