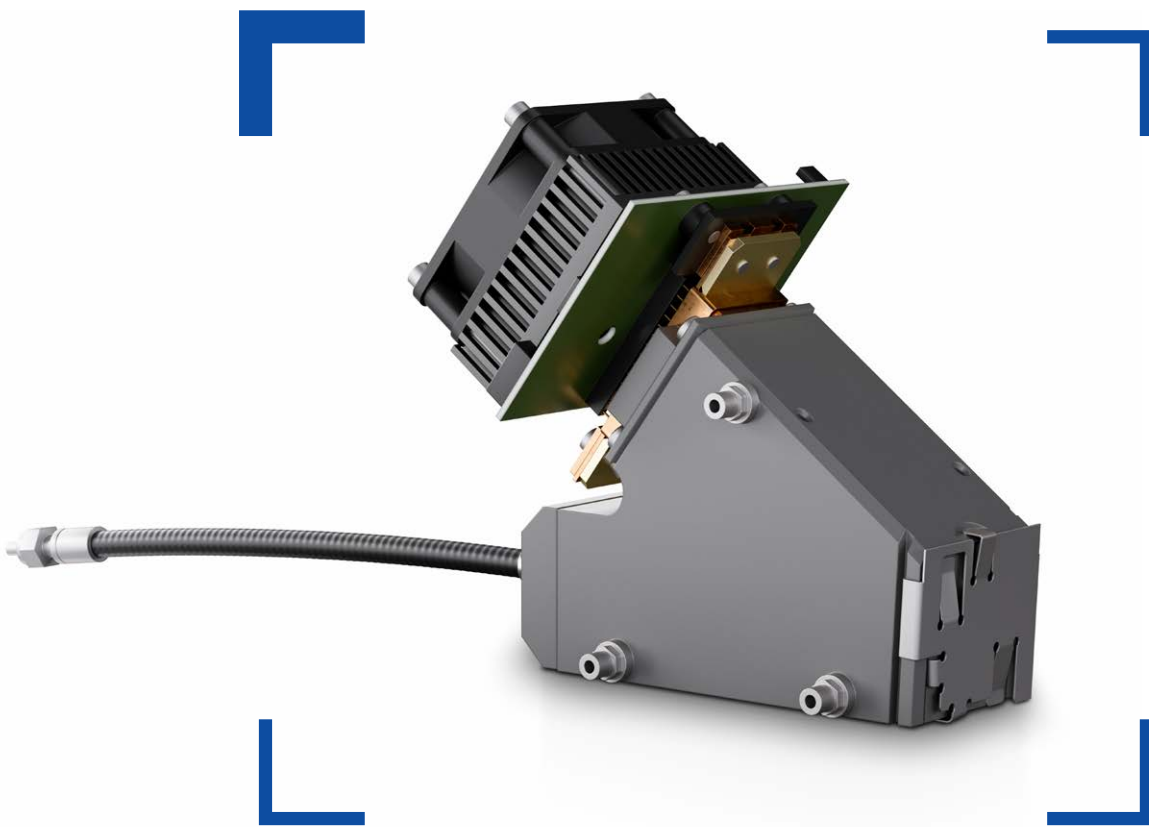


# Plane Grating Spectrometer

960 – 2500 nm



**ZEISS PGS Series**

[www.zeiss.com/pgs-series](http://www.zeiss.com/pgs-series)



Seeing beyond



195–390 nm



190–780 nm



190–1100 nm



310–1100 nm



960–2500 nm

## Overview

ZEISS PGS are ideally suited for NIR spectroscopy within the spectral range of 960–2500 nm. The PGS combines a small footprint with highest throughput and excellent signal/noise performance. Special uncooled or TE-cooled InGaAs detectors ensure lowest noise conditions even at longer integration times.

- ✓ **Small footprint**
- ✓ **Long-term calibrated**
- ✓ **High signal/noise**
- ✓ **Fast readout**
- ✓ **Athermal design**



## Features

ZEISS PGS features a monofiber ( $\varnothing$  600  $\mu$ m)/SMA connector and slit as optical input. The optical design together with the ZEISS blazed plane gratings enable highest throughput with an NA up to 0.37. The combination of aspheric collimator and focusing lens maintains a perfectly flat field correction of the spectral image. All parts are fixed to a central aluminium alloy body. A selection of cooled/uncooled InGaAs detectors is available.

## Options

- Optical input: custom length Infrasil-quarz fiber ( $\varnothing$  600  $\mu$ m) or SMA/FC connector
- Custom slit size and configurable resolution
- ZEISS plane gratings with different blaze wavelengths (1200/1400/1800 nm)
- Customized spectral coverage at 960–2500 nm
- Various uncooled/TE-cooled InGaAs detector options
- Operating electronics with USB 2.0, 3.0/Ethernet interface
- ZEISS Aspect Plus Software or SDK

## Applications

- Semiconductor: thin film metrology, wet process control
- Food & beverage: meat production, malting/brewing, baking, beverages
- Agriculture: constituent analysis for grain, dairy, feed & forage
- Pharmaceutical production
- Paper web production
- Waste sorting & recycling
- Energy: biomass conversion, refining & petrochemical processing

# Specifications

	<b>PGS NIR 1.7-256 UC</b>	<b>PGS NIR 1.7-256</b>	<b>PGS NIR 1.7-512</b>	<b>PGS NIR 2.0-256</b>	<b>PGS NIR 2.2-256</b>	<b>PGS NIR 2.5-256</b>
	Smallest footprint, uncooled PGS 1.7	High SNR, TE-cooled PGS 1.7	High resolution, TE-cooled PGS 1.7	TE-cooled PGS 2.0	TE-cooled PGS 2.2	TE-cooled PGS 2.5

## General

<b>Spectral range</b>	960–1690 nm		1340–2000 nm	1000–2150 nm	1200–2450 nm	
<b>Resolution (FWHM)</b>	8 nm	6 nm	8 nm	10 nm (typ.), 16 nm (max.)	10 nm (typ.), 16 nm (max.)	
<b>Stray light</b>	< 0.1 % (10 mm water @1405 nm with halogen lamp)					
<b>Wavelength accuracy</b>	1 nm					
<b>Temperature drift</b>	< 0.012 nm/K					
<b>Optical entrance</b>	input: SMA with Infrasil-quarz fiber ( $\varnothing = 600 \mu\text{m}$ , $l = 300 \text{ mm}$ ) or SMA/FC connector, output: slit					
<b>Slit</b>	80 x 500 $\mu\text{m}^2$	80 x 300 $\mu\text{m}^2$	80 x 450 $\mu\text{m}^2$		80 x 500 $\mu\text{m}^2$	
<b>Numerical aperture</b>	0.22					
<b>Grating</b>	484 l/mm, blaze 1.2 $\mu\text{m}$		484 l/mm, blaze 1.4 $\mu\text{m}$	300 l/mm, blaze 1.4 $\mu\text{m}$	300 l/mm, blaze 1.8 $\mu\text{m}$	

## Detector

<b>Detector type</b>	G9201 (as G9211, but without defective pixels, 256 px)	G9203 (256 px)	G9204 (512 px)	G9206 (256 px)	G9206 (256 px)	G11478 (256 px)
<b>Pixel size</b>	50 x 250 $\mu\text{m}^2$	50 x 500 $\mu\text{m}^2$	25 x 500 $\mu\text{m}^2$	50 x 250 $\mu\text{m}^2$	50 x 250 $\mu\text{m}^2$	50 x 250 $\mu\text{m}^2$
<b>Signal / noise</b>	6000	6400	6400	6100	6100	4000

## Electronics

<b>Digitization</b>	16-bit ADC
<b>Integration time</b>	> 0.1 ms
<b>Interface</b>	USB 2.0, 3.0/Ethernet

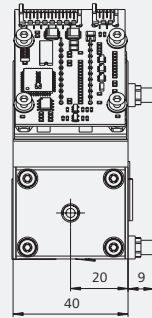
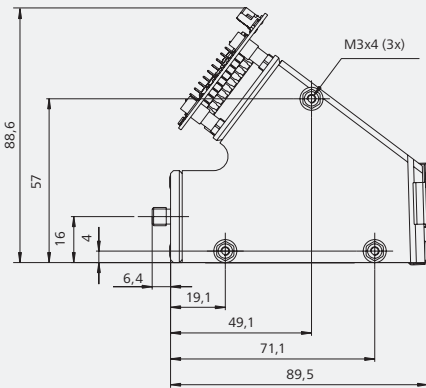
## Environmental/physical

<b>Operating temperature</b>	0 ... 60 °C	0 ... 40 °C (standard, depending on cooling electronics)				
<b>Minimal bending radius of fiber: storage / long-term operation</b>	50 mm / 100 mm					
<b>Weight</b>	approx. 590 g					
<b>Dimensions L x W x H in mm<sup>3</sup></b>	90 x 40 x 89	123 x 72 x 112	123 x 72 x 112	126 x 72 x 111	125 x 72 x 112	127 x 72 x 111

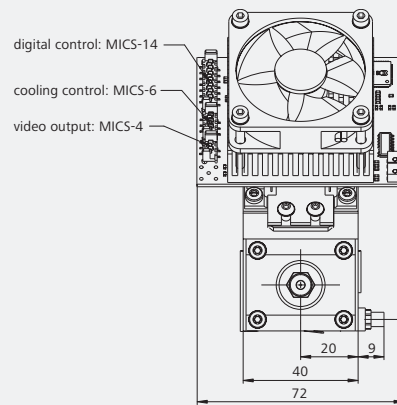
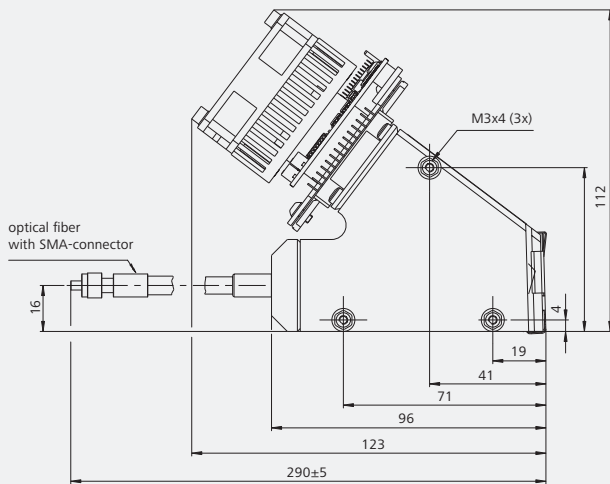
Specifications are subject to change without notice.

# Dimensional drawings

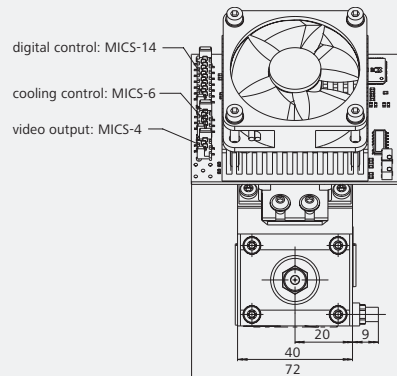
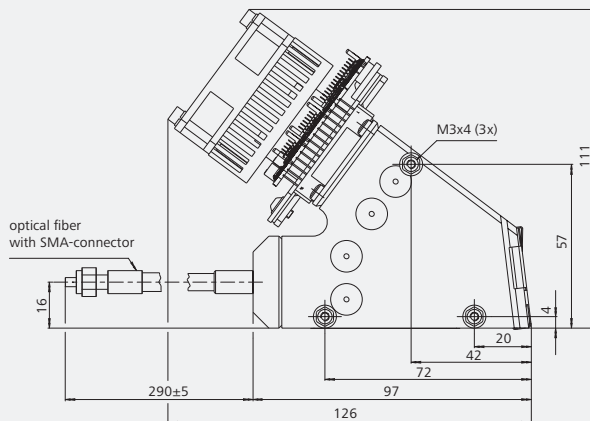
Dimensional drawing PGS NIR 1.7-256 UC



Dimensional drawing PGS NIR 1.7-256 / PGS NIR 1.7-512

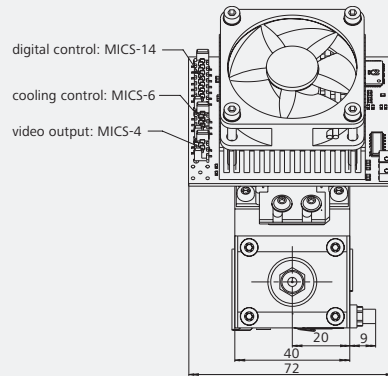
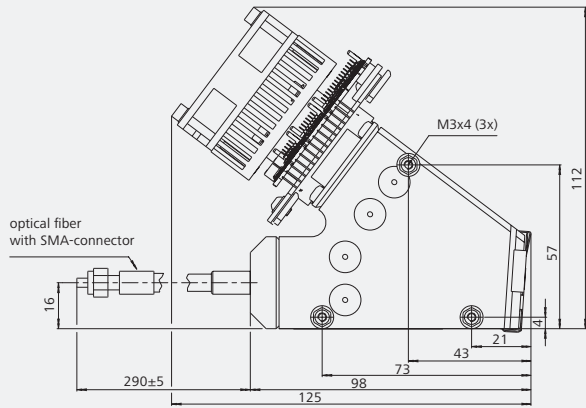


Dimensional drawing PGS NIR 2.0-256

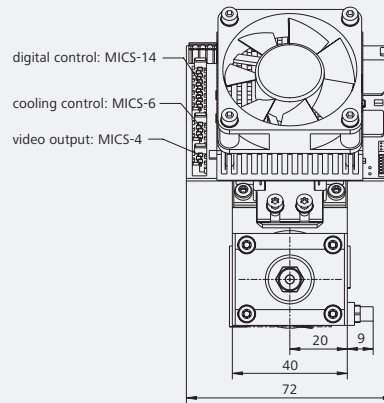
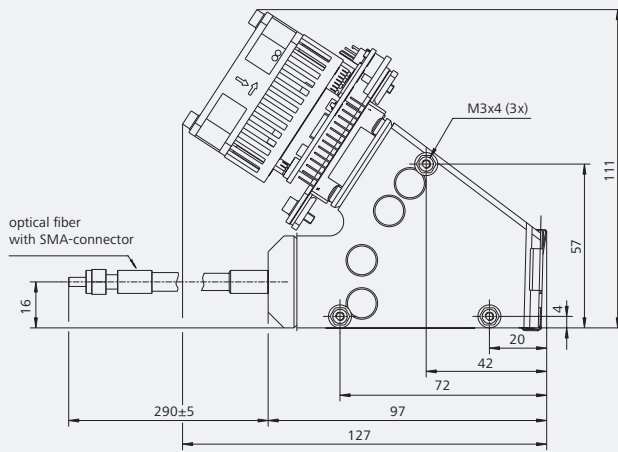


# Dimensional drawings

Dimensional drawing PGS NIR 2.2-256



Dimensional drawing PGS NIR 2.5-256



# Order information

Spectrometer	Description	Spectral Range	Order Number
PGS NIR 1.7-256 UC	NIR Spectral Sensor, uncooled InGaAs G9201 with 256 pixels, dispersion 3 nm/pixel, EFL 300 mm	950–1690 nm	000000-2050-911
PGS NIR 1.7-256 UC	NIR Spectral Sensor, uncooled InGaAs G9201 with 256 pixels, dispersion 3 nm/pixel, SMA fiber connector	950–1690 nm	000000-2109-070
PGS NIR 1.7-512	NIR Spectral Sensor, Peltier cooled InGaAs G9204 with 512 pixels, dispersion 1.5 nm/pixel, EFL 300 mm	950–1690 nm	000000-2122-663
PGS NIR 1.7-256	NIR Spectral Sensor, Peltier cooled, InGaAs G9203 with 256 pixels, dispersion 3 nm/pixel, EFL 300 mm	950–1690 nm	000000-1381-397
PGS NIR 2.0-256	NIR Spectral Sensor, Peltier cooled InGaAs G9206 with 256 pixels, dispersion 3 nm/pixel, EFL 300 mm	1340–2000 nm	000000-1396-757
PGS NIR 2.2-256	NIR Spectral Sensor, Peltier cooled InGaAs G9206 with 256 pixels, dispersion 5 nm/pixel, EFL 300 mm	1000–2150 nm	000000-1332-256
PGS NIR 2.5-256	NIR Spectral Sensor, Peltier cooled InGaAs G11478 with 256 pixels, dispersion 5 nm/pixel, EFL 300 mm	1200–2450 nm	000000-2512-132

EFL: External Fiber Length



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

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