

Qred AFBR-S20R1XX

Ultra-Compact NIR Spectrometer with Cooled High-Performance Image Sensor



Key Features

- Spectral resolution from 4 nm
- Cooled InGaAs detector
- Ultra-compact design
- Powerful onboard processing and evaluation

Applications

- Food safety
- Chemical analysis
- Quality control
- System integration
- Counterfeit detection
- Environmental analysis
- Biomedical applications
- Pharmaceutical analysis
- Process control and monitoring

Overview

The Qred is the world's first truly portable near-infrared spectrometer. On a footprint smaller than a credit card, it includes high-throughput Czerny-Turner optics with a TEC-cooled InGaAs image sensor. The advanced thermal design provides high thermal stability and excellent heat transfer without a fan. The rugged design with no moving parts ensures reliable operation in rough environments. The Qred offers the following:

- Full processing of spectra in the device (offset, nonlinearity, dark spectrum, and spectral sensitivity)
- Stable measurement conditions due to active cooled sensor
- AUX connector for analog and digital I/O, communication interfaces and power supply

Part Number	Product Configuration	Wavelength Range	Spectral Resolution
AFBR-S20R12R	Qred 256C-1.7	900 nm to 1700 nm	8 nm
AFBR-S20R12E	Qred 256C-2.5	900 nm to 1700 nm	4 nm
AFBR-S20R15R	Qred 512C-1.7	900 nm to 2500 nm	16 nm
AFBR-S20R15E	Qred 512C-2.5	900 nm to 2500 nm	8 nm

Specifications	
Focal length	50 mm
Entrance slit	50 μ m: 256-pixel sensor version 30 μ m: 512-pixel sensor version
Dynamic range	15000:1
Numerical aperture	0.14
Stray light	<0.1 %
Detector	Cooled 256/512-pixel InGaAs sensor
A/D converter	16-bit
Calibration	Wavelength, sensitivity, nonlinearity, and multiple dark spectra stored in device
Internal memory	32 MB (>3000 spectra)
Transfer speed to PC	USB 2.0 high-speed
Optical Interface	SMA connector
Digital interfaces	USB 2.0 with Type-C connector, SPI, UART
Dimensions	67.0 mm \times 58.0 mm \times 22.5 mm
Weight	160g
Operating temperature	-15°C to 60°C (non-condensing)
Storage temperature	-25°C to 70°C
Power consumption	5V DC without cooling: 200 mA without cooling: up to 3A
PC operating system	Windows 10, 8, 7, Vista

