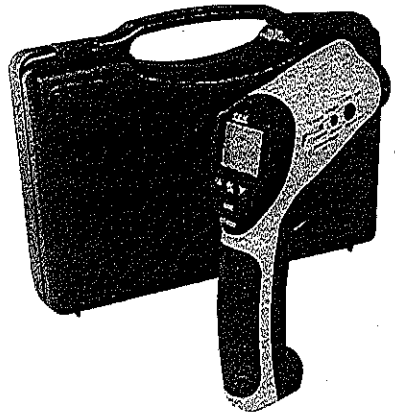
CEM

THERMOMÈTRE INFRAROUGE SANS CONTACT

Référence : 2004

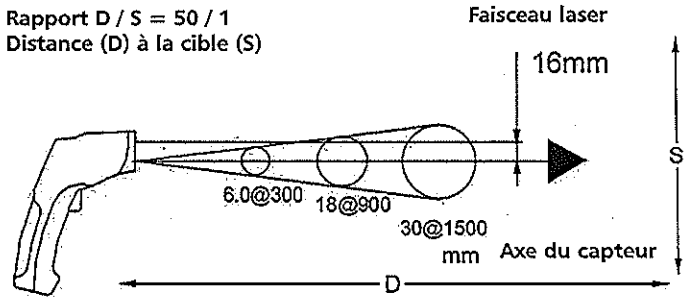
P102.29



Présentation :
Cet appareil permet de mesurer la température d'un corps, à distance, sans contact physique avec celui-ci. Le résulta de ma mesure est visualisée sur un afficheur LCD.

Spécifications :
- Mesure sans contact de précision
- Possibilité de mesure à longue distance tout en conservant une cible de petit diamètre
- Large gamme de température de mesure
- Laser de visé intégré
- Mémorisation automatique de la mesure
- Choix possible entre °C ou °F
- Facteur d'émissivité ajustable de 0.10 à 1.0
- Affichage des Mini, Maxi, Dif. et moy.
- Afficheur rétro éclairé
- Possibilité d'alarme basse ou haute.

Distance de mesure et taille de la cible :
Plus la distance (D) de l'appareil à la cible augmente, plus la taille (S) de la zone cible augmente elle aussi.
La relation entre ces deux paramètre est donnée sur le dessin ci-dessous.
Le point de focale de l'appareil se situe à 914mm. La taille donnée du spot ent pour 90% de l'énergie irradiée.



Produit importé et distribué par :
Selectronic
B.P 10050 - 59891 LILLE Cedex 9
TEL : 0 328 550 328 Fax : 0 328 550 329 SAV : 0 328 550 323 www.selectronic.fr

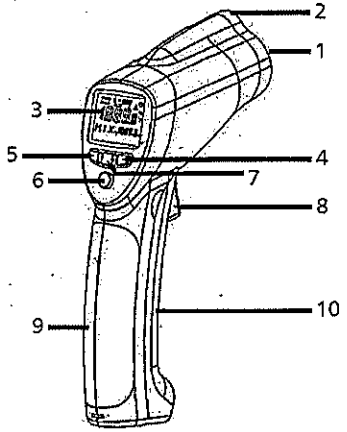
05/2005/ZM

Température de stockage	:	-20 à 60°C
Température d'utilisation	:	0 à 50°C
Humidité d'utilisation	:	10 à 90% RH sans < 80% RH stockage
Gamme de mesure	:	0 à 1000 °C (-58 à 1832°F)
Résolution	:	0.1°C
Précision à 23-25°C ambiant	:	-50 à -20°C ± 5C -20 à +200°C ± 1.5% ±2°C +200 à +538°C ± 2% ±2°C +538 à +1000°C ± 3.5% ±5°C
Temps de mise en fonctionnement	:	< 1 seconde
Réponse spectrale	:	8 à 14µm
Emissivité	:	Ajustable de 0.10 à 1.0
Polarité	:	Automatique
Diode laser	:	<1mW @ 630-670nm, Classe II
Alimentation	:	pile 9V
Extinction automatique	:	Après 15 minutes
Encombrement	:	100 x 56 x 230mm
Poids	:	290g

<u>Recommandations :</u>
Ne pas diriger le laser vers les yeux ou vers une surface réfléchissante.

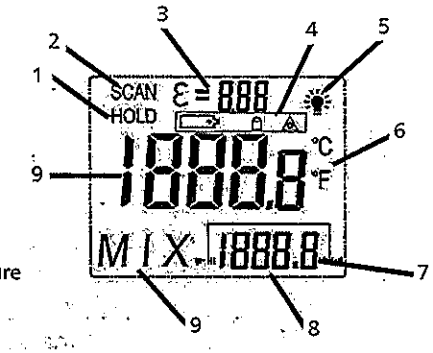
Descriptif :
De l'appareil :

1 Capteur IR
2 Faisceau laser
3 Afficheur LCD
4 Bouton -
5 Bouton +
6 Bouton mode
7 Bouton de rétro éclairage
8 Gâchette
9 Poignée grip
10 Compartiment pile



De l'afficheur :

1 Indicateur de mémorisation
2 Indicateur mesure en cours
3 Valeur de l'émissivité
4 Pile faible, verrouillage, laser en service
5 Indicateur du rétro éclairage
6 Indicateur °C ou °F
7 Symboles des alarmes
8 Affichage des Max, Min, Dif, Moy, Alarmes
9 Indicateur Ems, Max, Min, Dif, Moy, Alarmes
10 Affichage de la valeur usuelle en cours de mesure



Fonctionnement :
Bouton Haut + :
Pour sélectionner l'émissivité ou les alarmes haute et basse.

Bouton mode :
Pour se déplacer dans les différent mode possible (boucle)

EMS (émissivité) > MAX (maximum) > MIN (Minimum) > DIF (différence) > AVG (moyenne) > HAL (alarme haute) > LAL (alarme basse)

Bouton bas - :
Pour sélectionner l'émissivité ou les alarmes haute et basse

Bouton laser et éclairage :
Presser ce bouton en concordance avec la gâchette pour allumer le laser
Remplacement de la pile et sélecteur °C / °F:
Il est impératif de procéder au remplacement de la pile lorsque l'indicateur de pile faible s'allume sur l'afficheur. Pour ce faire, ouvrir le couvercle du compartiment pile dans la poignée de l'appareil, retirer la pile usagée et la remplacer par une pile neuve.

Dans ce même compartiment se trouvent :
L'interrupteur °C / °F
Le bouton de verrouillage
Le bouton de pré-réglage des alarmes

Utilisation :
Pointer le devant de l'appareil vers la cible à mesurer et presser la gâchette. L'afficheur indique clairement la valeur mesurée.

S'assurer qu'à la distance de mesure la taille de la cible soit inférieure à la taille de l'objet ou de la zone à mesurer. Dans le cas contraire la mesure sera fausse.

L'émissivité de l'appareil est pré-réglées à 0.95 ce qui correspond à la plupart des matières organiques ou les surface peintes ou oxydées.

Quelques valeurs d'émissivité :

Asphalte 0.9 à 0.98	Béton, Marbre 0.94	Ciment 0.96
Mortier 0.89 à 0.91	Sable 0.90	Terre, eau 0.92 à 0.96
Glace 0.96 à 0.98	Neige 0.83	Verre 0.90 à 0.95
Céramique 0.9 à 0.94	Plâtre 0.8 à 0.9	Brique 0.93 à 0.96
Vêtement sombre 0.98	Peau humaine 0.98	Cuir 0.75 à 0.80
Poudre de charbon de bois 0.96	Laques 0.80 à 0.95	Laque matte 0.97
Caoutchouc noir 0.94	Plastiques 0.85 à 0.95	Bois 0.90
Papier 0.70 à 0.94	Oxyde de chrome 0.81	Oxyde de cuivre 0.78
Oxyde de fer 0.78 à 0.82	Textiles 0.90	

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INTRODUCTION

Thank you for purchase of the IR Thermometer. This is capable of non-contact (infrared) temperature measurements at the touch of a button. The built-in laser pointer increases target accuracy while the backlight LCD and handy push-buttons combine for convenient, ergonomic operation.

The Non-contact Infrared Thermometers can be used to measure the temperature of objects' surface that is improper to be measured by traditional (contact) thermometer (such as moving object, the surface with electricity current or the objects which are uneasy to be touched.)

Proper use and care of this meter will provide years of reliable service.

FEATURES:

- Precise non-contact measurements
- High distance to target ratio measures smaller surface areas at greater distances
- Widest temperature range
- Unique flat surface, modern housing design
- Built-in laser pointer

- Automatic Data Hold
- ℃/℉ switch
- Emissivity Digitally adjustable from 0.10 to 1.0
- MAX,MIN,DIF, AVG temperature displays
- Backlight LCD display
- Built-in laser pointer
- Automatic selection range and Display Resolution 0.1° C(0.1° F)
- Trigger lock
- Set high and low alarms

WIDE RANGE APPLICATION:

Food preparation, Safety and Fire inspectors, Plastic molding, Asphalt, Marine and Screen printing, measure ink and Dryer temperature, HVAC/R, Diesel and Fleet maintenance.

1. SAFETY

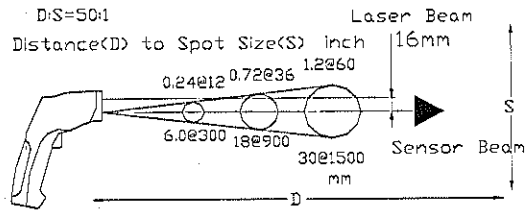
- Use extreme caution when the laser beam is turned on.
- Do not let the beam enter your eye, another person's eye or the eye of an animal.
- Be careful no to let the beam on a reflective surface strike your eye.

- Do not allow the laser light beam impinge on any gas which can explode.

Distance & Spot Size

As the distance (D) from the object increases, the spot size (S) of the area measured by the unit becomes larger. The relationship between distance and spot size for each unit is listed below. The focal point for each unit is 914mm (36"). The spot sizes indicate 90% encircled energy.

Fig: 1



2. SPECIFICATIONS

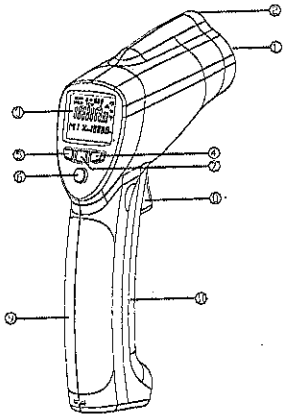
Temperature range	D: S
-50 to 1000 °C (-58 to 1832℉)	50:1
Display resolution	0.1 °C(0.1℉)
Accuracy	for targets:
Assumes ambient operating temperature of 23 to 25 °C (73 to 77℉)	
-50 to -20℃ (-58 to -4℉):	±5 °C(±9℉)
-20 to 200℃(-4 to 392℉): (±3.6℉);	± 1.5% of reading ± 2℃
200 to 538℃ (392 to 1000℉): (±3.6℉);	± 2.0% of reading ±2℃
538 to 1000℃(1000 to 1832℉): (±9℉)	± 3.5% of reading ± 5℃
Response time	less than 1 second
Spectral response	8~14um
Emissivity to 1.0	Digitally adjustable from 0.10
Over range indication	LCD will show "-0L","0L"
Polarity	Automatic (no indication for positive polarity); Minus (-) sign for negative

polarity	
Diode laser 630~670nm,	output <1mW,Wavelength
	Class 2(II) laser product
Operating temp.	0 to 50℃(32 to 122℉)
Storage temp.	–20 to 60℃ (-4 to 140℉)
Relative humidity <80%RH storage	10%~90%RH operating,
Power supply IEC 6LR61, or equivalent	9V battery, NEDA 1604A or
Weight	290g (10.2 oz.)
Size 9.0")	100 x 56 x 230mm (3.9 x 2.2 x
Safety	" CE " Comply with EMC

Note:

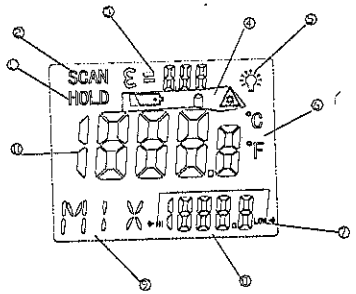
- **Accuracy:** Given at 18 to 28 °C (64 to 82 °F), less than 80 % RH.
- **Field of View:** Make sure that the target is larger than the unit's spot size. The smaller the target, the closer you should be to it. When accuracy is critical, make sure the target is at least twice as large as the spot size.

3. FRONT PANEL DESCRIPTION



① IR sensor
② Laser pointer beam
③ LCD Display
④ down button
⑤ up button
⑥ mode button
⑦ laser/backlight button
⑧ Measurement Trigger
⑨ Handle Grip
⑩ Battery Cover

4. INDICATOR



① Data hold
② Measuring indication
③ Emissivity symbol and value
④ Low battery, lock and laser" on" symbols
⑤ Backlight "on" symbol

⑥ ℃/℉ symbol

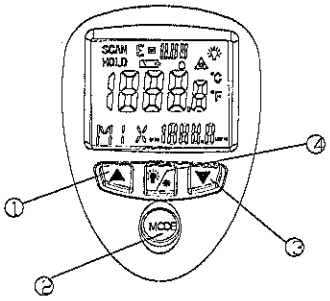
⑦ High alarm and low alarm symbol

⑧ Temperature values for the MAX, MIN, DIF, AVG HAL and LAL.

⑨ Symbols for EMS MAX, MIN, DIF, AVG, HAL and LAL.

⑩ Current temperature value

5. Buttons

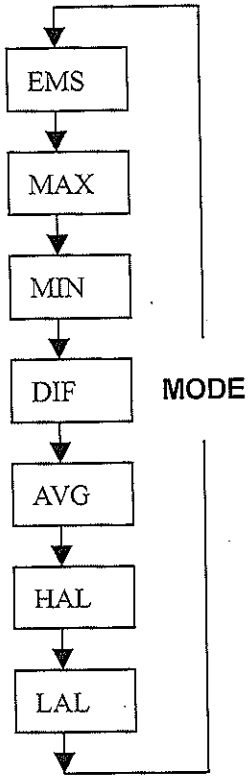


① Up button (for EMS,HAL,LAL)

② MODE button (for cycling through the mode loop)

③ Down button (for EMS,HAL,LAL)

④ Laser/Backlight on/off button (pull trigger and press button to activate laser/backlight)



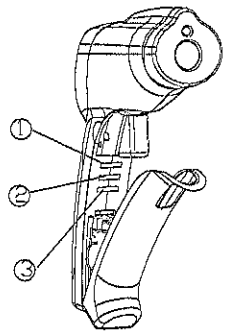
MODE Button Function

The infrared thermometer measures Maximum (MAX), Minimum (MIN), Differential (DIF), and Average (AVG) Temp. Each time you take a reading. This data is stored and can be recalled with the MODE button until a new measurement is taken. When the trigger is pulled again, the unit will begin measuring in the last mode selected.

Pressing the MODE button also allows you to access the High Alarm(HAL), Low Alarm(LAL),Emissivity(EMS).Each time you press MODE you advance through the mode cycle.

The diagram shows the sequence of functions in the MODE cycle.

Switching C/F ,LOCK ON/OFF and SET ALARM.



① **C/F**

② **LOCK ON/OFF**

③ **SET ALARM**

Select the temperature units (°C or °F) using the **°C/°F** switch

To lock the unit on for continuous measurement, slide the middle switch **LOCK ON/OFF** right. If the trigger is pulled while the unit is lock on, the laser and backlight will turn on if they have been activated. When the unit is locked on, the backlight and laser will remain on unless it is turned off using the **Laser/Backlight** button on the keypad.

To activate the alarms, please slide the bottom switch **SET ALARM** right.

To set values for the High Alarm (**HAL**), Low Alarm (**LAL**) and Emissivity (**EMS**), firstly active the display by pulling the trigger or press the **MODE** button, then press the **MODE** button until the appropriate code appears in the lower left corner of the display, press the **UP** and **down** buttons to adjust the desired values.

6. MEASURMENT OPERATION

① Hold the meter by its **Handle Grip** and point it toward the surface to be measured.

② Pull and hold the **Trigger** to turn the meter on and begin testing. The display will light if the battery is good. Replace the battery if the display does not light.

③ While measuring, the SCAN display icon will appear ins the upper left hand corner of the LCD.

④ Release the Trigger and the HOLD display icon will appear on the LCD indicating that the reading is being held.

⑤ The meter will automatically power down after approximately 7 seconds after the trigger is released.(Unless the unit is locked on)

Note: Measurement considerations

Holding the meter by its handle, point the IR Sensor toward the object whose temperature is to be measured. The meter automatically compensates for temperature deviations from ambient temperature. Keep in mind that it will take up to 30 minutes to adjust to wide ambient temperatures are to be measured followed by high

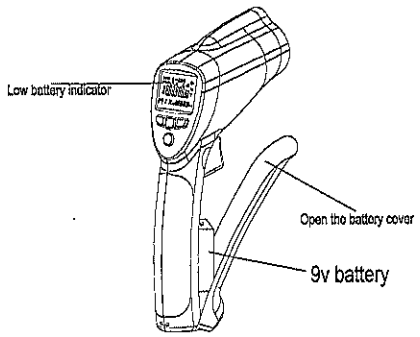
temperature measurements, some time (several minutes) is required after the low (and before the high) temperature measurements are made.

This is a result of the cooling process, which must take place for the IR sensor.

7. BATTERY REPLACEMENT

① As battery power is not sufficient, LCD will display " " replacement with one new battery type 9V is required.

② Open battery cover, then take out the battery from instrument and replace with a new 9-Volt battery and place the battery cover back.



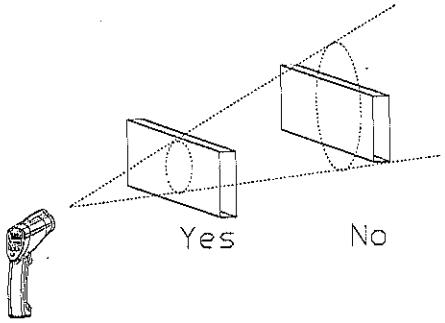
8. NOTES:

- ***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 display on the unit. In units with a laser, the laser is used for aiming purposes only.

- ***Field of View***

  Make sure that the target is larger than the unit's spot size. The smaller the target, the closer you should be to it. When accuracy is critical, make sure the target is at least twice as large as the spot size.



- ***Distance & Spot Size***

  As the distance (D) from the object increases, the spot size (S) of the area measured by the unit becomes larger. See: **Fig: 1.**

- ***Locating a hot Spot***

  To find a hot spot aim the thermometer outside the area of interest, then scan across with an up and down motion until you locate hot spot.

- ***Reminders***

① Not recommended for use in measuring shiny or polished metal surfaces (stainless steel, aluminum, etc.).See **Emissivity**

② The unit cannot measure through transparent surfaces such as glass. It will measure the surface temperature of the glass instead.

③ Steam, dust, smoke, etc., Can prevent accurate measurement by obstructing the unit's optics.

- ***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, cove 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.

Emissivity Values

Substance	Thermal emissivity	Substance	Thermal emissivity
Asphalt	0.90 to 0.98	Cloth (black)	0.98
Concrete	0.94	Human skin	0.98
Cement	0.96	Lather	0.75 to 0.80
Sand	0.90	Charcoal (powder)	0.96
Earth	0.92 to 0.96	Lacquer	0.80 to 0.95
Water	0.92 to 0.96	Lacquer (matt)	0.97

Ice	0.96 to 0.98	Rubber (black)	0.94
Snow	0.83.	Plastic	0.85 to 0.95
Glass	0.90 to 0.95	Timber	0.90
Ceramic	0.90 to 0.94	Paper	0.70 to 0.94
Marble	0.94	Chromium oxides	0.81
Plaster	0.80 to 0.90	Copper oxides	0.78
Mortar	0.89 to 0.91	Iron oxides	0.78 to 0.82
Brick	0.93 to 0.96	Textiles	0.90

9. MAINTENANCE :

- Repairs or service are not covered in this manual and should only be carried out by qualified trained technician.
- Periodically ,wipe the body with a dry cloth. Do not use abrasives or solvents on this instrument.
- For service , use only manufacturer's specified parts.