

ToolSmart Infrared Thermometer

Model: TS05

Operation Manual



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Overview

TS05 ToolSmart Infrared Thermometer is a non-contact temperature measuring instrument using infrared technology and laser pointer. The instrument with Bluetooth 4.0 wireless transmission function, can bidirectional operation through the APP display, and can perform remote measurement and data transmission .You could use this product to measure the surface temperature, which is not suitable for traditional measuring (such as moving objects, charged objects, toxic objects or hard-to-reach objects).

The instrument features a low consumption design. It has a LCD with black background, a 12:1 proportional laser ring for accurate aiming and capable of auto holding the readings. It has the advantages of rapid measuring, easy operation and portability. It is widely used for applications such as finding the hot spot of electric connection and bearing, measuring the hot and high-frequency induction heated objects, monitoring food processing and storage, inspecting temperature for heating & refrigeration system, inspecting temperature for techniques control of metallurgy industry, inspecting temperature during laying asphalt and fire-control work, or any other temperature measuring without compromising the temperature field. It is a good measuring tool for the metallurgy, the electric power plant, the chemical industry, the rubber industry, the spinning and weaving, the plastic, the papermaking and the food processing.

TS05 ToolSmart Infrared Thermometer is Class 3R laser product and in compliance with EN60825-1.

Safety Instructions

Failure to follow the instructions listed below may cause personal injury.

- Read and understand all instructions prior to any operation.
- Do not remove any labels from the tool.
- Do not operate the tool with the presence of flammable/explosive gases.
- Do not operate the laser tool around children or allow children to operate the laser tool, failure to do so will injure children's eyes.
- Do not stare into the laser beam.
- Do not project the laser beam directly into eyes of others.
- Do not set up the tool at eye level or operate the tool on or near a reflective surface, as the laser could be projected into people's eyes.
- Do not observe the laser beam by using optical tools such as binoculars, magnifying glass.

- To avoid burning danger; remember that the reflected objects make the measuring temperature lower than the real one.

- **Warning**

DANGER
Class 3R Laser Product
Maximum Power Output< 3mW
Wavelength: 630-660nm
Do not stare into the beam!
Avoid direct eye exposure!
This tool emits a laser radiation!

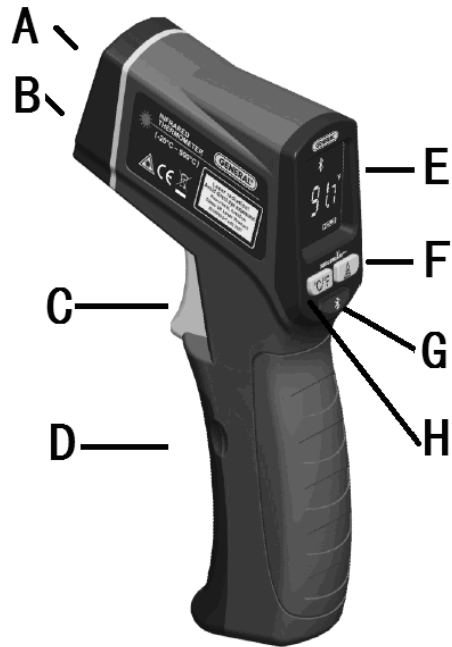
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Battery Safety Instructions

- Please remove the batteries when clean the product.
- Remove the batteries before long term storage
- Please install the batteries properly as the instructions of the positive and negative charges
- Please dispose the batteries properly. High temperature will cause explosions and do not burn the batteries. Strap insulated tape around the battery charges to avoid unsafe contacts with other objects. Many countries have regulations regarding battery disposal. Please follow the local regulations of battery disposing.

Tool components



A. Laser target ring hole

B. Infrared sensor

C. Trigger ——ON / Measuring key

D. Battery compartment

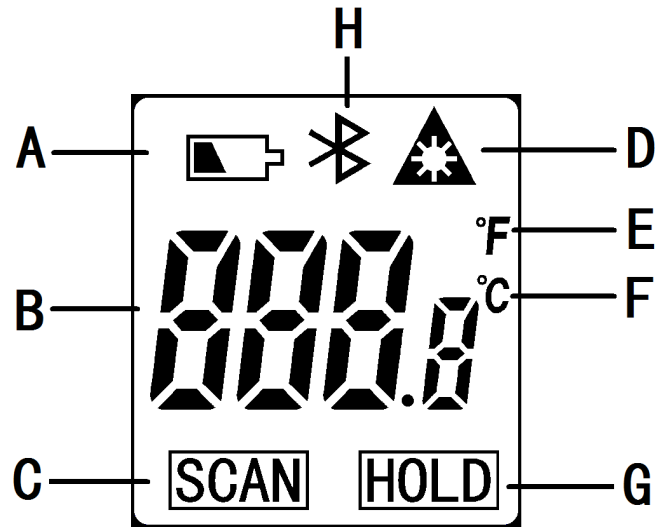
E. LCD screen with black background——Show reading data and information

F.  ——Laser on or off

G.  ——Short press to transfer the bluetooth data to APP and save, hold for 3s for Bluetooth function on or off.

H.  Key ——Measurement unit switch

Illustration of display screen



- | | |
|-------------------|-----------------------------------|
| A: Low battery | B: Readings |
| C: Measuring scan | D: Laser ON |
| E: °F | F: °C |
| G: Data hold | H: Bluetooth connection indicator |

Operation Steps

● Battery installation

Open the battery compartment, insert one 9V battery (6F22/6LR61), and close the lid.

● Measuring temperature

1. Pull the trigger to start the instrument and measuring, use the unit point to object to be tested than press the trigger, then measuring the temperature. Be sure to hold the trigger more than 0.5 seconds to have an accurate data. The scan icon flashes while measuring; after the trigger released, the data is auto hold and the scan icon disappears. The screen shows hold.

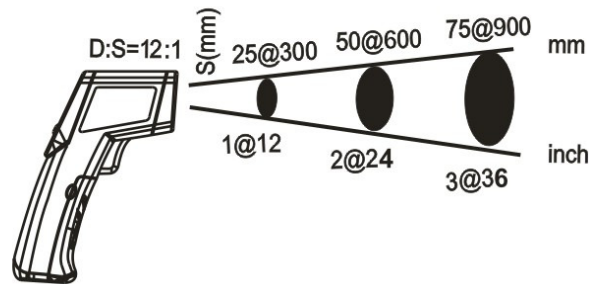
2. Press  key to exchange the Celsius/Fahrenheit units

3. Press  key for Laser on or off function.

4. Every short press  key to transmit the data to APP and save: long press this key for 3s to switch on and off the Bluetooth function. Enable the Bluetooth function, automatically broadcast for 30 seconds continuously, and each time do the measurement, automatically to broadcast for 30 seconds, Bluetooth indicator flashing hint at the same time. If there is Bluetooth wireless device attachment when Bluetooth broadcast, the Bluetooth indicator normally on. If no Bluetooth wireless connection, enter into low consumption broadcast mode ..(Notes: When you long press the key to close the Bluetooth function, the Bluetooth broadcast won't appear any more when Power On, it's only when you restart the Bluetooth function, Bluetooth radio will appear when Power On

5. When the battery is low,  will appear on the screen.

6. The distance and target area: the value of D:S must be considered (as showed), the ratio should no more than the value of D:S. The field of view must be full of objects. As the distance from the object increases, the spot size of measuring area becomes larger.



7. Field of view: Be sure the target area is larger than the unit's spot size. The smaller the target gets the closer the measured distance. For precise measuring, make sure the target is at least twice as large as the spot size.

● Bluetooth wireless transmission

This product can send the real-time measuring date and memory date to Bluetooth wireless devices through the Bluetooth wireless technology, and can receive real-time control command to operate by Bluetooth wireless devices, realizes the date records, download, and remote monitoring and control function.

Bluetooth function is default open when power on, Bluetooth indicator will flash .In this period of time to wait for Bluetooth wireless connection, Bluetooth wireless equipment related Bluetooth connection operation, and smart APP Installation and use, please refer to smart APP operation manual.

● Operation Notes

- 1、 No glass、 plastic or water vapor .etc should between the product and target object.
- 2、 Keep the product away from the following places, which will damage the devices:
 - a、 Environment has vapor and dust;
 - b、 EMF places (Electro-magnetic fields: such as arc welders、 induction heaters) ;
 - c、 Static environment;
 - d、 Heat shock (by abrupt temperature changes, allow 30 minutes for unit to stabilize before use.);
 - e、 High temperature objects;
3. The product can't be used for medical evaluation, it measure the body temperature for your reference only.
4. Electromagnetic compatibility statement

This product has been tested and approval in accordance with the electromagnetic compatibility of the European Union, this does not guarantee that this product is absolutely Immune to electromagnetic ,

please avoid using this product in strong electromagnetic environment.

1. Please note that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
2. Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
 - Reorient or relocate the receiving antenna.
 - Increase the separation between the equipment and receiver.
 - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
 - Consult the dealer or an experienced radio/TV technician for help.
3. This equipment complies with radio frequency exposure limits set forth by the FCC for an uncontrolled environment.

This equipment should be installed and operated with a minimum distance of 5 mm between the device and the user or bystanders.

This device must not be co-located or operating in conjunction with any other antenna or transmitter.

● Trouble shootings

Problems	Causes	Solutions
No vision	Dead battery	Check and replace battery.
Show“  ”	Low battery	Replace battery
Show “OL—”	The target temperature lower than range.	Choose target within the range
Show “OH”	The target temperature higher than range.	Choose target within the range

● Maintenance

1、Cleaning the lens: Abrupt temperature changes will cause vapor, please clean after the vapor disappears. Blow off loose particles using clean compressed air. Gently brush remaining debris away

with a camel's hair brush. Carefully wipe the surface with a moist cotton swab

2、Keep clean; Avoid drop and wet; the housing could be cleaned with wet sponge.

C a u t i o n s

- Don't drop and use the tool by force.
- Don't disassemble the tool, (avoid causing trouble).
- Keep the tool dry and clean.
- Don't place the tool with corrosive gas or objects.
- Avoid dust and water, which may stain the lens.
- Don't clean the lens by any solvent.
- Don't immerse the tool into water to avoid damage.
- In case of damage of tool by deterioration of battery.
- Remove the battery when not in use for an extended period of time.

Technical Specifications

Name	ToolSmart Infrared Thermometer
Model	TS05
Measuring range	-40℃～580℃(-40°F～1076°F)
Response wavelength	8～14μm
Measuring precision	±2℃(±3.6°F) or ±2% of reading (when T>0℃ ±3℃ (±5.4°F) or ±2% of reading, whichever is greater (when T ≤0℃)
Repetition	1% of reading or 1℃
Response time	500mSec, 95% response
Optical ratio (D: S)	12: 1
Emissivity	0.95
Display resolution	±0.1℃
Laser wavelength	630～660nm
Power of laser	<3mW
Laser class	Class 3R
Laser switch	√
Backlight switch	√
Data hold	√
Temperature units exchange	√
Low battery indication	√
Half light of the backlight	No operation about 20 seconds by default
Auto turn off for tool	No operation about 1 minutes by default
Bluetooth transfer function	Can connect IOS (iPhone and iPad), Android and other intelligent platform based on bluetooth 4.0
Power supply	One 9V battery (6F22/6LR61)
Working current	<50mA

Operating temperature	0°C ~40°C (32°F ~104°F)
Operating humidity	RH 0~75% non-condensing
Storage temperature	-20°C ~60°C (-4°F ~140°F), ≤85% (w/o battery)
Product dimension	135 mm×170 mm×36mm
Product weight	About 158 g (w/o battery)

Warranty

The product is warranted to be free from defects in materials and workmanship for a period of one year from the date of purchase on the basis of providing relevant card.

Notice: The warranty does not apply to the following conditions:

- Disassembling the laser tool will void the warranty.
- We are not responsible for any damage resulting from abrasion, water, dropping or disassembling.

Tips: Most parts of the product could be recycled, please refer to your local regulations for disposing of them instead of throwing into the dustbin.