iQ-Multispectral data sheet

Overview

Product name	iQ-Multispectral
Principle	Diffuse light panels that use iQ-LED technology (including a micro-spectrometer) to illuminate a reproducible scene for multispectral imaging. The iQ-LED technology is optimized for the best spectral match and allows CRI values up to 99 depending on the illuminant and intensity. Every LED channel can be used in a single mode for multispectral imaging. The iQ-Multispectral has a separate UV channel that can be combined (optional) with a UV bandpass filter to give it the best performance for UV imaging.

Features

Diffuse light panel

Light area (per panel)	650 mm x 135 mm

Illumination

Light source (per panel)	2 x iQ-LED V2 3 x iQ-LED VIS-IR 2 x iQ-LED UV Image Engineering iQ-LED V2 technology: iQ-LED V2: 41 SMD high power LEDs / Separated in 20 color channels / Spectral range: 380 – 820 nm / Intensity controlled via 4000 steps per channel and 32 kHz PWM (switchable to 1000 steps with 128 kHz) / Approx. lifetime of 10,000 h. iQ-LED VIS-IR: 11 additional channels, expands the spectral range to 380 – 1050 nm iQ-LED UV: 2 SMD high power LEDs (365 nm plus bandpass filter) *Measurement of typical single-channel spectra on request*

Optional bandpass filter for UV channel	350 nm Hard Coated Bandpass Interference Filter 50 nm FWHM 365 nm Hard Coated Bandpass Interference Filter 10 nm FWHM
Control functionality without PC	Storage of up to 44 different illuminants and one sequence on the device, default light source, controllable via micro switches on the device without PC, on/off switch for UV channel
Uniformity in the scene	Up to 90% of A2 space
Illumination stability	+/- 1% when stabilized (2% after switching D illuminants in the first 5 seconds)
Response time (switch illuminant)	< 50 ms

Maximum/Minimum illumination level (two panels in a scene)	Up to 2000 lx for standard D illuminants in an A3 scene Up to 1200 lx for standard D illuminants in an A2 scene Min. down to 25 lx for standard D illuminants
Dim function	Software-based by presetting the intensity or by selecting different pre-stored intensity illuminants directly on the device
Predefined standard illuminants	D50, D55, D65, D75, A, B, C, E Planckian spectral curve by selected temperature (1900 - 18,000 K)
Service life	10,000 h

Spectrometer

Construction	Separate calibration device with a spectrometer for easy positioning/fixation to measure the scene
Spectral range	305 -1100 nm
Pixel resolution	2048 pixel
FWHM	2.5 nm
Output data	Real-time measurement of spectral trend and radiant power via control software while the calibration device is in the measuring position
Calibration	Yearly calibration required independent of working hours (contact Image Engineering), NIST traceable

Software

System requirements	PC with Windows 7 operating system (or higher) 2 x USB port
Functions	• Auto-generation of standard illuminants or externally measured spectra • Creation or adaptation of spectral trends via 31 LED channels • Additional narrowband UV channel • Save and load function of self-defined spectral arrangements or intensities • Storage of illuminants/sequences on the device • Creation of test sequences • Real-time display of spectral measurement

	• Real-time calculation of CCT, CRI, curve fit, and illumination level • Separate dim functionality for UV channel
API (C++)	Optional available (iQ-LED API)

General description hardware

Power supply/consumption	210 - 230 V / 230 W
Ports (per panel)	1 x USB for software control 1 x port for the power adaptor 1 x 3.5 mm jack for trigger output
Dimension [W x H x D] (per panel)	665 mm x 160 mm x 130 mm
Weight (per panel)	5.8 kg
Operating conditions	Optimal: 22 - 26 °C, maximal: 18 - 28 °C
Warm uptime	< 2 min at an optimal ambient temperature
Positioning/Fixation	Easy positioning with swivel arm. Fixation via 25 x 25 mm profile (min. 600 mm length) or 3/8″ tripod mount. Includes additional Kaiser parts in a complete repro setup.
Scope of delivery	Pair of iQ-Multispectral panels with swivel arms, calibration device, 2x power cords, USB cable, control software, calibration protocol
Additional parts	Complete Kaiser repro setup (on request)

Safety instructions

WARNING OF OPTICAL RADIATION!

Some LEDs are emitting invisible light in the "IR" as well as "the UV" region of optical radiation:

- **CAUTION: UV and IR emitted from this product.**
- **CAUTION: Minimise exposure to eyes or skin.**
    - **Use safety goggles when operating with UV and IR modules.**
    - **Leave the workroom if possible in case of longterm usage of UV component (>15 min).**
- **Do not look directly into the emitted light when using high intensities or sequences with low response time.**
- **Do not open the device without any instructions from the Image Engineering support team or when connected to the power supply.**