

## Datenblatt

### Hochleistungs-Quotientenpyrometer Optris CSvision ... OPTCSVIR1MH1



<b>Bezeichnung</b>	OPTCSVIR1MH1
<b>Modell</b>	Quotientenpyrometer Optris CSvision R1MH
<b>Variante</b>	integrierte Elektronik
<b>Temperaturmessbereich</b>	900°C (1000°C) ... 3500°C
<b>Spektralbereich</b>	0,8 - 1,1 µm
<b>Optische Auflösung (D:S)</b>	150 : 1
<b>Messfleckgröße minimal</b>	1,3 mm
<b>Systemgenauigkeit</b>	± (0,5% T <sub>mess</sub> +2°C) bei Umgebungstemperatur 23±5°C
<b>Reproduzierbarkeit</b>	±(0,3% T <sub>mess</sub> +0,3°C) bei Umgebungstemperatur 23±5°C
<b>Emissionsgrad</b>	0,05 ... 1,10
<b>Einstellzeit</b>	1 ms - 10 s
<b>Temperaturauflösung</b>	0,1 K
<b>Versorgungsspannung</b>	8 -30 VDC
<b>Ausgänge</b>	0/4 ... 20 mA
<b>optionale Schnittstellen</b>	USB
<b>Software</b>	optris CompactPlus Connect, IRmobile

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Hochleistungs-Quotientenpyrometer Optris CSvision ...  
OPTCSVIR1MH1



<b>Umgebungstemperatur Sensorkopf</b>	0°C ... 65°C
<b>Umgebungstemperatur Elektronik</b>	0°C ... 65°C
<b>Visiereinrichtung</b>	Kreuzlaser, Videomodul
<b>Anwendung</b>	Metall / Keramik, Metallschmelzen, Nicht-Metalle

### optris CSvision R1M TECHNICAL DATA



**Ratio thermometer with motorized focus, patented crosshair laser and video sighting for non-contact temperature measurement from 550 °C to 3500 °C**



#### Features:

- Rugged and compact ratio thermometer with motorized focus and excellent optical resolution up to 150:1
- Innovative video sighting and crosshair laser for easy sensor alignment under all viewing conditions
- Switchable two-step brightness reduction filter for best viewing conditions on bright objects
- Easy on site sensor setup, video alignment and real-time process monitoring with IRmobile Android app or CompactPlus Connect software
- Integrated Smart Ratio Mode (SRM) - for demanding applications with adaptive slope requirements
- Usable up to 65 °C ambient temperature without cooling

#### General specifications

Environmental rating	IP 65 (NEMA-4)
Ambient temperature	0 ... 65 °C
Storage temperature	-40 ... 85 °C
Relative humidity	10 – 95 %, non-condensing
Vibration	IEC 60068-2-6 (sinus shaped) IEC 60068-2-64 (broadband noise)
Shock	IEC 60068-2-27 (25G and 50G)
Weight	518 g

#### Electrical specifications

Outputs analog	2x 0/4 – 20 mA
Output impedances	max. 500 Ω (with 8 – 30 V DC)
Digital Interfaces	USB, RS485 <sup>1)</sup> , Modbus RTU <sup>1)</sup>
Optional digital network interfaces	EtherNet/IP   Ethernet TCP   Modbus TCP   Profinet
I/O-Pin	Programmable in-/output: selectable as alarm output (open collector 24 V / 1 A), input for triggered signal output and peak hold function or as analog input for external emissivity or slope adjustment
Power supply	USB powered or 8 – 30 V DC <sup>2)</sup>
Power consumption	2.5 W (USB) or 4 W (8 – 30 V DC)
Aiming laser	Laser 635 nm/ <1 mW/ ON/OFF via software / app

#### Measurement specifications

	1-Channel	2-Channel
Temperature ranges	550 ... 1800 °C 900 ... 3000 °C 900 ... 3500 °C (R1MH1)	600 ... 1800 °C (R1ML) 1000 ... 3000 °C (R1MH) 1000 ... 3500 °C (R1MH1)
Spectral range	0.8 – 1.1 μm	
Optical resolution (90 % energy)	100:1 (R1ML)   150:1 (R1MH, R1MH1)	
Motorized focus	CFV: 200 mm to 400 mm, SFV: 350 mm to infinity; infinitely adjustable	
System accuracy <sup>3)</sup> (at T <sub>Amb</sub> = 23 ± 5 °C)	± (0.5 % of reading + 2 °C)	
Repeatability <sup>3)</sup> (at T <sub>Amb</sub> = 23 ± 5 °C)	± 0.3 % of reading	
Temperature resolution	0.1 K	
Response time (90 % signal) <sup>4)</sup>	1 ms – 10 s	
Slope (adjustable via app/ software or analog input)	0.700 – 1.300	
Emissivity (adjustable via app / software or analog input)	0.050 – 1.100	
Signal processing (parameter adjustable via app / software)	1 color / 2 color mode/ attenuation monitoring/ alarms/ peak hold, valley hold, average/ extended hold function with threshold and hysteresis, Smart Ratio Mode (SRM)	
Software / App	optris CompactPlus Connect / IRmobile	

#### Specifications visual camera

Optical resolution	1280 x 960 pixels
FOV (HxV)	8° x 6°
Maximum image transfer rate	30 fps

- 1) Optional: electrically isolated  
 2) USB powered unit works only in digital communication mode  
 3) ε = 1, response time 1 s; no attenuation / Specification valid for 5 - 95% of measurement range  
 4) With dynamic adaptation to low signal levels

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optris CSvision R1M

Optical parameters

The vario optics of the CSvision allows a smooth focusing of the optics to the desired distance.  
The following tables show examples of measurement distances and the corresponding measurement spot sizes.

The sensors are available in two versions:  
**Standard-focus vario optics (SFV):** adjustable 350 mm till infinity  
**Close-focus vario optics (CFV):** adjustable 200 mm till 400 mm

Alternatively you can use the [optris Spot size calculator](#) or the [optris optic calculator app](#).

1ML SFV (D:S = 100:1)									
Spot size	mm	3.5	5	7.5	10	15	20	25	50
Measurement distance	mm	350	500	750	1000	1500	2000	2500	5000

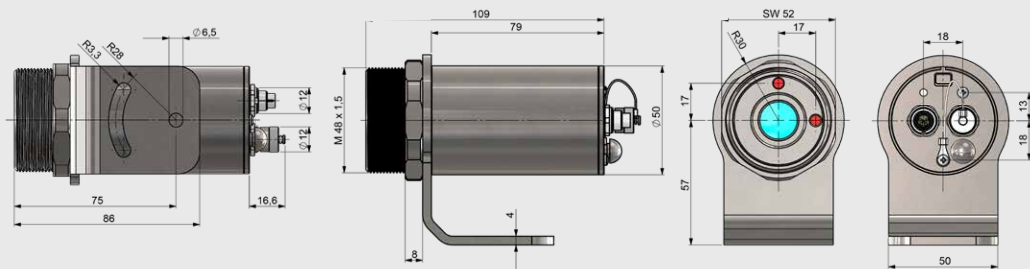
1MH + 1MH1 SFV (D:S = 150:1)									
Spot size	mm	2.3	3.3	5.0	6.7	10	13.3	16.7	33.3
Measurement distance	mm	350	500	750	1000	1500	2000	2500	5000

1ML CFV (D:S =100:1)					
Spot size	mm	2	2.5	3	4
Measurement distance	mm	200	250	300	400

1MH + 1MH1 CFV (D:S =150:1)					
Spot size	mm	1.3	1.7	2.0	2.7
Measurement distance	mm	200	250	300	400

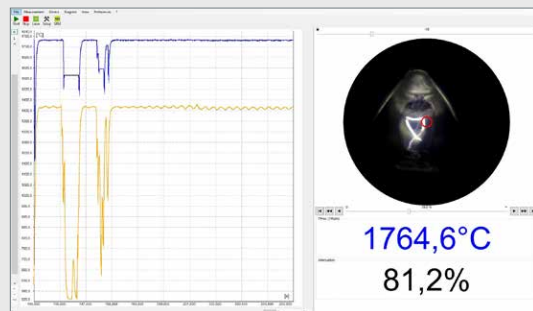
Dimensions in mm



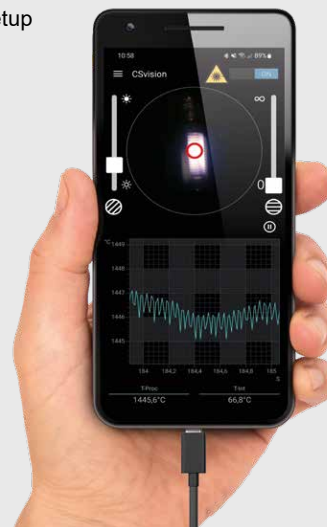
Software / App



Built-in USB interface for an easy setup via smartphone and IRmobile app.



Software CompactPlus Connect (included) for extended setup on Windows computers.



The innovative **two-step brightness reduction filter** uncovers tiny details: here of a filament.

**Zoom and rotate the image with just one finger.**

That's precise alignment made easy.

Specifications are subject to change without notice - CSvision R1M DS-EN2025-06-A