

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 |

Application Software

Every Qred spectrometer includes Waves user software developed for general-purpose spectroscopy applications. Waves includes sophisticated algorithms for data acquisition and evaluation, which provides the following features through a clear and straightforward user interface.

- Take and display series of spectra
- Automatic exposure control with dark spectrum interpolation
- Import most ASCII-based file formats
- Export as ASCII table to almost any numerical analysis software
- Comprehensive tools for displaying and analyzing spectra
- Strip charts for comparing characteristic values between multiple spectra including peak follower in real time
- Graph printing and export to PDF
- Dynamic peak finder (no need to set a threshold level)
- Dark spectrum interpolation
- Transmission, absorption, and reflection measurements
- Colorimetry

Waves is very easy to use and very intuitive. Various spectrum evaluation options are available with minimal effort and only a few mouse clicks. For example, to zoom in, adjust the zoom slider. To move around, adjust the scrollbar. To change the x-axis unit, select the corresponding button. Values such as peaks or colorimetry are instantly calculated as soon as a spectrum is taken. Waves is available as a free download from our website.

Software Library

A software development kit (SDK) is also included to control the spectrometer and take spectra from your own software. It consists of a Windows DLL library for the .NET framework, documentation, and sample code. The SDK can be used with any programming language that can use .NET DLLs, including C#, Visual Basic .NET, C++, Delphi, LabVIEW, Matlab, and Mathematica.

Communication Protocol

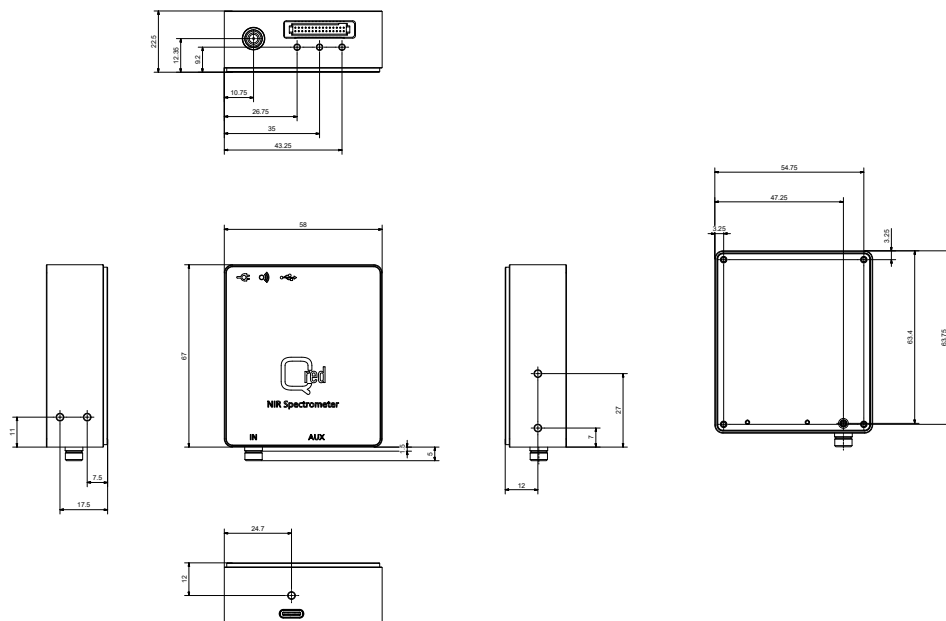
The spectrometer can also be directly controlled from an embedded microcontroller or other operating systems using the device communication protocol. Just like our application software, the protocol is designed to be both powerful and easy to use for software developers.

I/O Port

The Qred includes a new auxiliary connector for analog and digital I/O, communication interfaces and power supply (if USB is not used). The eight digital channels can be configured as trigger input, shutter or flash lamp control, process control, or general purpose I/O pins.

The Qred supports three trigger modes: software trigger, interval trigger, and external trigger. It can be set to trigger on the start or the end of the exposure period.

Qred Schematic Drawing



Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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