



Overview

Product name	lightSTUDIO
Principle	Variable lighting of a real scene for reproducible visual assessment of image quality. lightSTUDIO is available in different set-ups to simulate multiple illuminants, moving content and/or mixed light situations.

Features

lightSTUDIO

Inner dimension (space for scene) [W x H x D]	lightSTUDIO-S	1250 mm	750 mm	600 mm
	lightSTUDIO-SM	1250 mm	750 mm	820 mm
	lightSTUDIO-ST (2 x)	624 mm	750 mm	600 mm
	lightSTUDIO-L	1250 mm	750 mm	600 mm
	lightSTUDIO-LM	1250 mm	750 mm	820 mm
Specialties	<ul style="list-style-type: none"> • Interior included • Background chart with natural scene included 			

Illumination / lightHEAD-S

Light sources	<p>lightSTUDIO-S versions:</p> <ul style="list-style-type: none"> 2 x F12 fluorescent tube OSRAM L 36W/930 * 2 x F11 fluorescent tube OSRAM L 36W/940 * 2 x D50 fluorescent tube OSRAM L 36W/950 * 2 x D65 fluorescent tube OSRAM L 36W/965 * 5 x halogen lamp 20 W, 12 V, infrared coated 9 x halogen lamp 20 W, 12 V, infrared coated <p>lightSTUDIO-ST versions:</p> <ul style="list-style-type: none"> 4 x F12 HQ fluorescent tube OSRAM L 18W/930 * 2 x F11 HQ fluorescent tube OSRAM L 18W/940 * 2 x D50 HQ fluorescent tube OSRAM L 18W/950 * 2 x D65 HQ fluorescent tube OSRAM L 18W/965 * 6 x halogen lamp 20 W, 12 V, infrared coated 8 x halogen lamp 20 W, 12 V, infrared coated
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Response time (illuminant switch)	fluorescent lamps: stable color temperature after 3 minutes halogen: < 1s
Illumination levels	F12, F11, D50, D65: approx. 12 lx – 2200 lx Halogen: approx. 5 lx – 700 lx Halogen with blue filter: approx. 4 lx – 400 lx
Dim function	Dimmable from 0-100% in 1% steps
Predefined illuminants	F12, F11, D50, D65 fluorescent light source (100% intensity) Halogen: 10 lux, 100 lux and 400 lux Halogen with blue filter: 400 lux
Service life	lightSTUDIO-S LLMF** F12, F11: 12,000 h: 0.85 4,000 h: 0.9 D50: 12,000 h: 0.68 4,000 h: 0.72 D65: 12,000 h: 0.9 4,000 h: 0.99 lightSTUDIO-ST LLMF**: F12, F11: 12,000 h: 0.91 4,000 h: 0.94 D50: 12,000 h: 0.79 4,000 h: 0.86 D65: 12,000 h: 0.85 4,000 h: 0.9 Halogen: 4,000 h

Illumination / lightHEAD-L

Light source	10 x iQ-LED Image Engineering iQ-LED technology: 80 LEDs per iQ-LED element, 2 white channels and 20 color channels controlled in 1000 steps per channel and 32 kHz PWM, spectral range 400 – 820 nm 1 x F11 fluorescent tube OSRAM L 36W/940 * Using iQ-LED light sources and F11 lamp at the same time is not recommended.
Illumination stability	+/- 2 %***
Response time (illuminant switch) ****	< 50 ms
Maximum / Minimum illumination level	maximum: 400 lx (depending on illuminant and required curve fit / CRI) minimum: 25 lx (depending on illuminant and required curve fit / CRI)
Dim function	iQ-LED: Individual configurable illuminants are created with the lightSTUDIO software F11 lamp: dimmable from 0-100% in 1% steps
Predefined standard spectra **	D50, D55, D65, D75, A, B, C
Service life	iQ-LED: 10,000 h F11: 12,000 h (LLMF: 0.91), 4,000 h (LLMF: 0.94)

Spectrometer (only lightSTUDIO-L versions)

Construction	Built-in spectrometer
Spectral range	350 – 870 nm
Resolution	2048 pixels
FWHM	2.4 nm
Spectra visualization	Real time measurement of spectral trend and radiant power in lightSTUDIO software
Calibration	Yearly calibration required independent of working hours (contact Image Engineering), NIST traceable



Moving-Option (only lightSTUDIO-M versions)

Translation	0.001 – 3 m/s (left to right and right to left)
Rotation speed	0.5 – 360 rpm (bidirectional)
Test charts	TE276 Dead Leaves (translation) Black/white sector plate (rotation)

iQ-Timecode (only lightSTUDIO-M versions)

Display range	timecode mode: 00:00:000 – 99:59:999 [m:s:ms] counter mode: 0 - 65535 counts
Dimension [W x H x D]	223 x 103 x 30 mm
Weight	approx. 0.5 kg

iQ-Trigger + iQ-Trigger-T (optional, included in lightSTUDIO-M versions)

Please refer to iQ-Trigger and iQ-Trigger -T data sheet.

Software

System requirements	PC with Windows 7 operating system (or higher) USB port
lightSTUDIO	<ul style="list-style-type: none"> control of translational and rotational test chart (speed, direction, duration) control of iQ-Trigger control of lightHEAD-L (generation of illuminants based on predefined or imported spectral data, creation of sequences, real time spectral measurement) control of lightHEAD-S (switch lamps on off, dim function) control of iQ-Timecode Display (start, stop, reset) creation of batch processing lists for all components
API (C++)	optional available: iQ-LED API, iQ-Standardlight API, iQ-Drive API, iQ-Timecode API
iQ-Trigger	The iQ-Trigger API and software is delivered with all lightSTUDIO-M versions
CLI	A command line interface (CLI) is delivered with the Standard lightHEAD
iQ-Standardlight	A simplified control software is delivered with the lightSTUDIO-ST

General description hardware

Power supply / frequency / consumption	power supply			
		power supply	supply frequency	max. power consumption
	lightSTUDIO-S	220 - 240 V	50/60 Hz	200 W
	lightSTUDIO-SM	220 - 240 V	50/60 Hz	600 W
	lightSTUDIO-ST	220 - 240 V	50/60 Hz	200 W
	lightSTUDIO-L	220 - 240 V	50/60 Hz	200 W
	lightSTUDIO-LM	220 - 240 V	50/60 Hz	600 W
Connectors	1 x USB 1.1 (PC connection) 1 x power adaptor			
Dimension [W x H x D]	lightSTUDIO-S	1300 mm	800 mm	800 mm
	lightSTUDIO-SM	2320 mm	1920 mm	820 mm
	lightSTUDIO-ST	1300 mm	800 mm	800 mm



	lightSTUDIO-L	1300 mm	840 mm	800 mm								
	lightSTUDIO-LM	2320 mm	1920 mm	820 mm								
Weight	lightSTUDIO-S	approx. 40 kg										
	lightSTUDIO-SM	approx. 134 kg										
	lightSTUDIO-ST	approx. 45 kg										
	lightSTUDIO-L	approx. 45 kg										
	lightSTUDIO-LM	approx. 134 kg										
Operating conditions	lightHEAD-L: 18 - 28 degrees Celsius, optimal: 22 - 26 degrees Celsius all lightSTUDIOS: normal room temperature and humidity, do not cover vents											
Warm-up time	< 2 min. at optimal ambient temperature (iQ-LED lightHEAD) approximately 3 min. (fluorescent light sources)											
Rolling Cart	<ul style="list-style-type: none"> included in lightSTUDIO-L optional for all other versions wheels with brakes 											
Scope of delivery (hardware)		lightHEAD-S / -ST / -L	Background Chart	Interior	Moving option	power cord	USB cable	iQ-Trigger Adapter-Box I	control software	calibration protocol	iQ-Trigger + iQ-Trigger-T	iQ-Mobilemount
	lightSTUDIO-S	S	x	x		x	x		x	x		
	lightSTUDIO-SM	S	x	x	x	x	x	x	x	x	x	x
	lightSTUDIO-ST	ST	x	x		x	x		x	x		
	lightSTUDIO-L	L	x	x		x	x		x	x		
	lightSTUDIO-LM	L	x	x	x	x	x	x	x	x	x	x
Scope of delivery (software)		lightSTUDIO	iQ-StandardLight	iQ-Trigger (API)	lightSTUDIO CLI	iQ-LED						
	lightSTUDIO-S	x			x							
	lightSTUDIO-SM	x		x	x							
	lightSTUDIO-ST		x									
	lightSTUDIO-L	x				x						
	lightSTUDIO-LM	x		x		x						

Miscellaneous

Accessories	Rolling Cart, Replacement Kits (lightSTUDIO Interior, lightSTUDIO Background Chart, lightSTUDIO-S light bulbs, lightSTUDIO-ST light bulbs), iQ-LED software
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* light sources are delivered ready to use, burn-in period of 100 h

** LLMF: Lamp Lumen Maintenance Factor. LLMF is the ratio of the luminous flux emitted by the lamp at a given time in its life to the initial (100 hours burn-in time) luminous flux.

*** iQ-LED light source

**** measured for selected standard illuminants after switching an illuminant at operating temperature