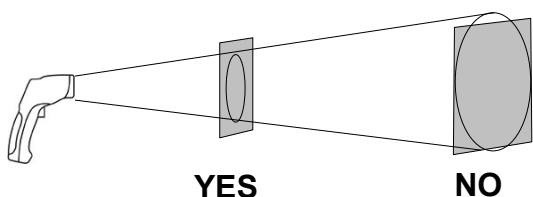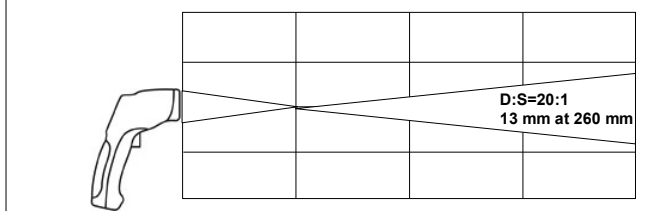# KIRAY 100
## *Infrared thermometer*

New
CE

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 features*

**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 à +20°C : ±2.5°C
From +20 to +300°C : ±1% of reading ±1°C
From +300°C to +800°C : ±1.5%
**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 9V battery
**Autonomy**...............................105 h (inactive laser and backlight)
20 h (active laser and backlight)
**Use 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)

### ■ *Distance from the target*

| Distance | 254 | 260 | 508 | mm |
|----------|-----|-----|------|----|
| Diameter | 12.7 | 13 | 25.4 | mm |



D:S=20:1
13 mm at 260 mm



**YES**      **NO**

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

## ■ *KIRAY 100 instruments description*

LCD backlighted display

IR sensor (infrared)

Up button

Down button

Mode button

Laser sighting output

Trigger (ENT)
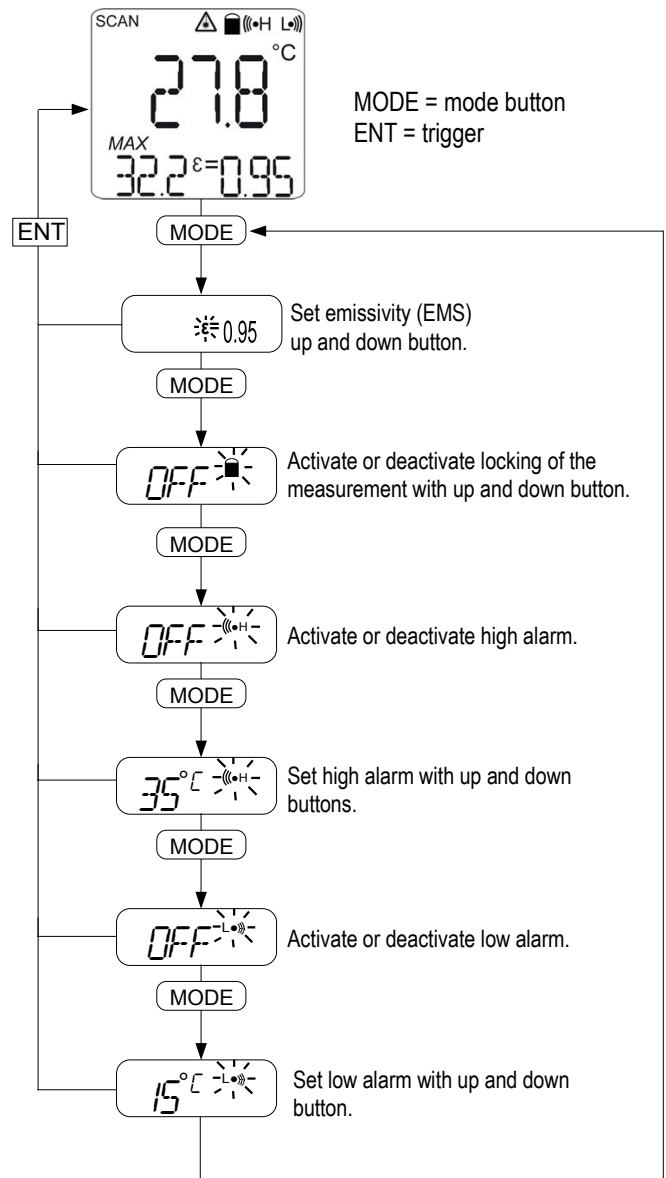
Battery compartment

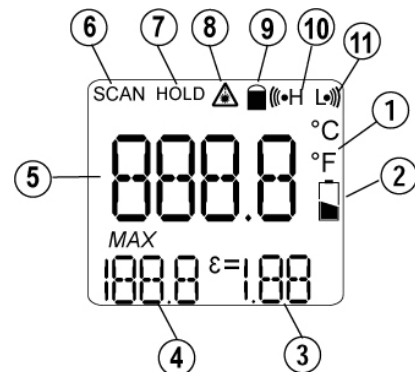Set technical unit (°C/°F)

## ■ *KIRAY 100 instrument buttons*

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

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

3 – Mode button. It allows to navigate trough the modes (emissivity, lock, high and low alarms).

## ■ *Modes flow chart*

MODE = mode button
ENT = trigger

ENT

MODE

Set emissivity (EMS) up and down button.

MODE

Activate or deactivate locking of the measurement with up and down button.

MODE

Activate or deactivate high alarm.

MODE

Set high alarm with up and down buttons.

MODE

Activate or deactivate low alarm.

MODE

Set low alarm with up and down button.

## ■ *Display*

1 – Unit of measurement (°C / °F)
2 – Low battery indicator
3 – Emissivity value = 0.95 (pre-set)
4 – Max. temperature indicator
5 – Temperature value
6 – Current measurent indicator
7 – HOLD indicator (fixed measurement)
8 – Laser operation indicator
9 – Lock Indicator (continuous measurements)
10 – High alarm symbol (fixed : alarm is activated ;
Flashing + beep : alarm threshold exceeded)
11 – Low alarm symbol (fixed : alarm is activated ;
Flashing + beep : alarm threshold exceeded)
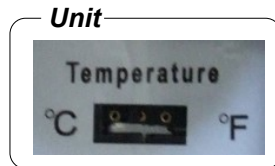
## ■ *Settings before taking measurements*

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 : when **KIRAY100** 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 :

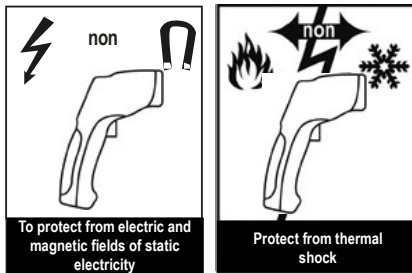| Aluminium | 0.30 | Ice | 0.98 |
|-----------|------|-----|------|
| Asbestos | 0.95 | Iron | 0.70 |
| Asphalt | 0.95 | Lead | 0.50 |
| Basalt | 0.70 | Limestone | 0.98 |
| Brass | 0.50 | Oil | 0.94 |
| Brick | 0.90 | Paint | 0.93 |
| Carbon | 0.85 | Paper | 0.95 |
| Ceramic | 0.95 | Plastic | 0.95 |
| 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 |

## ■ *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.

To avoid any inconvenience :

• Do not aim directly or indirectly (reflection on reflective surfaces) the laser in the eyes.
• Change the batteries when the indicator blinks.
• 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 :**



**To protect from electric and magnetic fields of static electricity**

**Protect from thermal shock**

## ■ *CE certification*

**This device meets with following standards' requirements.**

• EN 50081-1 : 1992, Electromagnetic compatibility, Part 1
• EN 50082-1 : 1992, Electromagnetic compatibility, Part 2

## ■ *Maintenance*

To install or change the 9V battery, open the part near the trigger and put it in the battery compartment.

## ■ *Accessories*

• Case holster with passer-by belt
• User manual

## *Infrared thermometer, how does it works?*

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.
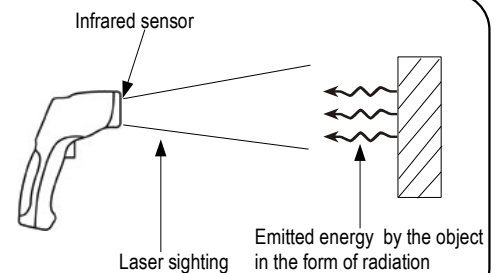


Infrared sensor

Laser sighting

Emitted energy by the object in the form of radiation

# www.kimo.fr

**EXPORT DEPARTMENT**
Boulevard de Beaubourg - Emerainville - BP 48
77312 MARNE LA VALLEE CEDEX 2
**Tel : + 33.1.60.06.69.25  - Fax : + 33.1.60.06.69.29**

AF AQ
ISO 9001