

## aMSM NIR 1.7 256

### A. Microspectrometer Module

The Microspectrometer is based on a hollow cavity waveguide design which has no moving parts. It is attached to a photodiode detector array. The light is coupled into the spectrometer through a 300/330 $\mu$ m silica fiber and entrance slit. The light is guided by total reflection inside the spectrometer cavity.

The spectrometer itself is a micro-molded monolithical device which includes the entrance slit, a focusing convex flat field grating and the camera mirror. These elements are arranged in the Rowland design.

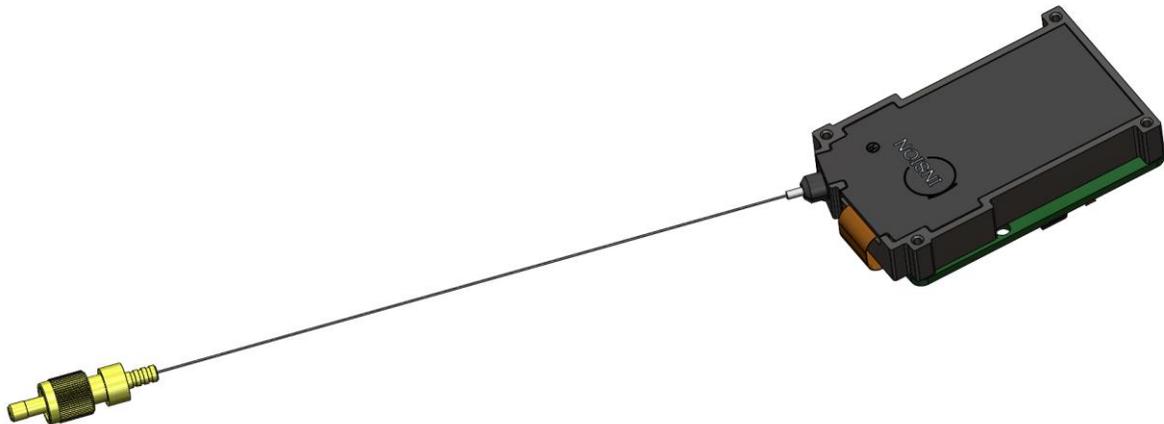
The microstructures are replicated with optical surface quality using the LIGA technology.

The monolithic Rowland design guarantees superior mechanical, thermal and optical stability. There is virtually no thermal drift of the wavelength calibration due to the fixed geometrical position of the optical components.

The wavelength to pixel calibration function is stable over the lifetime of the product and will not require any recalibration.

The low weight and the monolithic design make it insensitive to mechanical as well as vibrational stress. The fabrication processes and the use of selected materials ensure excellent resistance against thermal stress and demanding environmental conditions.

The aMSM NIR 1.7 256 Microspectrometer uses the Hamamatsu G13913-1349 InGaAs-photodiode array.

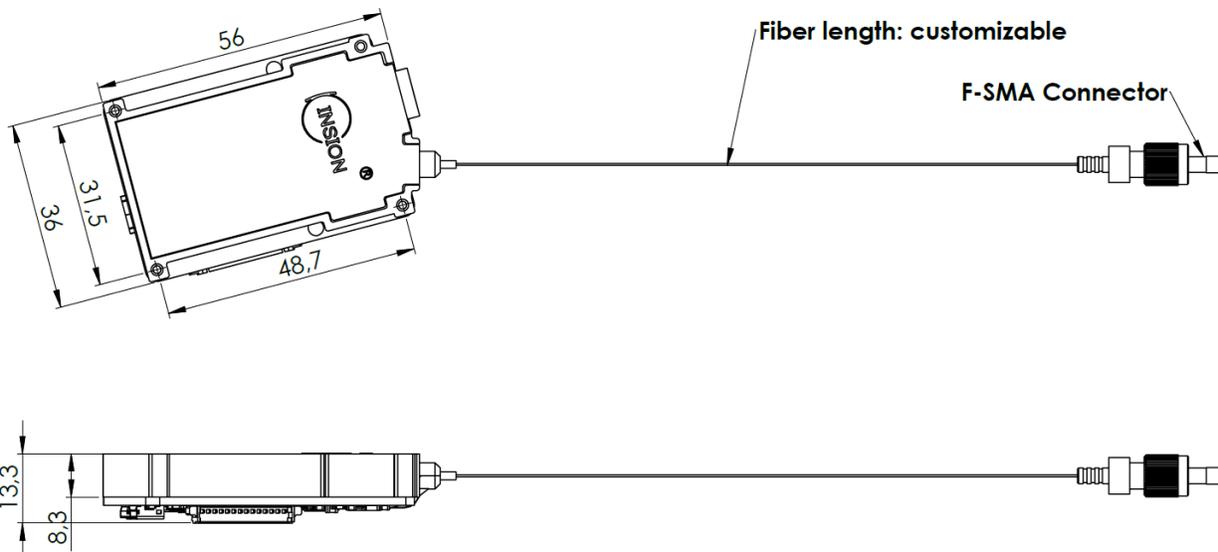


## Product Information

These features make the Microspectrometer an ideal choice for the incorporation into spectral sensing devices for applications involving harsh environmental conditions. Handheld battery driven devices as well as in-line process sensors utilize the Microspectrometer. Typical applications range from instrumental analysis, biological and clinical systems to colorimeters, food inspection systems and fluorescence measuring devices.

Our Injection Micro-molding technology guarantees excellent inter instrument agreement as well as a very attractive pricing, especially in OEM volumes.

### B. Dimensions of aMSM NIR 1.7 256 spectrometer



### C. Technical Data

<b>Spectral Range</b>	950-1700 nm
<b>Fiber</b>	Ø 300/330 µm NA = 0.22
<b>Straylight Attenuation</b>	>20dB
<b>Spectral Resolution</b>	< 10 nm <sub>FWHM</sub> (Sp. Disp. 4.1 nm/pixel)
<b>Spectral Accuracy</b>	2 nm
<b>Dynamic Range</b>	>5000
<b>Detector array</b>	InGaS; 256 pixels (25µm pixel width)
<b>Electronics</b>	16 bits; connector: USB; Alternatively, 8 pol. Extension port (5V ext. pwr.; UART; Trig.; Reset)
<b>Fiber connector</b>	SMA 905; IS-02 (customizable on demand)
<b>Dimension (w/o PCB)</b>	Length: 60 mm; width: 36 mm; height: 8.3 mm
<b>Operating temperature</b>	+5 °C to +45° C
<b>Storage temperature</b>	-40°C to +60° C

### D. Communication interfaces

## Product Information

- USB
- UART (The protocol settings are 8N1 (1 start-bit, 8 bit, no parity, 1 stop-bit) and no handshake)

For more details about communication interfaces, please refer our hardware description for SDCM4.

### E. Power supply

Power Supply via USB or 5 V external.

Maximum power consumption: 4.7-5.25V, 400mA.

