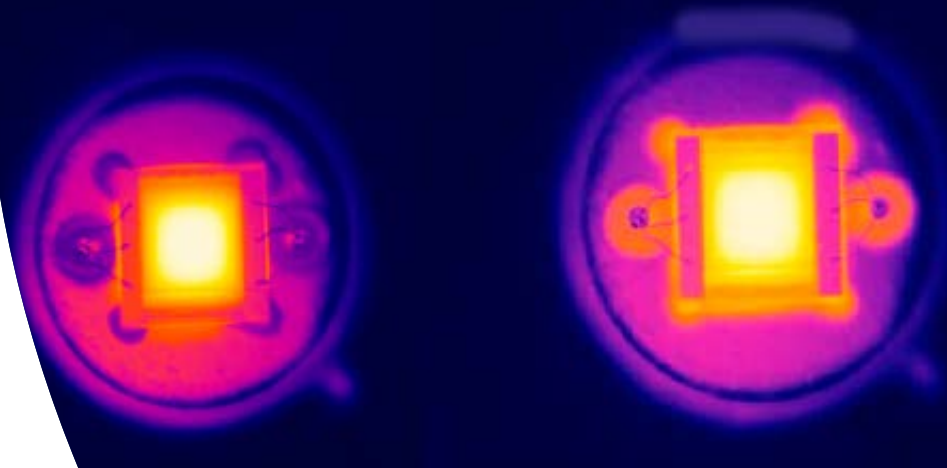




# Microscope Optics

For PI 450 and PI 640 infrared cameras

innovative infrared technology



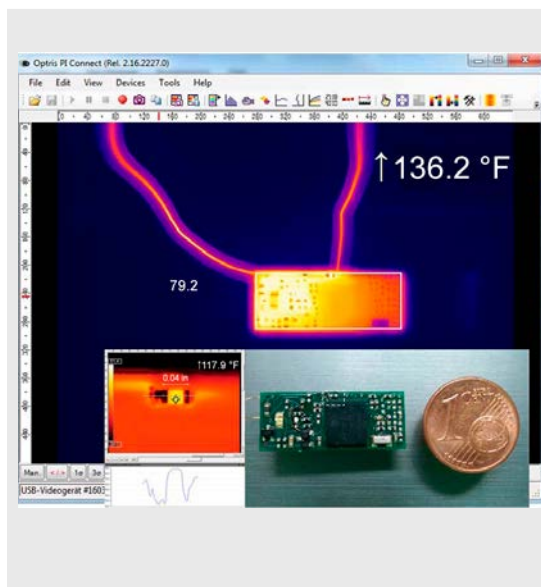
# optris® MICROSCOPE OPTICS

## TECHNICAL DATA

### Microscope optics for the inspection of electronic boards

### Features:

- Exchangeable, focusable lenses 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 (+/- 3.6 °F) 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> (-4 ... 212 °F, 32 ... 482 °F, (4) 302 ... 1652 °F) <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 (f= 1.73 in)	12° x 9° (F=1.1) / f= 44 mm (f= 1.73 in)
Minimum spot size	42 µm	28 µm
MFOV	85 µm <sup>2)</sup>	
Working distance	80 – 100 mm (3.15 – 3.94 in)	
System accuracy	±2 °C or ±2 %, whichever is greater (±3.6 °F 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 (IPF)	2x 0–10 V inputs, digital input (max. 24 V), 3x 0–10 V outputs, 3x relay (0–30 V / 400 mA), fail-safe relay	
Cable length (USB)	1 m (standard), 3 m, 5 m, 10 m, 20 m (3.3 ft [standard], 9.8 ft, 16.4 ft, 32.8 ft, 65.6 ft)	
Ambient temperature	0 ... 70 °C (32 ... 158 °F)	0 ... 50 °C (32 ... 122 °F)
Storage temperature	-40 ... 70 °C (-40 ... 158 °F)	
Relative humidity	20–80 %, non condensing	
Enclosing <sup>3)</sup> (size / rating)	46 x 56 x 130 mm (1.81 x 2.20 x 5.12 in) / IP 67 (NEMA 4)	
Weight	370 g (13.1 oz), 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>• Microscope optics (MO44)</li> <li>• Standard PIF</li> <li>• Standard USB cable (1 m [3.3 ft])</li> <li>• Rugged outdoor transport case</li> <li>• Software package optris® PIX Connect on USB flash drive</li> <li>• Standard lens (PI 450: O29; PI 640: O33)</li> <li>• Microscope stand</li> <li>• Manual PI camera</li> </ul>	

<sup>1)</sup> Accuracy statement effective from 150 °C (302 °F)

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

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

