YORK
Survey Supply

Nothing else measures up!

Follow us!

York Survey Supply Centre

@York_Survey

@York_Survey

Prospect House
George Cayley Drive
Clifton Moor
York
England
YO30 4XE

Tel: +44 (0) 1904 692723
Fax: +44 (0) 1904 690385

E-Mail: sales@yorksurvey.co.uk

www. YorkSurvey .co.uk

…for secure online ordering of all our products!

YORK
Survey Supply

Infrared Video Thermometer

Code: 320140

Operating Instructions

Infrared Video Thermometer

1. Introduction

Thank you for purchasing the IR Video Thermometer, which is capable of non-contact (infrared) temperature measurements with visual camera at the touch of a button. The built-in laser pointer increases target accuracy while the backlight LCD and handy push-buttons combine for convenient, ergonomic operation.

The IR Video Thermometer can be used to measure the surface temperature of object's that are impractical to be measured by a traditional (contact) thermometer (such as moving objects, a surface with a live electrical current or objects that are out of reach).

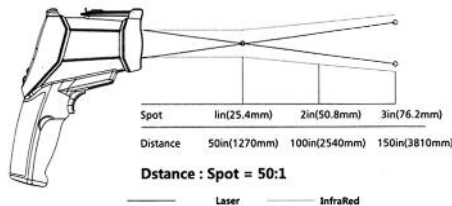Proper use and care of this meter will provide years of reliable service.

2. Features
• 2.2" TFT LCD Display
• 640*480 pixels (30 million pixels)
• Micro SD memory card
• Image (JPEG) and video (AVI)
• Humidity and Air Temperature
• Dual laser targeting
• Type-K thermocouple probe
• Adjustable emissivity
• High accuracy
• Fast response time
• Dewpoint temperature and Wet bulb temperature

CAUTION
LASER RADIATION
DO NOT STARE INTO BEAM
DIODE LASER
<1mW Output at 675nm
CLASS II LASER PRODUCT

Distance & Spot Size
As the distance (D) from the object increases, the spot size (S) of the area measured by the unit becomes larger. The relationship between distance and spot size for each unit is listed below. The focal point for each unit is 914mm (36"). The spot sizes indicate 90% encircled energy.

| Spot | 1in(25.4mm) | 2in(50.8mm) | 3in(76.2mm) |
| Distance | 50in(1270mm) | 100in(2540mm) | 150in(3810mm) |

Dstance : Spot = 50:1

— Laser   — — InfraRed

3. Specifications

IR Temperature Measurement
Temperature Range
-50 to 1000°C (-58 to 1832°F)
-50 to 1600°C (-58 to 2912°F)
-50 to 2200°C (-58 to 3992°F)
D:S 50:1
Accuracy
20 ~ 500°C (68 ~ 932°F)   ±1%±1.0°C (1.8°F)
500 ~ 1000°C (932 ~ 1832°F)   ±1.5%
1000 ~ 2200°C (1832 ~ 3992°F)   ±2.0%
-50 ~ 20°C (-58 ~ 68°F)   ±3.5°C (6.3°F)
Display resolution   0.1°C (0.1°F)   <1000
   1°F   >1000

Repeatability
-50 ~ 20°C (-58 ~ 68°F)   ±1.5°C (2.7°F)
20 ~ 1000°C (68 ~ 1832°F)   ±0.5% or 0.5°C (0.9°F)
1000 ~ 2200°C (1832 ~ 3992°F)   ±1.0%
Response time   150ms
Spectral response   8 ~ 14μm
Emissivity   Digitally adjustable from 0.10 to 1.00

Type-K Temperature Measurement
Temperature Range
-50 to 1370°C (-58 to 2498°F)
Accuracy
0 to 1370°C (32 to 2498°F)   ±0.5% ±1.5°C (2.7°F)
-50 to 0°C (-58 to 32°F)   ±2.5°C (4.5°F)
Display resolution   0.1°C (0.1°F)   <1000
   1°F   >1000

Air Temperature and Relative Humidity Measurement
Air Temperature Range   0 to 50°C (32 to 122°F)
Dewpoint Temperature Range   0 to 50°C (32 to 122°F)
Relative Humidity Range   0 to 100%RH
Air Temperature Accuracy
10 to 40°C   ±0.5°C (0.9°F)
others   ±1.0°C (1.8°F)
Dewpoint Temperature Accuracy
10 to 40°C   ±0.5°C (0.9°F)
others   ±1.0°C (1.8°F)
Relative Humidity Accuracy
40 to 60%   ±3%RH
20 to 40%, 60 to 80%   ±3.5%RH
0 to 20, 80 to 100%   ±5%RH
Operating temp.   0 to 50°C (32 to 122°F)
Storage temp.   -10 to 60°C (14 to 140°F)
Relative humidity   10% ~ 90%RH non-condensing
Display   2.2" 320*240 colour LCD with
   backlight

Power
Power supply   Rechargeable battery
Battery life   About 4 hours continuous use
Battery charge time   About 2 hours with AC adaptor or
   USB connection
Size (HxWxL)   205 x 62 x 155mm
Weight   410g

6.10 Type K
Press the ▲ and ▼ button to enable or disable Type K input, press the ESC button to escape and save.
Note: If a Type K probe is inserted, Enable will be selected by default. Users can select Disable, prohibiting LCD display of Type K temperature.

7. Notes
• How it Works
Infrared thermometers measure the surface temperature of an object. The unit's optics sense emitted, reflected and transmitted energy, which is collected and focused onto a detector. The unit's translate the information into a temperature reading, which is displayed on the unit. In units with a laser, the laser is used for aiming purposes only.

• Field of View
Make sure that the target is larger than the unit's spot size. The smaller the target, the closer you should be to it. When accuracy is critical, make sure the target is at least twice as large as the spot size.

• Distance & Spot Size
As the distance (D) from the object increases, the spot size (S) of the area measured by the unit becomes larger. See Fig.1.

• Locating a Hot Spot
To find a hot spot, aim the thermometer outside the area of interest, then scan across with an up and down motion until you locate the hot spot.

• Reminders
1. Not recommended for use in measuring shiny or polished metal surfaces (stainless steel, aluminium, etc.) See Emissivity.
2. The unit cannot measure through transparent surfaces such as glass. It will measure the surface temperature of the glass instead.
3. Steam, dust, smoke, etc. can prevent accurate measurement by obstructing the unit's optics.

• Emissivity
Emissivity is a term used to describe the energy-emitting characteristics of materials.
Most (90% of typical applications) organic materials and painted or oxidised surfaces have an emissivity of 0.95 (pre-set in the unit). Inaccurate readings will result from measuring shiny or polished metal surfaces. To compensate, cover the surface to be measured with masking tape or flat black paint. Allow time for the tape to reach the same temperature as the material underneath it. Measure the temperature of the tape or painted surface.

8. Emissivity Values

Substance	Thermal Emissivity	Substance	Thermal Emissivity
Asphalt	0.90 to 0.98	Cloth (black)	0.98
Concrete	0.94	Human Skin	0.98
Cement	0.96	Leather	0.75 to 0.80
Sand	0.90	Charcoal (powder)	0.96
Earth	0.92 to 0.96	Laquer	0.80 to 0.95
Water	0.92 to 0.96	Laquer (matt)	0.97
Ice	0.96 to 0.98	Rubber (black)	0.94
Snow	0.83	Plastic	0.85 to 0.95
Glass	0.90 to 0.95	Timber	0.90
Ceramic	0.90 to 0.94	Paper	0.70 to 0.94
Marble	0.94	Chromium Oxides	0.81
Plaster	0.80 to 0.90	Copper Oxides	0.78
Mortar	0.89 to 0.91	Iron Oxides	0.78 to 0.82
Brick	0.93 to 0.96	Textiles	0.90

9. Maintenance
• Repairs or service are not covered in this manual and should only be carried out by a qualified technician.
• Periodically wipe the body with a dry cloth. Do not use abrasives or solvents on this instrument.
• For service, use only manufacturer's specified parts.

Items	Descriptions
Emissivity Set	Set the emissivity
Alarm High	Turn or off the high alarm and set the value
Alarm Low	Turn on or off the low alarm and set the value
Laser	Enable or disable the laser
Auto Mode	Lock to continuously measure
Max/Min	Display the max or min IR temperature
Avg/Dif	Display the average or difference IR temp
Ambient Temp/%RH	Display the air temperature and humidity
Dewpoint/Wet Bulb	Display the dewpoint and wet bulb temperature
Type K	Enable or disable the type K input

6.1 Emissivity Set
On the first line (ε = 0.94), press the ENTER button to adjust emissivity. Press the ▲ and ▼ button to adjust the value, the press the ENTER button to confirm. Press the ▲ and ▼ button to select the emissivities of the materials, press the ESC button to escape and save.

- ε=0.94
- ● Concrete
- Glass
- Human Skin
- Ice/water
- Plastic
- wood

6.2 Alarm High
Press the ▲ and ▼ button to switch on or off the high alarm. If the high alarm is on, press the ENTER button to adjust, press the ▲ and ▼ button to adjust value. Press the ENTER button to confirm, press the ESC button to escape and save.

- Enable 1000.0 ° C
- ● Disable

6.3 Alarm Low
Press the ▲ and ▼ button to switch on or off the low alarm. If the low alarm is on, press the ENTER button to adjust, press the ▲ and ▼ button to adjust value. Press the ENTER button to confirm, press the ESC button to escape and save.

- Enable -50.0 ° C
- ● Disable

6.4 Laser
Press the ▲ and ▼ button to enable or disable the laser, press the ESC button to escape and save.

- Enable
- ● Disable

6.5 Auto Mode
Press the ▲ and ▼ button to enable or disable auto mode, press the ESC button to escape and save.
If auto mode is enabled, the unit will automatically continue to measure. On the status, press ENTER button and then press the ▲ button to exit the lock status or ▼ button to switch the laser on or off.

- Enable
- ● Disable

CANCEL ⚠

6.6 Max/Min
Press the ▲ and ▼ button to enable or disable display of the max or min IR temperature, press the ESC button to escape and save.

- ON
- ● OFF

6.7 Avg/Dif
Press the ▲ and ▼ button to enable or disable display of the average or difference IR temperature, press the ESC button to escape and save.

- ON
- ● OFF

6.8 Ambient Temp/%RH
Press the ▲ and ▼ button to enable or disable display of the air temperature and humidity, press the ESC button to escape and save.
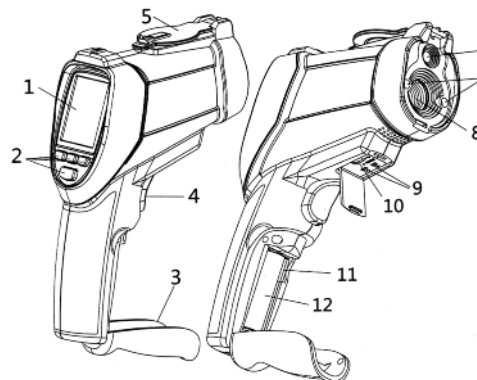
- ON
- ● OFF

6.9 Dewpoint/Wet Bulb
Press the ▲ and ▼ button to enable or disable display of the dewpoint and wet bulb temperature, press the ESC button to escape and save.

- ON
- ● OFF

4. Front Panel and Button Description

1. LCD Display
2. Buttons
3. Battery Cover
4. Measurement Trigger
5. Retractable Lens Cover
6. Visual Camera
7. Laser
8. IR Sensor
9. Type-K Thermocouple Socket
10. USB Computer Interface Socket
11. Micro SD Memory Card
12. Battery
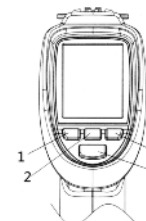
1. UP or PICTURE Button
2. ESC Button
3. DOWN or VIDEO Button
4. MODE Button

5. Menu Overview
Power on or power off
- On the power off mode, press and hold the ESC button, until the LCD is on, then the unit will power on.
- On the power on mode, press and hold the ESC button, until the LCD is off, then the unit will power off.

5.1 Measurement Mode
The IR Video thermometer has six modes. On the power on mode, press the ESC button, the unit will display the six modes. You can use UP or DOWN button to select any mode you need.

Items	Description	
CAM mode	Measure the IR temp, air temp & air humi with camera	IR CAM
IR mode	Measure the IR temp Very fast	IR MEASURE
Dewpoint	Measure the IR temp & dewpoint temp	DEWPOINT
Datalog	Datalog mode	DATALOG
Gallery	Display the picture/ datalog & video	GALLERY
Settings	Setting a parameter	SETTINGS

Symbols

| Symbols	Description	Symbols	Description
	CAM mode		High alarm
	IR mode		High alarm working
	DEWPOINT mode		Low alarm
	Laser		Low alarm working
	Scan		Hold

5.2 CAM Mode

- Use to measure IR temp, air temp, air humi, dewpoint temp and wet bulb temp with camera. It can display the IR MAX temp, MIN temp, DIF temp and AVG temp.
- Press and hold trigger to measure the temperature. This mode can take pictures and video.

5.2.1 Take Picture Function
On the CAM mode, press the ▲ button to enter picture taking, then press SAVE with ▲ button to save pictures, or press CANCEL with ▼ button to cancel.

SAVE CANCEL

5.2.2 Take Video Function

▲ ESC START
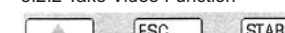
On the CAM mode, press the ▼ button to enter video taking, then press START with ▼ button to take videos, or press ESC button to escape.

▲ ESC STOP

Press STOP with the ▼ button to stop the video.

5.3 IR Mode

Use to measure IR temp, air temp, air humi, dewpoint temp and wet bulb temp without camera. It can display the IR MAX temp, MIN temp, DIF temp and AVG temp.
Press and hold trigger to measure the temperature

5.4 Dewpoint Mode

Measure the IR temp and Dewpoint temp.
Press and hold the trigger to measure the temperature.

This is that the IR temperature and dewpoint temperature close to the percentage of.

5.5 Data Log

In the DATALOG mode, first set the parameters, such as high alarm value, low alarm value, interval time and the line colour, then press the trigger to start logging. The unit will automatically record data, press the ESC button to escape the DATALOG mode, then the data will automatically be saved.

Set the Datalog Parameters
Set high alarm value.
Press ENTER button, use ▲ and ▼ buttons to adjust the value, then press the ENTER button to confirm.
Set low alarm value.
Press ENTER button, use ▲ and ▼ buttons to adjust the value, then press the ENTER button to confirm.
Set interval time.
Press ENTER button, use ▲ and ▼ buttons to adjust the value, then press the ENTER button to confirm.
Select the colour.
Press ENTER button, use ▲ and ▼ buttons to adjust the value, then press the ENTER button to confirm.

5.6 Gallery

Items	Descriptions
Picture	Display the saved pictures
Video	Play the saved videos
Logs	Display the data log and view

• Press the ▲ and ▼ buttons to select the picture, video or logs. Then press ENTER button to enter.
• In the picture, video or logs, press the ENTER button to view picture, play video or view log. The press the ENTER button to delete the picture, video or log. Press the ▲ button to confirm the delete, press ▼ button to cancel.


5.7 SETTINGS
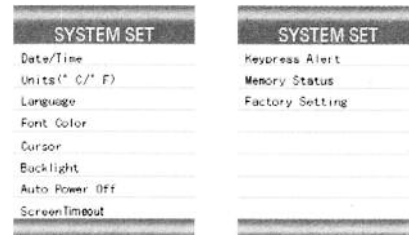
Items	Descriptions
Date/Time	Set date and time
Units (°C/°F)	Select the temperature unit
Language	Select language
Font Colour	Select the font colour
Cursor	Select cursor on or off
Backlight	Backlight brightness adjustment
Auto Power Off	Select auto power off time
Screen Timeout	Select screen auto off time
Keypress Alert	Enable or disable of keypress alert
Memory Status	Display the memory and SD card capacity
Factory Settings	Restore factory settings

Press the ▲ and ▼ buttons to select the items, then press the ENTER button to enter.

5.7.1 Date/Time
Press the ▲ and ▼ button to select the value, press the ENTER button to set the next value, press ESC button to escape and save the date and time.
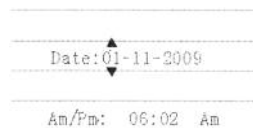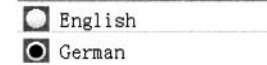

5.7.2 Units (°C/°F)
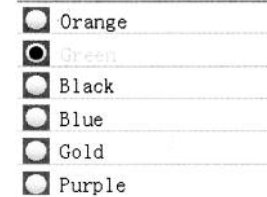Press the ▲ and ▼ button to select the unit, press the ESC button to escape and save.

5.7.3 Language
Press the ▲ and ▼ button to select the language, press the ESC button to escape and save.
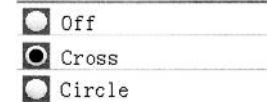

5.7.4 Font Colour
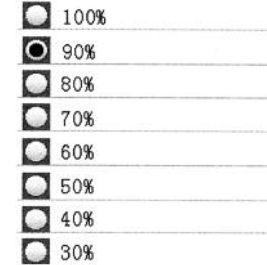Press the ▲ and ▼ button to select the colour, press the ESC button to escape and save.

5.7.5 Cursor
Press the ▲ and ▼ button to select the cursor (off, cross or circle), press the ESC button to escape and save.
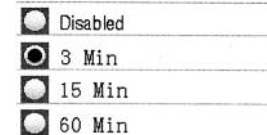

5.7.6 Backlight
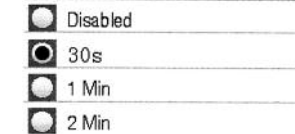Press the ▲ and ▼ button to select the backlight brightness, press the ESC button to escape and save.

5.7.7 Auto Power Off
Press the ▲ and ▼ button to select the auto power off time or never auto power off, press the ESC button to escape and save.
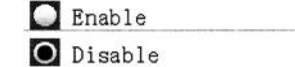

5.7.8 Screen Timeout
Press the ▲ and ▼ button to select the screen auto off time or never screen auto off, press the ESC button to escape and save.

5.7.9 Keypress Alert
Press the ▲ and ▼ button to enable or disable the keypress alert, press the ESC button to escape and save.

5.7.10 Memory Status
Press the ▲ and ▼ button to select the memory (flash or SD), press the ESC button to escape and save.
Note: If SD card inserted, SD card will be selected by default.

Press the enter button to format the flash or SD card, press ▲ button to cancel format, press ▼ button to confirm format.

5.7.11 Factory Setting
Press the ▲ and ▼ button to select yes or no restore factory settings, press the ESC button to escape and save.

6. Function
On any mode, press the ENTER button to enter the menu, Measure Set.