sauermann®

USER MANUAL

KIRAY 100

°C
°F

Infrared thermometer

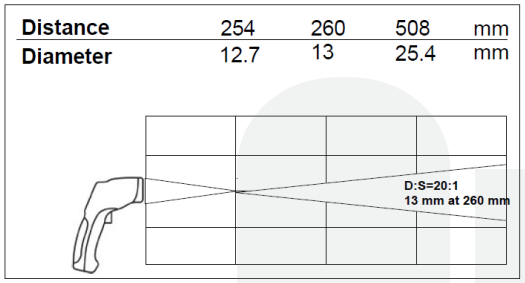
Infrared thermometer KIRAY 100 equipped with a dual laser sighting is a key instrument to diagnose, inspect and check any temperature, with the advantage of using a "no-contact" technology. You can measure safely surfaces temperatures of warm and dangerous objects or objects with uneasy access. It's the perfect tool for measurements in a house, a garage, a workshop, a kitchen, etc...

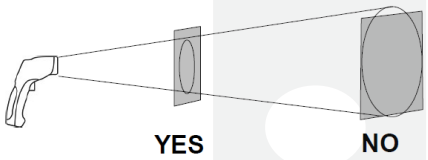
Technical specifications

Spectral response	8 - 14 µm
Optical	D.S: 20:1 (13 mm at 260 mm)
Temperature range	From -50 to +800 °C
Accuracy*	From -50 to +20 °C: ±2.5 °C From +20 to +300°C: ±2% of reading ±2°C From +300 °C to +800 °C: ±2% of reading
Infrared repeatability	From -50 to +20 °C: ±1.3 °C From +20 to +800 °C: ±0.5% or ±0.5 °C
Display resolution	0.1 °C
Response time	150 ms
Emissivity	Adjustable from 0.10 to 1.0 (pre-set at 0.95)
Over range indication	Display indication : "----"
Dual laser sighting	Wave length: from 630 nm to 670 nm Output < 1mW, Class 2 (II)
Positive or negative temperature indication	Automatic (no indication for a positive temperature) (-) sign for a negative temperature
Display	4 digits with LCD backlighted display
Auto-extinction	Automatic after 7 seconds of inactivity
High/low alarm	Flashing signal on display and beep signal with adjustable thresholds
Power supply	Alkaline 9 V battery
Autonomy	105 h (inactive laser and backlight) 20 h (active laser and backlight)
Operating temperature	From 0 to +10 °C for a short period From +11 to +50 °C for a long period
Storage temperature	From -10 °C to +60 °C
Relative humidity	From 10 to 90%HR in operating mode and > 80%RH in storage
Dimensions	145 x 95 x 40 mm
Weight	180 g (included battery)

*Accuracy for an ambient temperature from 23 to 25 °C (with a relative humidity lower than 80% RH).

Distance from the target





Make sure that the target is larger than the size of the laser sighting.

Description

1 - LCD backlighted display
2 - IR sensor (infrared)
3 - Up button
4 - Down button
5 - Mode button

1 - Output laser sighting
2 - Trigger
3 - Set technical unit (°C/°F)
4 - Battery compartment

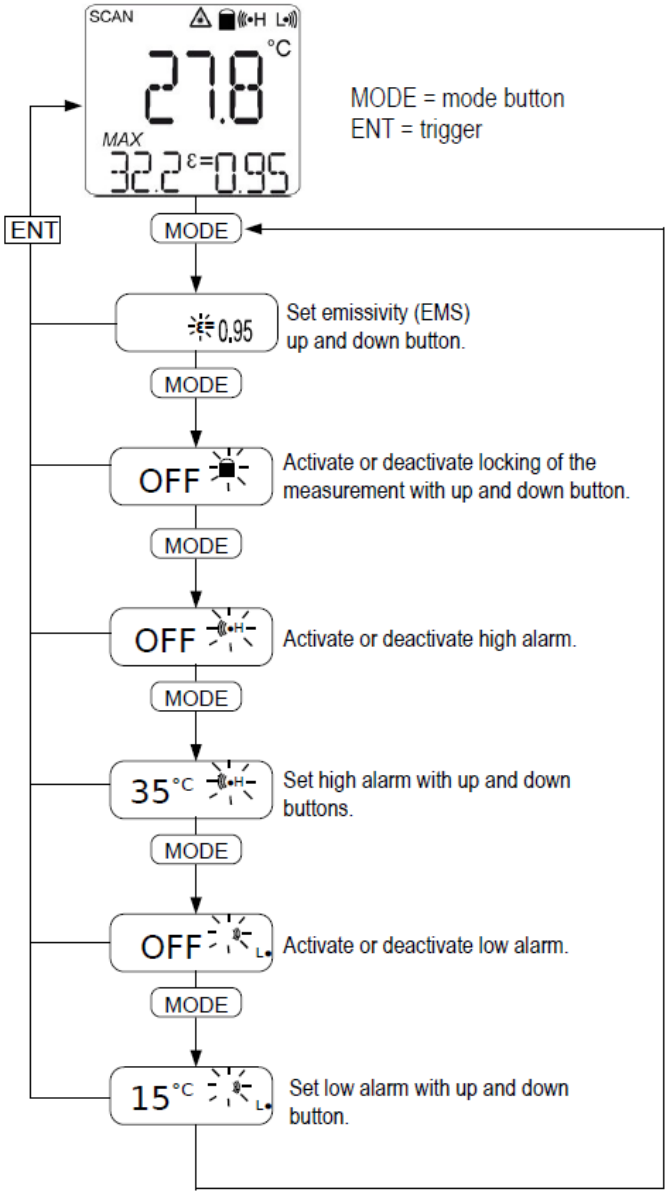
Kiray 100 buttons

1 – Up button: It allows to increment emissivity and high/low alarm thresholds. This button also allows in measurement mode to activate or deactivate the laser.

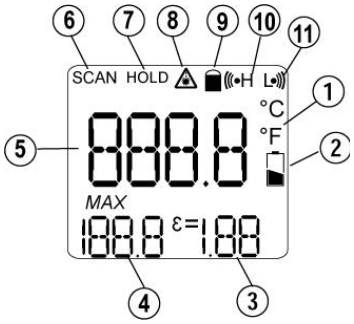
2 – Mode button: It allows to navigate through the modes (emissivity, lock, high alarm, low alarm).

3 – Down button: It allows to decrement emissivity and high/low alarm thresholds. This button also allows in measurement mode to activate or deactivate the backlight.

Modes flow chart



Display



1 – Technical unit °C/°F
2 – Low battery indicator
3 – Emissivity value = 0.95 (factory setting)
4 – Max temperature indicator.
5 – Temperature value
6 – Current measurement indicator
7 – HOLD indicator (fixed measurement)
8 – Laser in operation indicator
9 – Lock indicator (continuous measurement)
10 – High alarm symbol (fixed: activated alarm; flashing + beep: alarm thresholds exceeded)
11 – Low alarm symbol (fixed: activated alarm; flashing + beep: alarm thresholds exceeded)

Settings before taking measurement

Before measuring temperature, it is recommended to set the technical unit: °C or °F

To set this parameter, open the battery door by pushing on both sides of the trigger. It is not necessary to disconnect the battery to make this setting.

- **Set the technical unit**

Set the selector unit to °C or °F with a screwdriver.

Operating mode

- Press ENT trigger to turn on the instrument. The backlighted screen, indicating the temperature, and the laser turn on.
- Keep ENT pressed. Place the laser sighting at the center of the area to be measured.
- Release ENT.
- Read the displayed temperature. (Disaply stays on for 7 seconds after the last manipulation).
- HOLD appears at the top left of the screen; measurement stays displayed.
- Press UP button ta activate or deactivate the laser;
- Press DOWN button to activate or deactivate the backlight.

Command buttons

ENT Trigger

- Turning on the device.
- ENT pressed: activation of the laser sighting and temperature measurement.
- ENT released: display is on HOLD (HOLD fixed), and gives the last measurement. Display stays on for 7 seconds. If no buttons are activated and if continuous measurement is inactivated, the instrument turn off after 7 seconds.

MODE Mode button

- Allows to define types of desired measurement: emissivity, lock, high alarm, low alarm by pressing as many time on this button.
- EMS: when KIRAY100 instrument is turned on, press MODE button, ε flashes. Set emissivity by pressing on UP button to increment it or DOWN button to decrement it. By default, emissivity is set on 0.95. To back to measurement mode, press ENT button; press MODE button to go to next mode.
- Lock: when KIRAY100 instrument is turned on, press MODE button twice, the lock indicator at the top of the screen flashes and OFF is displayed. Press UP or DOWN button to put the lock ON.

Press MODE button to go to next mode, or press once ENT button: KIRAY100 instrument takes continuous measurements. To cancel lock mode, press once ENT button.

- High alarm: when KIRAY100 instrument is turned on, press 3 times MODE button to set high alarm. ON or OFF flashes, press UP or DOWN button to activate or deactivate it (ON or OFF).
  Press MODE button, high alarm temperature is displayed and high alarm indicator flashes, press UP button to increment it or DOWN button to decrement it.
  To return to measurement mode, press ENT button; press MODE button to go to next mode.
- Low alarm: whenKIRAY100 instrument is turned on, press 5 times MODE button to set low alarm. ON or OFF flashes, press UP or DOWN button to activate or deactivate it (ON or OFF).
  Press MODE button, low alarm temperature is displayed and low alarm indicator flashes, press UP button to increment it or DOWN button to decrement it.
  To return to measurement mode, press ENT button; press MODE button to go to next mode.

Emissivity

Emissivity is a term used to describe the energy-emitting characteristics of materials.

Most (90% of typical applications) organic materials and painted or oxidized surfaces have an emissivity of 0.95 (pre-set in the unit).

Inaccurate readings will result from measuring shiny or polished metal surfaces.

To compensate; cover the surface to be measured with masking tape or flat black paint.

Allow time for the tape to reach the same temperature as the material underneath it.

Measure the temperature of the tape or painted surface.

See table below for values of emissivity of specific materials:

Aluminum	0.30	Ice	0.98
Asbestos	0.95	Iron	0.70
Asphalt	0.95	Lead	0.50
Basalt	0.70	Limestone	0.98
Brass	0.50	Oil	0.94
Brick	0.90	Paint	0.93
Carbon	0.85	Paper	0.95
Ceramic	0.95	Plastic	0.95
Concrete	0.95	Rubber	0.95
Copper	0.95	Sand	0.90
Dirt	0.94	Skin	0.98
Frozen food	0.90	Snow	0.90
Hot food	0.93	Steel	0.80
Glass	0.85	Textile	0.94
Water	0.93	Wood	0.94
Fresh foodstuffs between 0 and 5 °C			0.90

Important information

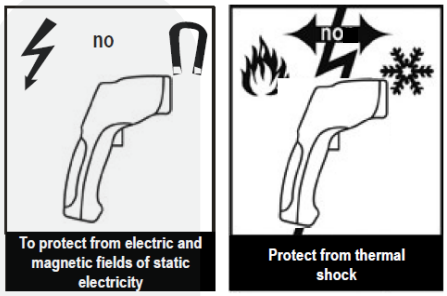
For correct measurements:

- Do not take any measurement on metal or shiny or reflective surfaces.
- Do not measure through transparent surfaces such as glass, for example.
- Water vapor, dust, smoke, etc... may prevent correct measurements because they obstruct the optical of the instrument.
- Make sure that the target is larger than the size of the laser sighting.
- Change the batteries when the low battery indicator blinks.

To avoid any inconvenience:

- Do not aim directly or indirectly (reflection on reflective surfaces) the laser in the eyes.
- Do not use the thermometer around explosive gas, vapor or dust
- Do not leave the device with the lock on (lock at the top right of the screen) because in this configuration, the instrument does not turn off automatically.

To prevent damage on your instrument or equipment please carefully respect these conditions:



CE certification

This device meets with following standards' requirements: EN 61326-1: 2013 and EN 61326-2: 2013

Maintenance

As battery power is not sufficient, LCD will display low battery indicator.

Replacement with one new battery type 9 V is required.

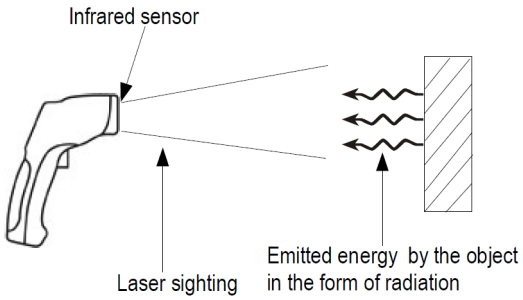
To install or change the 9 V battery, open the battery cover next to the trigger and put it in the battery compartment.

Accessories

- Case holster with passer-by belt
- User manual

Infrared thermometer, how does it work?

Infrared thermometers can measure the surface temperature of an object. Its optic lens catches the energy emitted and reflected by the object. This energy is collected and focused onto a detector. This information is displayed as temperature. The laser pointer is only used to aim at the target.



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