



OEM Spectrometer RU40/90

300 ... 1000 nm

RU40/90 is a compact spectrometer with many modern communication features. It includes a flat field spectrograph and a powerful processing electronics and is available in three versions:



RU40/90 basic

RU40/90 basic offers the following electronic features:

- ◆ USB and TTL UART/ SPI interfaces
- ◆ RTCC

And can be equipped optionally with:

- ◆ SD card slot
- ◆ Battery
- ◆ Laser diode controller
- ◆ Display control



BlueSpecCube

BlueSpecCube is a complete self-sustaining spectrometer solution with:

- ◆ Bluetooth interface
- ◆ Inbuild Li polymer battery
- ◆ Switches for start and measurement

BlueSpecCube and LanSpecCube can easily be used for own application specific systems.



LanSpecCube

LanSpecCube is a complete self-sustaining spectrometer solution with:

- ◆ LAN interface
- ◆ Measurement switch

All versions include the same grating spectrograph RU40/90. It is characterized by the following properties:

- ◆ High quality image with low aberrations over the whole spectral range
- ◆ High dynamic range with CMOS sensor S11639
- ◆ Compact design
- ◆ Fast mechanical shutter (piezoelectrically driven)

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)

Applications:

- ◆ Mobile spectrometric measurement equipment
- ◆ Colorimeter
- ◆ Spectroradiometer
- ◆ Analytical instrumentation
- ◆ Multichannel spectrometric systems
- ◆ Online spectral analyzer
- ◆ Remote sensing

◆ Advantages:

- ◆ Compact solutions with high optical quality and various electronics functions
- ◆ Easy realizable stand alone solutions
- ◆ SCPI compatible control syntax
- ◆ Easy and precise baseline correction due to mechanical shutter

Specifications

Optical parameters

Spectral range	300 nm ... 1000 nm
Optical bandwidth	< 4.5 nm FWHM (50 µm slit) (other slit widths on request)
Optical input	F-SMA connector for a 200 µm fiber
Wavelength accuracy	≤ 0.5 nm (HgAr linesource)
Wavelength reproducibility	≤ 0.02 nm (HgAr linesource)
Stray light	< 0.1 % (ASTM E387, GG495, λ = 420 nm/ 600 nm)
Spectrometer	Holographic grating, flat field
Detector	Hamamatsu S11639
Shutter	Piezo-electric, opening/ closing time < 20 ms

Electronic parameters

Digital resolution	16 bit
Dynamics	10000 : 1 (dark signal)
Typical sensitivity	50 µm slit, 200 µm fiber, pixel binning 2, gain 3: 5*10 ¹⁶ counts/ Ws at 300 nm 1.5*10 ¹⁷ counts/ Ws at 600 nm 1.5*10 ¹⁵ counts/ Ws at 1000 nm
Sampling speed	up to 4 MS/ s
Transfer speed	up to 3 Mb/ s (via Full Speed USB virtuell COM Port)
Integration time	0.01 ... 65 535 ms
Power supply	USB powered or Li battery (BlueSpecCube) or 5V (LanSpecCube)
Interfaces	
RU40/90 basic	USB (Full Speed), TTL UART (up to 3 MBaud), 3 programmable I/O, 2 analog inputs 10 bit (0 ... 3.3 V), Bluetooth, USB, Laser diode controller
BlueSpecCube	10/100 Mbps Ethernet LAN
LanSpecCube	

Mechanical parameters

RU40/90 basic	54 mm x 58 mm x 33 mm; 115 g
BlueSpecCube	54 mm x 58 mm x 53 mm; 200 g (with battery)
LanSpecCube	

Scope of delivery

Spectrometer, PC software VersaSpec,
JETI SDK, operation manual, power supply (LanSpecCube)