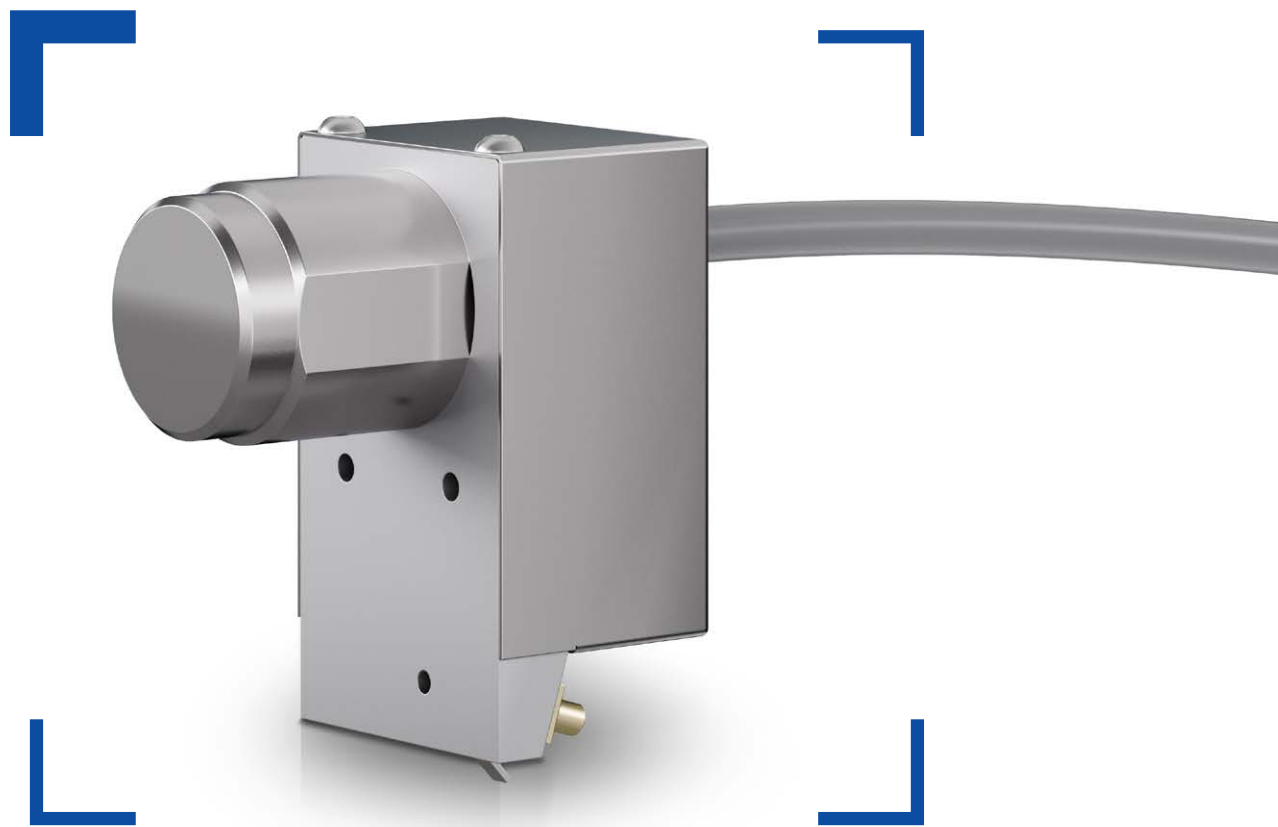


Monolithic Miniature Spectrometer

195 – 1100 nm



ZEISS MMS Series





195 – 390 nm



190 – 780 nm



190 – 1100 nm



310 – 1100 nm



960 – 2500 nm

Overview

The ZEISS MMS spectrometer series combines a robust, athermal design with a small footprint that enables precise and highly reproducible measurement results. A unique coupling of the light via a round-to-slit fiber converter guarantees highest throughput and repeatability. The spectrometers are equipped with NMOS sensors, providing excellent signal/noise performance. They are ideally suited for portable, process and OEM applications. The ZEISS conceptual design and integrated aberration-corrected holographic gratings ensure permanent calibration, thermal stability and long lifetime with stable performance.

- ✓ **Small footprint**
- ✓ **Outstanding repeatability**
- ✓ **Low UV-VIS stray light**
- ✓ **Long-term calibrated**
- ✓ **Robust, athermal design**



Features

ZEISS MMS modules feature a round-to-slit fiber converter for maximum throughput. The aberration-corrected holographic gratings ensure high diffraction efficiency and ultra-low stray light. MMS modules have linear photodiode arrays with large active area and very low noise, delivering highest SNR. Two options are available: S3904-256Q for high UV sensitivity or S8381-256Q for high NIR sensitivity.

Options

- Round-to-slit fiber converter with custom length SMA connector, optional solarization resistance
- ZEISS gratings with different blaze wavelengths (225/335 nm)
- Custom spectral coverage at 195 – 1100 nm
- S3904-256Q/S8381-256Q for high UV/NIR sensitivity
- Pre-amplifier board integrated into housing, can be omitted
- Operating electronics with USB 2.0, 3.0/Ethernet
- ZEISS Aspect Plus Software or SDK

Applications

- Water quality monitoring: drinking water, industrial water and wastewater monitoring
- Color measurement: lighting, coatings, displays, printing
- Fruit quality control: color, brix, acidity
- Process metrology: paper web, surface coatings
- Environmental monitoring: pollution monitoring, seawater, sewer systems
- High pressure liquid chromatography (HPLC)

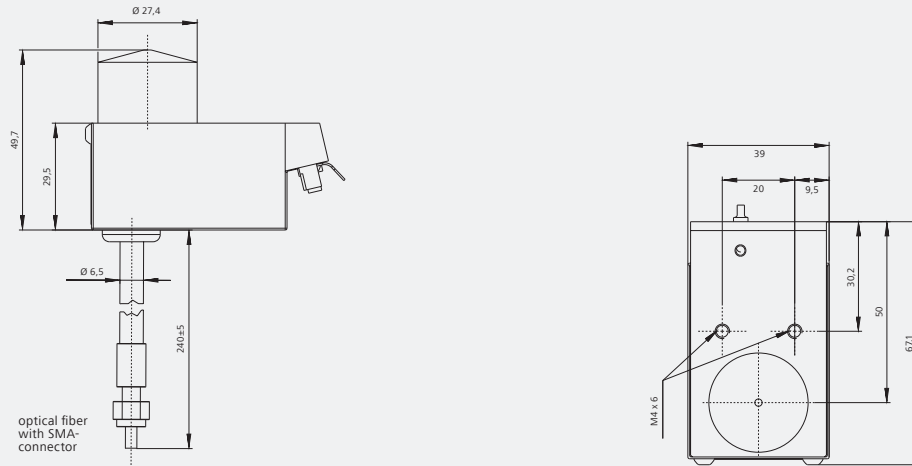
Specifications

	MMS UV UV-Spectroscopy, high resolution	MMS UV-VIS I UV-VIS Spectroscopy	MMS UV-VIS II UV-VIS Spectroscopy	MMS 1 UV-VIS enh. UV-NIR Spectroscopy, UV-VIS sensitivity enhanced	MMS 1 NIR enh. UV-NIR Spectroscopy, NIR sensitivity enhanced
General					
Spectral range	195 – 390 nm	190 – 720 nm	250 – 780 nm	310 – 1100 nm	
Spectral pixel pitch	0.8 nm/px	2.2 nm/px		3.3 nm/px	
Resolution (FWHM)	3 nm	7 nm		10 nm	
Stray light	< 0.3 % (@240 nm, NaI 10 g/l)	< 0.3 % (@310 nm, NaNO ₂ 50 g/l)		< 0.8 % (@450 nm, GG 495)	< 0.2 % (@650 nm, RG 695)
Wavelength accuracy	0.2 nm	0.2 nm		0.3 nm	
Temperature drift	< 0.004 nm/K	< 0.006 nm/K		< 0.01 nm/K	
Optical entrance	SMA with round-to- slit fiber converter (Ø 0.4 mm input, 70 x 1250 µm out- put)	SMA with round-to-slit fiber converter (Ø 0.5 mm input, 70 x 2500 µm output)		SMA with round-to-slit fiber converter (Ø 0.5 mm input, 70 x 2500 µm output)	
Numerical aperture	0.22	0.22		0.22	
Grating	flat-field, 1084 l/mm, blazed for 225 nm	flat-field, 366 l/mm, blazed for 225 nm		flat-field, 366 l/mm, blazed for 335 nm	
Detector					
Detector type	S3904-256N (256 px)	S3904-256Q (256 px)		S3904-256Q (256 px)	S8381-256Q (256 px)
Pixel size	25 x 2500 µm	25 x 2500 µm		25 x 2500 µm	
Signal/noise	11600	11600		11600	
Electronics					
Digitization	16-bit ADC	16-bit ADC		16-bit ADC	
Integration time	> 0.3 ms	> 0.3 ms		> 0.3 ms	
Interface	USB 2.0, 3.0 / Ethernet	USB 2.0, 3.0 / Ethernet		USB 2.0, 3.0 / Ethernet	
Environmental/physical					
Operating temperature	0... 65 °C	0... 65 °C		0... 65 °C	
Dimensions L x W x H	70 x 60 x 40 mm ³ , fiber converter 240 mm length or custom	67 x 60 x 40 mm ³ , fiber converter 240 mm length or custom		70 x 50 x 40 mm ³ ; fiber converter 240 mm length or custom	

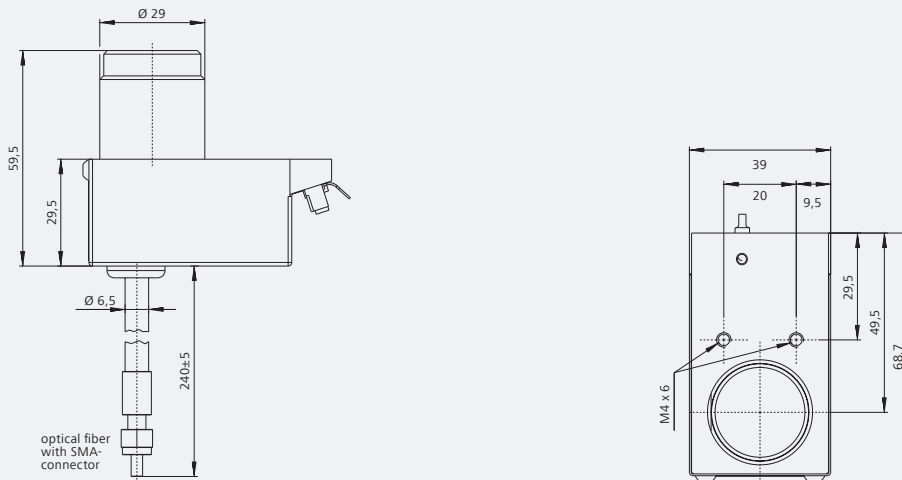
Specifications are subject to change without notice.

Dimensional drawings

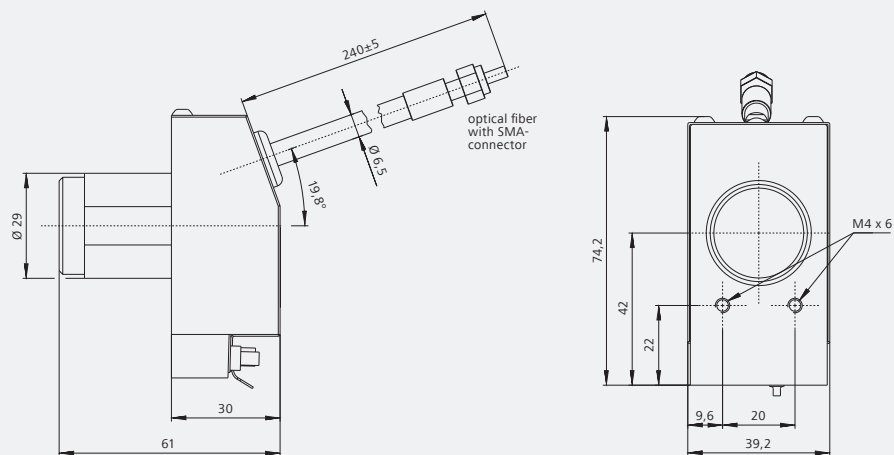
Dimensional drawing MMS 1



Dimensional drawing MMS UV-VIS I / UV-VIS II



Dimensional drawing MMS UV



Order information

Spectrometer	Description	Spectral Range	Order Number
MMS UV	PDA S5713 with 256 pixels, EFL 240 mm, SPE 200 kHz	195 – 390 nm	224002-9020-000
MMS UV	PDA S5713 with 256 pixels, EFL 240 mm, SPE 200 kHz, with solarisation stabilized fiber	195 – 390 nm	000000-1392-178
MMS UV-VIS I	PDA S5713 with 256 pixels, EFL 240 mm, SPE 200 kHz	190 – 720 nm	224000-9001-000
MMS UV-VIS I	PDA S5713 with 256 pixels, EFL 240 mm, SPE 200 kHz, with solarisation stabilized fiber	190 – 720 nm	000000-1410-176
MMS UV-VIS I	PDA S5713 with 256 pixels, EFL 240 mm, FPE 1 MHz	190 – 720 nm	000000-2109-198
MMS UV-VIS II	PDA S5713 with 256 pixels, EFL 240 mm, SPE 200 kHz	250 – 780 nm	000000-1090-197
MMS 1 UV/VIS enh.	PDA S5713 with 256 pixels, EFL 240 mm, SPE 200 kHz	310 – 1100 nm	224001-9001-000
MMS 1 UV/VIS enh.	PDA S5713 with 256 pixels, EFL 180 mm, SPE 200 kHz	310 – 1100 nm	224001-9011-000
MMS 1 UV/VIS enh.	PDA S5713 with 256 pixels, EFL 180 mm, FPE 1 MHz	310 – 1100 nm	000000-2192-803
MMS 1 NIR enh.	PDA S8381 with 256 pixels, EFL 240 mm, SPE 200 kHz	310 – 1100 nm	000000-1233-038

S5713: Contains PDA sensor S3904 in special housing

EFL: External Fiber Length (variable on request)

SPE: Standard preamplifier electronics

FPE: Fast preamplifier electronics



**For questions or
order requests
please contact us!**

Carl Zeiss Spectroscopy GmbH

Carl-Zeiss-Promenade 10
07745 Jena, Germany

Phone: + 49 3641 64-2838

Fax: + 49 3641 64-2485

Email: info.spectroscopy@zeiss.com
www.zeiss.com/spectroscopy