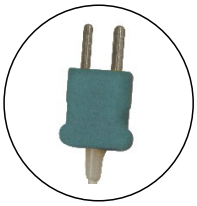
# *Infrared thermometer*
# LASER TEMP 301

New

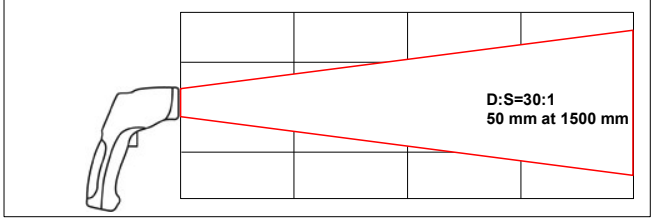


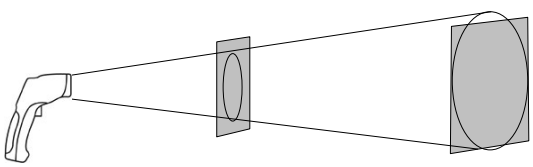
*Supplied with K thermocouple probe*

Infrared thermometer **LASER TEMP 301** is an infrared thermometer used to diagnose, inspect and check any temperature. Thanks to its elaborated optical system, it allows an easy and accurate measurement of little distant targets. LASER TEMP 301 instrument has an internal memory which can save up to 20 measurements.

## *Distance from the target*

| **Distance** | 150 | 300 | 900 | mm |
|---|---|---|---|---|
| **Diameter** | 5 | 10 | 30 | mm |




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

## *Technical features*

### *• Instrument features*

**Spectral response**.....8 -14 mm
**Optical**.....D.S : 30:1 (50 mm at 1500 mm)
**Response time**.....Less than 1 second
**Temperature range**.....From -50 to +850°C
**Accuracy***.....From -50 to -20°C : ±5°C
From -20 to +200°C : ±1.5% of reading ±2°C
From +200 to +538 °C : ±2% of reading ±2°C
From +538 to +850°C : ±3.5% of reading ±5°C
**Display resolution**.....0.1 C°
**Emissivity**.....Adjustable from 0.10 to 1.00
(pre-set at 0.95)
**Over range indication**.....Display indication : « -0L » for a negative over range, « 0L » for a positive over range.
**Laser sighting**.....Wavelength : 630-670 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 ½ 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**.....38 h (inactive laser and backlight)
15 h (active laser and backlight)
**Use temperature**.....From 0 to +50°C
**Storage temperature**.....From -20°C to +60°C
**Relative humidity**.....From 10% to 90%RH in operating mode and >80%RH in storage
**Dimensions**.....175 x 110 x 45 mm
**Weight**.....230 g (included battery)
**Memory**.....20 temperature values with unit of measurement (°C or °F)

*Accuracy for an ambient temperature from 18 to 28°C (with a relative humidity lower than 80% RH)

### *• K thermocouple probe features*

**Temperature range**.....From -40 to +400°C
**Display range**.....From -50 to +1370°C
**Resolution**.....0.1°C
**Accuracy**.....±1.5% of reading ±3°C
**Cable length**.....1 m

## Description


## LASER TEMP 301 buttons

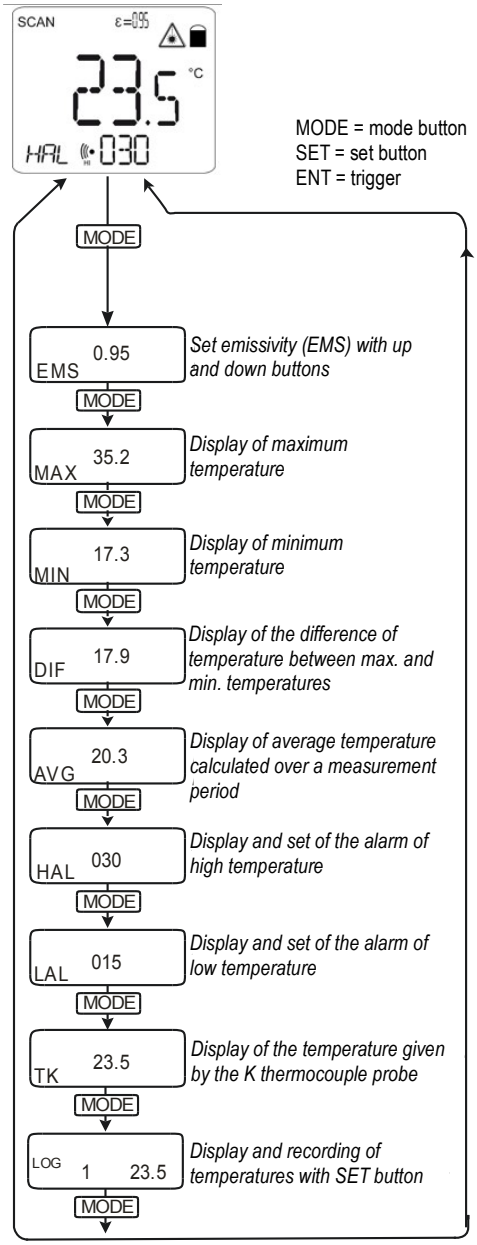

1 – Up button. It allows to increment emissivity and the thresholds of high and low alarm and to move to the next recorded value.

2 – Set button. It allows to activate or deactivate laser and backlight of the screen. It also allows to record a temperature.

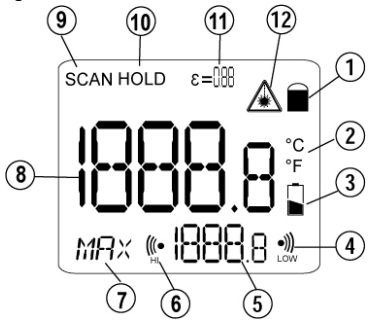
3 – Mode button. It allows to navigate through the modes (emissivity, max. value, min. value, difference, average, high alarm, low alarm, TK value and recorded values).

4 – Down button. It allows to decrement emissivity and the thresholds of high and low alarm and to move to the previous recorded value.

## Modes flow chart




## Display



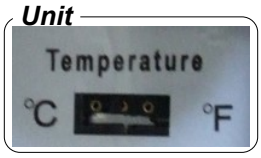

1 – Continuous measurement indicator
2 – Unit of measurement (°C / °F)
3 – Low battery indicator
4 – Low alarm indicator
5 – Temperature value : MAX, MIN, DIF (difference between MAX and MIN values), AVG (average), HAL (high alarm), LAL (low alarm), TK (K thermocouple probe temperature) and LOG (recorded value)
6 – High alarm indicator
7 – EMS, MAX, MIN, DIF, AVG, HAL, LAL, TK and LOG indicator
8 – Temperature value
9 – Current measurement indicator
10 – HOLD indicator (fixed measurement)
11 – Emissivity value
12 – Laser in operation indicator

## Settings before taking a measurement

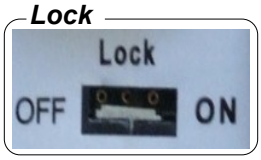
Before making measurements of temperature, it is advisable to make some settings:
- Set technical unit (**°C** or **°F**)
- Set the continuous measurement (**On** or **Off**)
- Set the alarm (**On** or **Off**)

To set these **3** parameters, you must open the battery door by pushing on both sides of the trigger. It is not necessary to disconnect the battery to make these settings.

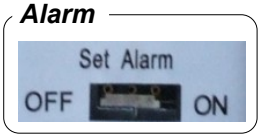
**• Set technical unit (°C or °F)**
Set the selector unit to **°C** or **°F** with a screwdriver.




**• Set the continuous measurement**
This setting allows to let the **LASER TEMP 301** instrument in measurement. It does not shut off after 7 seconds.
Set the selector on **On** (continuous measurement is active) or on **Off** (continuous measurement is inactive) with a screwdriver.




**• Set the alarm**
This setting allows to **activate** or **deactivate** high and low alarm.
Set the selector on **On** (alarms are active) or on **Off** (alarms are inactive) 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. (The display stays on for 7 seconds after the last manipulation).
- HOLD appears at the top left of the screen ; measurement stays displayed.
-The **LASER TEMP 301** instrument keeps in memory the last function used.

## 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 continuous measurement is inactive, the instrument turns off after 7 seconds.

**MODE** **Mode button**

Allows to define the desired measurement: Max, Min, AVG, DIF, etc. ... pressing as many times on this button.

- EMS : when **LASER TEMP 301** instrument is turned on, press **MODE** button until **EMS** appears at the bottom left of the screen. Set emissivity by pressing on **UP** button to increment it or **DOWN** button to decrement it. By default, the emissivity is set to 0.95.

- MIN ou MAX : select the Min or Max. temperature.
During a measurement period, keep ENT pressed : the **LASER TEMP 301** instrument displays the temperature of the area sighted by the laser. Press **MODE** button until **MAX** or **MIN** is displayed at the bottom of the screen. These values relate to the temperatures taken by the instrument and the thermocouple probe.

- DIF : during a measurement period, press **MODE** button until **DIF** appears at the bottom left of the screen. The displayed value corresponds to the difference between **MAX** value and **MIN** value.

-AVG : during a measurement period, press **MODE** button until **AVG** appears at the bottom left of the screen. The displayed value corresponds to the average temperature calculated during a measurement period.

- HAL : when the **LASER TEMP 301** instrument is turned on, press **MODE** button until **HAL** appears at the bottom left of the screen. The displayed value corresponds to the alarm of **high temperature**. Set this alarm by **incrementing** it with up button or by **decrementing** it with down button.

- LAL : when the **LASER TEMP 301** instrument is turned on, press **MODE** button until **LAL** appears at the bottom left of the screen. The displayed value corresponds to the alarm of **low temperature**. Set this alarm by **incrementing** it with up button or by **decrementing** it with down button.

***Alarms must be activated (see paragraph Settings before taking a measurement)***

- TK : when the **LASER TEMP 301** instrument is turned on, press **MODE** button until **TK** appears at the bottom left of the screen. The displayed value corresponds to the measured temperature by the K thermocouple probe.

- LOG : when the **LSER TEMP 301** instrument is turned on, press **MODE** button until **LOG** appears at the bottom left of the screen.
Next to **LOG**, a number between 1 and 20 also appears ; it corresponds to LOG location. If no temperature has been recorded in the shown LOG location, 4 dashes will appear in the lower right corner.
To record a temperature, you have to be on **LOG** mode, then choose an empty LOG location (---- visible) and press **SET** button during the measurement or when the measurement is fixed (**HOLD**).
From this mode, you can also clear all the recorded temperatures : press and keep the trigger pressed and press **down** button at the same time until reaching the zero recording, then press **SET** button while keeping **ENT** pressed. A beep is emitted by the **LASER TEMP 301** instrument and the **LOG** location moves automatically to 1, signifying that all data have been cleared.

## 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

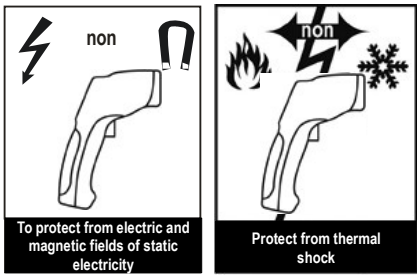
For correct measurements :

- 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 optic of the instrument.
- Make sure that the target is larger than the size of the aiming point of laser.

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 to your instrument or equipment meet the following conditions:**




## CE certification

**The instrument is conform with the following standards :**

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

## Maintenance

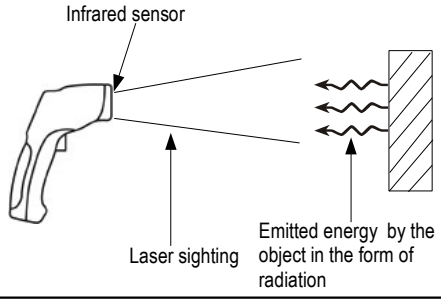
To install or change the 9V battery, open the part near the trigger and and put it in the battery compartment.

## Accessories

- Case with carrier for belt
- User manual
- K thermocouple probe

## Infrared thermometer, how it works?

Infrared thermometers measure the surface temperature of an object. The unit's optics sense emitted, reflected and transmitted energy, which is collected and focused onto a detector. The unit's electronics translate the information into a temperature reading, which is displayed on the unit. The laser pointer is only used for aiming the target.




Once returned, required waste collection will be assured in the respect of the environment in accordance to 2002/96/CE guidelines relating to WEEE.