

**Microscope optics for  
 the inspection of  
 electronic boards**



**Features:**

- Exchangeable, focusable optics for most flexible use of the camera
- Analysis of small chip level components down to 28 µm
- Hands-free operation for simultaneous testing and IR imaging
- Frame rates up to 125 Hz allow inspection of fast processes (like pulsed laser diodes)
- Radiometric video or tiff recording with +/- 2 °C measurement accuracy
- License-free analysis software and complete SDK included

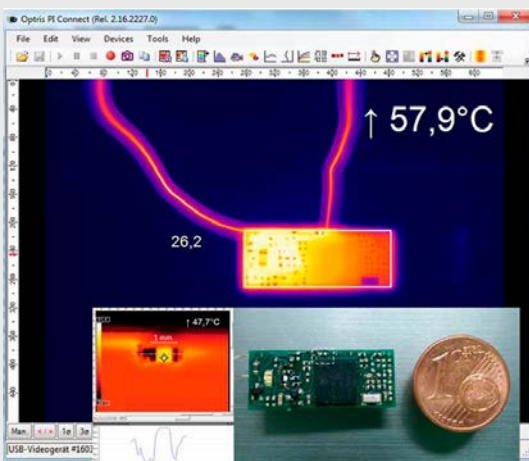
**Technical Specifications**

Camera type	PI 450	PI 640
Temperature range (scalable)	-20 ... 100 °C, 0 ... 250 °C, (20)150 ... 900 °C <sup>1)</sup>	
Detector	FPA, 382 x 288 pixels @ 80 Hz (switchable to 27 Hz)	FPA, 640 x 480 pixels @ 32 Hz 640 x 120 pixels @ 125 Hz
Spectral range	7.5 – 13 µm	
Microscope optics (FOV)	10° x 8° (F=1.1) / f= 44 mm	12° x 9° (F=1.1) / f= 44 mm
Minimum spot size (IFOV)	42 µm	28 µm
MFOV	85 µm <sup>2)</sup>	
Working distance	80 – 100 mm	
System accuracy	±2 °C or ±2 %, whichever is greater	
Temperature resolution (NETD)	90 mK	120 mK
PC interface	USB 2.0	
Standard process interface (PIF)	0–10 V input, digital input (max. 24 V), 0–10 V output	
Industrial process interface (IPIF)	2x 0–10 V inputs, digital input (max. 24 V), 3x 0–10 V outputs, 3x relays (0–30 V / 400 mA), fail-safe relay	
Cable length (USB)	1 m (standard), 3 m, 5 m, 10 m, 20 m	
Ambient temperature	0 ... 70 °C	0 ... 50 °C
Storage temperature	-40 ... 70 °C	
Relative humidity	20–80 %, non condensing	
Enclosing <sup>3)</sup> (size / rating)	46 x 56 x 119 - 126 mm (depending on focus position) / IP 67 (NEMA 4)	
Weight	370 g, incl. lense	
Shock/Vibration <sup>3)</sup>	IEC 60068-2	
Tripod mount	1/4 – 20 UNC	
Power supply	via USB	
Emissivity	0.100 ... 1.100	
Software	optris® PIX Connect / Windows and Linux SDKs	
Scope of supply (PI camera + Microscope accessory kit)	<ul style="list-style-type: none"> <li>• PI camera (PI 450 or PI 640)</li> <li>• Standard lens (PI 450: O29; PI 640: O33)</li> <li>• Microscope optics (MO44)</li> <li>• Standard USB cable (1 m)</li> <li>• Manual PI camera</li> <li>• Rugged outdoor transport case</li> <li>• Software package optris® PIX Connect on USB flash drive</li> </ul>	

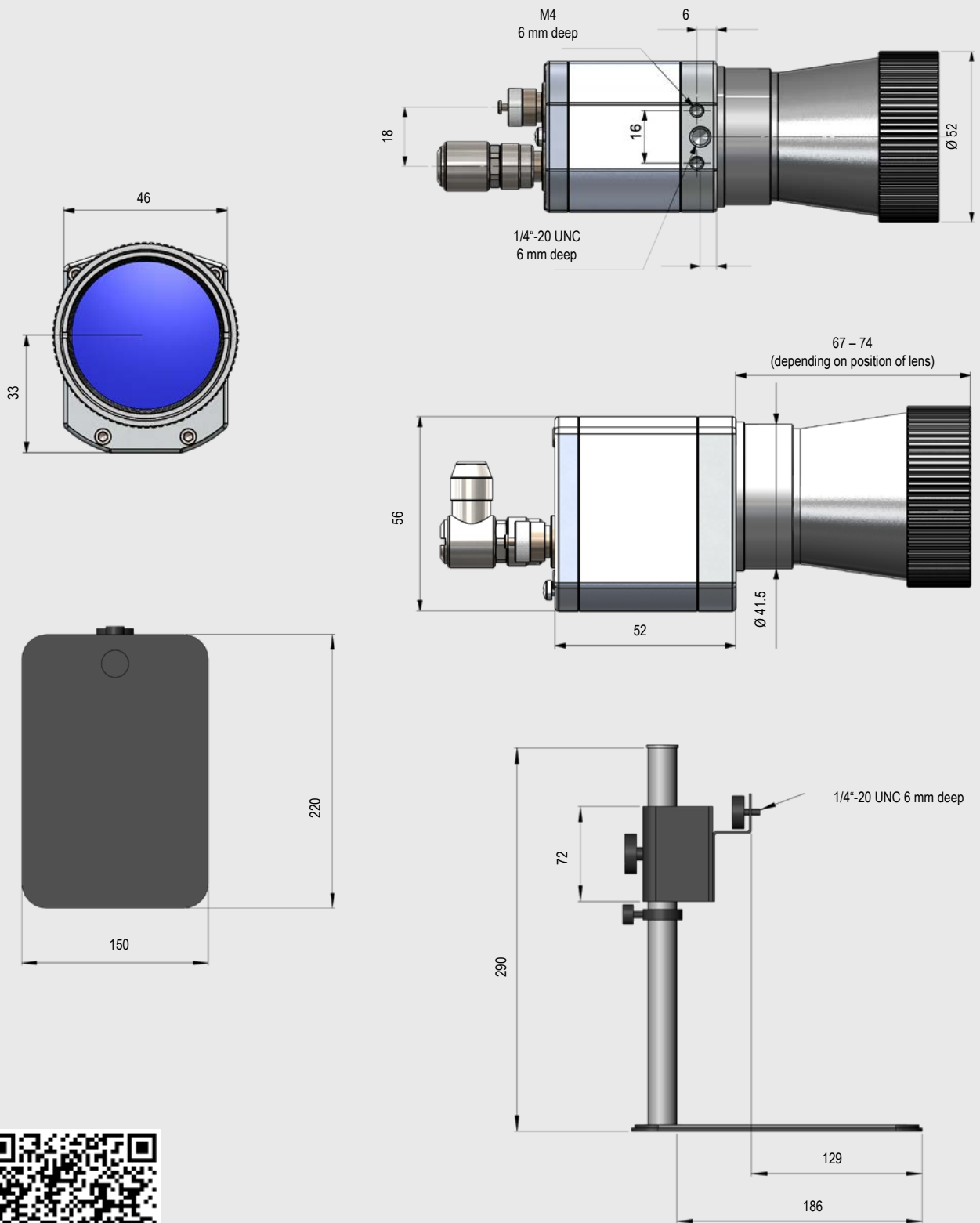
<sup>1)</sup> Accuracy statement effective from 150 °C

<sup>2)</sup> MFOV on PI 450 is 2 x 2 px; on PI 640 3 x 3 px

<sup>3)</sup> For more details see operator's manual



## Dimension



For further information as well as the optics calculator, please visit [www.optris.global/microscope-optics](http://www.optris.global/microscope-optics)

Dimensions in mm