



# PROFESSIONAL THERMAL IMAGING

THERMAL CAMERAS  
WITH ANALYSIS SOFTWARE



**IR-281  
THERMAL CAMERA**

LCD	1.8" 128x160 px
Resolution	120x120 px
Visual camera	-
Spatial resolution	6.5 mrad
Color palettes	Iron red palette
Battery	3x AAA LR03
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-281B  
THERMAL IMAGE  
VISIBLE IMAGE  
TABLET FORMAT**

3.5" TFT touch
160x120 px
307200 px
4.4 mrad
6 palettes
Rechargeable Li+
Internal, 16 GB
8-14 $\mu\text{m}$
50 Hz
0.06 $^{\circ}\text{C}$ @ 30 $^{\circ}\text{C}$
Focus free
From -20 to 350 $^{\circ}\text{C}$
$\pm 2^{\circ}\text{C}$ or $\pm 2\%$
30 g IEC68-2-29
2 g IEC68-2-6
Real time movable spot, Movable area (max, min and avg temperatures), Line temperature measurement, Thermal alarm (audible and color)



**IR-282  
THERMAL IMAGE  
VISIBLE IMAGE**

3.2" 240x320
120x120 px
57600 pixels
5 mrad
4 palettes
Rechargeable Li+
Built-in, 5K measures
8-14 $\mu\text{m}$
50 Hz
0.06 $^{\circ}\text{C}$ @ 30 $^{\circ}\text{C}$
Automatic
From -20 to 250 $^{\circ}\text{C}$
$\pm 2^{\circ}\text{C}$ or $\pm 2\%$
25 g IEC68-2-29
2 g IEC68-2-6
Fixed center, max, min



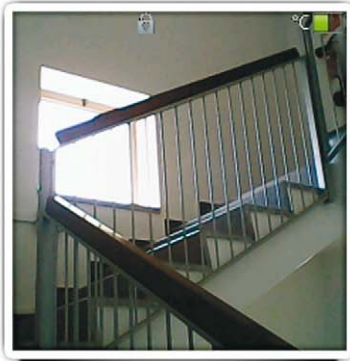
**IR-283  
THERMAL IMAGE  
VISIBLE IMAGE  
PROFESSIONAL**

3.5" 640x480 px
160x120 px
1.3 Mpx
2.72 mrad
11 palettes
Rechargeable Li+
8 GB micro SD
8-14 $\mu\text{m}$
50/60 Hz
0.06 $^{\circ}\text{C}$ @ 30 $^{\circ}\text{C}$
Manual
From -20 to 350 $^{\circ}\text{C}$
$\pm 2^{\circ}\text{C}$ or $\pm 2\%$
25 g IEC68-2-29
2 g IEC68-2-6
Up to 4 moveable spots, 3 moveable areas (max, min, avg), temperature line, isotherm analysis, temperature difference, overheating alarm (audible, color)

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

[www.promaxelectronics.com](http://www.promaxelectronics.com)

## TRIPLE IMAGE DISPLAY



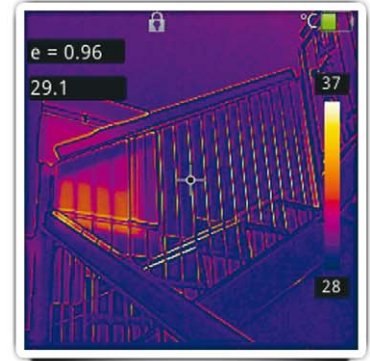
### VISIBLE SPECTRUM

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.

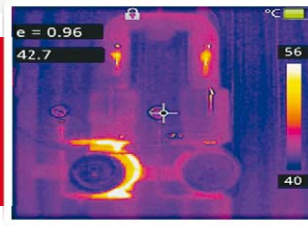


### IMPROVED DUAL IMAGE

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.

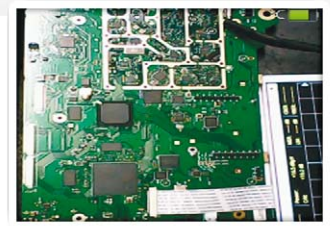
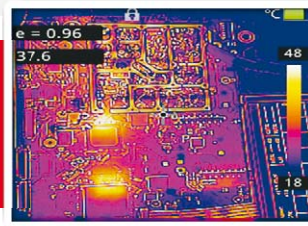
### Industrial servicing

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 visualización de imagen disponible en los modelos IR-281B e IR-283.

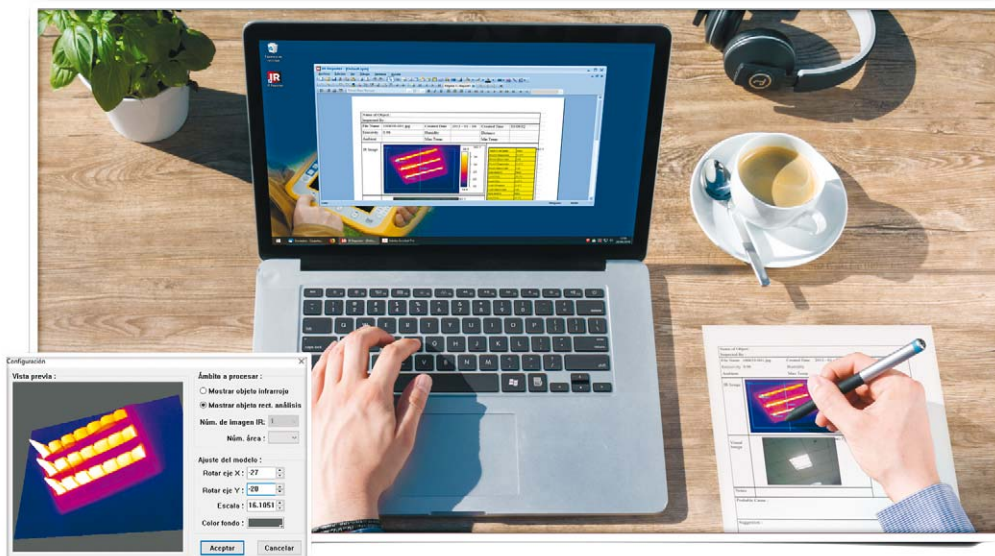


## ANALYSIS SOFTWARE

### INSPECT IMAGES EXPORT DATA EDIT REPORTS PRINT REPORTS

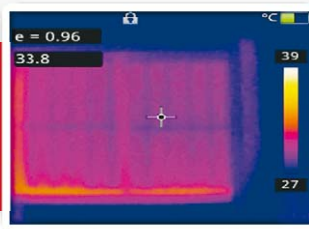
Thermal image cameras IR-282 and IR-283 include by default a free analysis software that allows to apply measurements to the captured images (**even creating 3D images**) and to create reports from the captured images. The report can be created from scratch or from templates included in the software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

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



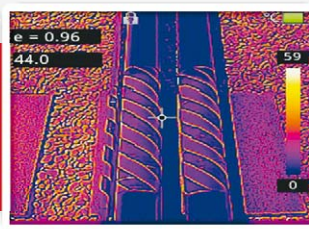
### Construction and maintenance

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.



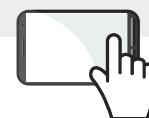
### Chemistry and derivatives

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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CHECK OUT THE  
PROMAX WEBSITE  
FOR MORE INFO ON  
THERMOGRAPHY



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

SPECIFICATIONS	IR-283 - PROFESSIONAL DUAL IMAGE	IR-282 - DUAL IMAGE	IR-281B - DIAL IMAGE TABLET SIZE	IR-281 THERMAL CAMERA
<b>DETECTOR</b>	Un-cooled FPA micro-bolometer	Un-cooled FPA micro-bolometer	VOx FPA (vanadium oxide)	Un-cooled FPA micro-bolometer
Array size/format	160x120	120x120	256x192	120x120
<b>IMAGE FEATURES</b>				
Field of view/min focus distance	25°x19°/0.1 m	33° / 0.5 m	N/A	45° / 0.05 m
Spatial resolution IFOV	2.72 mrad	5 mrad	2 mrad	6.5 mrad
Thermal sensitivity	≤ 0.06 °C @ 30 °C	0.06 °C @ 30 °C	0.05 °C @ 30 °C	0.08 °C @ 30 °C
Frame frequency	50/60Hz	50 Hz	50 Hz	9 Hz
Focus	Manual	Focus free	Focus free	Focus free
Zoom	x2	-	-	-
Spectral range	8-14 µm	8-14 µm	9-14 µm	8-14 µm
Built-in CCD camera	1.3 megapixels	57600 pixels	1.9 megapixels	-
<b>LCD DISPLAY</b>	3.5" TFT LCD, 640x480	3.2" TFT LCD, 240x320	3.5" TFT LCD touch 640x480 Orientación automática	1.8" TFT LCD, 128x160
<b>MEASUREMENT</b>				
Temperature ranges	-20 to 350 °C (650 °C option)	-20 to 250 °C	- 20 to 650 °C	-20 to 300 °C
Accuracy	±2 °C or ±2 % of reading, whichever is greater	±2 °C or ±2 % of reading, whichever is greater	±2 °C or ±2 % of reading, whichever is greater	±2 °C or ±2 % @ 25 °C
Measurement correction	Automatic / manual	Automatic	Automatic / manual	Automatic
Measurement mode	4 movable spots, 3 movable areas (máx, min & avg temperatures), 2 movable lines, Line profile, Isotherms, Temperature difference, Alarm (audible, color)	Fixed center, Screen max/min temperatures, Alarm (audible, color)	Real time movable spot, Movable area (max, min, average temperatures), Line temperature measurement, Alarm (audible, color)	Central point temperature measurement
Color palettes	11, selectable	4, selectable	6, selectable	Iron red
Image adjustment	Auto/manual gain/brightness	Automatic	Auto/manual contrast/brightness	Automatic
Image display	IR, Visual image or dual image	IR or visual image	IR, Visible, PiP or combined image	IR image with central spot temperature testing
Temperature units	°C, °F, °K	°C, °F, °K	°C	°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	-	-	-
Atmospheric transmission correction	Autocorrection according distance to object, humidity and temperature (user input)	-	-	-
<b>IMAGE STORAGE</b>				
Storage mode	SD (8 GB), 16 GB max.	Built-in memory, up to 5000 images	16 GB internal memory	-
File format	Manual/automatic image saving, linking IR and Visible images	Manual/auto image saving	Manual/automatic image saving, linking IR and Visible images	-
Voice annotation (built-in microphone)	Thermal: JPEG, including thermal measurement data Visible: JPEG	JPEG, including thermal measurement data	JPEG or MPEG-4, including thermal measurement data	-
	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>TORCH</b>	-	-	Yes	-
<b>POWER SOURCE</b>				
Battery type	Li-Ion, rechargeable	Li-Ion, rechargeable	Li-Ion, rechargeable	3x AAA (LR03) batteries
Battery operating time	4 h, continuous operation	4 h, continuous operation	≥4 h, continuous operation	6 h, continuous operation
Battery charging mode	Intelligent charger or power adaptor 12V (optional)	Via USB connector	Via USB connector	-
Power saving	Auto sleep, auto shut down	Auto sleep, auto shut down	Auto sleep, auto shut down	Auto sleep
External power	10 to 15 V DC	5 V DC (USB power)	5 V DC (USB power)	-
<b>ENVIRONMENT</b>				
Operating temperatures	-15 °C to +50 °C	-15 °C to +50 °C	-15 °C to +50 °C	-10 °C to +50 °C
Humidity (non-condensing)	≤90 %	≤90 %	≤95 %	≤90 %
Encapsulation	IP54	IP54	IPX6	-
Drop test	2 m	1.5 m	2 m	1.5 m
<b>INTERFACE</b>	Micro SD slot, DC input, Video output, USB (data)	USB (data and supply)	USB (data and supply) WiFi (data transfer)	-
<b>MECHANICAL FEATURES</b>				
Dimensions (W x H x D)	105 x 245 x 230 mm	88 x 240 x 135 mm	135 x 90 x 26 mm	53 x 177 x 53 mm
Weight	980 g	510 g	200 g	< 175 g (with batteries)