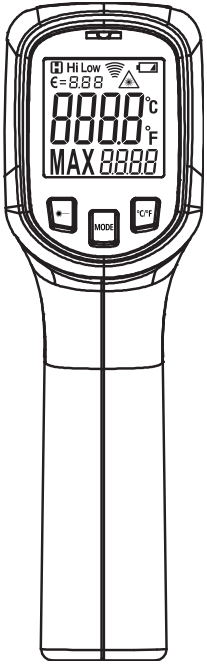
USER MANUAL

TM4010 INFRARED THERMOMETER



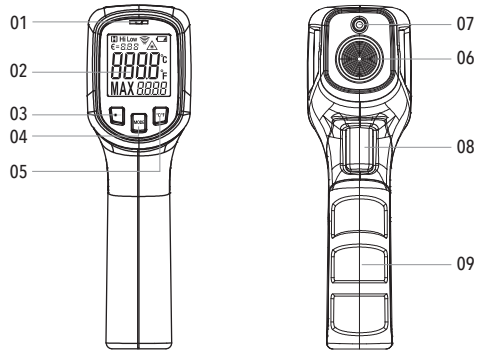
EN ENGLISH

Manual in your language?

Check the back cover

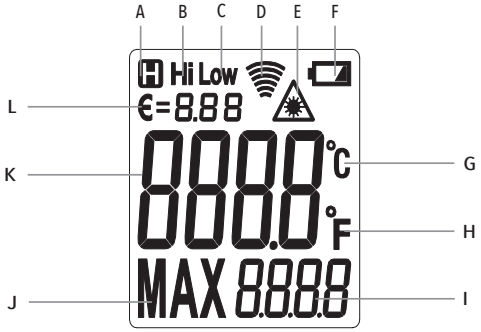
FUTECH MAKE IT EASY

OVERVIEW



■ DEVICE

01 Alarm indicator
02 LCD screen
03 Laser control / Value down
04 Mode button
05 Celcius-Fahrenheit / Value up
06 Infrared sensor
07 Laser light
08 Trigger
09 Battery cover



■ DISPLAY

A Data hold
B High limit alarm
C Low limit alarm
D Measurement indicator
E Laser symbol "On"
F Low battery indicator
G °C (Celsius) temperature unit
H °F (Fahrenheit) temperature unit
I Max display value
J Funtion indicator: MAX (Maximum value)
K Primary temperature display
L Emissivity setting

SAFETY

Please read the safety instructions provided as separate booklet with the device.

While the product is in operation, be careful not to expose your eyes to the emitting laser beam.

Do not operate around steam, dust, smoke, etc. Measurements may not be accurate in the presence of these conditions.

The thermometer can't accurately measure transparent surfaces such as glass or plastic.

Class 2 laser radiation, do not stare into beam!

■ CAUTION

Thermal shock can result from abrupt changes in ambient temperature. Wait 30 minutes before you use the thermometer so it can stabilize to surrounding conditions, to avoid measurement errors.

Avoid any electromagnetic fields (EFM) caused by electric welding, induction heating, arc welding, etc.

Do not place or leave the thermometer on or near high temperature objects.

Keep the thermometer clean.

MAINTENANCE

Cleaning the lens:

· Blow off loose particles using clean compressed air.

· Gently wipe surface with a moist cotton cloth.

Cleaning the case:

· Use water (soap optional) on a damp sponge or cloth.

BATTERY

This infrared thermometer is powered by 2 x AAA batteries, which will need to be replaced when the batteries are running low.

When the low battery indicator **[F]** appears on the LCD screen **[02]** promptly replace the batteries.

· Carefully open the battery cover **[09]** and insert 2 x AAA batteries.

· Remove batteries and store when thermometer will not be used for an extended period of time.

FIRST TIME USAGE

Remove all protection foils.

· To activate the device pull the trigger **[09]** for 2 seconds.

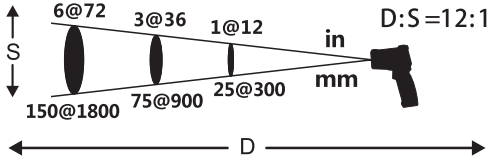
DISTANCE AND SPOT SIZE (D:S RATIO)

As the distance (D) from the target surface being measured increases, the spot size (S) of the area being measured becomes larger.

■ FIELD OF VIEW

The device's field of view is 12:1 (Ex. If the thermometer is 12 mm from the surface (spot), the diameter of the target must be greater than 1 mm).

When accuracy is critical, make sure the target is at least twice as large as the spot size. The smaller the target, the closer the thermometer should be to it when being measured. In general, measurements should be made as close to the target as possible.



USE

· To activate the device pull the trigger **[09]** for 2 seconds.

■ USING THE LASER

The laser dot helps to locate the measured area and idicates the center of this area.

· Press the laser control **[03]** to turn On / Off the laser

The laser symbol **[E]** will appear on the LCD screen **[02]** when the laser is on.

■ NON-CONTACT TEMPERATURE

· Aim the thermometer to the surface of the object.

· Hold the trigger **[08]** to continuously read temperature measurements.

· Release the trigger **[08]** when the desired measurement is obtained

· The primary temperature **[K]** will stay displayed on the LCD screen **[02]**.

· The highest measured temperature will be displayed as max display value **[I]** on the LCD screen **[02]**.

When the measured surface temperature is greater than the high limit alarm **[B]** temperature setting or less than the low limit alarm **[C]** setting, the user will be alerted by the illumination of the red alarm indicator **[01]** above the screen.

SETTINGS

■ HIGH LIMIT ALARM

This device has a programmable high alarm function **[B]**. When the high alarm temperature is reached, the alarm indicator **[01]** of the device will light up red to warn you, the setting is saved in memory and will remain until changed.

· Hold the mode button **[04]** for 2 seconds.

· Press the mode button **[04]** as many times as required until the high limit **[B]** is displayed on the LCD screen **[02]**.

·

- Press value up [05] / value down button [03] to set the alarm to desired high temperature value.
- Hold value up [05] / value down button [03] to quickly increase or decrease the set value.
- Pull the trigger [08] or hold the mode button [04] to set selection.

■ LOW LIMIT ALARM

This device has a programmable low alarm function [C]. When the low alarm temperature is reached, the alarm indicator [01] of the device will light up red to warn you, the setting is saved in memory and will remain until changed.

- Hold the mode button [04] for 2 seconds.
- Press the mode button [04] as many times as required until the low limit [C] is displayed on the LCD screen [02].
- Press value up [05] / value down button [03] to set the alarm to desired low temperature value.
- Hold value up [05] / value down button [03] to quickly increase or decrease the set value.
- Pull the trigger [08] or hold the mode button [04] to set selection.

■ EMISSIVITY

Emissivity is a measure of the material's ability to radiate heat.

The majority of organic materials and painted or oxidized surfaces have an emissivity between 0.85 and 0.98.

The thermometer is set to an emissivity of 0.95 by default.

While measuring, set the emissivity on the thermometer to match the object being measured.

- Hold the mode button [04] for 2 seconds.
- Press the mode button [04] as many times as required until the emissivity [L] is displayed on the LCD screen [02].
- Press value up [05] / value down button [03] to set alarm to desired value.
- Hold value up [05] / value down button [03] to quickly increase or decrease the set value.
- Pull the trigger [08] or hold the mode button [04] to set selection.

NOTE

You can find a short list with emissivity values further in this manual.

■ CHANGING TEMPERATURE UNIT

- Press the Celcius-Fahrenheit button [05] to switch between values in Celcius (°C) and Fahtenheit (°F).

■ TURNING THE LASER ON AND OFF

- Press the laser control [03] to turn the laser On / Off.

The laser symbol [E] will appear on the LCD screen [02] when on.

EMISSIVITY TABLE

ADHESIVE TAPE	0.96
ALUMINIUM PLATE	0.09
ALUMINUM, A3003 ALLOY (OXIDIZED)	0.3
ALUMINUM, A3003 ALLOY (ROUGHENED)	0.1 - 0.3
ALUMINUM, BLACK	0.95
ALUMINUM, OXIDIZED	0.2 - 0.4
ASBESTOS	0.95
ASPHALT	0.90 - 0.98
ASPHALT, PAVEMENT	0.93
ASPHALT, TAR PAPER	0.93
BASALT	0.7
BRASS, OXIDIZED	0.5
BRASS, POLISHED	0.3
BRICK	0.93 - 0.96
BRICK	0.75
CARAMICS	0.95
CARBON	0.8 - 0.9
CAST IRON	0.81
CEMENT	0.96
CERAMIC	0.90 - 0.94
CHARCOAL (POWDER)	0.96
CHROMIUM OXIDES	0.81
CLAY	0.95
CLOTH	0.95
CLOTH (BLACK)	0.98
CONCRETE	0.94 - 0.97
COPPER OXIDES	0.78
COPPER PLATE	0.06
COPPER, ELECTRICAL TERMINAL BLOCKS	0.6
COPPER, OXIDIZED	0.4 - 0.8
FERRO-NICKEL, ABRASIVE BLASTING	0.3 - 0.6
FERRO-NICKEL, ELECTRO POLISHING	0.15
FERRO-NICKEL, OXIDIZED	0.7 - 0.95
GLASS	0.85 - 0.95
GLASS, FIBER GLASS	0.75
GRAPHITE, UNOXIDIZED	0.7 - 0.8
GRAVEL	0.95
GYPSUM	0.75
HASTELLOY	0.3 - 0.8
SKIN, HUMAN	0.98
ICE	0.95 - 0.99
IRON OXIDES	0.78 - 0.82
IRON, CAST MOLTEN	0.2 - 0.3
IRON, CAST OXIDIZED	0.6 - 0.95
IRON, CAST PASSIVATED	0.9
IRON, CAST UNOXIDIZED	0.2
IRON, OXIDIZED	0.5 - 0.9
IRON, RUST	0.5 - 0.7
LACQUER	0.80 - 0.95
LACQUER (MATT)	0.97
LEAD, OXIDIZED	0.2 - 0.6
LEAD, ROUGHENED	0.4
LEATHER	0.75 - 0.80
LIMESTONE	0.98
MARBLE	0.94
MOLYBDENUM, OXIDIZED	0.2 - 0.6
MORTAR	0.89 - 0.91
NICKEL, OXIDIZED	0.2 - 0.5
PAINT	0.9
PAPER	0.70 - 0.99
PAPER, WHITE	0.68
PAPER, BLACK	0.90
PLASTER	0.8 - 0.95
PLASTICS	0.85 - 0.95
PLATINUM, BLACK	0.9
POLYCARBONATE	0.8
PVC PLASTIC	0.93
RUBBER	0.85 - 0.97
RUST	0.8
SAND	0.9
SILICON CARBIDE	0.9
SNOW	0.83
SOIL/EARTH	0.90 - 0.98
STAINLESS STEEL	0.14
STEEL, COLD-ROLLED	0.7 - 0.9
STEEL, GROUND SHEET	0.4 - 0.6
STEEL, POLISHED SHEET	0.1
TEXTILES	0.70 - 0.95
TIMBER	0.9 - 0.95
WATER, SEAWATER	0.90 - 0.98
WATER	0.67
WOOD	0.85
ZINC, OXIDIZED	0.1
ZINC, GALVANIZED	0.2 - 0.3

TECHNICAL SPECIFICATIONS

MODEL	TM4010
Measurement range	−50°C ~ 400°C (−58°F ~ 757 °F)
Emissivity	0.1 - 1.0
D:S Ratio	12:1
Spectral Response	8µ to 14µ
Laser type	620 - 690nm Class 2, <1mW
Response time	< 0.5 seconds
Automatic power off	30 seconds
Operating temperature	0°C ~ 40°C / 32°F ~ 104°F
Storage temperature	−10°C ~ 60°C / 14°F ~ 140°F
Power supply	2x AAA 1.5V batteries
Accuracy	−50°C ~ 0°C (-58°F ~ 32°F): ±3°C 0°C ~ 400°C (32°F ~ 752°F): ±(1,5% of reading + 2°C / 4°F)
Weight	108g (3.8 onz.)
Dimensions	150 x 77 x 40mm (5.9 x 3.0 x 1.6in.)

CE

DECLARATION OF CONFORMITY

Futech (Belgium) declares under its own responsibility that this device:
- TM4010 INFRARED THERMOMETER

is in conformity with the standards
- EN 61326-1: 2021
- EN 61326-2-2: 2021
- EN 61000-3-2: 2019+A1:2021
- EN 61000-3-3: 2013+A1:2019+A2:2021

Under Electromagnetic Compatibility (EMC) Directive 2014/30/EU

Lier, Belgium,
March 17, 2023
Patrick Waûters

USER MANUAL

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DE DEUTSCH

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