LLS - LED Light Source

Longer Life, Lower Energy Consumption, Higher Performance

Standard Features
- Long life-time (50,000 hours)
- Fits all COLDVision light guides
- Fast triggered strobe capabilities (maximum 1 kHz pulse rate, maximum pulse width 1 msec, duty 1/10)
- Internal light feedback provides stabilized light output for the most demanding machine vision applications
- Low power consumption (less than 25 watts)
- Improved immunity to vibration and shock
- Small footprint and worldwide universally compatible power supply with interchangeable plugs
- RoHS compliant
- CE Approved

Hybrid Solution Pairs LEDs with Fiber Optics
The LLS offers users 4 different modes of control interfaces - a continuous intensity control knob, Ethernet, RS-232 or analog 0-5 Volt.

The auto-sensing inputs eliminate the need to switch manually between the modes. The unit also features a user control lock-out via the Ethernet and RS-232 SCHOTT supplied software.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Length 197 mm (7.75 in)</td>
</tr>
<tr>
<td></td>
<td>Width 129 mm (5.08 in)</td>
</tr>
<tr>
<td></td>
<td>Height 63 mm (2.48 in)</td>
</tr>
<tr>
<td>Weight</td>
<td>862 grms (1.9 lbs)</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>5° C (41° F) to 40° C (104° F)</td>
</tr>
<tr>
<td>Color Temperature - White</td>
<td>6000K</td>
</tr>
</tbody>
</table>

SCHOTT LLS Technical Information

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Color</th>
<th>Wavelength (nm) (+/- bandwidth 20 nm)</th>
<th>Light Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>A20960</td>
<td>Red</td>
<td>625</td>
<td>120 lm</td>
</tr>
<tr>
<td>A20960.1</td>
<td>White</td>
<td>---</td>
<td>275 lm</td>
</tr>
<tr>
<td>A20960.2</td>
<td>Green</td>
<td>525</td>
<td>100 lm</td>
</tr>
<tr>
<td>A20960.4</td>
<td>Blue</td>
<td>470</td>
<td>40 lm</td>
</tr>
<tr>
<td>A20955</td>
<td>Mounting Bracket</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Screen shot of the supplied Ethernet software
LLS - LED Light Source

Dimensions in ( ) are in mm

Product improvements may result in specification or feature changes without notice.

LLS A20960 Front View

LLS A20960 Side View

LLS A20960 Top View

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LLS 2 - LED Light Source

Long Life, Low Energy Consumption, High Performance

Standard Features
- Long life-time (more than 50,000 hours) (*)
- Low power consumption: 35 watts (max.)
- Light output (**): 175 klx at active diameter 8 mm
- Color temperature: 5,500 K
- Accepts light guides up to 13 mm
- External strobe capabilities: minimal pulse duration 200 µs at 20% duty
- Voltage input: 90 VAC to 260 VAC (50/60 Hz)
- Optical output: optimized for 4 - 10 mm
- Uniformity of light spot: Gaussian like light distribution shape
- RoHS compliant
- CE Approved

Characteristics

| Dimensions          | Length 240 mm (9.45 in)  
                      | Widths 85 mm (3.35 in)  
                      | Height 120 mm (4.72 in) |
|---------------------|--------------------------|
| Weight              | 2.1 kg (4.62 lbs)        |
| Operating Temperature| - 10° C (+ -14°F) to 40° C (104°F) (humidity 20% to 90%) |
| Storage Temperature | - 40° C (- 40°F) to + 80° C (+ 176°F) (humidity 10% to 95%) |
| Cooling Method      | Forced Air Cooling (fan) |
| Housing             | Powder painted steel     |

Control Characteristics

| Manual Control Interfaces (front) | On / Off switch  
                                  | Manual / remote switch  
                                  | Brightness control  
                                  | LED status indicator lights |
|-----------------------------------|-------------------|
| Electronic Control Interface (back) | Analog Input: 0 - 5 V (Intensity)  
                                     | Digital input (8 bit parallel) intensity, invertible logic |
| For Remote Control                | Remote light On / Off (invertible logic)  
                                  | Error signal outputs: over - temperature, over-current, Galvanically insulated digital inputs and outputs (opto couplers) |

NOTE:
External control pin layout compatible with Moritex halogen light sources. Please follow standard safety procedures when operating the LLS 2 Light Source.

(*): 70% drop of intensity according to LED supplier
(**): Measured after 1,100 mm long light guide at 50 mm distance
LLS 2 - LED Light Source

Dimensions in ( ) are in mm

01: Light guide ferrule fixing screw
02: Light guide connector
03: Intensity control
04: Power switch
05: Alarm indicator (e.g. over-temperature)
06: Power indicator
07: Remote / manual switch
08: Analog interface
09: AC power supply inlet
10: Digital interface
11: Dip switches
12: Cooling air intake

Illuminance of LLS 2 and Halogen Light Source at 50 mm distance

Angular Light Distribution with 10 mm Light Guide

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The SCHOTT MLS offers several advantages over other types of fiber optic light sources used in microscopy & static machine vision applications, including:

- Long-life of LED light engine
- Fan-less, vibration free operation
- Fits all COLDVision light guides
- Stable light output with minimal variation in color temperature
- Low power consumption (~18 watts)
- Small footprint and world-wide, universally compatible power supply with interchangeable plugs
- Optional light On/Off control via handheld remote or footswitch. Handheld remote also controls light output intensity.
- Mounting Options (sold separately):
  - Pedestal Mount
  - Post Mounts
- Temperature monitoring for protection of the LED light engine
- RoHS Compliant & CE Approved. ESD outlet connection.

### Characteristics

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions</strong></td>
<td>Length: 102 mm (4 in)</td>
</tr>
<tr>
<td></td>
<td>Width: 140 mm (5.5 in)</td>
</tr>
<tr>
<td></td>
<td>Height: 117 mm (4.6 in)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>0.8 kg (1.7 lbs)</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>5°C (41°F) to 40°C (104°F)</td>
</tr>
<tr>
<td><strong>Color Temperature – White &amp; Warm White</strong></td>
<td>6000 K / 3100 K</td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
<td>~ 18 Watts</td>
</tr>
</tbody>
</table>
SCHOTT MLS Technical Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Color</th>
<th>Light Output*</th>
</tr>
</thead>
<tbody>
<tr>
<td>A20400/6000</td>
<td>White – 6000 K</td>
<td>300 lm</td>
</tr>
<tr>
<td>A20400/3100</td>
<td>Warm White – 3100 K</td>
<td>200 lm</td>
</tr>
<tr>
<td>A20410</td>
<td>Handheld Remote (On/Off, pulse, intensity control)</td>
<td></td>
</tr>
<tr>
<td>A20411</td>
<td>Remote Footswitch (On/Off)</td>
<td></td>
</tr>
<tr>
<td>A20420</td>
<td>Pedestal Mount</td>
<td></td>
</tr>
</tbody>
</table>

*Light output specifications are measured with a 1 m long, 13 mm diameter bundle (A08051.40 bundle). The light output specification is the typical output and actual output may vary.

Dimensions in inches and [mm]

Mounting Options

For more information please contact:
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