

RS15k Spectrometer

Compact high-resolution NIR echelle spectrometer with 700 nm simultaneous wavelength coverage.



Product Highlights

- Picometer resolution over large bandwidth
- SWIR InGaAs CMOS detector
- Low polarisation dependency
- Licence-free control software (RedSolve)
- Python API (RedMote)

Key Specifications

1. Optical performance

Spectral range	950-1650 nm
Resolving Power [$R=\lambda/d\lambda$]	20,000 (at 1550 nm)
Wavelength stability	TBC
Wavelength accuracy	TBC
Signal to noise ratio ⁽¹⁾	TBC
Fibre input	SMF FC/PC
Detector	cooled SWIR CMOS
Exposure time	0.001-10 s
Dark current at +5°C	2000 e-/pixel/s
Read noise ⁽²⁾	<200 e-/pixel (rms)
Data acquisition ⁽³⁾	up to 10 Hz

⁽¹⁾ Single acquisition.

⁽²⁾ At unity gain (1 e-/ADU).

⁽³⁾ Maximum data acquisition only available with USB 3.0 cable.

2. Mechanical & Electrical

Weight	~9 kg
Dimensions (L/W/H)	28 x 32 x 10.5 cm (11 x 12.6 x 4.1 inch)
Power supply	24 V or USB-C
Data interface	USB 3.1 Gen 1

3. Operational

Temperature range	15-30 °C
Humidity range	10-80 %

Performance

The plots below show the spectrometer efficiency (left) and sensitivity (right).

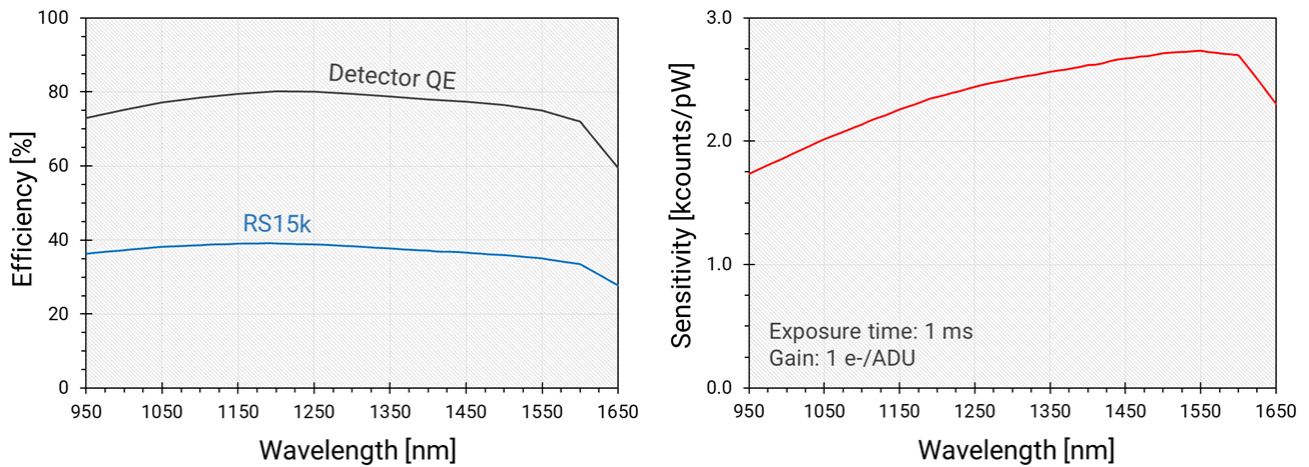


Figure 1: The left plot shows the total efficiency (blue curve) of the RS15k spectrometer, excluding coupling and transmission losses of the single-mode fibre. The right plot shows the calculated sensitivity for an exposure time of 1 ms, and 1 pW input power (calculated at unity gain, where 1 e-/ADU).

Product Applications

- Quantum-source spectroscopy
- Simultaneous high-resolution multi-element analysis
- NIR Laser spectrum analysis (e.g. monitoring of laser modes)
- Telecommunications

What's included:

- RS15k spectrometer in Pelican 1520 storage case
- 1060XP SMF with FC/PC to FC/APC connectors
- USB 3.0 cable (2 m)
- Power supply and IEC cable
- USB flash drive with calibration file, RedSolve, and drivers

Contact Details

 www.redback.systems

 contact@redback.systems

 [linkedin.redback.systems](https://www.linkedin.com/company/redback-systems)