



Electro Optical Components, Inc.

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DATASHEET EOC-SI-R3110 High-sensitivity High-resolution Portable Raman Spectrometer

Feature:

- Ultra-high sensitivity FFT-CCD TE-cooled;
- low noise circuit;
- Powerful embedded software;
- Fluorescent background eliminates;
- Peak finding and display;
- Win 10 operation system;
- USB 2.0;
- User friendly human-machine interface;
- Remote control via LAN;
- IP67 case;

Application:

- Biological science
- Pharmaceutical engineering
- Forensic analysis
- Agriculture and food safety
- Gemstone
- Environmental science

Description:

The EOC-SI-R3110 employs ultra-high sensitivity FFT-CCD, high efficient Raman probe, power reach up to 600mW ultra narrow line width laser, combined by high reliable optical design, circuit design, and measure result, high SNR, and fit well to field work. The obvious reliability ensures detect result, excellent low stray condition can apply Raman instrument to wider industries, especially biochemical analyzer, food safety, pharmaceutical engineering etc. This multi-function software support Raman analysis process.

EOC-SI-R3110 employs 110/220V power supply, DC supply via 5V adaptor.

| EOC-SI-R3110 System | | | |
|---------------------------------------|--|----------|----------|
| Interface | USB 2.0 and WIFI | | |
| Operating system | Windows 10 | | |
| Integration time | 4ms - 120s | | |
| Power voltage | DC 19V(+/-5%) | | |
| Operating Temp | -10~40 °C | | |
| Operating humidity | < 95% | | |
| Dimension(L*W*H) | 26x33x16.5cm | | |
| Weight | 5.5 Kg | | |
| Reliability | | | |
| Spectral stability | $\sigma/\mu < 0.5\%$ (COT 8 hours) | | |
| Temp stability | Spectral shift $\leq 1 \text{ cm}^{-1}$ (10-40 °C) | | |
| Variation of intensity (in 5 ~ 40 °C) | $< \pm 5\%$ | | |
| Optical parameters | | | |
| Spectral range (cm^{-1}) | 200-2700 | 200-3500 | 200-4300 |
| resolution (cm^{-1}) | 5-6 | 7-8 | 10-15 |
| SNR | $> 3000:1$ (918 cm^{-1} of Acetonitrile, 10s accumulation, 200mW) | | |
| Entrance slit | 50 μm | | |
| Optical system | f/4 C-T crossed optical path | | |
| focusing | 98 mm for incidence and output | | |
| Detector | | | |
| Item | Ultra-high sensitivity, quick cooling CCD | | |
| Detector cooled down to | -10 °C | | |
| Detecting range | 200-1100 nm | | |
| Effective pixels | 2048*64 | | |
| Dynamic range | 50000: 1 | | |
| Pixel size | 14 μm ×14 μm | | |
| Full well capacity | 300 Ke ⁻ | | |
| Sensitivity | QE>40%, 6.5 $\mu\text{V}/\text{e}^-$ | | |
| Exciting Laser | | | |
| Central wavelength | 785nm (+/-1nm) | | |
| FWHM | 0.08 nm | | |
| Power output | $\geq 500 \text{ mW}$ | | |
| Power stability | $\sigma/\mu < \pm 0.2\%$ | | |
| Raman probe | | | |
| Operating distance | 6 mm | | |
| Rayleigh scattering resistance | OD>8 | | |
| Numerical Aperture | 0.3 | | |
| Aperture | 7mm | | |