



Thermoscan Model No. 398

Thank you for purchasing our KAPRO 398 Thern This tool used for non-contact measurement of objects surface temperature.

# NOTE:

Please carefully read this user manual before y product for first time.

Keep this user manual for future reference. Always operate the device according to the inst manual

### EN

The thermometer can compensate the deviation environment temperature; in case of large deviat of self-adjustment may last for up to 30 minutes.

Distance coefficient ratio of this device is 12:1, r field of view diameter is 12 times less than the di measured object. For example, if the measured cm far from the instrument, the portion of the sur participates in the measurement is 6 cm in diame To achieve the accurate result, the measured of larger than the field of view, otherwise the other

infrared radiation will interfere with the measurer the result.

This device marks its field of view by switchable as on below picture:



# **OPERATING INSTRUCTIONS**

Temperature Measurement:

- 1. Point the device toward the measurement's ob the triager
- 2. Measured temperature value will appear on the LCD followed by the measurement unit - °C or °F, you may scan the surface by moving the laser pointers without releasing the trigger, SCAN indicator will appear on the LCD during the measurement session.
- 3. After releasing the trigger, the measurement session ends, last measurement will remain on the LCD, HOLD indicator will appear instead of SCAN. After 7 seconds without operation
- the device will automatically turn off. If measured temperature beyond the working range of the device, "----" reading will appear on LCD.

Backlit and laser targeting set up:

1. Pull and release the trigger.

1. Pull and release the trigger.

2. While HOLD indicator is on, repeatedly push the LASER / BACKLIT key to choose the required configuration. The LASER / BACKLIT key operating by cycle: Backlit off, laser off => backlite on, laser off => Backlit off, laser on => backlite on, laser on => Backlit off, laser off. If configuration with laser targeting on is chosen, the laser targeting indicator will appear on LCD. Chosen configuration will remain active until next change. Measurement unit set up:

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PC€ PC€ PCE PCE PCE PCE PCE PCE PCE PCE	CONTENTS • Features 3-7 • Safety instructions 8-9 • Overview 10-12 • Operating instructions 13-15 • Battery replacement 16 • Specifications 17 • Warranty 18	<list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item>	Get to know the instrument and set it up for measurement:         KAPRO 398 Thermoscan™ measures the amount of infrared radiation emitted by the object and displays the temperature reading based on preset emissivity value - see the emissivity values table of common materials in this manual.         The emissivity of the object depends on the material it is made of and on its surface finish. Glossy, highly reflective surface or transparency of the object may distort the measurement result, as well as contamination of the surface – rust, frost, dirt, oil etc and the space between the object and the thermometer – as dust, steam, smog etc.         For most accurate result, keep the object clean; if possible, cover glossy or transparent objects ranges from 0.1 to 1, as the range of emissivity adjustment of this thermometer.         Refer to below table of emissivity values to set up the device.         The emissivity of most organic materials and painted surfaces is around 0.95, if the emissivity of the object is not known, set the emissivity on ε = 0.95.	Emiss Mat Asp Cor Cer Sar Soi Wa Ice Sno Gla Cer Ma Pla Mo Bric
caused by the ion the process neaning the stance to the surface is 72 face that eter. ject must be sources o f the nent and distort dual laser pointer, m @120cm 10cm	<section-header><section-header><section-header><section-header><section-header><section-header><text><text><text><list-item><list-item><list-item><text></text></list-item></list-item></list-item></text></text></text></section-header></section-header></section-header></section-header></section-header></section-header>	<ul> <li>Do not remove or deface warning labels.</li> <li>Do not disassemble the product; laser radiation can cause serious eye injury.</li> <li>Do not drop the unit.</li> <li>Do not use solvents to clean the unit.</li> <li>Do not use in temperatures below 0°C or above 50°C (32°F to 122°F)</li> <li>Do not operate the laser in explosive atmospheres such as flammable liquids, gases or dust. Laser sparks may cause ignition.</li> <li>To prevent batteries leaking and corrosion damage to the tool. Remove the batteries from the battery compartment, if you are not planning to use the device for a long period of time.</li> </ul>	<section-header><section-header><section-header><list-item></list-item></section-header></section-header></section-header>	LCD screen: 1. SCAN / HOLD ir 2. Laser targeting i 3. Emissivity value 4. Measurement ur 5. Measured tempe 6. Low battery indic 7. Function's zone 8. Memory function 8. Memory function
oject and pull	<ol> <li>While HOLD indicator is on, push and hold the MODE key for 2 seconds to change the measurement unit between °C and °F. Functions operation:</li> <li>Pull and release the trigger. Function indicator appears on the</li> </ol>	AVD - While AVD indicator appears on LCD, the value displayed on the right of it representing the average value of all temperatures measured during the current measuring session	<b>BATTERY REPLACEMENT</b> The device utilizes one standard 9V battery for power supply. To	SPECIFICATION

- LCD at the bottom. 2. Push the MODE key repeatedly to choose the required

function by cycle: EMS => MAX => MIN => DIF => AVG => HAL => LAL => LOG => EMS.

Operate each function according to below manual:

EMS – Emissivity set up While EMS indicator appears on LCD, you may change the emissivity value between 0.1 and 1.0 with 0.01 steps by pushing arrow keys. The emissivity value appears on the LCD at the top. MAX -

While MAX indicator appears on LCD, the value displayed on the right of it representing the highest temperature measured during the current measuring session.

MIN -While MIN indicator appears on LCD, the value displayed on the right of it representing the lowest temperature measured during the current measuring session. DIF

While DIF indicator appears on LCD, the value displayed on the right of it representing the modulo of the largest difference between the temperature measured at the start of the current measuring session and subsequent measured temperatures.

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rent measuring session HAL – High Alarm Point

LAL - Low Alarm Point

While HAL / LAL indicator appears on LCD, the value displayed on the right of it representing the preset alarm point temperature - if during the measurement session the measured temperature will rise above the high alarm point or drop below the low alarm point, audible alarm signal (beeping) will appear and continue until the measured temperature will return to the interval between HAL and LAL, if by mistake the LAL temperature will be set above the HAL value, the alarm signal will appear all the time. Each alarm point may be set by pushing the arrow keys. LOG – memory function

While LOG indicator appears, on the right of it appears the number of memory cell – between 01 and 20. Each memory cell administrated independently, you may move between cells by pushing the arrow keys, push on LASER / BACKLIT key will replace the stored value with the current measured temperature, next push on LASER / BACKLIT key will clean the cell.

replace the battery, open the battery compartment lid placed on the handle near the trigger and connect the new battery to the terminal. When pushing the battery to it's place in the handle, make sure that the terminal wire is not stuck between the handle and the battery - this will ensure the proper closure of the battery compartment lid.



-58 to 1202°F					
° < 1000 °, 1° > 1000 °					
0°C to -23 3°C to -2°0	°C to -23°C (-58°F to -10°F) ±7°C/14°F (Typical) °C to -2°C (-10°F to 28°F) ±4°C/8°F				
°C to 94°C	±2.5°C/4.5°F				
°C to 204°C (200°F to 400°F) ±(1.0%rdg + 1°C/2°F)					
4°C to 426	6°C (400°F to 800°F)	±(1.5%rdg + 1°C/ 2°F)			
6°C to 10	50°C (800°F to 1922°F)	±(3%rdg +1°C/2°F)			
ote: Accura	acy is specified for the foll 25°C (73 to 77°F)	owing ambient temperature			
10 to 1.00	adjustable				
S = Appro	x, 12:1 ratio (D = distance	e; S = spot or target)			
al, Class 2 laser < 1mW power; Wavelength is 630 to 670nm					
o 14 μm (wavelength)					
0.5% of reading or ± 1°C (1.8°F) whichever is greater					
	150ms				
	« <u> </u> "				
re	0°C to 50°C (32°F to 122°F)				
	10% to 90%RH operating, <80%RH storage				
	-10 to 60°C (14 to 1	60°C (14 to 140°F)			
	0)/hotton/				

Storage Temperature Power Supply Automatic Power Of Weight Dimensions

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Emissivity values of Material und Asphalt

## Concrete Cement Sand Soi Water Ice Snow Glass Ceramic Marble Plaster Mortar

Brick

- AN / HOLD indication ser targeting indication
- nissivity value
- asurement units °C or °F
- asured temperature
- ubattery indicator
- nction's zone
- mory function indicator

-50 to 650°C

FICATIONS

uracy

Field of View

aser pointer

R Spectral res

eatability

Response time

Over range indication

Operating Temperatu

Operating Humidity

// \///////////////////////////////////	f co	mmon	materials:	
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ler test	Emissivity	Material under test	Emissivity
	0.90 to 0.98	Cloth (black)	0.98
	0.94	Skin (human)	0.98
	0.96	Leather	0.75 to 0.80
	0.90	Charcoal (powder)	0.96
	0.92 to 0.96	Lacquer	0.80 to 0.95
	0.92 to 0.96	Lacquer (matt)	0.97
	0.96 to 0.98	Rubber (black)	0.94
	0.83	Plastic	0.85 to 0.95
	0.90 to 0.95	Timber	0.90
	0.90 to 0.94	Paper	0.70 to 0.94
	0.94	Chromium Oxides	0.81
	0.80 to 0.90	Copper Oxides	0.78
	0.89 to 0.91	Iron Oxides	0.78 to 0.82
	0.93 to 0.96	Textiles	0.90

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## **KEYPAD**

- 1. MODE function selector key
- 2. LASER / BACKLIT key
- 3. UP and DOWN arrows



### WARRANTY

This product is covered by a two-year limited warranty against defects in materials and workmanship. The warranty does not cover products that are used improperly, altered or repaired without Kapro Tool's approval. In the event of a problem with the laser level, please return the product to the place of purchase with proof of purchase.

Model #398

### **CE CONFORMITY CERTIFICATE**

This product meets the standards of the Electromagnetic Compatibility (EMC) established by the European Directive 2014/30/EU and the Low Voltage Directive (LVD) 2014/35/EU

### EC DECLARATION OF CONFORMITY

We declare under our responsibility that the product 398 is in accordance with the requirements of the Community Directives and Regulations:

2014/30/EU 2011/65/EU EN60825-1: 2014 EN61326-1: 2013





7 seconds, with LOCK to disable

150g

180 x 107 x 40mm

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