



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



BlueSpecCube



LanSpecCube

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 is a complete selfsustaining spectrometer solution with:

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

LanSpecCube is a complete selfsustaining spectrometer solution with:

- LAN interface
- Measurement switch

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

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

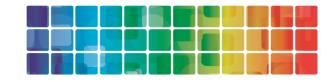
- · High quality image with low aberrations over the whole spectral range
- · High dynamic range with CMOS sensor S11639
- Compact design
- Fast mechanical shutter (piezoelectrically driven)

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

300 nm ... 1000 nm Spectral range

Optical bandwidth \leq 4.5 nm FWHM (50 μ m slit, other slit widths on request)

Optical input F-SMA connector for a 200 µm fiber

Max. wavelength error ± 0.5 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 grating, flat field

Hamamatsu S11639 Detector

Shutter Piezo-electric, opening/ closing time < 20 ms

Electronic parameters

Digital resolution 16 bit

10000 : 1 (dark signal) **Dynamics**

50 μm slit, 200 μm fiber, pixel binning 2, gain 3: Typical sensitivity

> 5*1016 counts/ Ws @ 300 nm 1.5*1017 counts/ Ws @ 600 nm 1.5*10¹⁵ counts/ Ws @ 1000 nm

Sampling speed up to 4 MS/s

Transfer speed up to 3 Mb/s (via Full Speed USB virtuell COM Port)

0.01 ... 65 535 ms Integration time

Power supply USB powered or Li battery (BlueSpecCube) or 5 V (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),

BlueSpecCube Bluetooth, USB, Laser diode controller

LanSpecCube 10/100 Mbps Ethernet LAN

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 54 mm x 58 mm x 55 mm; 170 g

Spectrometer, PC software VersaSpec, JETI SDK, operation Scope of delivery

manual, power supply (LanSpecCube)

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)

Technical data may be changed without notice