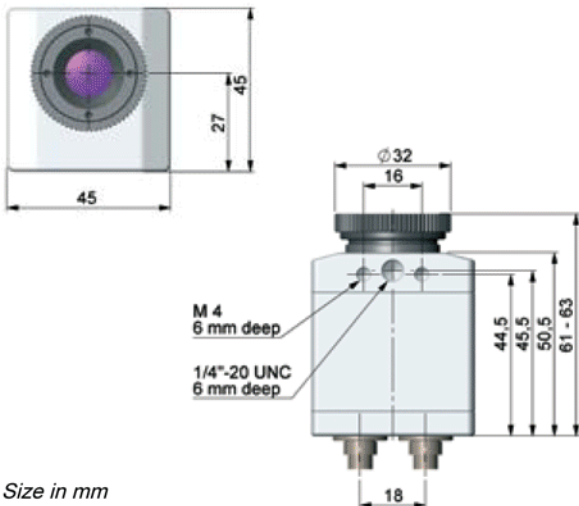


Thermal imager with 120 Hz frame rate



Small camera - Ideal for OEM applications



Size in mm

Important Features

- Outstanding price-performance ratio
- Extensive license-free analysis software inclusive
- Detector with 160 x 120 pixel
- Thermal images in real time with up to 120 Hz
- Very good thermal sensitivity starting from 80 mK
- Small design (Size: 45 x 45 x 62 mm)
- Thermo Analysis Kit incl. 3 lenses (optional)

Industrial Accessories

The infrared cameras are available with a housing with **protection class IP 67 (NEMA-4)**. The use of the device takes place at the following temperatures...

- ... up to **50°C** without cooling housing
- ... up to **100°C** with cooling housing (air cooling)
- ... up to **240°C** with cooling housing (water cooling)

Additional industrial accessories is available, such as **USB high temperature cables** up to 20 m and mounting systems.

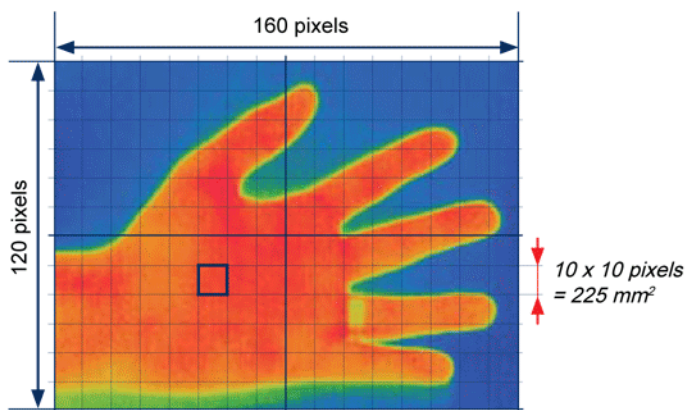
Cooling housing with air and water cooling option



Fitting lenses for each distance

Hand as device under test

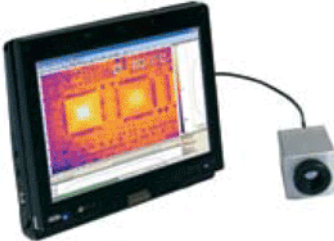
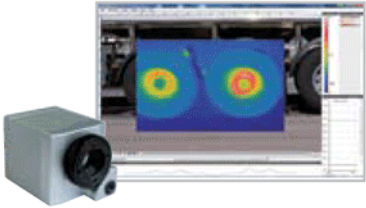
Measuring field size: 240 mm x 180 mm, pixel size: 1.5 mm



Same measurement field size

using different lenses:

- Standard lens: 0.6 m measuring distance
- Tele lens: 2.13 m measuring distance
- Wide angle lens: 0.27 m measuring distance

Basis model	IR 160	IR 200 / IR 230
Type	IR	BI-SPECTRAL
		
Scope of supply	USB camera incl. 1 lens, USB cable (1 m), table tripod, PIF cable incl. terminal block (1 m), software package optris PI Connect, aluminum case	USB camera with 1 lens and BI-SPECTRAL technology, USB cable (1 m), table tripod, focussing tool, PIF cable incl. terminal block (1 m), software package optris PI Connect, aluminum case
Detector	FPA, uncooled (25 µm x 25 µm)	FPA, uncooled (25 µm x 25 µm)
Optical resolution	160 x 120 pixel	160 x 120 pixel
Spectral range	7.5 - 13 µm	7.5 - 13 µm
Temperature ranges	-20°C...100°C, 0°C...250°C, 150°C...900°C, additional range: 200°C...1500°C (option)*	-20°C...100°C, 0°C...250°C, 150°C...900°C, additional range: 200°C...1500°C (option)*
Frame rate	120 Hz	128 Hz***
Optics (FOV)	23° x 17° FOV / f = 10 mm <u>or</u> 6° x 5° FOV / f = 35.5 mm <u>or</u> 41° x 31° FOV / f = 5.7 mm <u>or</u> 72° x 52° FOV / f = 3.3 mm	23° x 17° FOV** / f = 10 mm <u>or</u> 6° x 5° FOV / f = 35.5 mm <u>or</u> 41° x 31° FOV** / f = 5.7 mm <u>or</u> 72° x 52° FOV / f = 3.3 mm
Thermal sensitivity (NETD)	0.08 K with 23° x 17° FOV / F = 0,8 0.3 K with 6° x 5° FOV / F = 1,6 0.1 K with 41° x 31° FOV and 72° x 52° FOV / F = 1	0.08 K with 23° x 17° FOV / F = 0,8 0.3 K with 6° x 5° FOV / F = 1,6 0.1 K with 41° x 31° FOV and 72° x 52° FOV / F = 1
Option for visual camera (only for BI-SPECTRAL camera)	-	Optical resolution: 640 x 480 Pixel, Frame rate: 32 Hz*** Optics (FOV): 54° x 40° (PI 200), 30° x 23° (PI 230)
Accuracy	±2°C or ±2%	±2°C or ±2%
PC interface	USB 2.0	USB 2.0
Process interface (PIF)		
Standard PIF	0-10V input, digital input (max. 24V), 0-10V output	0-10V input, digital input (max. 24V), 0-10V output
Industrial PIF	2x 0-10V inputs, digital input (max. 24V), 3x 0-10V outputs, 3x relay (0-30V/ 400mA), fail safe relay	2x 0-10V inputs, digital input (max. 24V), 3x 0-10V outputs, 3x relay (0-30V/ 400mA), fail safe relay
Ambient temperature (T _{Amb})	0°C...50°C	0°C...50°C
Storage temperature	-40°C...70°C	-40°C...70°C
Relative humidity	20 - 80%, non condensing	20 - 80%, non condensing
Enclosure (size / rating)	45 mm x 45 mm x 62 mm / IP 67 (NEMA 4)	45 mm x 45 mm x 62 mm / IP 67 (NEMA 4)
Weight	195 g, incl. lens	215 g, incl. lens
Shock / vibration	25G, IEC 68-2-29 / 2G, IEC 68-2-6	25G, IEC 68-2-29 / 2G, IEC 68-2-6
Tripod mount	1/4-20 UNC	1/4-20 UNC
Power supply	USB powered	USB powered

The IR 160 / IR 200 as Thermal Analysis Package

- Infrared camera
- 3 lenses (23°, 6°, 41°) incl. calibration certificate
- USB cable (1 m and 10 m)
- Table tripod (20 - 63 cm)
- PIF cable with terminal block (1 m)
- Software package IR Connect
- Aluminum case



* The additional measurement range is not available for 72° HFOV optics

** For ideal combination of IR and VIS image, a 41° HFOV lens is recommended (IR 200). For the IR 230, a 23° HFOV lens is recommended.

*** The following options can be set:
Option 1 (IR with 96 Hz at 160 x 120 px; VIS with 32 Hz at 640 x 480 px)
Option 2 (IR with 128 Hz at 160 x 120 px; VIS with 32 Hz at 596 x 447 px)