

OEM Spectrometer DE50

200 ... 1100 nm

JETI broadband OEM spectrometer **DE50** is a flat field spectrograph combined with powerful processing electronics. It is available in two versions: **DE50 basic** and **DE50 expert**.

Main characteristics of DE50:

- High optical resolution over the whole spectral range
- High sensitivity in UV, Vis and NIR spectral ranges
- High dynamic range
- Compact design
- Easy integration into customer systems
- In-built mechanical shutter

Applications:

- Ellipsometry
- Plasma physics
- Colorimetry/ Spectroradiometry
- Biochemistry
- Analytical instrumentation
- Thickness measurement
- Online analyzer
- Fluorescence spectroscopy
- In process measurement of interference layers

Controller functions:

- Internal storage of wavelength-pixel relation
- Preprocessing of data, dark signal correction, absolute calibration
- Internal calculations like averaging, interpolation, transmission, reflexion, absorption, color coordinates
- Dedicated control syntax (SCPI compliant)

Advantages:

- Very low astigmatism
- Low stray light
- Processing of spectral calculations
- Onboard Ethernet Interface (DE50 expert)
- Hard- and software trigger



Specifications

Optical parameters

Spectral range	350 nm ... 1000 nm (DE50 basic) 200 nm ... 1100 nm (DE50 expert)
Optical bandwidth (FWHM)	≤ 4 nm (50 µm slit)
Optionally for VIS range:	≤ 2 nm (20 µm slit), other slit sizes on request
Optical input	F-SMA connector
Wavelength error	± 0.3 nm (HgAr line source)
Wavelength repeatability	± 0.02 nm (HgAr line source)
Stray light	< 0.1 % (ASTM E387, GG495, $\lambda = 420 \text{ nm} / 600 \text{ nm}$)
Spectrometer	holographic imaging grating, flat field
Detector	Hamamatsu S11639 (DE50 basic), S11155 (DE50 expert)

Electronic parameters

Digital resolution	16 bit
Dynamics	3 000 : 1 (dark signal @ 100 ms)
Typical sensitivity (200 µm fiber)	6*10 ¹⁵ counts/ Ws @ 250 nm (DE50 expert) 7*10 ¹⁵ counts/ Ws @ 500 nm 4*10 ¹⁵ counts/ Ws @ 750 nm 2*10 ¹⁵ counts/ Ws @ 1000 nm
Sampling speed	up to 4 MS/s
Line rate	> 200 full spectra/ s (via High Speed USB)
Integration time	0.01 ... 65 535 ms
Power supply	USB powered (DE50 expert alternatively 6 ...28 V DC)
Interfaces	DE50 basic USB-C, TTL UART (up to 3 Mb/s), 3 programmable I/O, 2 analog input/ output (0 ... 3.3 V)
	DE50 expert USB-C, 10/ 100 Mb/s Ethernet LAN (optionally PoE), SPI (up to 50MHz), TTL UART (up to 25 Mb/s), RS485/ RS422, I ² C, 8 GPIOs Temperature sensor input (NTC), 3 Analog inputs 12 bit (0 ... 3.3 V)

Mechanical parameters

Dimensions (L x B x H)	78 mm x 62 mm x 35 mm
Weight	approx. 150 g

Accessories (included)

USB cable, PC software VersaSpec for Windows 10/ 11, operating instructions and software development kit on USB flash drive, wavelength fit protocol