



# PROFESSIONAL THERMAL IMAGING

THERMAL CAMERAS WITH ANALYSIS SOFTWARE



**IR-281  
THERMAL CAMERA**

LCD Resolution	1.8" TFT LCD 128x160 120x120
Visual camera	-
Spatial resolution	6.5 mrad
Color palettes	Iron red palette
Battery	3x AAA LR03 (not included)
Memory	-
Spectral margin	8-14 $\mu\text{m}$
Refresh rate	9 Hz
NETD	0.08 $^{\circ}\text{C}$ @ 30 $^{\circ}\text{C}$
Focus	Automatic
Measurement margin	From -20 to 300 $^{\circ}\text{C}$
Accuracy	$\pm 2$ $^{\circ}\text{C}$ or $\pm 2$ % @ 25 $^{\circ}\text{C}$
Shock resistance	25 g IEC68-2-29
Vibration resistance	2 g IEC68-2-6
Cursors	Fixed center



**IR-282  
THERMAL CAMERA  
WITH VISUAL CAMERA**

LCD Resolution	3.2" TFT LCD 240x320 120x120
Visual camera	57600 pixels
Spatial resolution	5 mrad
Color palettes	4 palettes
Battery	Li+ rechargeable battery
Memory	Built-in, 5000 measurements
Spectral margin	8-14 $\mu\text{m}$
Refresh rate	50 Hz
NETD	0.06 $^{\circ}\text{C}$ @ 30 $^{\circ}\text{C}$
Focus	Automatic
Measurement margin	From -20 to 250 $^{\circ}\text{C}$
Accuracy	$\pm 2$ $^{\circ}\text{C}$ or $\pm 2$ %
Shock resistance	25 g IEC68-2-29
Vibration resistance	2 g IEC68-2-6
Cursors	Fixed center, maximum, minimum

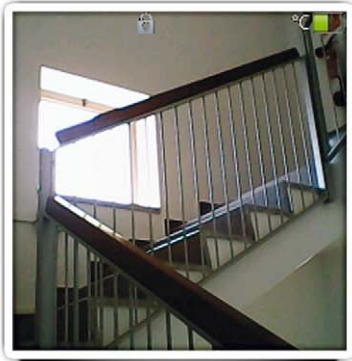


**IR-283  
PROFESSIONAL  
THERMAL CAMERA  
WITH VISUAL CAMERA**

LCD Resolution	3.5 TFT LCD 640x480 160x120
Visual camera	1.3 Mpixel
Spatial resolution	2.72 mrad
Color palettes	11 palettes
Battery	Li+ rechargeable battery
Memory	8 GB micro SD
Spectral margin	8-14 $\mu\text{m}$
Refresh rate	50/60 Hz
NETD	0.06 $^{\circ}\text{C}$ @ 30 $^{\circ}\text{C}$
Focus	Manual
Measurement margin	-20 to 350 $^{\circ}\text{C}$
Accuracy	$\pm 2$ $^{\circ}\text{C}$ or $\pm 2$ %
Shock resistance	25 g IEC68-2-29
Vibration resistance	2 g IEC68-2-6
Cursors	Up to 4 moveable spots, 3 moveable areas (max, min, average), temperature line, isotherm analysis, temperature difference, overheating alarm (voice, color)

Analysis software available for IR-282 and IR-283 models

## TRIPLE IMAGE DISPLAY



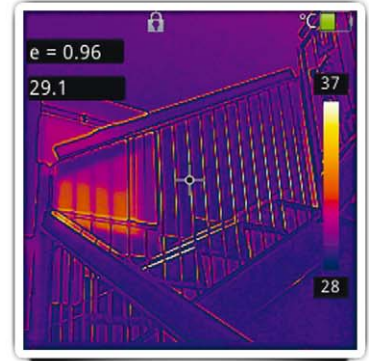
### VISIBLE SPECTRUM

The initial reference to take a thermal image of any object or living being.



### INFRARED SPECTRUM

Display the thermal emissivity of the environment or the item under analysis along with the immediate measurement of its temperature.

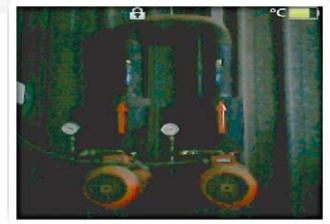


### IMPROVED DUAL IMAGE

A post-processed combination of both infrared and visible spectrums. Find those items which are indistinguishable in the infrared image because of their thermal similarity.

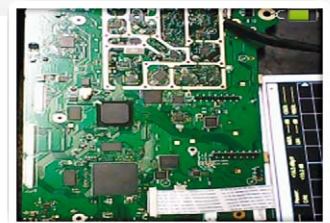
### Industrial servicing

Detection of hot spots in electrical panels, engines and any type of machines. This information can be the key to avoid service interruptions or accidents.



### Design, manufacturing and servicing of electronic circuits

Detecting hot spots in a circuit board can help us to detect failures and to anticipate operation problems.



### Locating living beings in the dark

Given the fact that generally living beings have a body temperature higher than the environment temperature, it is possible to find them in the dark.



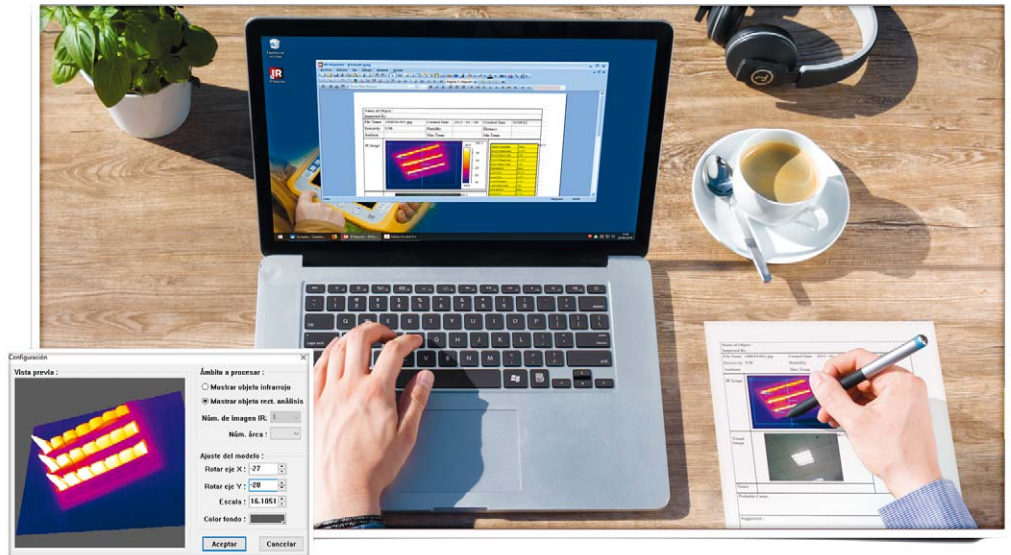
Triple image display available for IR-282 and IR-283 models.

## ANALYSIS SOFTWARE

**INSPECT IMAGES**  
**EXPORT DATA**  
**EDIT REPORTS**  
**PRINT REPORTS**

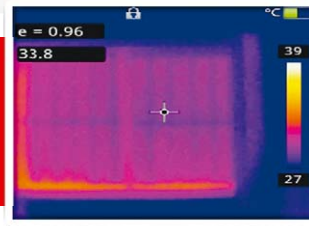
Thermal image cameras IR-282 and IR-283 include by default a free analysis software that allows to apply measurements to the captured images (even creating 3D images) and to create reports from the captured images. The report can be created from scratch or from templates included in the software application.

Data can be printed and exported to Microsoft Word files, allowing an unlimited customization.



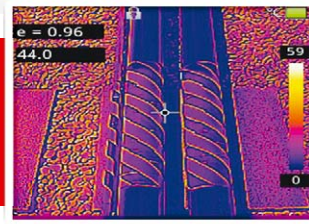
### Construction and maintenance

Isolation and energy saving. Thermal cameras allow identifying those points whose poor insulation allows heat loss. They also can be used to detect leaks in pipes, dampness, to check heating systems, etc.



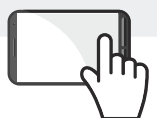
### Chemistry and derivatives

Verification of container contents. For example in the industry sector they allow to find out how much gas is left in a given hard to reach pressured cylinder.



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Analysis software available for IR-282 and IR-283 models

SPECIFICATIONS	IR-283 - PROFESSIONAL DUAL IMAGE THERMAL CAMERA	IR-282 - DUAL IMAGE THERMAL CAMERA	IR-281 THERMAL CAMERA
<b>DETECTOR</b> Array size/format	Un-cooled FPA micro-bolometer 160x120	Uncooled FPA micro bolometer 120x120	Uncooled FPA micro bolometer 120x120
<b>IMAGE FEATURES</b> Field of view/min focus distance	25°x19°/0.1 m	33° / 0.5 m	45° / 0.05 m
Spatial resolution IFOV	2.72 mrad	5 mrad	6.5 mrad
Thermal sensitivity	≤ 0.06 °C @ 30 °C	0.06 °C @ 30 °C	0.08 °C @ 30 °C
Frame frequency	50/60Hz	50 Hz	9 Hz
Focus	Manual	Focus free	Focus free
Zoom	x2	-	-
Spectral range	8-14 μm	8-14 μm	8-14 μm
Built-in CCD camera	1.3 million pixels	57600 pixels	-
<b>LCD DISPLAY</b>	3.5" TFT LCD, 640x480	3.2" TFT LCD, 240x320	1.8" TFT LCD, 128x160
<b>MEASUREMENT</b> Temperature ranges	-20 to 350 °C (expandable to 650 °C)	-20 to 250 °C	-20 to 300 °C
Accuracy	±2 °C or ±2 % of reading whichever is greater	±2 °C or ±2 %	±2 °C or ±2 % @ 25 °C
Measurement correction	Automatic / manual	Automatic	Automatic
Measurement mode	4 movable spots, 3 movable areas (max, min & average temperatures), 2 movable lines, Line profile, Isotherms, Temperature difference, Alarm (voice, color)	Fixed center, screen max/min temp., temperature alarm (voice, color)	Central point temperature measurement
Color palettes	11, selectable	4, selectable	Iron red
Image adjustment	Auto/manual gain and brightness	Auto	Auto
Image display	IR or Visual image	IR, Visual image or Dual band image enhancement processing	IR image with central spot temperature testing
Temperature units	°C, °F, °K	°C, °F, °K	°C, °F
Emissivity correction	Variable from 0.01 to 1.0	Variable from 0.01 to 1.0	-
Background temperature correction	Automatic corrections according to user input	-	-
Athmospheric transmission correction	Automatic correction according to user input object distance, humidity and temperature	-	-
<b>IMAGE STORAGE</b> Storage mode	8 GB SD card, max 16 GB	Built-in memory, up to 5000 images	-
File format	Manual or Automatic single image file saving, Infrared and Visual spectrum image link saving	JPEG, including the original thermal data	-
Voice annotation (built-in microphone)	Up to 60 seconds per image	Up to 60 seconds per image	-
<b>LASER POINTER</b>	Class 2, 1 mW / 635 nm (red), IEC 60 285	-	-
<b>POWER SOURCE</b> Battery type	Li-Ion, rechargeable	Li-Ion, rechargeable	3x AAA (LR03) batteries
Battery operating time	4 hours continuous operation	3 hours continuous operation	6 hours continuous operation
Battery charging mode	Intelligent charger or power adaptor 12V (optional)	Via USB connector	-
Power saving	Auto-sleep and auto-shut down	Auto sleep and auto shut-down	Auto sleep (5 minutes)
External power	10 to 15 VDC	5 VDC (USB power)	-
<b>ENVIRONMENT</b> Operating temperature	-15 °C to +50 °C	-15 °C to +50 °C	-10 °C to +50 °C
Humidity (non-condensing)	≤90 %	≤90 %	≤90 %
Encapsulation	IP54	IP54	-
Drop test	2 m	1.5 m	1.5 m
<b>INTERFACE</b>	Micro SD card slot, DC input, Video output, USB (data transfer)	USB (data transfer and power interface)	-
<b>MECHANICAL FEATURES</b> Dimensions	105 (W) x 245 (H) x 230 (D) mm	88 (W) x 240 (H) x 135 (D) mm	53 (W) x 177 (H) x 53 (D) mm
Weight	980 g	510 g	< 175 g (with batteries)