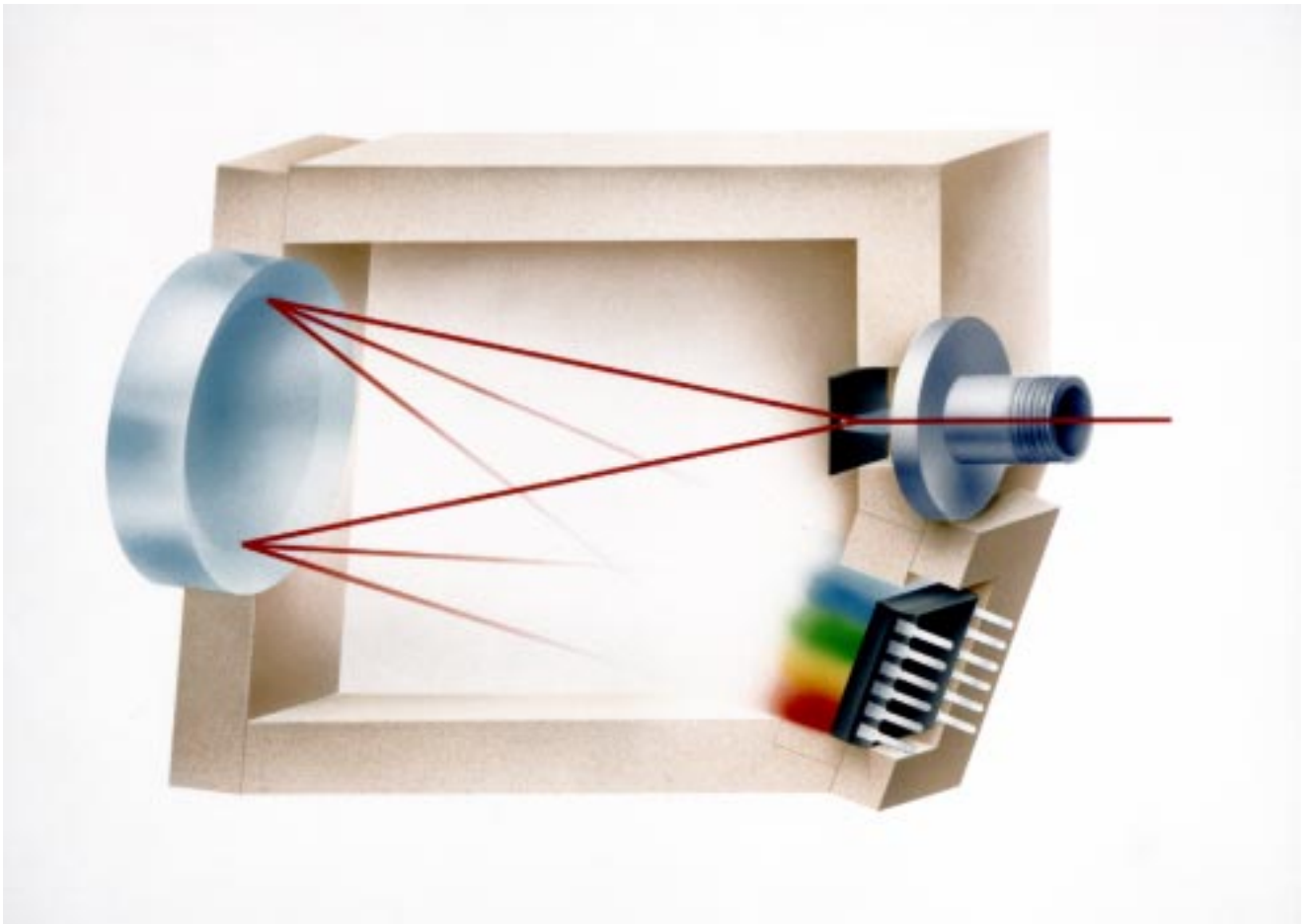


# Product Information

## MCS

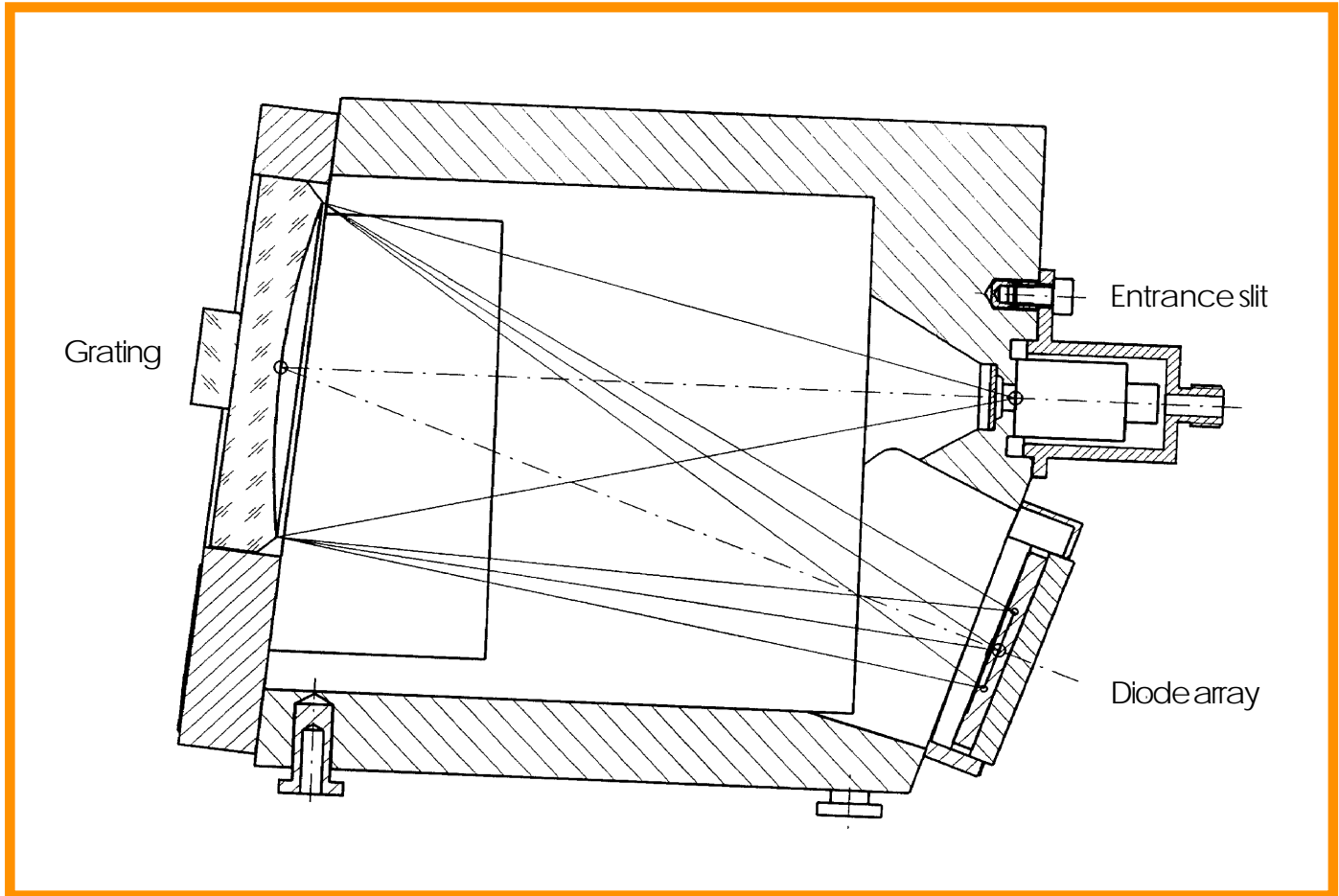
### Multi Channel - Spectrometer



## Construction

The module consists of a spectrometer body made of patented ceramic structure with an aberration corrected concave grating, a fiber cross section

converter or a mechanical slit as optical entrance and a diode array. All components are cemented to the spectrometer body.



## Benefits

- Use for diverse measuring tasks
- Compact, permanently aligned
- Robust and thermally stable
- High sensitivity

## Specifications

### Optical entrance:

CSC-version:	cross section converter: diameter: 0.5mm NA = 0.2 mounted in SMA-coupling, dismountable
Entrance slit	50 $\mu\text{m}$ x 2500 $\mu\text{m}$

### Grating:

Flat-field correction  
248l/mm (center)  
blazed for approx. 250nm UV- version, 450nm VIS-  
version, 750 nm for NIR - version)

### Spectral range:

190nm ... 1100nm (220...1000 nm spec. range)  
depending on the position and type of diode  
array used

### Wavelength accuracy absolute:

< 0.3 nm

### Reproducibility:

< 0.1 nm

### Temperature - induced drift:

< 0.005 nm/ k

### Spectral distance of pixel:

$\Delta\lambda_{\text{Pixel}} \approx 0.8 \text{ nm}$

### Resolution: (Rayleigh-criterion)

$\Delta\lambda_{\text{Rayleigh}} \approx 2.4 \text{ nm}$  ( $\approx 3 \text{ nm}$  UV-NIR version)

### Sensitivity:

$\approx 10^{12}$ - $10^{13}$  Counts/Ws ( 14-Bit-conversion)

### Straylight :

0,1%  
measured at 240 nm with Deuterium lamp and  
10 mm 5% NaJO solution

### Dimensions:

total 140 x 105 x 75 mm<sup>3</sup>

### Options:

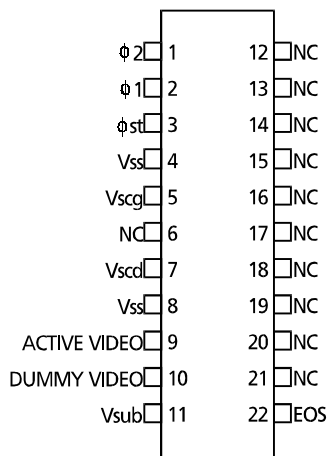
MCS UV-NIR	190 - 1015 nm
MCS UV-VIS	200 - 620 nm
MCS VIS	360 - 780 nm
MCS NIR	680 - 1100 nm

## Diode array

Producer:	Hamamatsu
Type:	S 3904 - 512Q ,S 3904-1024Q, (S 4874-1024Q or S 4874-512Q on request)
Number of pixels:	512 or 1024
Dimensions of pixels:	25 x 2500 $\mu\text{m}^2$
Maximum clock -rate :	2 MHz

Blocking filter for the second order is directly coated on the diode array.

## Interface



- 1 -  $f_2$  - Clock 2
  - 2 -  $f_1$  - Clock 1
  - 3 -  $f_{ST}$  - Start Pulse
  - 4 -  $V_{SS}$  - Passive Node (GND)
  - 5 -  $V_{acg}$  - Saturation Control Gate Voltage
  - 7 -  $V_{sod}$  - Saturation Control Drain Voltage
  - 8 -  $V_{SS}$  - Passive Node (GND)
  - 9 - Active Video Signal
  - 10 - Dummy Video Signal
  - 11 -  $V_{aub}$  - Passive Node (GND)
  - 12 - EOS - End of Scan
- NC : No connection - not used (GND)

Preamplifier with MMS style interface available.

## System data

Realised with:	16 - Bit - AD - conversion, integration time 10 ms 100 KHz and 50 -cycles averaging
Dynamic range:	$\approx 2^{15}$
Noise:	1...2 count standard deviation

