TECHNICAL MANUAL
Infrared thermometer (pyrometer)
MS6519A / MS6519B EKF EXPERT

SAFETY INFORMATION

Infrared thermometer (pyrometer) MS6519A / MS6519B EKF EXPERT complies with EN61326-1, EN61010-1, and EN60825-1.

Please read the instructions herein carefully to ensure safe and efficient operation of the product.

SAFETY INSTRUCTIONS:

• Read the instructions carefully before operating the device.

• Do not use the device if its housing is damaged.

• Do not use the device with the lid open or the housing loosely closed.

• Do not direct the laser beam into the eyes or at reflective surfaces.

• If the environment changes drastically during measurement, leave the thermometer in the new conditions for 30 minutes. You can only continue measuring when the temperature inside the thermometer equals the ambient temperature.

• Make sure to minimize electromagnetic disturbances from electric welding and induction heaters.

• Do not place the thermometer near or on the surface of hot objects.

• Keep the thermometer clean to prevent dust reaching the lens.

• If you fail to observe the manufacturer's operating instructions, the protection of the device may be degraded.

⚠ Stop using the device immediately if any malfunctions or faults occur.

The device shall be serviced and repaired only by authorized service companies. For cleaning of the product, use a soft cloth, do not use abrasives or solvents.

1 DESCRIPTION

The infrared thermometer (pyrometer) MS6519A / MS6519B EKF EXPERT is a mobile infrared thermometer for non-contact temperature measurement of objects. Surface temperature of a target is defined by measuring the infrared emission from the target surface.
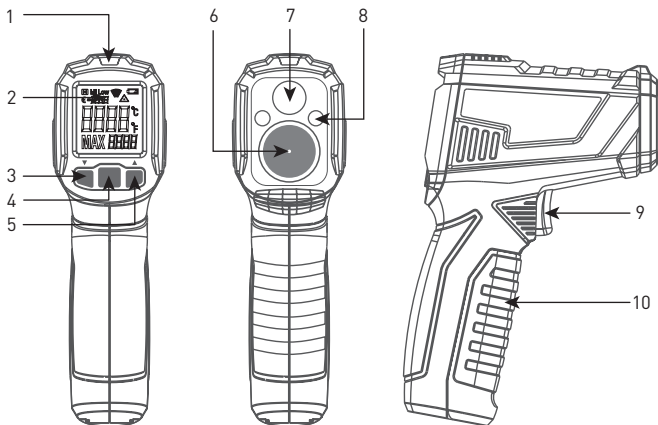
2 FRONT PANEL ELEMENTS

Figure 1. Front panel elements

1. Alarm LED
2. LSD display
3. Laser button / Down button △ / ▼;
4. Mode button – «**MODE**»;
5. Backlight button / Up button ☀ / ▲;
6. Infrared sensor
7. Laser indicator
8. Backlight
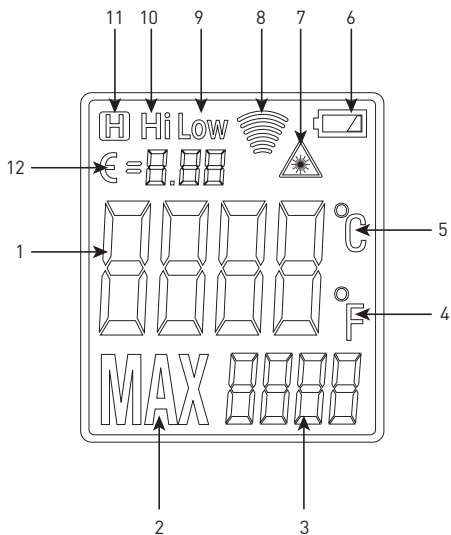9. Start button
10. Battery cover

Figure 2. Display indicators

1. Main indicator: measured temperature value
2. Function indicator
3. Auxiliary indicator
4. ºF symbol (Fahrenheit scale)
5. ºC symbol (Celsius scale)
6. Low battery symbol
7. Laser ON symbol
8. Measuring indication
9. Low alarm symbol
10. High alarm symbol
11. Hold symbol
12. Emissivity symbol

3 TECHNICAL DATA

Table 2

| Model	In-180703-pt6519A	In-180703-pt6519B
Display	Color LCD	
D:S resolution	12:1	
Emissivity range	0,10-1,00	
Spectral range	8-14 μm	
Laser	Class 2, < 1 mW / 630-670 nm	
Response time	< 0,5 sec	
Auto power off	30 sec	
Operating temperature	From 0 °C to 40 °C	
Storage temperature	From -10 °C to 60 °C	
Power supply	2 batteries AAA 1,5V	
Temperature measurement range	From -50 °C to +380 °C	From -50 °C to +550 °C
Accuracy	from -50 °C to 0 °C (±3 °C) / from 0 °C to +380 °C ± (1.5% reading +2 °C) (-58 °F ~ 716 °F)	from -50 °C to 0 °C (±3 °C) / from 0 °C to +550 °C ± (1.5% reading +2 °C) (-58 °F ~ 1022 °F)

DISTANCE / SPOT SIZE RATIO

The thermometer has a specific angle and field of view.

Target   Lens   Light
sensor
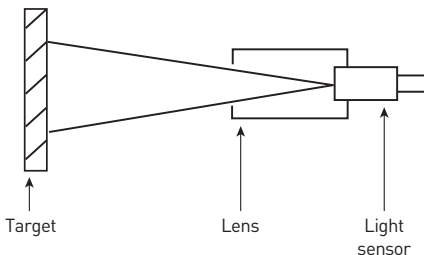
Make sure that the target is larger than the thermometer spot size. There shall be nothing in the field of view but the target. The larger the target, the farther you should place the thermometer for measuring. The smaller the target, the closer you should place the thermometer. The ratio between distance and spot size (D:S) is 12:1.

Measuring unit: mm
D:S=12:1
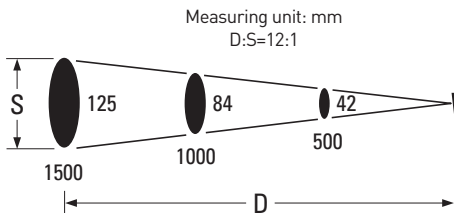
While measuring, the thermometer will emit light shaped as an indicator ring. The measured temperature is the surface temperature of the target within this ring.
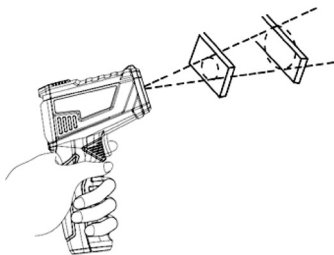
3.2 EMISSIVITY

Emissivity is the capability of an object to emit thermal radiation in the infrared range. The higher the emissivity of a material, the greater the emissivity of the object surface. The emissivity of most organic materials ranges within 0,85-0,98. The default setting of the thermometer is 0,95. Adjust the set value to match the object material to be measured. When measuring, take the influence of the emissivity on the measurement result into account. Table 2 lists reference values for the emissivity of common materials.

Table 2

Material		Emissivity
Aluminum	oxidized	0,2-0,4
	alloy A3003, oxidized	0,3
	alloy A3003, rough	0,1-0,3
Brass	polished	0,3
	oxidized	0,5
Copper	oxidized	0,4-0,8
	Mounting plate coating	0,6
Hastelloy		0,3-0,8
Ferrous alloy (iron and nickel)	oxidized	0,7-0,95
	sand-blasted	0,3-0,6
	electrochemically polished	0,15
Iron	oxidized	0,5-0,9
	rusty	0,5-0,7
Cast iron	oxidized	0,6-0,95
	non-oxidized	0,2
	second-melt	0,2-0,3
Passivated forged iron		0,9
Lead	rough	0,4
	oxidized	0,2-0,6
Oxidized molybdenum		0,2-0,6
Oxidized nickel		0,2-0,5

Table 2 continued

Material		Emissivity
Platinum black		0,9
Steel	cold-rolled sheet	0,7-0,9
	non-polished sheet	0,4-0,6
	polished sheet	0,1
Zinc	oxidized	0,1
Asbestos		0,95
Asphalt		0,95
Basalt		0,7
Coal		0,8-0,9
Graphite		0,9
Silicon carbide		0,95
Ceramics		0,95
Clay		0,95
Concrete		0,95
Cloth		0,95
Glass sheet		0,85
Sand-gravel ground		0,95
Gypsum		0,8-0,95
Ice		0,98
Limestone		0,98
Paper		0,95
Plastics		0,95
Soil		0,9-0,98
Water		0,93
Wood		0,9-0,95

4 MEASUREMENTS

SETTING OF THE UPPER ALARM LIMIT
Press and hold the «MODE» button for 2 seconds to enter the device setting, and press the «MODE» button to set the upper alarm limit. «Hi» is indicated in the function display, and the upper limit value is indicated in the auxiliary display. Press the «▲/▼» button to up/down the value, and hold pressed the «▲/▼» button to faster up/down of the set value.

SETTING OF THE LOWER ALARM LIMIT
Press and hold the «MODE» button for 2 seconds to enter the device setting, and press the «MODE» button to set the lower alarm limit. «Low» is indicated in the function display, and the lower limit value is indicated in the auxiliary display. Press the «▲/▼» button to up/down the value, and hold pressed the «▲/▼» button to faster up/down of the set value.

SETTING OF THE EMISSIVITY
Press and hold the «MODE» button for 2 seconds to enter the device setting, and press the «MODE» button to set the emissivity. "E" is indicated in the function display, and the lower limit value is indicated in the auxiliary display. Press the «▲/▼» button to up/down the value, and hold pressed the «▲/▼» button to faster up/down of the set value.

UNIT SELECTION OF TEMPERATURE MEASUREMENT
Press and hold the «MODE» button for 2 seconds to enter the device setting, and press the «MODE» button to select unit of measured temperature. To change the flashing symbol on the display, press the «▲/▼» button.

SETTING EXIT
Press the trigger or the MODE button to exit the device settings.

LASER ON/OFF
To turn laser on/off, press the button. The laser symbol will appear on the display ⚠

BACKLIGHT ON/OFF
To turn backlight on/off, press the button ☀

NON-CONTACT TEMPERATURE MEASUREMENT

Point the thermometer at the target, press and hold the start button to measure the temperature continuously. After the value on the display stabilizes, release the button to record the measurement result.

When the start button is pressed, the auxiliary display first shows the set emissivity and then the maximum measured temperature.

If the measured temperature exceeds the ambient temperature by more than the set upper alarm limit (Hi) or is lower than the ambient temperature by more than the set lower alarm limit (Low), the red LED indicator lights up.

BATTERY REPLACEMENT

If the symbol «▭» is displayed, the battery needs to be replaced. Open the battery cover, take out the battery and replace with a new one. Observe polarity of the battery. Place the battery cover back.

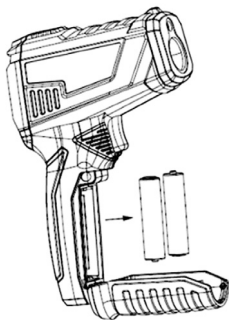⚠ Power off the thermometer before replacing the battery.

Figure 4. Battery replacement

5 DELIVERY SCOPE

1. Infrared thermometer (pyrometer) - 1 pc.
2. Battery 1,5 V - 2 pcs.
3. Technical and operation manual - 1 pc.

6 TRANSPORTATION AND STORAGE

The product shall be transported in compliance with the transportation regulations applicable to each means of transport. The product shall be protected against mechanical impact during storage and transportation. The product shall be stored in heated and ventilated space at the ambient temperature from -25 to +35 °C and relative humidity of max. 70%. Do not expose to direct sunlight and precipitations. Do not store near acid and alkali.

7 DISPOSAL

Life-expired and failed devices shall be disposed of in compliance with the national and local laws and regulations in force. To dispose of the product, send it to an authorized company for recycling in compliance with the national and local laws and regulations in force.

8 MANUFACTURER'S WARRANTY

The manufacturer guarantees the products comply with the declared characteristics, provided that the consumer follows the operation, transportation and storage conditions.

Service life: 10 years.

Shelf life: 10 years from the date of manufacture.

Warranty period: 12 months from the date of sale.

Manufacturer: For information, refer to the product package.

Importer and EKF trademark service representative: EKF ELECTRICAL SOLUTION – FZCO, Dubai Silicon Oasis, DDP, Building A2, Dubai, United Arab Emirates.

Importer and EKF trademark service representative on the territory of the Russian Federation: OOO «Electrosheniya», Otradnaya st., 2b bld. 9, 5th floor, 127273, Moscow, Russia. Tel.: +7 (495) 788-88-15.

Importer and EKF trademark service representative on the territory of the Republic of Kazakhstan: TOO «Energoresheniya Kazakhstan», Kazakhstan, Almaty, Bostandyk district, Turgut Ozal st., 247, apt 4.

9 CERTIFICATE OF ACCEPTANCE

The infrared thermometer (pyrometer) MS6519A / MS6519B EKF EXPERT has been manufactured in compliance with laws and regulations in force and has been approved for operation.

Quality control stamp

Date of manufacture: For information, refer to the product package.

OTK
№ 8

10 NOTE OF SALE

Date of sale

Seller's signature

Seller's seal

ekfgroup.com