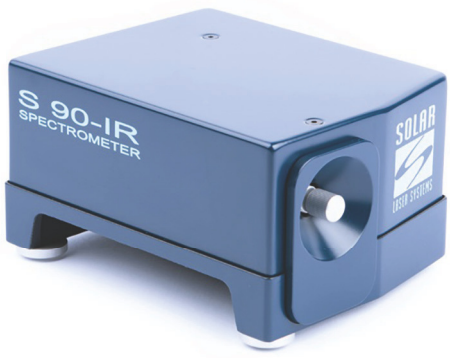
COMPACT NIR-SPECTROMETER
S90-IR

The compact high-sensitivity spectrometer S90-IR contains a non-cooled linear InGaAs image sensor, and is recommended for any spectroscopic applications in the IR spectrum range such as fluorescence, reflection, transmittance, photometric measurements and other researches, that do not require long-time signal storage.



FEATURES

- **High-sensitivity non-cooled InGaAs detector**
- **Compact monolithic housing for optimum stability**
- **Diffraction gratings, spectral ranges and resolutions tailored to your requirements**
- **User-friendly interface compatible with Windows XP/7/8/10**

APPLICATIONS

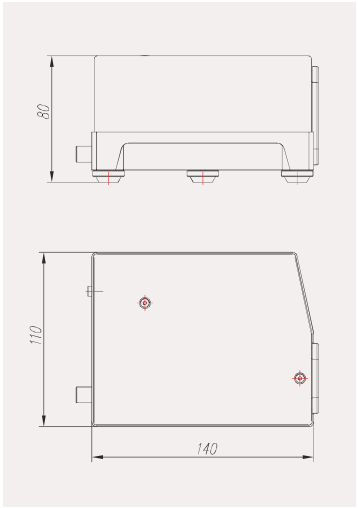
- **Registration of laser radiation**
- **Analysis of any light sources within range 780-1700 nm**

The high-aperture optical bench of S90-IR has no moving parts. S90-IR features a monolithic housing, thus ensuring long-time measurement stability.

The S90-IR spectrometer is easy and convenient to use: it is calibrated by the manufacturer, is controlled and powered from the PC via the Full-Speed USB interface.

Light input with the use of quartz optical fiber provides flexibility of instrumentation arrangement.

The spectrometer has the entrance slit of fixed width and may be used without the optical fiber.



S90-IR dimensions.

S90-IR SPECIFICATIONS

SPECTROMETER MODEL	S90-IR
Spectral range, nm	780 – 1700
Focal length, mm	87.7
F/number	1 : 7.7
Entrance slit, mm	0.020 x 3
Spectral resolution	depends on selected diffraction grating (see table below)
Detector model	G9204-512D
Number of pixels	512
Pixel size, µm	25 x 500
Active area size, mm	12.8 x 0.5
Maximum spectral sensitivity , nm	1550
Non-uniformity of sensitivity [1), 4)]	± 5 %
Anti-blooming [2)]	Yes
ADC Resolution	16bit, 125 kHz
Mean-square reading noise, ADC counts [4)]	< 6
Dynamic range	~ 12000 : 1
Exposure time	8.2 ms - 0.7 s [3), 4)]
Frame processing time, ms	4.1
Thermoelectric cooling	No
Operating temperature	10 – 30 °C
Computer interface	Full Speed USB
Triggering	internal / external
Requirements to external trigger pulse	BNC-58 connector, positive polarity, 3-15 VDC amplitude, 5-20 µs pulse duration FWHM
Parameters of the S90-IR trigger pulses	positive polarity, 4-5 VDC amplitude, 10 µs pulse duration FWHM
Optical input	- Direct input through the S90-IR entrance slit - Optical Fiber : 0.6 mm diameter, 1m length, SMA-905 connector
Dimensions, mm	142 x 110 x 80
Weight, kg	1.2

1) Signal level - 50% of saturation. Exposure time is 10 ms.
2) Anti-blooming – sensor's feature eliminating overflow of charges from over-exposed pixels to neighboring ones.
3) Maximum exposure time is deemed to be the time at which dark signal makes up 25% of the dynamic range at the ambient temperature +25°C.
4) The detector provides two operation modes: wide dynamic range or high sensitivity. Parameters indicated in the table are for the wide dynamic range mode.

At the time of placing your order you should choose a grating grooves density (i.e. spectral resolution of your instrument), as well as the spectral range for operation. For your convenience the table below lists the average values of grating dispersion, spectral resolution and multichannel array bandpass.

Diffraction gratings, grooves/mm	150	200	300	400	600
Spectral range of InGaAs detector sensitivity, nm	780 - 1700				
Multichannel array bandpass (average), nm	954	710	464	320	210
Reciprocal linear dispersion (average), nm/mm	74.5	55.5	36.3	26.5	16.6
Spectral resolution (average), nm	4.6	3.4	2.3	1.7	1.0

EXAMPLE: If you are interested in the 200 gr/mm grating (average spectral resolution 3.4 nm), you then have to choose a location of multichannel array bandpass 710 nm within the spectral range of 780-1700 nm. For example: S90-IR spectrometer operating in the range 990-1700 nm with 3.4 nm resolution.