R0-000150-Rxx-Vxxxx-J337-x

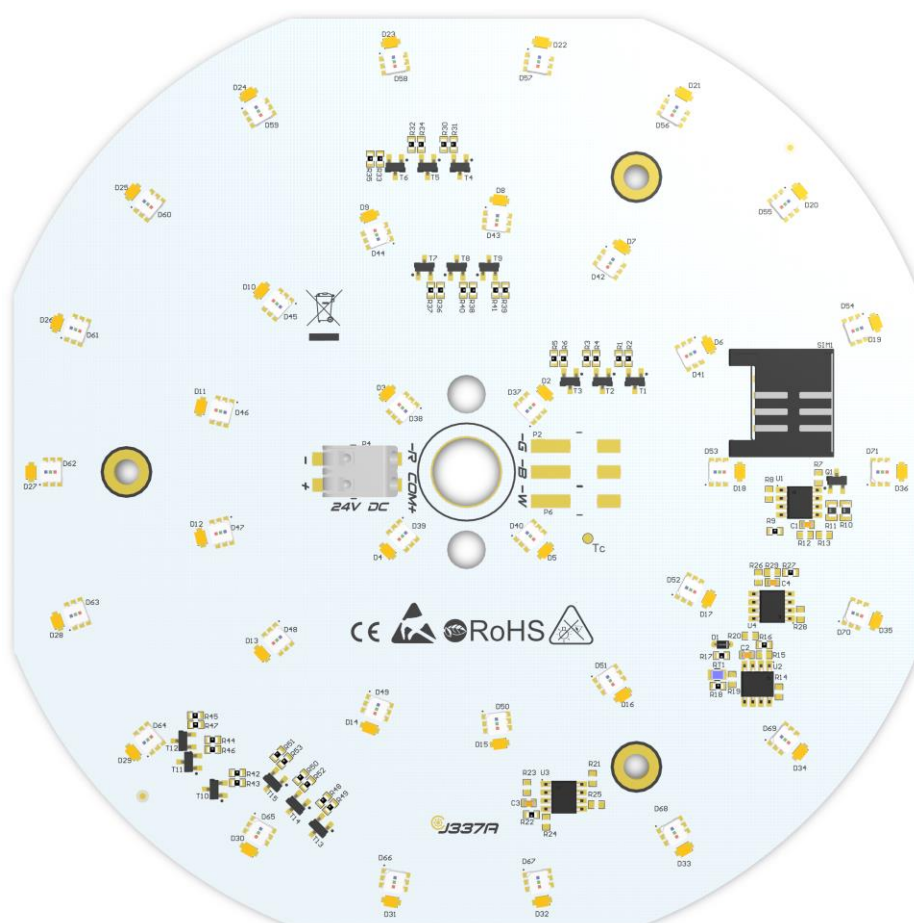# R0-000150-Rxx-Vxxxx-J337-x

INTRODUCTION

RGBW LED module is an advanced light source designed for the best energy efficient and eco-friendly indoor lighting. It is based on low power LEDs produced by the leader of the LED technology OSRAM. Using the newest technology we provide the best solution for lighting. Connecting a few LED modules allows to create complex lighting. Push terminals provide quick installation of the entire lighting system. This solution is the best for indoor ceiling-mounted and wall-mounted luminaries.

|	
Multi LED Type	OSRAM LRTB GVTG
White LED Type	OSRAM E2 - GW JBLMS1.EM
LED Quantity	35 RGB + 35 CW
Dimension	dia 150 mm
Power Supply Type	Constant Voltage (CV)
Power Supply Voltage	24 V DC
Viewing Angle	120°
Material Thickness	1,5 mm
Cable Connection	ADELS 351102
Max Ambient Temperature	45°C
White LED CRI	>80

FEATURES

LEDs have significant advantages compared to other types of lighting and are easy to use. LEDs are versatile and virtually maintenance free.

• High efficacy Osram LED

• Rigid board LED module

• Viewing angle at 50% I_V: 120°

• Small colour tolerance

• Small luminous flux tolerances

• Optional push terminals for quick and simple wiring

• Dimmable

• Simple installation

• Long lifetime

APPLICATIONS

• Ideal for direct view or backlighting

• For ceiling-mounted and wall-mounted luminaries

• Retrofits and fixtures

• Accent and Effect Lighting

• Professional downlights

• Shop lighting
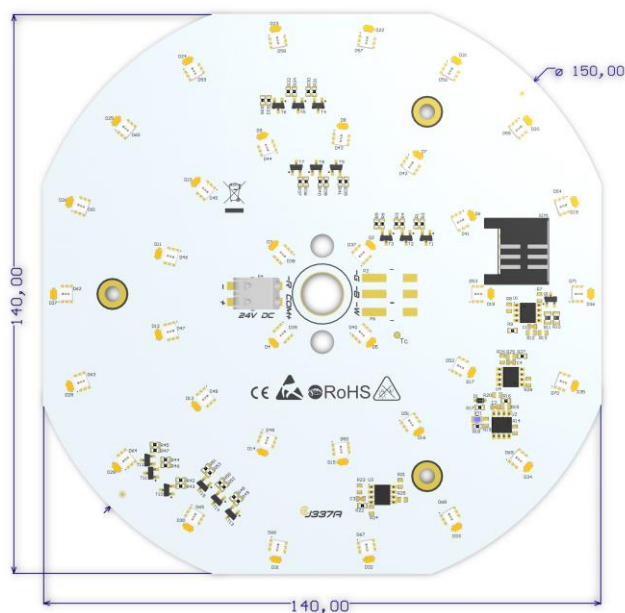
CALCULATED PARAMETERS AT T$_J$ = 25°C AND T$_J$ = 65°C

	Power [W]	Colour	λ [nm] CCT [K]	Luminous Flux* [lm]	Luminous Flux** [lm]	Article Number
RGBW / RGBW SMART***	7,2	RED	625	72	50	R0-000150-R27-V0015-J337-x
		GREEN	531	152	137	
		BLUE	465	31	29	
		WHITE	2700	232	217	
	9,6	RED	625	90	63	R0-000150-R27-V0020-J337-x
		GREEN	531	200	180	
		BLUE	465	40	38	
		WHITE	2700	301	281	
	12	RED	625	125	88	R0-000150-R27-V0025-J337-x
		GREEN	531	240	216	
		BLUE	465	48	46	
		WHITE	2700	368	344	

* - Parameters were calculated for temperatures T$_J$= 25°C

** - Parameters were calculated for temperatures T$_J$= 65°C

*** - Smart version has additional SIM slot with same parameters as normal version. Article number: 0 – Normal, S - Smart

Value of these parameters were calculated for default bin and with tolerances of 15%.

Parameters shown in table are default for one modules and for temperatures T$_J$=25°C and T$_J$=65°C. Some of this parameters are dependent on temperature and can be different during long time of operation. So it is impossible to order modules with same parameters after some time. LED technology is developed fast and producers are creating new LEDs with better features very quick. If you need LED modules with different value of some parameters, we provide other LEDs with different colour temperature and features. In such a case and for more information, please contact us before ordering. Please have all of this in mind when ordering LED modules.

RGB/RGBW

RGB LED modules are composed only of red, green and blue LEDs. Spectrum of white colour generate by RGB is made up of several thin bands. RGBW LED modules have additional white LEDs. Advantages of this solution are stronger luminous flux and better CRI of white colour. It allow to generate white light similar to natural light. Additional RGBW consume less energy than RGB, if are used only white LEDs to generate white colour. LEDs decrees power supply voltage, so next modules connected to output may have much worse parameters. RGB/RGBW LED modules are equipment with specialized stabilization system to eliminate this effect.
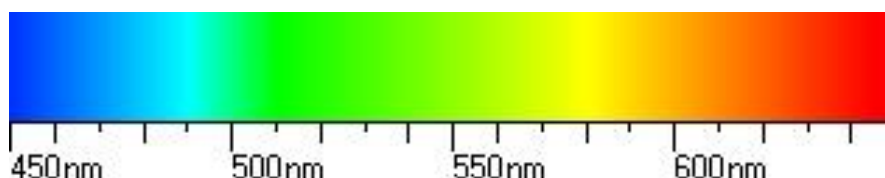
All colours are made of three basic colours. Most common basic colour are red, green and blue. RGB/RGBW LED modules allow to choose colour from the visible light spectrum by changing brightness of colours red, green, blue and white if available. Resultant colour depends on resolution of controller and LEDs parameters. Even if all colours LEDs are in single housing, colours may have different luminous flux.

PROTECTION MEASURES AGAINST DAMAGE

LED modules are delicate, even small mechanical stress may damage modules. Especially sensitive are LEDs. Such stresses should be avoided. If it is impossible, it should be kept to minimum. Mechanical stresses such as pressure, bending, breaking, drilling, etc. may cause irreversible damage. Damaged LED modules aren't suitable for use.

Serious threat to LEDs is electrostatic voltage discharge. People generate very high electrostatic voltage. Such voltage decrease lifetime of LEDs and in worst case may destroy electronic components. Best way to avoid damage is use of electrostatic protection. Do not touch electronic components.

Additionally LED modules can be damaged by some chemical substances. Depends of elements the damage may be different. It is important not to use chemical substances like acids, organic acids, sulphur, alkalis, organic solvents, mineral oils, vegetable oils and synthetic oils, etc. We are not responsible for any loss, or damage resulting from improper use of modules! Guarantee become void in such cases.

Do not operate LED modules, when they aren't working properly. If modules are working incorrectly, turn off power supply. Damaged LED modules may cause electric shock or short circuit.

SAFETY

Most of LEDs generate high intensity light even when dimmed. If LED light has high intensity, it is classified as laser. These LEDs must have appropriate marking. Combination of LEDs or even weak LEDs with optics can be very dangerous, because optics can focus beam and looking into LEDs beam is unhealthy and may cause irreversible injury to eye's retina. Never look into the beam without protection glasses with appropriate filter.

Additionally LEDs light change intensity almost immediately. If people are photosensitive, LEDs light may be a trigger to epileptic seizures and alter the perception, especially when light change very fast.

CONNECTIONS

Connecting a few LED modules allows to create complex lighting. Push terminals provide quick installation of the entire lighting system. The LED modules must be operated with power supply that is suitable for LEDs. When connecting a few LED modules use of appropriate power supply is important. Power supply should have sufficient max. power to maintain all LED modules. Power supply and RGBW driver must be connected properly. Wrong polarization can destroy modules in very short time. RGBW LED modules must be operated using a RGBW driver. It allows to independent control of colours brightness and save colour setting. We have got several different RGBW controllers like DALI, DMX, RC, IR and Bluetooth in our offer. Most controllers have many light effects such as slow changes of colour, fire, thunderstorm, rainbow changes, strobe, etc. We are not responsible for any loss, or damage resulting from improper use of modules! Guarantee become void in such cases.

WIRING DIAGRAM FOR RGBW LED MODULES WITH PARALLEL WIRING
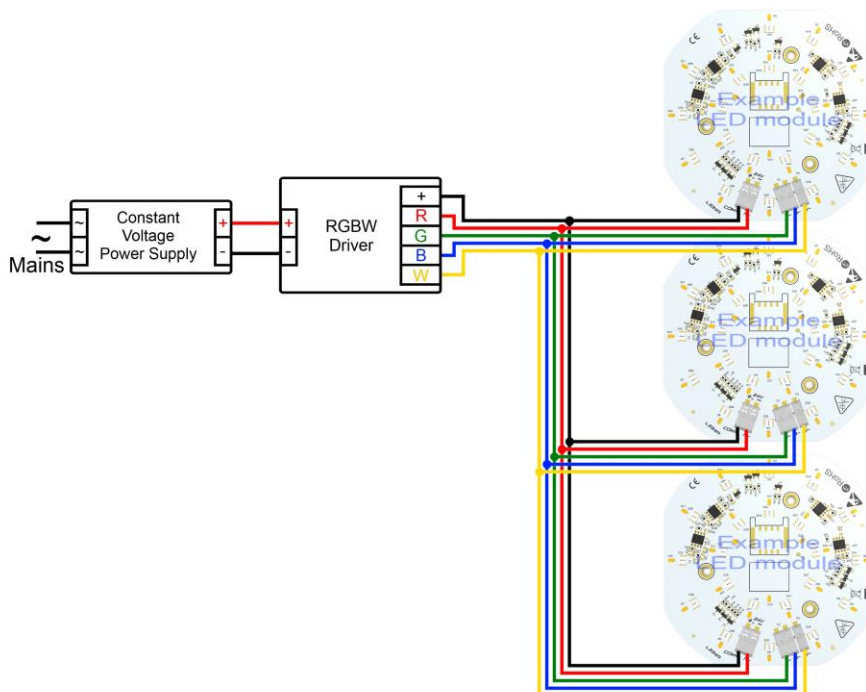
Advantages of this solution are very low voltage supply and uniform distribution of light. It meets requirements of SELV. Higher current supply is require to proper operation. Connections RGBW LED modules with serial wiring is unacceptable. Such connection may damage or destroy modules. We are not responsible for any loss, or damage resulting from improper use of modules! Guarantee become void in such cases. Above connections are examples and may be different from the actual.

**WIRING DIAGRAM FOR RGBW SMART LED MODULES WITH PARALLEL WIRING**


ONLY WITH SMART MODULES
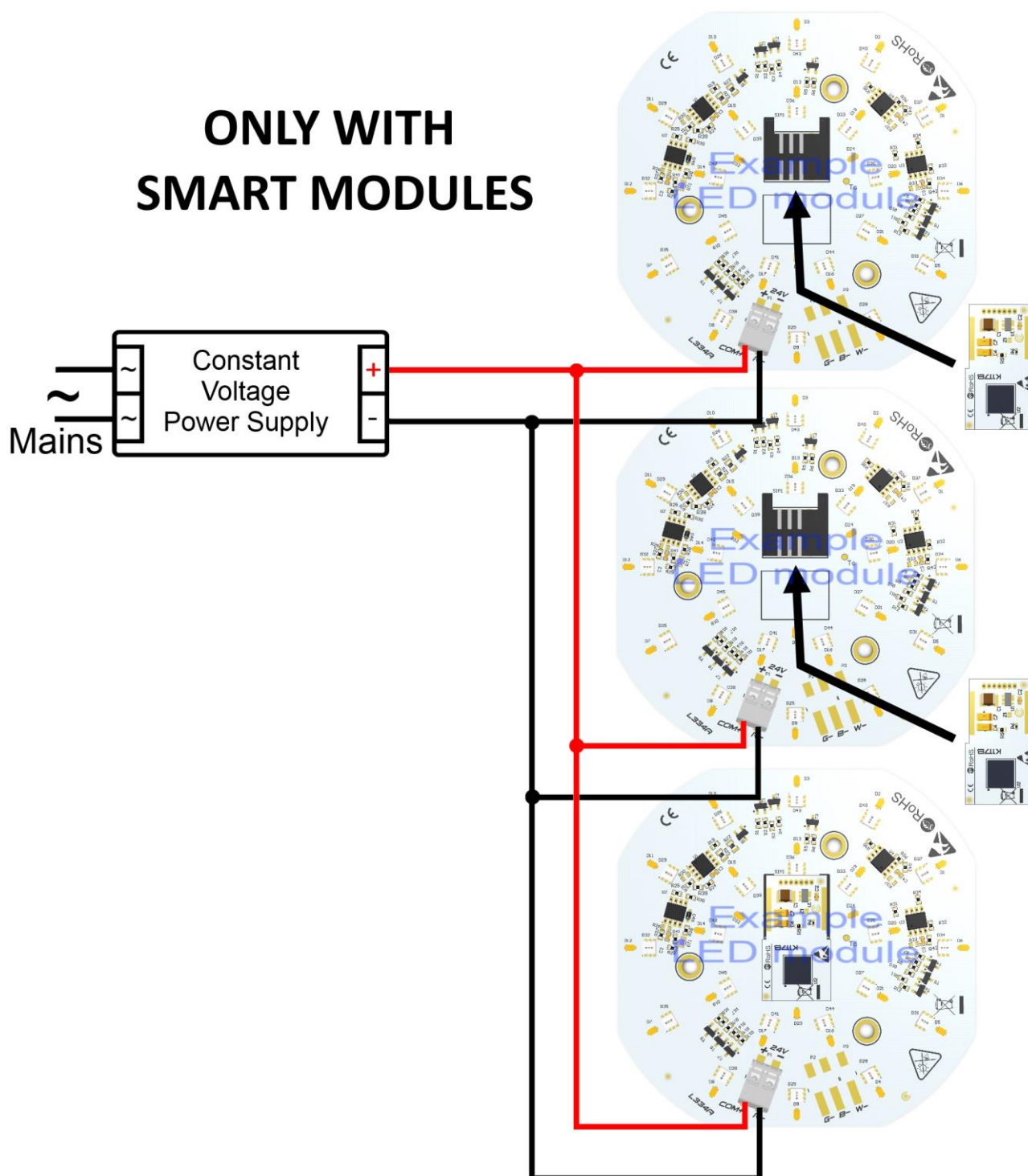
This is special wiring available only for SMART modules. Connecting external controller is not allowed and they don't work properly without compatible driver in the slot. Advantage of this solution is possibility to replace white LED modules without changing the existing installation.

COOLING

The modules are self-cooled but if temperature on T_c point exceeds 70°C, than a heat-sink is required. Temperature test point (T_c) for measurement should be localized in the middle of the board near LED's thermal pad. The temperature at the T_c point can be measured with thermocouple or simple temperature probe. Example of T_c point is show on the photo below.
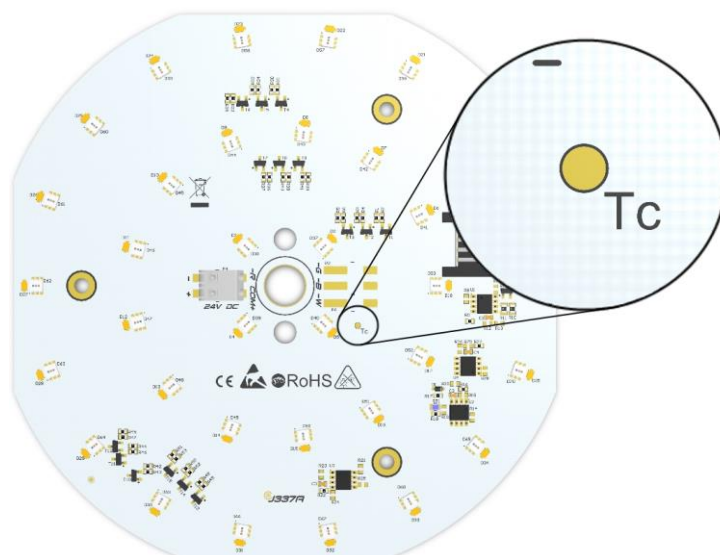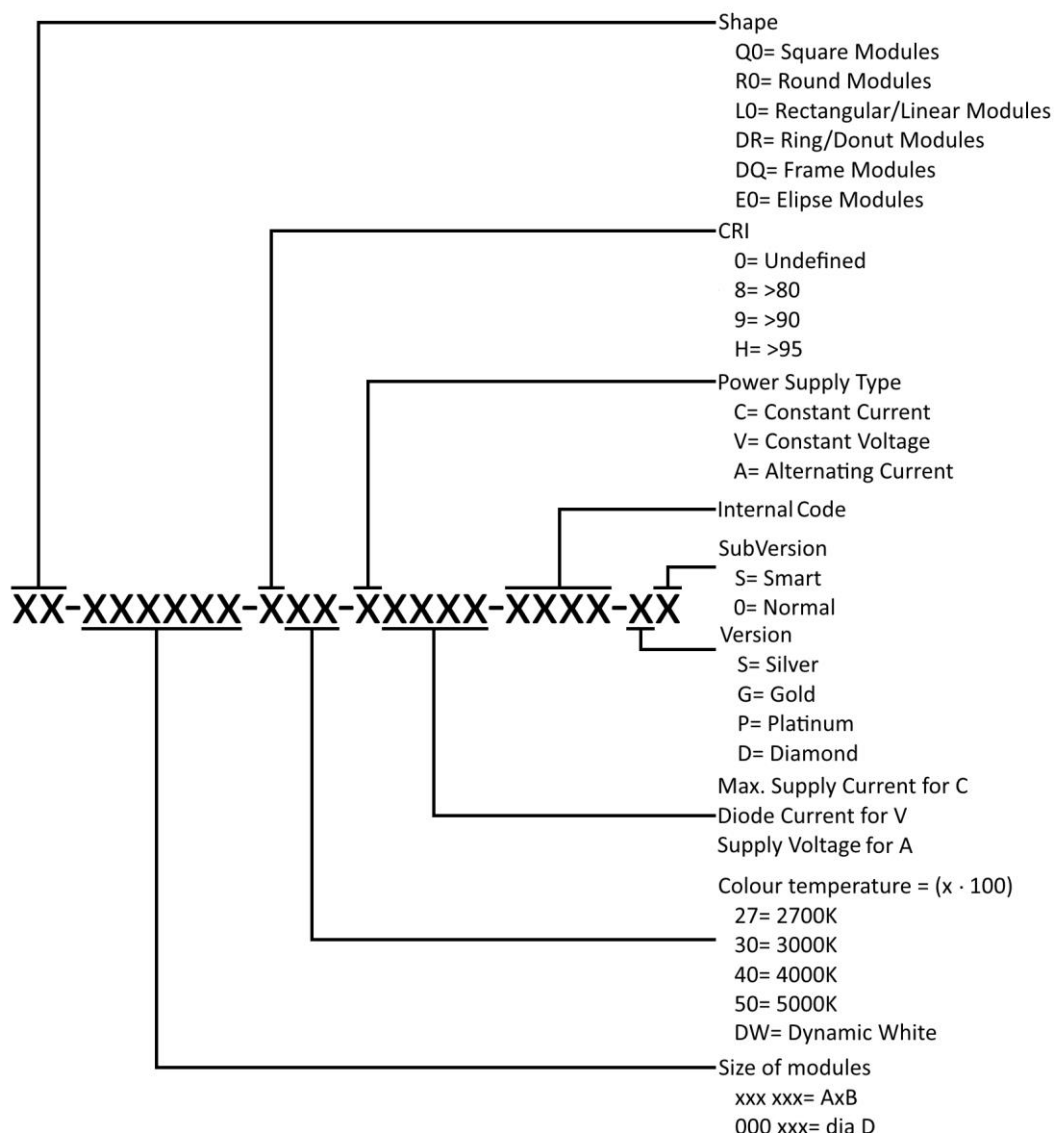

The lifetime of the module depends to operating temperature and used LEDs. If temperature at T_c will be lower than 65°C, the value of luminous flux shouldn't be less than 80% of its nominal value after 50.000h. If temperature is to high then lifetime can be significantly decreased or damage LEDs. Another disadvantage of high temperature is reduction of relative luminous intensity. LED modules produces heat. They must be provided with good air ventilation. Modules without air ventilation can overheat. Overheat can damage or destroy some elements or entire LED modules. We are not responsible for any loss, or damage resulting from improper use of modules! Guarantee become void in such cases.
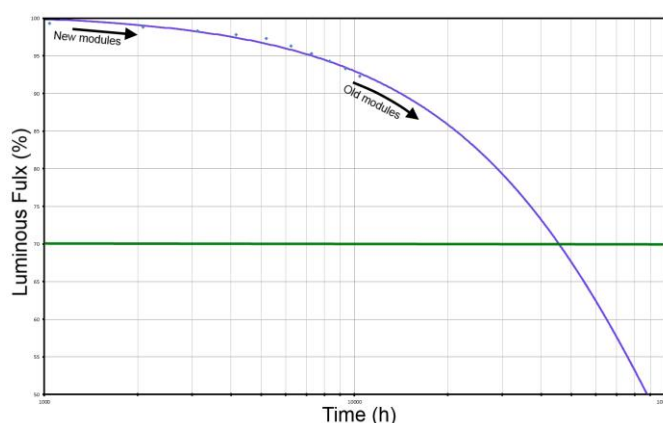
Most common problem using new modules in old installation is differences in brightness of modules. This is result of luminous flux degradation over time of use. Degradation is normal effect and applies to all LEDs. This effect is different for each LEDs and can be only predicted by testing and estimation. It is complicate issue that mostly depends on temperature and current. Good solution to this problem is reduce of current in new modules, but degradation will be different for each modules. Above characteristic is examples for LEDs in temperature above 100°C and different from the actual.

DESCRIPTION OF ARTICLE NUMBER

Shape
Q0= Square Modules
R0= Round Modules
L0= Rectangular/Linear Modules
DR= Ring/Donut Modules
DQ= Frame Modules
E0= Elipse Modules

CRI
0= Undefined
8= >80
9= >90
H= >95

Power Supply Type
C= Constant Current
V= Constant Voltage
A= Alternating Current

Internal Code

SubVersion
S= Smart
0= Normal

Version
S= Silver
G= Gold
P= Platinum
D= Diamond

XX-XXXXXX-XXX-XXXXX-XXXX-XX

Max. Supply Current for C
Diode Current for V
Supply Voltage for A

Colour temperature = (x · 100)
27= 2700K
30= 3000K
40= 4000K
50= 5000K
DW= Dynamic White

Size of modules
xxx xxx= AxB
000 xxx= dia D

Above description of article number is standard for white modules, but it may be different. If modules doesn't have any version or subversion, than last two position are skipped. RGB/RGBW modules have in places of CRI written "R" and RGB have "GB" in colour temperature. Additionally position of version is skipped.

Smart subversion – They are LED modules with mounted SIM slot on board. It provide possibility to equip LED light sources with additional driver, that is compatible with SIM slot. These drivers allow to control modules directly on board. Controllers specially design for this solution are very small and can use almost all wireless standards like Bluetooth, ZigBee or radio, also they may be controlled by motion, proxy sensor etc. Drivers are design to be compatible with as many as possible types of modules. Without driver in SIM slot LED modules are working like normal modules. This version is available only for modules with current stability like Constant Voltage, Dynamic White CV, RGB and RGBW.

Normal subversion – LED modules without additional SIM slot.

STANDARDS AND DIRECTIVES

In the process of designing and manufacturing the following standards and directives were taken into account:

• 2014/35/EU– Low-voltage Directive: on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits

• 2014/30/EU– EMC Directive: on the harmonisation of the laws of the Member States relating to electromagnetic compatibility

• 2011/65/EC – RoHS Directive: restriction of hazardous substances in electrical and electronic equipment

• DIN IEC 62031:2008 – Safety requirements for LED modules

• EN 60598-1:2015-04 – General requirements and tests for luminaires

• EN 60598-2-2:2012 – Luminaires - Part 2. Special requirements - Recessed luminaires

• EN 62471:2010 – Photo-biological safety of lamps and lamps systems

• EN 61347-1:2015-09 – General and safety requirements

• EN 61347-2-13:2015-04 – Special requirements for DC and AC powered electronic operating equipment for LED modules

• EU Regulation No: 874/2012 – Energy labelling of electrical lamps and luminaries

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Subject to technical changes and errors.