LightCon Software

Powerful software for the compliance
analysis of automotive lamps

Automatic measurement of
all key parameters

1 Setup & management of measuring paths, test objects, light sources, electric parameters	**2** Test reports	**3** Luminance
4 Illuminance & luminous intensity	**5** Colorimetry	**6** Light distribution of airfield lighting
7 Regulations & projects	**8** Retroreflection	**9** Export functions / outsourcing & backup of database objects

01 \\ LightCon – Efficient analyses, extensive regulation database and high flexibility

The LightCon laboratory software controls and analyzes photometric measurements with Optronik Line systems of exterior automotive lighting, variable message signs, retroreflectors and airfield lighting. It enables the performance of complex measurement tasks in product development, quality control or type testing/homologation. For this purpose, it offers simple user guidance, high flexibility and fast orientation due to its clearly structured user interface.

Thanks to an extensive regulation database, complete goniophotometric measuring sequences can be automatically processed; test reports, regulations, objects and projects can be newly created and managed.

02 \\ Software functions

- Measurement of illuminance, luminous intensity, color coordinates, retroreflection, red contents, UV proportion
- Control and evaluation of goniophotometric measurements
- Simple editing of complex measurement sequences
- Possibility of setting one's own limit values and percentages for the evaluation of DUTs

- Control and monitoring of burn-in/detection of burn-in behavior of the DUT
- Measurements in real-time
- Measurement in flashing mode (ECE R6)
- Calculation and representation of the gradient of the cut-off line

- Graphical output of light distribution in the form of isocandela diagrams
- Intuitive user guidance with application assistant
- Password-driven, user-defined access control with rights structure

03 \\ Compliance assessment and supported standards

LightCon software is delivered with a complete regulation database and analysis formats in compliance with current international standards – kept up to date via updates (see Table 1).

Conformity assessments can be prepared at any time to the currently applicable standards and as photometric test reports with pass/fail analysis.

DUTs	Standards
Vehicle headlights	ECE R149 (and earlier), SAE and FMVSS108/CMVSS108
Signal lamps	ECE R148 (and earlier)
Retroreflectors	ECE R150, R3, ECE R27, SAE J 594 (and other)
Flashlight sources	ECE R65, SAE J595, J845 (and other), ICAO, FAA (optional)
Airfield lighting	ICAO, FAA (optional)
Variable message signs	EN 12368, EN 12352 (optional)
Retroreflectors in road construction	EN 12899 (optional)
Color coordinates	ECE R48, SAE, CIE 1931, CIE 1961, CIE 1976

Table 1: Standards supported by LightCon

04 \\ Integration of all Optronik Line measuring instruments & components

Goniometers	Photometers	Imaging colorimeters	Retro-reflectometers	Spectro-radiometers
AMS 200, 3000 and 5000, SMS 10µ, SMS10C, SMS10H	DSP 200, DSP 10, vv10dsp, LM 20	CM 10, FMS 10, optional devices of other manufacturers	RMS 1200, RMS 10gse, optional devices of other manufacturers	CAS 140D, CAS 140CT (for color coordinate measurement and T_{cp})
Optronik Line	Optronik Line	Optronik Line	Optronik Line	

Power supplies	Positioning systems	Screen photometers
SNT 10 Serie, Keithley 2651A, optional other manufacturers	TPU 10 photometer tube positioning unit EPS 10 single-axis goniometer	AMS screen imaging system consisting of: ACS 630 calibration light source LumiCam 2400B camera DSP 200 photometer AMS 3000 / 5000 goniometer
Optronik Line	Optronik Line	Optronik Line

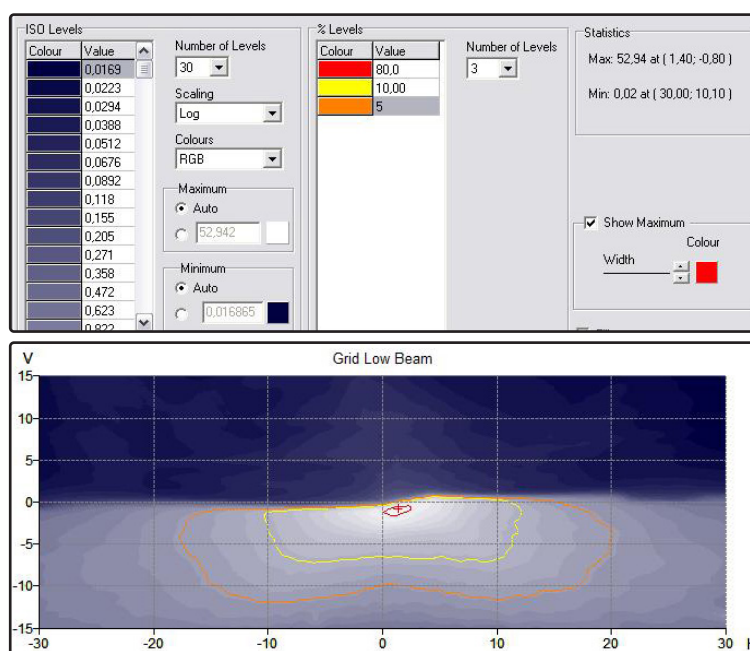◄ Table 2: Instruments and components integrated into LightCon (standard)

LightCon can control all Optronik Line instruments, and thus perform fully automatic and complex measurement procedures, even with the consecutive use of different measuring instruments and components (see Table 2). Optionally, existing devices of other manufacturers such as power sources, tristimulus colorimeters or retroreflectometers can be integrated into the software.

05 \\ Documentation of measurement results

▲ Photometric test reports with pass/fail analysis according to the selected measuring specification

▲ Time-slice function, determination and presentation of burn-in behavior

▲ Export of readings and result tables as IES, KRS, CSV, MS Office

▲ Graphical representation as an isocandela diagram (spherical scan grid, screen projection, driver's perspective, bird's eye perspective, 3-D representation

▲ Calculation when different measurements (pair of headlights or several light distributions, e.g. AFS functions) are superimposed

06 \\ Software modules for further applications (optional)

▲ Measurement of warning lamps in conformance with ECE R65 and SAE standards
▲ Measurement of airfield lighting in conformance with ICAO and FFA
▲ Incorporation of a PWM generator for LED applications with different pulse frequencies

▲ Measurement von variable message signs in conformance with EN 12368 and EN 12352
▲ Measurement von retroreflectors in conformance with EN 12899 and other standards for retroreflector for lane marking

▲ Measurement of illuminated railway track signals and signals for level crossings
▲ Support of source meters provided by the user

07 \\ Ordering information

Article No.	Description
LightCon	
SW-600	Complete operating and control software package for AMS 3000 or 5000 goniophotometer for the measurement of automotive lamps and retroreflecting materials according to standard regulations to ECE, SAE, FMVSS, incl. graphic representation of readings
SW-601	Operating and control software for AMS 200 goniophotometer with system-specific functional limitation for the measurement of automotive lamps and retroreflecting materials
Module / Plug-in	
SW-610	Module for the measurement of lamps for airfield lighting according to ICAO, FAA
SW-611	LightCon plug-in for Keithley 2651A Source Meter
SW-612	LightCon plug-in for LMT Retro 1000
SW-612	LightCon plug-in for LMT C1210
SW-640	LightCon Keithley 2651A Source Meter screen photometer: supports measurement with projection screen and LumiCam imaging photometer, geometric and photometric calibration, preparation of test reports with graphic output and image stitching from different measurements
SW-232	DLL driver program for CAS140CT for Windows (required for the determination of color coordinates using LightCon goniometer software)

▶ Modularly expandable software for the Optronik Line of goniophotometers and reflectometers incl. accessories
▶ Determination of all photometric and colorimetric properties of directed radiation sources
▶ Extensive regulation database for UN-ECE, SAE and FMVSS108 conformity analysis
▶ Graphical representation of light distribution in various different isocandela diagrams
▶ Gradient measurement and extensive export functions for comparison with simulation and ray tracing programs

We bring quality to light.

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