Specifications

General Specifications	
Display	4 Digit Liquid Crystal Display (LCD). Max. reading of 1999
Low Battery Indication	[-+] logo is displayed when the battery voltage drops below the operating level
Measurement Range	0.25 seconds, nominal
Operating Environment	0°C to 50°C (32°F to 122°F) at < 70% R.H.
Storage Temperature	-20°C to 60°C (-4°F to 140°F), 0 to 80% R.H. with battery removed from unit
Auto Power Off	10 seconds
Standby Consuming Current	< 5µa
Battery	Standard 9V (NEDA 1604, IEC 6F22006P)
Battery Life	9 hours (continuity with laser and backlight)
Dimensions	148H x 105W x 42D (mm)
Weight	Approx. 157g (inc. bat.)

Laser Specifications (Class 2 Laser)	
Wave Length	Red (630-670mm)
Power Out	<1mW, class 2 laser product

Electrical Specifications	
Temperature Range	-30°C to 550°C (-22°F to 1022°F)
Display Resolution	0.5/1°C (Auto), 1°F
Accuracy	+/- 2°C/4°F for -30°C to 100°C (-22°F to 212°F) +/- 2% reading for 101°C to 550°C (213°F to 1022°F)
Temperature Coefficient	+/- 2% reading or +/-0.2°C (0.36°F) whichever is greater, change in accuracy per °C/°F change in ambient operating temperature above 28°C (82.4°F) or below 18°C (64.4°F)
Response Time	0.25 seconds
Spectral Response	6 to 14 µm
Fixed Emissivity (c)	0.95
Detection Element	Thermopile
Optical Lens	Fresnel Lens
Sighting	1 beam laser marker <1mW (class 2)
Field of View	Ø 100mm at 1000mm

FAMOUS TOLEDO
EXCELLENCE BY DESIGN

TRIDON

TOLEDO IS A REGISTERED TRIDON BRAND

FAMOUS TOLEDO
EXCELLENCE BY DESIGN

Infrared Thermometer

Part No. 321500

Instruction Manual

This instrument is a portable easy to use digital infrared thermometer with laser sighting designed for simple one hand operation

Features include a backlit LCD screen, Automatic HOLD and POWER OFF and custom made storage holster and screen protector

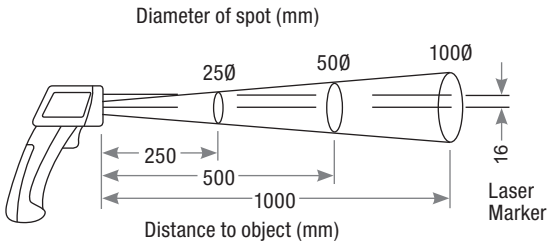
Safety Information

- It is recommended to read and follow these safety instructions prior to using the infrared thermometer
- Pressing the trigger turns the laser beam ON and OFF. Exercise extreme care and do not allow the laser beam to shine directly into the eye of yourself or other individual
- Do not look directly into the laser light from the optical system
- If measuring the temperature of an object with a mirror finish, be careful not to allow the laser beam to be reflected off the surface into the eye
- Do not allow the laser beam to impinge upon any gas which can explode

CAUTION

- Do not use the unit near any device which generates strong electromagnetic radiation or near a static electrical charge, as they may cause errors
- Do not use the unit where it may be exposed to corrosive or explosive gases
- Do not keep or use this init in an environment where it will be directly illuminated by sunshine or where it will be exposed to high temperatures, high humidity or condensation. If subjected to any of these conditions the unit may become damaged or function according to specification
- Do not point the lens at the sun or at any other source of strong light. This may cause damage to the sensor
- Do not contact the lens against the object to be measured, allow it to become dirty or scratched, or allow any foreign matter to adhere to it
- Do not touch or hold the unit by the front case. Temperature readings can be affected by heat from the hand
- Do not place the meter on or around hot objects (70°C/158°F). It may cause damage to the case.
- If the meter is exposed to significant changes in ambient temperature allow an extra 20 mins for temperature stabilisation before taking measurements
- Condensation may form on the lens when moving from a cold to hot environment. If this occurs allow 10 mins for the condensation to dissipate
- This is not a water proof or dust proof unit, therefore take precautions where using this unit

Operating Instructions



Spot size increases with distance from the probe tip as shown

Trigger
- Laser and backlight function work simultaneously when power is on
- Pull the trigger to turn the unit ON. When the trigger is released it will show HOLD and the reading will be held

Auto Power Off Function
- After 10 seconds, if the unit is unused, it will power off automatically

Temperature Scale Selection
- Temperatures are displayed in ether Degrees Celsius (°C) or Degrees Fahrenheit (°F)
- When the unit is turned on it is set to the temperature scale last used
- To change the unit of measurement remove the battery cap and slide switch to desired scale

Operation
1. Remove the protective cap and push the trigger. This will turn the unit ON
2. Point the sensor at the object to be measured
3. Referring to the spot size figure, pull the trigger and hold until a stable reading is acquired
4. Replace the cap to extend the life and protect the sensor

NOTE: Although the field of measurement/view and the spot almost coincide, actually the field of measurement corresponds to the diameter for 90% optical response. The object to be measured needs to be larger than the diameter (spot of size) by an adequate margin of at least 2 x larger

Thermal Emissivity

Substance	Thermal Emissivity
Asphalt	0.90 to 0.98
Brick (red)	0.93-0.96
Cement	0.96
Ceramic	0.90-0.94
Charcoal 9powder)	0.96
Chrome Oxides	0.81
Cloth	0.98
Concrete	0.94
Copper Oxides	0.78
Earth	0.92-0.96
Glass	0.90-0.95
Human skin	0.98
Ice	0.96-0.98
Iron Oxides	0.78-0.82
Lacquer	0.80-0.95
Lacquer (matt)	0.97
Lather	0.75-0.80
Marble	0.94
Mortar	0.89-0.91
Paper	0.70-0.94
Plaster	0.80-0.90
Plastic	0.85-0.95
Rubber (black)	0.94
Sand	0.9
Snow	0.83
Textiles	0.9
Timber	0.9
Water	0.92-0.96

Measurement Considerations

Theory of Measurement
Every object emits infrared energy in accordance with its temperature. By measuring the amount of this radiant energy, it is possible to determine the temperature of the emitting object.

About Infrared
Infrared radiation is a form of light (electromagnetic radiation), and has the property that it passes easily through air while it is easily absorbed by solid matter. With an emission thermometer which operates by detecting infrared radiation accurate measurement is possible, irrespective of the air temperature or the measurement distance.

Emission Thermometer Structure
Infrared radiation which has been emitted from the object is focused upon an infrared radiation sensor, via an optical system.
This includes a lens which is transparent to infrared radiation. And 5.3um cut off filter.
The output signal from the infrared radiation sensor is input to an electronic circuit along with the output signal from a standard temperature sensor (Thermopile).

Emissivity
All objects emit invisible infrared energy. The amount of energy emitted is proportional to the object's temperature and its ability to emit IR energy. This ability, called emissivity, is based upon the material that the object is made of and its surface finish. Emissivity values range from 0.10 for a very reflective object to 1.00 for a black body. Factory set emissivity value of 0.95, which cover 90% of typical applications.

If the surface to the measured is covered by frost or other material, clean it to expose the surface.
If the surface to be measured is highly reflective, apply masking tape or matt finish black paint to the surface.
If the meter seems to be giving incorrect readings check the front cone. There may be condensation or debris obstructing the sensor; clean per instructions in the maintenance section.

Maintenance

Battery Replacement
1. Power is supplied by a 9 volt "transistor" battery. (NEDA 1604, IEC 6F22).
2. Remove the battery cover by gently sliding it towards the bottom of the meter.
3. Remove and disconnect the old battery from the meter and replace with a new unit. Wind the excess lead length and put the top of battery toward the lower side of the battery chamber.
4. Replace the battery cover
5. When battery is installed, the meter turns on automatically to check the battery conditions. Power will turn off automatically after 10 seconds without operation.

Cleaning
- Periodically wipe the case with a damp cloth and detergent, do not use abrasives or solvents.