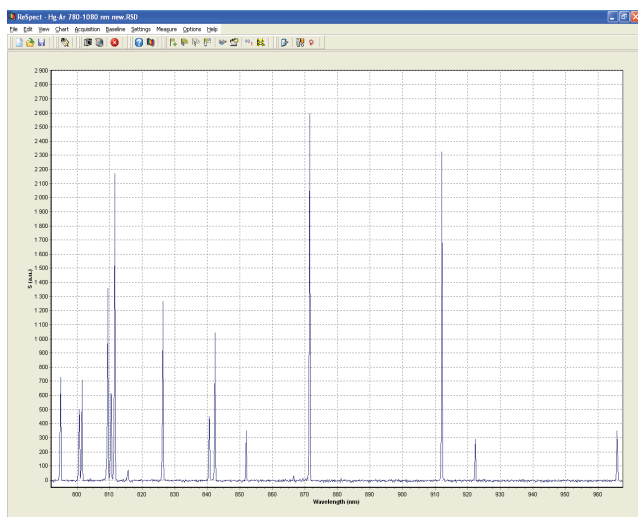# ASP-75. Compact Multipurpose Spectrometer

- Flexible configuration
- Small footprint
- High resolution down to 0.05 nm
- USB interface with PC software
- USB power (no additional power supply is required)
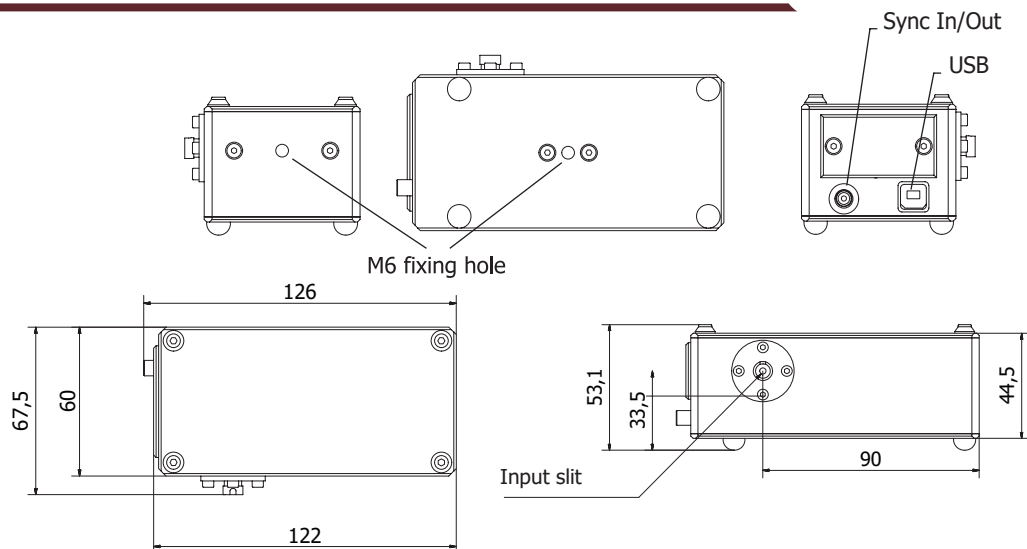- Free-space and fiber input (SMA or FC)
- Sync in/out



*Spectrometer ASP-75*

## Product overview

The miniature spectrometer ASP-75 has a small footprint and weighs 300 grams. The simplicity of the design allows to combine broad spectral range and high resolution with more than compact size. The device can be used in various space-demanding applications and also for OEM integration in any devices. The unit features a special fiber input with a spectral slit, the size of which is conditioned with the detector. It allows measurement of either free-space or fiber signals without any realignment. However, it is not recommended to use fiber to measure spectrum of a femtosecond laser due to signal modulation and subsequent spectrum distortion.



*ReSpect software (included in a standard package)*



Sync In/Out

USB

M6 fixing hole

126

67,5

60

122

53,1

33,5

44,5

90

Input slit

*ASP-75 dimensions in mm*



## AVESTA
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| ASP-75 optical specifications | | | | | | | |
|---|---|---|---|---|---|---|---|
| Optical scheme | Czerny-Turner | | | | | | |
| Spectral range for choosing the registration domain*[1], nm | 190-1100 | 190-1100 | 190-1100 | 190-1100 | 190-800 | 190-450 | 190-300 |
| Grating, grooves/mm | 400 | 600 | 800 | 1200 | 1800 | 1800 II-order | 1800 III-order |
| Registered spectrum region width*[1], nm | 950 | 600 | 385 | 245 | 150 | 69 | 40 |
| Spectral resolution*, nm | 1 | 0.65 | 0.5 | 0.3 | 0.18 | 0.085 | 0.05 |
| Dispersion, nm/mm | 28 | 18 | 13.5 | 8.5 | 5.2 | 2.4 | 1.4 |
| Input slit | 10 μm | | | | | | |
| Focal length | 46 mm | | | | | | |
| Focal length of the camera objective | 75 mm | | | | | | |
| Input type[2] | free-space and SMA905 fiber socket (FC socket and fiber patch-cord on request) | | | | | | |
| Synchronization | external/internal | | | | | | |
| PC connection | USB | | | | | | |
| Dimensions | 126x68x53 mm | | | | | | |
| Weight | 0.3 kg | | | | | | |

| CCD array specifications[3] | | | |
|---|---|---|---|
| Model | Toshiba 1205DG | Toshiba 1304DG | Hamamatsu S8378-1024Q |
| Number of pixels | 2048 | 3648 | 1024 |
| Pixel width | 14 μm | 8 μm | 25 μm |
| Pixel height | 200 μm | 200 μm | 500 μm |
| Minimum exposure time | 4.2 ms | 7.3 ms | 2.1 ms |
| Maximum exposure time | 4 s | 5 s | 5 s |
| Sensitivity[4], photons/count | 80 | 20 | 650(3000)[5] |
| Antiblooming[6] | yes | no | yes |
| Meansquare noise of reading, counts of ADC | 5.4 | 3.5 | 16(4.4)[5] |
| ADC | 14 bit, 16384 counts | 14 bit, 16384 counts | 14 bit, 16384 counts |
| Dynamic range | 1000:1 | 1000:1 | 1000:1 (4000:1)[5] |

(1) - the necessary width and center of the registered range should be specified when placing an order. The ASP-150T has an operational range adjustment function;
(2) - each spectrometer is equipped with a fiber socket and allows measurement of either free-space or fiber signals without any realignment;
(3) - any array can be combined with any grating type;
(4) - sensitivity given at the wavelength of 550 nm;
(5) - the Hamamatsu arrays provide for sensitivity control via special driving signal, that can set either low (values in brackets) or high sensitivity mode;
(6) - the property of the CCD to prevent the charge flow from the neighboring overexposed pixels;
* - values given for the Toshiba 1304DG CCD array.

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