

**ADA INSTRUMENTS**



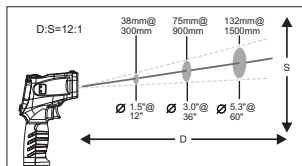
**OPERATING MANUAL**

# TEMPRO 650 HYGRO

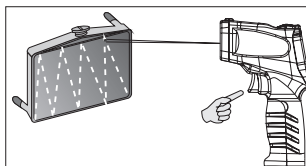
Infrared thermometer

[adainstruments.com](http://adainstruments.com)

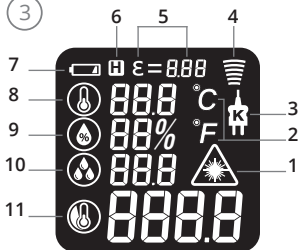
1



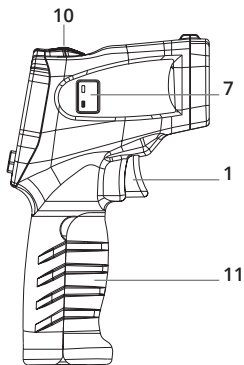
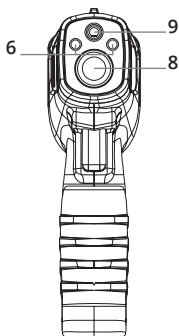
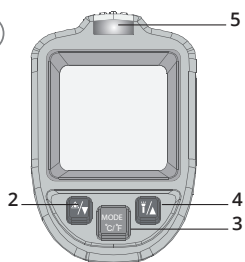
2



3



4



## INTRODUCTION

Infrared pyrometer ADA TemPro 650 Hygro is used for measuring the temperature of the object's surface, which is applicable for various hot, hazardous or hard-to-reach objects without contact safely and quickly. This unit consists of Optics, Temperature Sensor Signal amplifier, Processing circuit and LCD Display. The Optics collect the infrared energy emitted by the object and focus it onto the Sensor. Then the sensor translates the energy into an electricity signal. This signal will be turned out to be digital shown on the LCD after the signal amplifier and processing circuit.

## SPECIFICATIONS

<b>LCD</b> .....	Colorful LCD
<b>Temperature measurement range</b> ....	50°C~650°C (-58°F~1202°F)
<b>Temperature display accuracy</b> .....	0.1°C
<b>Temperature measurement error</b> ....	-50°C~0°C(-58°F~32°F);±3°C(±5°F) 0°C~650°C(32°F~1202°F);±1.5% rdg or±1.5°C(±2.7°F)Take the bigger value
<b>K-type thermocouple measurement range</b> .....	-40°C~500°C (-40°F ~ 932°F)
<b>Repeatability</b> .....	1% rdg or 1°C Take the bigger value
<b>Response time</b> .....	0.5s, 95% Response
<b>Emissivity</b> .....	0.10~1.00Adjustable(preset as 0.95)
<b>D:S</b> .....	12:1
<b>Response wavelength</b> .....	5um~14 um
<b>Laser</b> .....	Ring light spot

<b>Flashlight</b> .....	UV light
<b>Ambient temperature measurement range</b> .....	-20°C~60°C (-4°F ~ 140°F)
<b>Ambient temperature measurement accuracy</b> .....	±1°C(2°F)
<b>Relative humidity measurement accuracy</b> .....	±5% RH
<b>Dew point temperature measurement</b> .....	-10°C~ 50°C(14°F~ 122°F):±1.5°C /3°F
<b>Mildew alarm indicator</b> .....	v
<b>Batteries</b> .....	1.5V AAA battery*2
<b>Low power indicator</b> .....	Low power indicator for power below 2.4V
<b>Overload indicator</b> .....	"Hi"/"Lo" displayed on LCD
<b>Weight/dimensions</b> .....	202g(including batteries)/108*49*177 mm

#### SPECIFICATIONS OF K-TYPE THERMOCOUPLE

<b>Measurement range</b> .....	0°C~250°C (300°C for short time)
<b>Measurement error</b> .....	±2.5°C or 0.75% rdg Take the bigger value
<b>Thermal response time</b> .....	<10s

#### WARNING

To avoid the potential situation may cause harm or damage to people, please pay attention to the following items:

1. Do not point laser directly at eye or indirectly off reflective surfaces.
2. The unit cannot measure through transparent surfaces such as glass

or plastic. It will measure the surface temperature of these materials instead.

3. Steam, dust, smoke, or other particles can prevent accurate measurement by obstructing by the units optics.

## CAUTIONS

Infrared thermometer should be protected for the following:

1. EMF (electro-magnetic fields) from arc welders, induction heaters.
2. Thermal shock (cause by large or abrupt ambient temperature changes allow 30 minutes for unit to stabilize before use).
3. Do not leave the unit on or near objects of high temperature.

## DISTANCE TO SPOT SIZE

1. When take measurement, pay attention to the Distance to Spot Size. As the Distance (D) from the target surface increases, the spot size (S) of the area measured by the unit becomes larger. The Distance to Spot size of the unit is 12:1.(Figure 1)
2. Field of view: Make sure the target is larger than the unit's spot size. The smaller the target the closer measure distance. When accuracy is critical, make sure the target is at least twice as large as the spot size.

## EMISSIVITY

Emissivity: Most organic materials and painted or oxidized surfaces have an emissivity of 0.95(preset in the unit). Inaccurate readings will result from measuring shiny or polished metal surfaces.

To compensate for this, adjust the units emissivity reading or cover the surface to be measured with masking tape or flat black paint. Measure the tape or painted surface when the tape or painted reach the same temperature as the material underneath.

**EMISSIVITY****Material      Emissivity**

Aluminum .....	0.30
Asbestos .....	0.95
Asphalt .....	0.95
Basalt .....	0.70
Brass .....	0.50
Brick .....	0.90
Carbon .....	0.85
Ceramic .....	0.95
Concrete.....	0.95
Copper .....	0.95
Dirt .....	0.94
Frozen food .....	0.90
Hot food .....	0.93
Glass (plate) .....	0.85
Ice .....	0.98

**Material      Emissivity**

Iron .....	0.70
Lead .....	0.50
Limestone .....	0.98
Oil .....	0.94
Paint .....	0.93
Paper .....	0.95
Plastic .....	0.95
Rubber .....	0.95
Sand .....	0.90
Skin .....	0.98
Snow .....	0.90
Steel .....	0.80
Textiles .....	0.94
Water .....	0.93
Wood .....	0.94

**OPERATION****Operating the unit:**

1. Open battery door and load two 1.5V AAA batteries.
2. Pull the trigger to turn on the unit.
3. Aim at the target surface and pull the trigger, then temperature will be shown on the LCD. This unit is equipped with a laser, which is only used for aiming.

**Locating a Hot Spot:**

To find a hot spot, aim the thermometer outside of interest, then scan across with an up and down motion until you locate the hot spot. (Figure 2).

**3. LCD DISPLAY**

Infrared thermometer-50 C ~ 650 C (-58 F ~ 1202 F)  
WT323C

1. Turning on state indicator of laser positioning
2. Temperature measurement units
3. K-type thermocouple
4. Data reading indicator
5. Emissivity
6. Data holding indicator
7. Low power indicator
8. Ambient temperature value
9. Ambient humidity value
10. Dew point temperature value
11. Surface temperature value (infrared temperature measurement)

#### 4. NAMES AND FUNCTIONS OF PARTS

1. Measurement switch (trigger).

Pull trigger to display temperature value, and "SCAN" appears on screen at the same time; when trigger is released, temperature reading is displayed, and data is automatically maintained. The instrument automatically shut down after about 30 seconds of operation.

2. Laser switch/Down button.

3. MODE (mode switch button) / temperature unit switch button

Press MODE button to cycle through four modes, MODE 1—MODE 2—MODE 3—MODE 4.

- Mode 1: Mildew alarm mode. Under this mode, the current ambient temperature, humidity, dew point temperature and surface temperature are displayed. Pull trigger to measure surface temperature.
- **Note: The instrument decides whether the measured object is easy to mildew according to the surface temperature of the measured object and the dew point temperature of the current environment. Indicator light turns green for normal state. If the measured object tend to mildew, the indicator light turns yellow; if already mildew, the indicator light turns red.**
- Mode 2: Temperature difference alarm mode. Under this mode, pull trigger to display the current ambient temperature and the surface temperature of the measured object. When the surface temperature of the measured object is close to ambient temperature, the indicator light turns green; if much higher than or lower than ambient temperature, the indicator light turns red. Otherwise, the indicator light turns yellow.

- Mode 3: K-type thermocouple temperature measurement mode. Under this mode, the temperature of the K-type thermocouple is measured and thermocouple icon is displayed. Before the measurement, insert K-type thermocouple probe into thermocouple socket. Pull and hold trigger, thermometer displays both surface emperature and K-type thermocouple temperature.
  - Mode 4: Emissivity setting mode. Under this mode, press up/down button to to set missivity within range of 0.10~1.00 by decreasing or ncreasing value.
  - Temperature units switch: Pul and hold trigger, then press this button to switch units.
4. UV light button / Up button. Press this button to turn on/off UV light, which can be used for fluorescent leakage detection.
  5. Alarm light indicator
  6. UV light
  7. K-type thermocouple socket
  8. Infrared temperature sensing area
  9. Laser (assisted positioning)
  10. Temperature/humidity sensing area
  11. Battery door

## MAINTENANCE

1. Lens Cleaning: Blow off loose particles using clean compressed air. Gently brush remaining debris away with a moist cotton swab. The swab may be moistened with water.
2. Case cleaning: Clean the case with a damp sponge/cloth and mild soap.

**Note: Do not use solvent to clean plastic lens. Do not submerge the unit in water.**

## WARRANTY

This product is warranted by the manufacturer to the original purchaser to be free from defects in material and workmanship under normal use for a period of two (2) years from the date of purchase. During the warranty period, and upon proof of purchase, the product will be repaired or replaced (with the same or similar model at manufactures option), without charge for either parts of labour.



In case of a defect please contact the dealer where you originally purchased this product. The warranty will not apply to this product if it has been misused, abused or altered. Without limiting the foregoing, leakage of the battery, bending or dropping the unit are presumed to be defects resulting from misuse or abuse.

#### **EXCEPTIONS FROM RESPONSIBILITY**

The user of this product is expected to follow the instructions given in operators' manual. Although all instruments left our warehouse in perfect condition and adjustment the user is expected to carry out periodic checks of the product's accuracy and general performance.

The manufacturer, or its representatives, assumes no responsibility of results of a faulty or intentional usage or misuse including any direct, indirect, consequential damage, and loss of profits.

The manufacturer, or its representatives, assumes no responsibility for consequential damage, and loss of profits by any disaster (earthquake, storm, flood ...), fire, accident, or an act of a third party and/or a usage in other than usual conditions.

The manufacturer, or its representatives, assumes no responsibility for any damage, and loss of profits due to a change of data, loss of data and interruption of business etc., caused by using the product or an unusable product.

The manufacturer, or its representatives, assumes no responsibility for any damage, and loss of profits caused by usage other than explained in the users' manual.

The manufacturer, or its representatives, assumes no responsibility for damage caused by wrong movement or action due to connecting with other products.

**WARRANTY DOESN'T EXTEND TO FOLLOWING CASES:**

1. If the standard or serial product number will be changed, erased, removed or will be unreadable.
2. Periodic maintenance, repair or changing parts as a result of their normal runout.
3. All adaptations and modifications with the purpose of improvement and expansion of normal sphere of product application, mentioned in the service instruction, without tentative written agreement of the expert provider.
4. Service by anyone other than an authorized service center.
5. Damage to products or parts caused by misuse, including, without limitation, misapplication or negligence of the terms of service instruction.
6. Power supply units, chargers, accessories, wearing parts.
7. Products, damaged from mishandling, faulty adjustment, maintenance with low-quality and non-standard materials, presence of any liquids and foreign objects inside the product.
8. Acts of God and/or actions of third persons.
9. In case of unwarranted repair till the end of warranty period because of damages during the operation of the product, it's transportation and storing, warranty doesn't resume.

**WARRANTY CARD**

Name and model of the product \_\_\_\_\_

Serial number \_\_\_\_\_ Date of sale \_\_\_\_\_

Name of commercial organization \_\_\_\_\_

stamp of commercial organization

Warranty period for the instrument exploitation is 24 months after the date of original retail purchase.

During this warranty period the owner of the product has the right for free repair of his instrument in case of manufacturing defects.

Warranty is valid only with original warranty card, fully and clear filled (stamp or mark of the seller is obligatory).

Technical examination of instruments for fault identification which is under the warranty, is made only in the authorized service center.

In no event shall manufacturer be liable before the client for direct or consequential damages, loss of profit or any other damage which occur in the result of the instrument outage.

The product is received in the state of operability, without any visible damages, in full completeness. It is tested in my presence. I have no complaints to the product quality. I am familiar with the conditions of warranty service and I agree.

purchaser signature \_\_\_\_\_

Before operating you should read service instruction!

If you have any questions about the warranty service and technical support contact seller of this product