



testo 831 (0560 8316)

Instruction manual



**Test Equipment
Depot**
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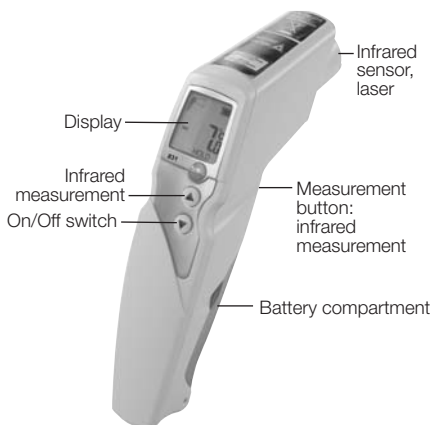


Visit us at www.TestEquipmentDepot.com

1. General Information

Please read this document through carefully and familiarise yourself with the operation of the product before putting it to use. Keep this documentation to hand so that you can refer to it when necessary.

2. Product Description



Accessories

| Name | Item no. |
|--|------------------|
| Leather protection sleeve | 0516 8302 |
| Emissivity adhesive tape $\epsilon = 0.95$ | 0554 0051 |

3. Safety Information



Avoid electrical hazards:

- ▶ Infrared measurement: Please adhere to the required safe distance when measuring on live parts.



Preserving product safety/warranty claims:

- ▶ Operate the instrument properly and according to its intended purpose and within the parameters specified. Do not use force.
- ▶ Do not expose to electromagnetic radiation (e.g. microwaves, induction heating systems), static charge, heat or extreme fluctuations in temperature.
- ▶ Do not store together with solvents (e.g. acetone).
- ▶ Open the instrument only when this is expressly described in the documentation for maintenance purposes.



Laser radiation!

- ▶ Do not look into laser beam. Laser class 2.



Ensure correct disposal:

- ▶ Dispose of defective rechargeable batteries and spent batteries at the collection points provided.
- ▶ Send the instrument directly to us at the end of its life cycle. We will ensure that it is disposed of in an environmentally friendly manner.

4. Intended Use

testo 831 is a compact infrared thermometer for the non-contact measurement of surface temperatures.



Not suitable for diagnostic measurements in the medical sector!

5. Technical Data

| Feature | testo 831 |
|-------------------------------------|---|
| Parameter | °C/°F |
| Infrared measurement range | -30 to +210°C/-22 to +410°F |
| Infrared resolution | 0.1°C/0.1°F |
| Infrared accuracy (at 23°C/73°F) | ±1.5°C/1.8°F or 1.5% of reading (-20 to +210°C/-4 to +412°F) ¹ ; ±2.0°C/3.6°F or 2.0% of reading (-30 to -20.1°C/-22 to -4°F) ¹ ; +/- 1 digit |
| Emissivity | 0.1 to 1.0 adjustable |
| Infrared measurement rate | 0.5s |
| Optics (90% value) | 30:1 (regarding the distance of 1,0 m to measuring object typically) ² |
| Operating temperature | -20 to +50°C/-4 to +122°F |
| Transport/Storage temperature | -40 to +70°C/-40 to +158°F |
| Power supply | 9V block battery |
| Battery life | 15 h |
| Housing | ABS |
| Dimensions (LxHxB) | 190 x 75 x 38 mm/7.5 x 3.0 x 1.5 in |
| CE guideline | 2004/108/EEC |
| Warranty | 2 years |
| Laser | |
| Laser type | 2 x laser |
| Power | < 1 mW |
| Wavelength | 645 to 660 nm |
| Class | 2 |
| Standard | DIN NE 60825-1:2001-11 |

¹ the larger value applies

² +Opening diameter of the sensor (16mm/0.6 in)

6. Initial Operation

- ▶ Insert battery: See 9.1 Changing the battery.

7. Operation

7.1 Switching on/off

- ▶ Switch on instrument: Press measurement button.
 - All display segments light up briefly. The instrument changes to the infrared mode (🔦 lights up). The display light remains for 10 seconds every time a button is activated.
- ▶ Switch off instrument: Keep 🔽 pressed until display darkens. The instrument switches off after 1 min if no buttons are activated.

7.2 Measuring

! Observe information on infrared measurement (chapter 11).

! The min./max. values are reset by pressing the measurement button.

- The instrument is switched on.

Infrared measurement

- 1 Start measurement: Hold down measurement button.
- 2 Locate object to be measured using laser point: Laser marks the upper and lower end of the measurement spot (at distance to measurement object from 1,0m; see chapter 11.2 measurement spot, distance).
 - The current reading is shown (2 measurements per second)
- 3 End measurement: Release button.
 - **HOLD** lights up. The last measured value and min./max. value are saved until the next measurement.
 - ▶ Switch between min., max. and recorded value: Press 🔺.
 - ▶ Restart measurement: Press measurement button.

Setting the emissivity

- Instrument is in the infrared measurement mode.

! If no button is pressed for 3 s in the emissivity mode, the instrument switches to the infrared measurement mode.









- 1 Press 🔺 for 3 s.
- 2 Set emissivity: Press 🔺 or 🔽.
- The instrument switches to the infrared measurement mode.

8. Settings

- Instrument is switched off.

! If no button is activated in the setting mode for 3 s, the instrument changes to the next mode.

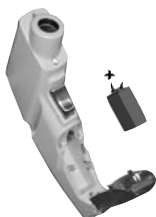
- 1 Press 🔺 for 3 s.
- The device switches to settings mode.

- 2 Set lower alarm value (**↓ALARM**): Press  or . Hold the button down to go forward quickly.
 - 3 Set upper alarm value (**↑ALARM**): Press  or . Hold the button down to go forward quickly.
 - 4 Set alarm function **on** / **oFF**: Press  or .
 - 5 Select parameter (**°C** / **°F**) : Press  or .
- The device returns to IR measurement view.

! If the set alarm values are exceeded/not reached, a visual and acoustic alarm is output.

9. Service and Maintenance

9.1 Changing the battery



Instrument must be switched off!


- 1 Open battery compartment: Open up cover.
- 2 Remove used battery and insert new one. Observe +/- . The minus should be visible once the battery is inserted.
- 3 Close battery compartment: Close cover.

9.2 Clean instrument

Do not use abrasive cleaning agents or solutions.

- ▶ Clean the housing with a damp cloth (soap water).
- ▶ Carefully clean the lens with water or cotton buds dipped in water or medical alcohol.

10. Questions and Answers

| Query | Possible causes | Possible solution |
|--|---------------------------------------|-------------------|
| Display is no longer illuminated | - Low battery. | ▶ Change battery. |
|  lights up. | - Battery empty. | ▶ Change battery. |
| Instrument cannot be switched on | - Battery empty. | ▶ Change battery. |
| Infrared measurement mode: --- lights up. | - Readings outside measurement range. | - |

If we have not answered your question, please contact your local distributor or Testo's Customer Service.

11. Information on infrared measurement

11.1 Measurement method

Infrared measurement is an optical measurement

- ▶ Keep lens clean.
- ▶ Do not measure with clouded lens.
- ▶ Keep measurement field (area between instrument and object being measured) free of interferences: no dust and dirt particles, no moisture (rain, steam) or gases.

Infrared measurement is a surface measurement

If there is dirt, dust, frost etc. on the surface, only the top layer will be measured, i.e. the dirt.

- ▶ In the case of shrinkwrapped foodstuffs, do not measure in air pockets.
- ▶ If values are critical, always subsequently measure using a contact thermometer. Particularly in the food sector, the core temperature should be measured with a penetration/immersion thermometer.

Adaptation time

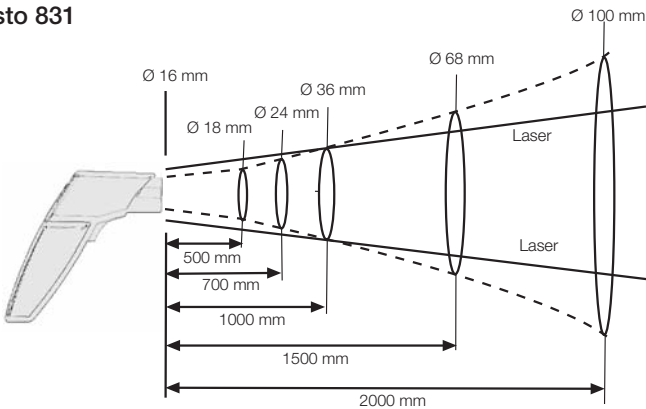
- ▶ If the ambient temperature changes (change of location, e.g. inside/outside measurement) the instrument needs an adaptation time of 15 minutes for infrared measurement.

11.2 Measurement spot, Distance

A specific spot is determined depending on the distance from the measuring instrument to the object being measured.

Measurement optics (Ratio Distance : Measurement spot)

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