optris infrared sensing

Compact infrared camera for laser applications

Features:
- Wide measurement range from 575 °C to 1900 °C (1652 °F to 3632 °F) without sub-ranges
- Special narrow-band spectral response at 800 nm ideal for almost all NIR and CO_2 laser processing applications
- High dynamic CMOS detector with up to 764 x 480 pixels resolution
- Up to 1 kHz frame rate for fast processes
- Real-time analog output with 1 ms response time
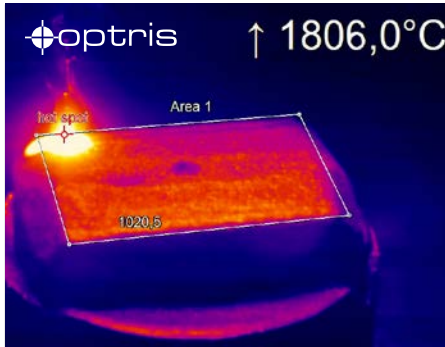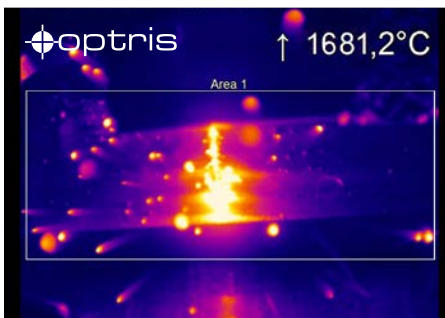- Extensive software package and SDK included

↑ 1681,2°C
Area 1

↑ 1806,0°C
Area 1
hot spot
1020,5

Image: SLV Halle GmbH, Germany 2018

Technichal specifications

Optical resolution (switchable) / Frame rate	764 x 480 pixels @ 32 Hz / 382 x 288 pixels @ 80 Hz (switchable to 27 Hz) 72 x 56 pixels @ 1 kHz[1] / 764 x 8 pixels @ 1 kHz (fast linescanning mode)[1]
Detector	CMOS (15 µm x 15 µm)
Spectral range	780 – 820 nm
Temperature range	575 °C ... 1900 °C (27 Hz mode) (1067 °F ... 3452 °F) 625 °C ... 1900 °C (32 / 80 Hz mode) (1157 °F ... 3452 °F) 750 °C ... 1900 °C (1 kHz mode) (1382 °F ... 3452 °F)
Optics	**FOV @ 764 x 480 px:** **FOV @ 382 x 288 px:** 26° x 16° (f = 25 mm [1.0 in]) 13° x 10° (f = 25 mm [1.0 in]) 20° x 15° (f = 16 mm [0.63 in]) 39° x 25° (f = 16 mm [0.36 in])
Thermal sensitivity (NETD)	< 2 K (<1000 °C (1832 °F)/ 27 Hz to 1kHz)[2]
Accuracy	+/- 1 % of reading (<1500 °C [2732 °F])/ +/- 1,5 % of reading (>1500 °C [2732 °F])[3]
PC interface	USB 2.0 / optional USB to GigE (PoE) conversion
High speed analog output (@ 1 kHz mode)	0 – 10 V real time output of 8 x 8 pixels (1 ms response time)
Standard process interface (PIF)	0 – 10 V input, digital input (max. 24 V), 0 – 10 V output
Industrial process interface (PIF)	2x 0 – 10 V inputs, digital input (max. 24 V), 3x 0/4 – 20 mA outputs, 3x relay (0 – 30 V/ 400 mA), fail-safe relays
Cable length (USB)	1 m (standard), 5 m, 10 m, 20 m (3.3 ft [standard]), 16.4 ft, 32.8ft, 65.6 ft) 5 / 10 m (16.4 / 32.8 ft) also available as HT cable (180 or 250 °C [356 or 482 °F])
Ambient temperature	5 °C ... 50 °C (41 °F ... 122 °F)
Storage temperature	−40 °C ... 70 °C (−40 °F ... 158 °F)
Relative humidity	20 – 80 %, non-condensing
Enclosure (size / rating)	46 x 56 x 88 - 129 mm (1.8 x 2.2 x 3.5 - 5.1 in) (depending on lens + focus position) / IP 67 (NEMA 4)[4]
Weight	245 - 311 g (8.64 - 10.97 oz), depending on lens
Shock / Vibration [5]	IEC 60068-2-27 (25G and 50G) / IEC 60068-2-6 (sinus shaped), IEC 60068-2-64 (broadband noise)
Tripod mount	¼ – 20 UNC
Power supply	via USB
Software	optris PIX Connect / IRmobile Android App
Scope of supply (standard)	• USB camera with 1 lens • Table tripod • USB cable (1 m) (3.3 ft) • Software package optris PIX Connect • PIF cable (1 m) (3.3 ft) incl. terminal block • Aluminum case • Lens protection tube incl. protective window • Optional: CoolingJacket, HT cable

[1] Can be placed anywhere within the full FOV
[2] <4 K (>1000 °C [1832 °F]/ 27 Hz to 1 kHz)
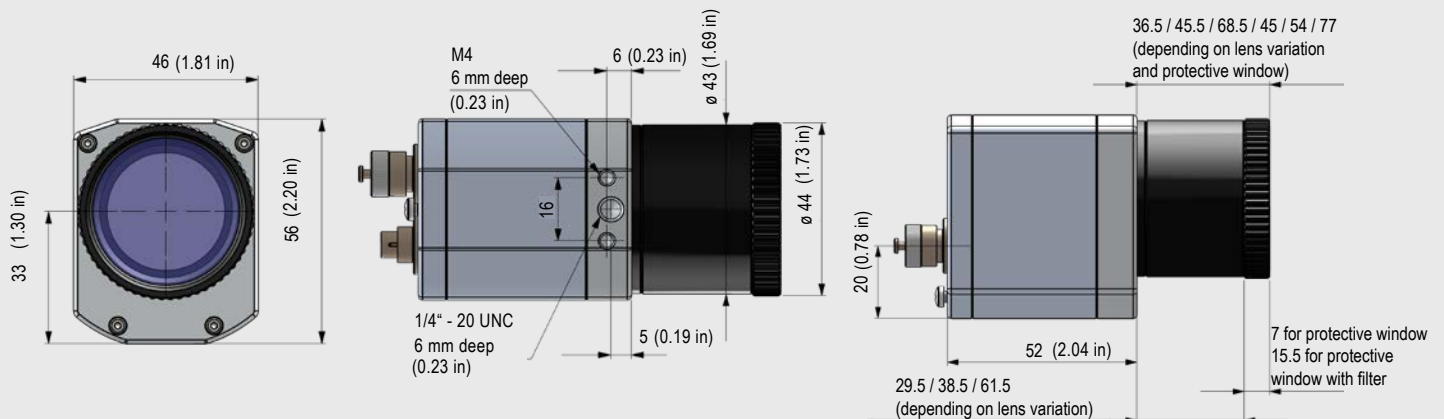[3] for 1 kHz mode: +/- 1,5 % of reading (<1500 °C [2732 °F]) / +/-2 % of reading (>1500 °C
[4] Only applies when lens protection tube is used
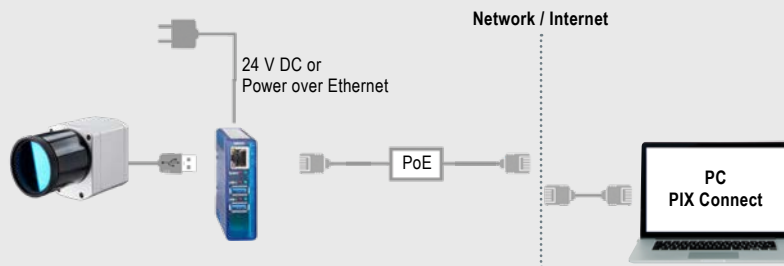[5] For more details see operator's manual

SHPH
测温 热像 校准

optris **PI 08M**

Dimensions

46 (1.81 in)

33 (1.30 in)

56 (2.20 in)

M4
6 mm deep
(0.23 in)

6 (0.23 in)

ø 43 (1.69 in)

ø 44 (1.73 in)

16

1/4" - 20 UNC
6 mm deep
(0.23 in)

5 (0.19 in)

36.5 / 45.5 / 68.5 / 45 / 54 / 77
(depending on lens variation
and protective window)

20 (0.78 in)

52 (2.04 in)

29.5 / 38.5 / 61.5
(depending on lens variation)

7 for protective window
15.5 for protective
window with filter

Process integration

24 V DC or
Power over Ethernet

Network / Internet

PoE

PC
PIX Connect

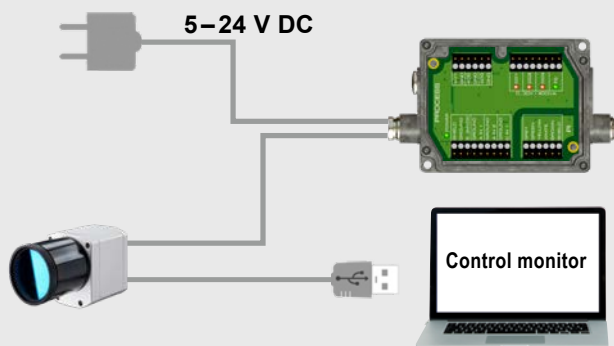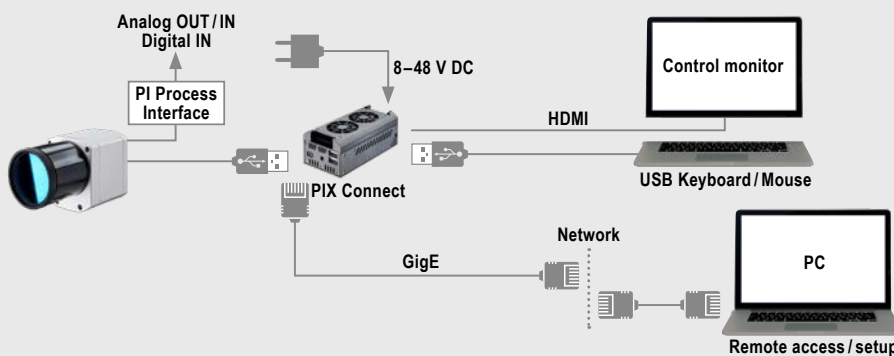### optris USB-Server Gigabit 2.0

- Network connection via Gigabit Ethernet
- Full TCP/IP support incl. routing and DNS
- Two independent USB ports
- Power over Ethernet or external voltage supply
  at 24 – 48 V DC
- Galvanic isolation 500 V_{RMS}
- Remotely configurable via web based management

5 – 24 V DC

Control monitor

optris Industrial process interface

- Use of camera for process monitoring in industrial environments
- Continuous fail safe monitoring of imager, software and cable connections
- 3 analog/ alarm outputs,
  2 analog inputs,
  1 digital input,
  3 alarm relays,
  1 fail-safe relay

Analog OUT / IN
Digital IN

PI Process
Interface

8 – 48 V DC

Control monitor

HDMI

PIX Connect

USB Keyboard / Mouse

Network

GigE

PC

Remote access / setup

optris PI NetBox

- Miniature PC as add-on to the PI series for stand-alone system
- Integrated hardware and software watchdog
- Connections: 2x USB 2.0, 1x USB 3.0, 1x Mini-USB 2.0, Micro-HDMI, Ethernet (Gigabit Ethernet), micro SDHC / SDXC card

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