www.lumi-con.de
Lumi Con
LED-Lighting-Technologies
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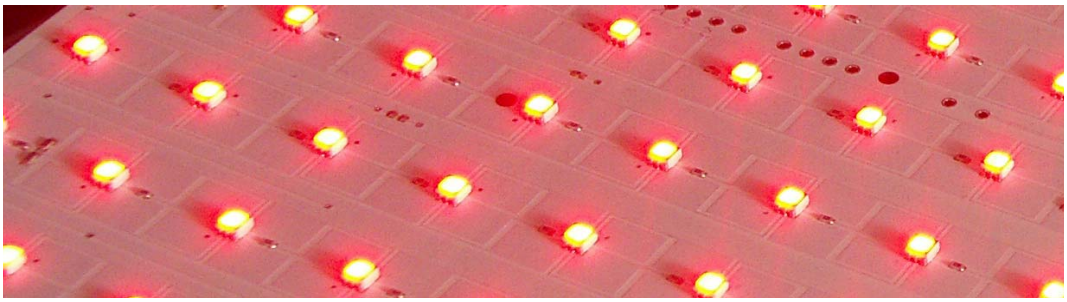
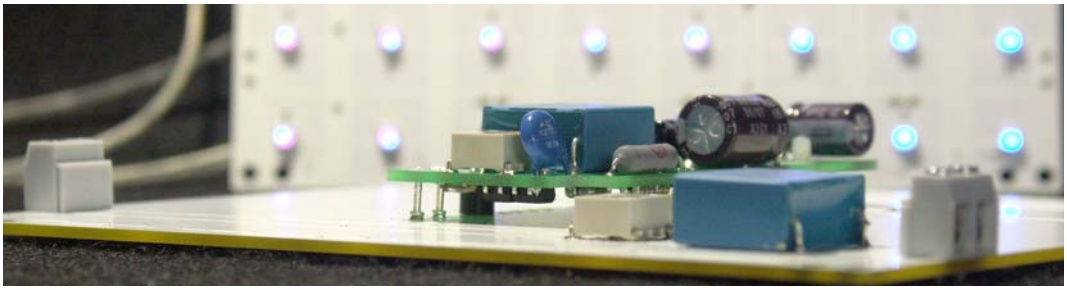
Datasheet
LP64-B-X-X-X

LED Lighting Unit
64 LEDs Board
Rev. 1.2 – 01/2012

LED-Lighting-Unit / LED-Module LP64-B-X-X-X



Product example:
LP64-B-RGB-O-X
(Front side, LEDs)



Product example:
LP64-B-RGB-TD2-X
(Foreground:
Backside of unit with
dimmer module)

Features

- Plane Lighting Module/Unit with 64 white or RGB LEDs
- Luminous Flux for neutral or warm white approx. 1000lm (equal to 100W bulb)
- High CRI value for warm white unit
- Dimensions 150mm x 150mm, LED grid 18.75mm (150/8mm)
- Several lighting units can be mounted beside each other without hurting the LED grid
- Modules are easy to operate with Lumi-Con SC2- or TD2-Dimmer direct from mains voltage
- Low power consumption of 10 – 20W (depends on type)
- Board-Version, Package Version see data sheet LP64-G-

Applications

- Deco-Lighting
- Advertising
- Indoor ceiling and wall lighting
- Bath room lighting (unit has ceramic tile dimensions)
- Furniture lighting
- Show case lighting

Attention!

When connecting to Lumi-Con Dimmer please read carefully the dimmer instruction. Set up should be done by skilled personnel only! Please read instruction carefully.

1. Description

The 150 x 150mm lighting units or modules are assembled with each 64 high quality LEDs. The LEDs are mounted in a 18.75mm grid. The lighting units are mountable beside each other without LED-grid violation. Thus one can easily design bigger plane lighting areas such as 4 x 4 LED-units (300 x 300mm) or 9 x 9 LED-units (450 x 450mm).

Four basic types are available with and without package:

1.1. LED-Module Neutral White / Warm White

The LED-Module contains 64 neutral or warm white medium power LEDs emitting a typical luminous flux of 968 respective 1122 Lumen. The modules are built for operating with Lumi-Con SC2-M-Dimmers at a current of 100mA (overall LED voltage drop is 230V DC).

1.2. LED-Module RGB (red/green/blue)

The LED-Module contains 64 RGB LEDs (3 x 64, 3 strings red, green, blue). The module are built for operating with Lumi-Con TD2-Dimmers at a current of 20mA per string (overall LED voltage drop is 230V DC).

1.3. LED-Lighting-Unit Neutral White / Warm White with SC2-Dimmer-Module

The LED-Unit includes the above described LED module (1.1) and a suitable SC2-Dimmer module. Thus these units can be directly connected to mains voltage. Controlling of the lighting unit can be done via touch pad as well as via serial control interface. Please check Dimmer datasheets for appropriate information.

1.4. LED-Lighting-Unit RGB with SC2-Dimmer-Module

The Led-Unit includes the above described LED module (1.2) and a suitable TD2-Dimmer module. Thus these units can be directly connected to mains voltage. Controlling of the lighting unit can be done via touch pad as well as via serial control interface. Please check Dimmer datasheets for appropriate information.

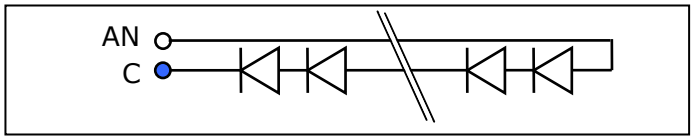
1.5. Dimmer-Versions

Principally usage of all Dimmer sub-versions can be used (respectively SC2-M or TD2). Please check Dimmer datasheets for appropriate information or contact us.

1.6. Overview of the Versions

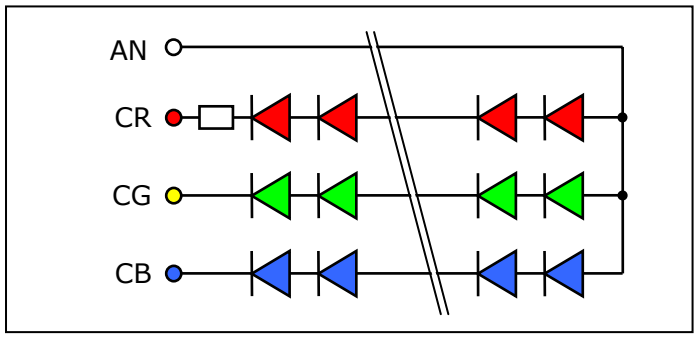
1) LED-Module
LP64-X-W/WW-O-X

AN: Anode (+)
C: Cathode (-)



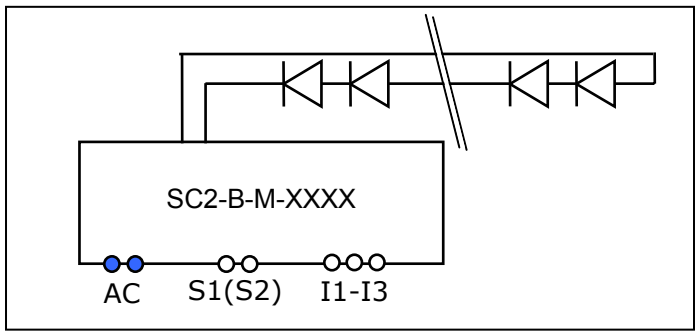
2) LED-Module
LPS12-X-RGB-O-E

AN: Anode (+)
CR: Cathode (-, red)
CG: Cathode (-, green)
CB: Cathode (-, blue)



3) Lighting Unit
LP64-X-W/WW-SC2-X

AC: Mains Connection
S1, S2: Sensor Pads*
I1-I3: Controller
Interface (optional)



3) Lighting Unit
LP64-X-RGB-TD2-X

AC: Mains Connection
S1-S4: Sensor Pads*
I1-I3: Controller
Interface (optional)

*) Sensor Pads to be
connected at the Dimmer*

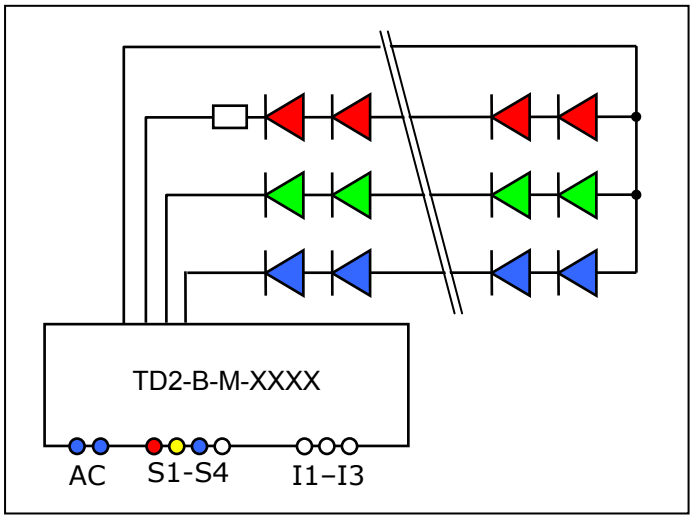


Fig. 1 Block diagram of LP64-Lighting-Modules/-Units

2. Operating Characteristics *

Common Data for all Modules/Units			Min	Typ	Max	Note/Cond.*
Operating Ambient Temperature	T_{AMB}	°C	0		40	1
Operating Ambient Humidity	RH	%			90	1
LP64-X-W-O-X LED-Module						
Power consumption, no forced cooling	P_W	W		22		100mA, 25°C
Maximum current	I_{MAX}	mA			120	
Overall LED foreward voltage	V_F	V	172	220	250	100mA, 25°C
Optical efficiency	η_W	Lm/W		43		100mA, 25°C
Luminous flux	P_{OPT-w}	Lm		968		100mA, 25°C
Chromatic coordinate acc. CIE 1931	x/y			0.34/0.34		100mA, 25°C
Viewing angle, 50% drop	2φ	°		120		
LP64-X-WW-O-X LED-Module						
Power consumption, no forced cooling	P_W	W		22		100mA, 25°C
Maximum current	I_{MAX}	mA			120	
Overall LED foreward voltage	V_F	V	172	220	250	100mA, 25°C
Optical efficiency	η_W	Lm/W		51		100mA, 25°C
Luminous flux	P_{OPT-w}	Lm		1122		100mA, 25°C
Chromatic coordinate acc. CIE 1931	x/y			0.42/0.40		100mA, 25°C
Viewing angle, 50% drop	2φ	°		120		
LP64-X-W-SC2-X LED-Lighting-Unit						
Power consumption, no forced cooling	P_W	W		24		2
Power consumption, no forced cooling	P_W	W		4		3
Luminous flux	P_{OPT-w}	Lm		968		100mA, 25°C
Chromatic coordinate acc. CIE 1931	x/y			0.34/0.34		100mA, 25°C
Viewing angle, 50% drop	2φ	°		120		
LP64-X-WW-SC2-X LED-Lighting-Unit						
Power consumption, no forced cooling	P_W	W		24		2
Power consumption, no forced cooling	P_W	W		4		3
Luminous flux	P_{OPT-w}	Lm		1122		100mA, 25°C
Chromatic coordinate acc. CIE 1931	x/y			0.42/0.40		100mA, 25°C
Viewing angle, 50% drop	2φ	°		120		
LP64-X-RGB-O-X LED-Module						
Power consumption, no forced cooling	P_W	W		13		4
Maximum current per string	I_{MAX}	mA			20	
Overall LED foreward voltage	V_F	V	172	220	250	4,
Luminous flux	P_{OPT-w}	lm		450		4, Mittelwert
Viewing angle, 50% drop	2φ	°		120		
LP64-X-RGB-TD2-X LED-Lighting-Unit						
Power consumption, no forced cooling	P_W	W		15		5
Power consumption, no forced cooling	P_W	W		3		6
Luminous flux	P_{OPT-w}	lm		450		4, Mittelwert
Viewing angle, 50% drop	2φ	°		120		

*) All current and voltage values are rms values, ambient temperature: T_{AMB}

[1] Non condensing, operation only in dry ambient
[2] 230V, 25°C, all LEDs 100% on, including a wattless power of 2.3W (decoupling capacitor)
[3] 230V, 25°C, all LEDs 100% off, including a wattless power of 2.3W (decoupling capacitor)
[4] 230V, 25°C, 3 x 20mA, 43/36/11 lm/W (red/green/blue), el. Power including resistor
[5] 230V, 25°C, all LEDs 100% on, including a wattless power of 0.75W (decoupling capacitor)
[6] 230V, 25°C, LEDs 100% off, including a wattless power of 0.75W (decoupling capacitor)

3. Dimensions

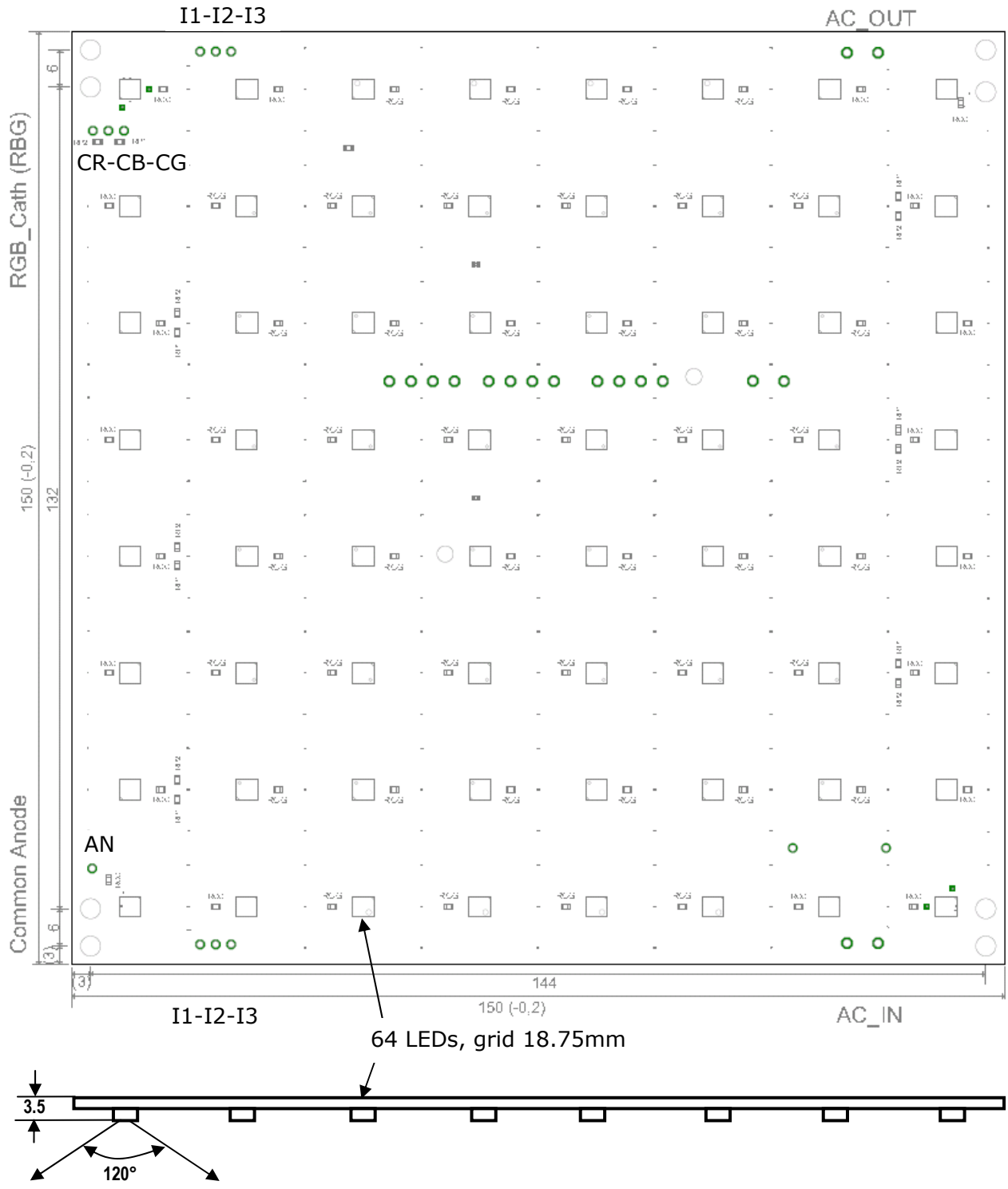


Fig. 2: Dimensions and interfaces of LED-Module LP64 (board version)

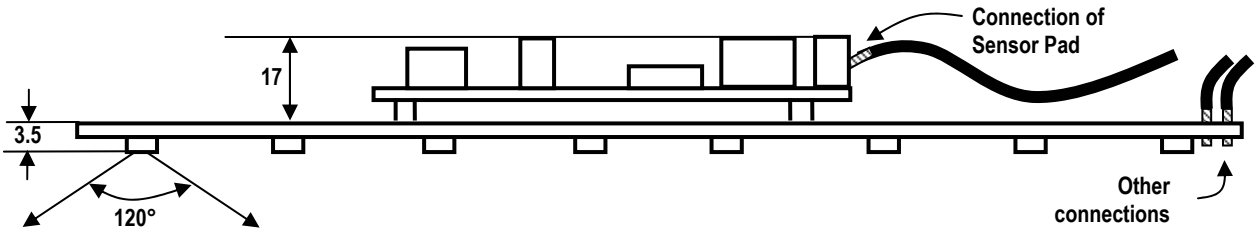


Fig. 3: Dimension of Lighting Unit (side view)

Package module is under development.

4. Pin-Assigment

	Unit Supply		Serial Unit Interface *			LED-Module Interface			
						Common	separate cathodes		
Type	AC	AC	I1	I2	I3	Anode	CR	CB	CG
LP64-X-W/WW-O-X	--	--	--	--	--	AN	-rot	-blau	-grün
LP64-X-RGB-O-X	--	--	--	--	--	AN	-rot	-blau	-grün
LP64-X-W/WW-SC2-X	230V≈		GND	CLK	DATA	--	--	--	--
LP64-X-RGB-TD2-X	230V≈		GND	CLK	DATA	--	--	--	--

*) SPI or UART (under development)

5. Product Numbers

LP64-B-X-X-X

- Number for Sub-Version
- With (O) or without integrated Lumi-Con Dimmer (SC2-M, TD2)
- Light colour: W (neutral white), WW (warm white), RGB (red-green-blue)
- Board version (B)

6. Installation and Precautions

Lumi-Con Mid- and ***Low-Power-Modules LP64*** requires a power adapter generating the necessary currents from mains voltage. Lumi-Con offers suitable DIMMER modules. If you operate the stripes with power adapters from other suppliers please read their instruction notes.

Operate the LED-Module and Units only in dry ambient only (operating class IP20).

Don't touch any part of the open module or unit. Switch off immediately the mains supply in case of problems. Don't try to repair it by yourself.

The ***Lumi-Con Mid-*** and ***Low-Power-Lighting Units LP64*** are already equipped with a Dimmer module. The units are therefore directly connected to mains voltage.

Before you connect to mains voltage (initially) please make sure that all necessary connections are correct. Assure that you have **protection against contact** for all wires including the circuit, mains voltage wires and wires to the LED module thus no occasional contact can happen (exception: Sensor inputs S1, S2). The module must not be operated in wet ambient or outside, except explicitly specified.

The whole circuit including the LED module LP64 and wires may show up to 350V peak voltage referred to ground. **Please do not touch the circuit and the connected components including the LEDs** if the circuit is powered up. In case of failure please switch of or separate from mains voltage immediately. Do not try to repair the module even it seems simple; this includes also broken fuses.

Please read carefully also the DIMMER instruction notes.

Lumi-Con modules fulfil the *EC Low Voltage Directive 2006/95/EC* (former 73/23/EEC), the *EC EMC Directive 2004/108/EC* as well as the RoHS compliancy (*EC Directive 2002/95/EC*). In addition they are compliant to *EuP Directive 2005/32/EG: Eco-Design of Energy Using Products*.

Attention please!

The information herein is given to describe certain components and shall not be considered as warranted characteristics. Terms of delivery and rights to technical change reserved.

We hereby disclaim any and all warranties, including but not limited to warranties of non-infringement, regarding circuits, descriptions and charts stated herein.

Lumi-Con components may only be used in life-support devices or systems with the expressed written approval of Lumi-Con.