

# 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

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

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

## Electrical specifications

### Maximum deviations

| Parameter      | Influence factor                      | Deviation influence | Test voltage                  | 3.7 kV                         |
|----------------|---------------------------------------|---------------------|-------------------------------|--------------------------------|
| E <sub>1</sub> | Position                              | 0 %                 | Protection type               | IP 40; IEC/EN 60529            |
| E <sub>2</sub> | Supply voltage                        | 0 %                 | Electromagnetic compatibility | Emission: IEC/EN 61326 Class B |
| E <sub>3</sub> | Temperature E <sub>3</sub>            | 2.3 %               |                               | Immunity: IEC/EN 61326 Annex C |
| E <sub>4</sub> | Serial interference voltage (20 V)    | 0.6 %               |                               |                                |
| E <sub>5</sub> | Probe- and auxiliary probe resistance | 10 %                |                               |                                |

### R<sub>E</sub> resistance measurement

|                                     |                                                                                                                                                                                      |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Measuring method</b>             | 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 |
| <b>Open circuit voltage</b>         | 23 to 24 V ac                                                                                                                                                                        |
| <b>Short circuit current</b>        | > 50 mA ac                                                                                                                                                                           |
| <b>Measuring frequency</b>          | 128 Hz                                                                                                                                                                               |
| <b>Maximum permissible overload</b> | 250 Veff                                                                                                                                                                             |

| Measuring range | Resolution | Display range | Intrinsic uncertainty          | Operating uncertainty IEC 61557 <sup>(1)</sup> |
|-----------------|------------|---------------|--------------------------------|------------------------------------------------|
| 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 E<sub>1</sub>-E<sub>5</sub>.

If the deviation E<sub>4</sub> caused by high probe or auxiliary probe resistance is higher than specified  flashes. Measured values are outside of the specified operating uncertainty.

|                       |                                                                                                         |
|-----------------------|---------------------------------------------------------------------------------------------------------|
| <b>Measuring time</b> | 8 seconds (average from when START is pressed)                                                          |
| <b>Limit input</b>    | 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 <sub>H</sub> | Resolution |
|----------------|------------|
| < 7 kΩ         | 0.01 Ω     |
| < 50 kΩ        | 0.1 Ω      |
| > 50 kΩ        | 1 Ω        |

### Interference voltage display dc + ac

|                              |                                   |
|------------------------------|-----------------------------------|
| <b>V<sub>max</sub></b>       | 30 Veff                           |
| <b>Common mode rejection</b> | > 80 dB at 50 Hz and 60 Hz        |
| <b>R<sub>i</sub></b>         | 680 kΩ                            |
| <b>Measuring uncertainty</b> | < 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)