INSTRUCTION MANUAL

Water-proof Handheld Infrared Thermometer
MODEL 5510
KYORITSU ELECTRICAL INSTRUMENTS WORKS, LTD.

Specifications

- **Type**: Handheld Infrared Thermometer
- **Model**: 5510
- **Measuring Range**: 
  - Temperature: −40 to 300℃
  - Emissivity: 0.1 to 1.0
- **Display Resolution**: 0.1℃
- **Measuring Accuracy**: ±1℃
- **Response Time**: 1sec (90% response)
- **Emissivity**: Pre-set, 0.95, can be altered between 0.8 to 1.0
- **Battery Life**: Approximately 10 hours for continuous use
- **Battery**: 2 AAA alkaline cell batteries
- **Housing Material**: ABS (antibacterial)
- **Weight**: Approx. 123g
- **Accessories**: Instruction manual, strap
- **Dimension**: 92×151mm
- **Net Weight**: 110g

Environmental Precautions

- **Do not use this product with a measuring object.**
- **This is a contactless thermometer.** Contact with a hot section may cause a crack or fog on the surface of the measuring window, and consequently it may change the infrared radiation transmittance of the plastic lens.
- **Do not use or store the instrument in a location where the instrument is exposed to the direct sunlight, dust, lampingb and corrosive gas, or where the temperature and/or humidity is high.**
- **Emissivity of this instrument can be selected (0.8 to 1.0). When the emissivity setting is different from that of a measuring object, inaccurate readings will occur.**
- **The sudden changes of the ambient temperature will cause inaccurate readings. Wait a while to let the temperature of the instrument stabilize, and then measure.**
- **Remove batteries from the instrument, if the instrument is not in use for a long period or is put in storage.**
- **Keep the instrument out of human beings.**
- **Do not look into the laser beam.**
- **Do not damage the measuring window (plastic lens).**
- **Do not use chemical agents such as thinner, benzene or alcohol since these may cause a crack or fog on the surface of the measuring window, and consequently it may change the infrared radiation transmittance of the plastic lens.**
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Troubleshooting

- **No display appears**: Batteries have been exhausted or are not placed correctly. Replace batteries when the laser marker is not visible.
- **Abnormal reading**: Emissivity is not selected properly. Select the correct emissivity setting.
- **Unusable reading**: Unit is affected by a rapid temperature change. Leave the unit for stabilizing its temperature and measure.
- **Relation of Distance and Measuring Diameter**
  - The relation between the distance and measuring diameter is as follows:
  - The more the distance increases, the larger area is needed.
  - For accurate reading, a sufficient measuring area should be ensured.

Note

- Do not use chemical agents such as thinner, benzine or alcohol since these may cause a crack or fog on the surface of the measuring window, and consequently it may change the infrared radiation transmittance of the plastic lens.

Maintenance

- **Measuring Window**: The measuring window applies a waterproof structure (IP67). If water-soluble stains adhere to the window, wash the measuring window with the tap water. Dry the measuring window well after washing. Please note that measurement with the measuring window wet will cause inaccurate readings. If oil-soluble stains adhere to the measuring window, wipe it with a cloth dipped in the diluted neutral detergent and rinse it.

Kyoritsu reserves the rights to change specifications or designs described in this manual without notice and without obligations.

DISTRIBUTOR

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**Usage and Part Names**

**Battery**

(1) Installing Batteries
Loose the screw at the lower part of the battery cover, pressing the battery compartment cover as shown and remove it. Install batteries positioning the negative and positive poles properly as shown inside the compartment, and bolt up the screw, put the cover back.

Note:
If the battery cover does not fit tightly, water-proof property will be deteriorated, or the performance will be deteriorated due to water penetration in the unit.
Don’t bolt up the screw too tightly, as putting the battery compartment cover.

(2) Replacing Batteries
Residual quantity of the batteries is displayed on the low battery symbol in the display part. When the low battery symbol becomes , the batteries have been exhausted. Replace the batteries with new batteries.

Note:
When replacing batteries, do replace 2 batteries at the same time.

**Settings**

Normally only the object emissivity is selectable. The emissivity is set at 0.95 at the factory. The emissivity is displayed during measurement (except for emissivity 0.95. When nothing appears on the display, it means that the emissivity is 0.95.) Five variations of emissivity ranging from 0.8 to 1.0 can be set per 0.05 steps. The emissivity can be altered by setting the 3 digits (2nd, 3rd and 4th digits from left) of the 4-digit switch in the lower part of the battery compartment. The setting mode of the slide switch is displayed below the battery part. Remove the batteries, and set as required according to the displayed setting mode.

If necessary, the measurement unit can be switched to Fahrenheit (F) (with the left most digit of the 4-digit slide switch.)

**Measurement Display**

Aim the measuring window at the measuring target, and press the MEASURE key. Holding down the MEASURE key, confirm if the laser beam irradiates the measuring position properly. Adjust the position, if the laser beam does not irradiate the measuring position properly. During holding down the MEASURE key, measuring continues. When the MEASURE key is released, the measured value is hold for about 30 seconds, and then the power is shut off with the Auto Power Off function.

If the measuring window is aimed at a new target and the MEASURE key is pressed while the measured value is being hold, the temperature of the new target will be measured. When the MEASURE key is released, the newly measured temperature will be hold.

**Display**

- Low Battery Symbol
- Lighting during measuring
- Blinking during holding
- Display measurement unit
- Display emissivity (except emissivity 0.95)

**Setting Emissivity (Reference)**

Quantity of infrared radiation emitted from objects depends on the objects’ material, surface conditions, measuring temperatures and so on. The table below shows emissivity of some objects. Please note that these values are just for reference. Please also refer to the estimated emissivity using the separately sold black body tape.

<table>
<thead>
<tr>
<th>Material</th>
<th>Emissivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water, ice</td>
<td>0.98</td>
</tr>
<tr>
<td>Soil</td>
<td>0.90 to 0.95</td>
</tr>
<tr>
<td>Concrete (wet)</td>
<td>0.90 to 0.95</td>
</tr>
<tr>
<td>Concrete (dry)</td>
<td>0.91 to 0.95</td>
</tr>
<tr>
<td>Ceramics</td>
<td>0.85 to 0.95</td>
</tr>
<tr>
<td>Stone, Asbestos</td>
<td>0.92 to 0.95</td>
</tr>
<tr>
<td>Plastics</td>
<td>0.90 to 0.95</td>
</tr>
<tr>
<td>Rubber (black)</td>
<td>0.95 to 0.99</td>
</tr>
<tr>
<td>Wood</td>
<td>0.98</td>
</tr>
<tr>
<td>Painted surface</td>
<td>0.90</td>
</tr>
<tr>
<td>Paper</td>
<td>0.92</td>
</tr>
</tbody>
</table>

**Estimated Emissivity Using the Black Body Tape**

If a measuring object accepts sticking of adhesive tapes, stick a piece of the black body tape (emissivity: 0.94) to the object, and measure the temperature after setting the emissivity to 0.95.