4

LED Lamps

Creative Lighting Concepts www.triolight.com

TRIO
light

TRIO
light

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4.1

MR16 3W

MR16 3W

MR16 3W

Properties
• Directly interchangeable with halogen MR16, 12VAC/DC
• Special lens that results in excellent light dispersion
• Stable and beautiful colour versions
• Low energy-use, long life LED
• No UV/IR rays
• Optimal warmth regulation
• Very bright highpower LED
• Standard GX5,3 fitting

Applications
• Home: bathroom, kitchen, bedroom, hallway
• Business/Retail: lounges, hotels, boardrooms, shops, restaurants, etc.
• Other: hospitals, stands, museums, etc.

Obtain the best optical results with the new Tri-O-Light MR16 LED Lamps.

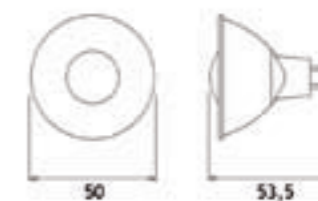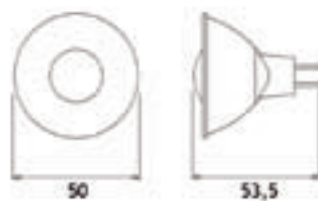The new Tri-O-Light 3W MR16 LED lamps satisfy the huge demand for LEDs with a higher light yield, but especially with good-looking and stable colours. The new LED lamps are developed for the best optic results.
This is, amongs others, realized with an integrated 3W highpower LED of the highest quality; good for a light yield of 60-80 lumen (depending on colour). The MR16 has a special lens with 30 degrees bundle breadth which delivers a fantastic radiation. But one very important advantage is the stability of the colours 2800K warm white, 3800K white, 6000K day light and 9500K cold white.

Connection
These MR16's with GX5,3 fitting can be connected to all types of magnetic and electronic transformators, so long as the voltage is not higher than 12V. For many electronic transformators, however, there is a minimum power (W) is applicable. When the connected power is lower than the minimum capacity of the transformator, problems may occur. The MR16's are not dimmable.
In order to select the right power supply, the wattage per lamp needs to be multiplied by the number of lamps to be connected. For optimal usage 5-10% extra power needs to be calculated.

MR16 3W — warm white

LED	3W high power
Lifetime	> 20.000 hour
Fitting	GU5.3
Dimensions	Ø50xH50mm
Material	silver grey aluminium alloy, white polycarbonate
LED colour(s)	warm white
Luminous flux (lm)	60lm
Luminous intensity (cd)	9.55cd
Illuminance (lx)	10.24 lux (1m)
Radiation angle (°)	30°
Voltage (V)	12VAC/DC
Power (W)	3W
Current (mA)	250mA
Dimmable	no
Working temperature (°C)	- 10°C ~ + 40°C
Storage temperature (°C)	- 15°C ~ + 60°C
To be used with	all types of magnetic and electronic transformers as long as the voltage does not exceed 12V. However, many electronic transformers require a minimum load (W). Severe damage or malfunction is caused when the total power (W) provided by the MR16(s) is lower than the minimum load of the transformer.
Colour temperature (K)	2800K
Weight (g)	36g
Packing	per piece, per 10

Product code
011675

Description
MR16 GX5.3, 3W, 12VAC/DC, 30°, 2800K warm white [pc]

white — MR16 3W

LED	3W high power
Lifetime	> 20.000 hour
Fitting	GX5.3
Dimensions	Ø50xH50mm
Material	silver grey aluminium alloy, white polycarbonate
LED colour(s)	white
Luminous flux (lm)	70lm
Luminous intensity (cd)	11.14cd
Illuminance (lx)	11.95 lux (1m)
Radiation angle (°)	30°
Voltage (V)	12VAC/DC
Power (W)	3W
Current (mA)	250mA
Dimmable	no
Working temperature (°C)	- 10°C ~ + 40°C
Storage temperature (°C)	- 15°C ~ + 60°C
To be used with	all types of magnetic and electronic transformers as long as the voltage does not exceed 12V. However, many electronic transformers require a minimum load (W). Severe damage or malfunction is caused when
Colour temperature (K)	3800K
Weight (g)	36g
Packing	per pc, per 10

Product code
011677

Description
MR16 GX5.3, 3W, 12VAC/DC, 30°, 3800K white [pc]
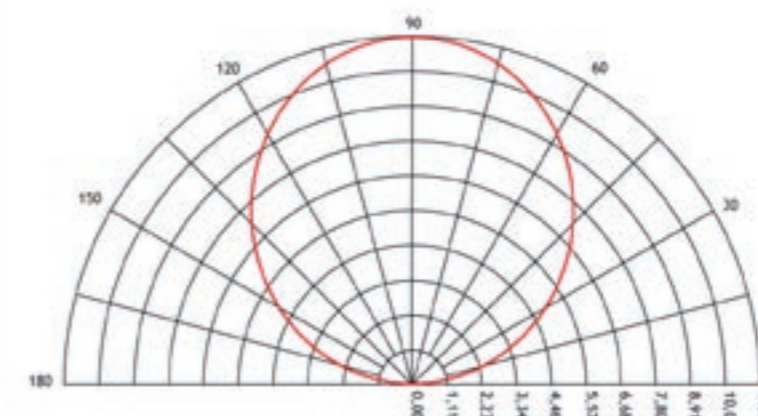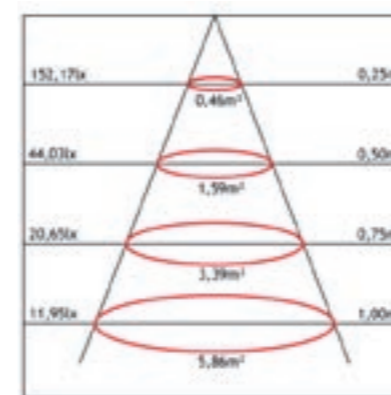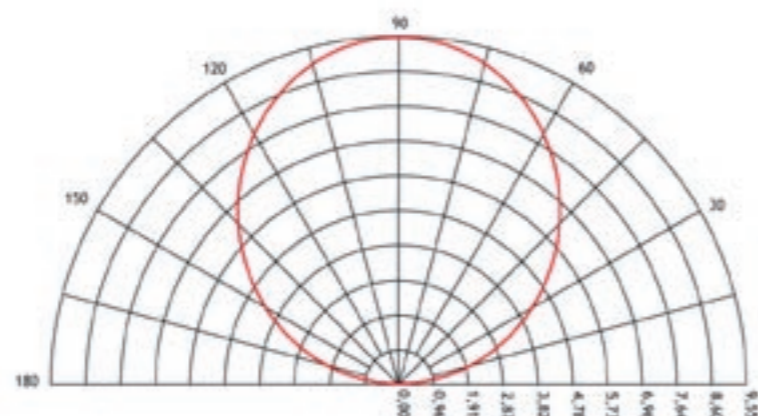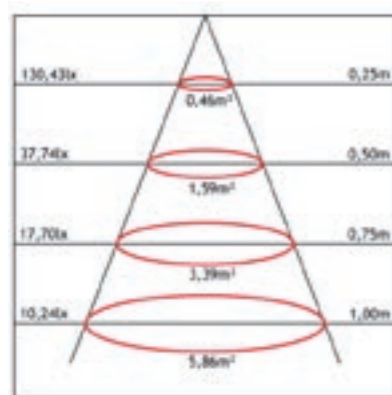
MR16 3W *day light*

cold white **MR16 3W**

LED	3W high power
Lifetime	> 20.000 hour
Fitting	GX5.3
Dimensions	Ø50xH50mm
Material	silver grey aluminium alloy, white polycarbonate
LED colour(s)	day light
Luminous flux (lm)	80lm
Luminous intensity (cd)	12.73cd
Illuminance (lx)	13.65 lux (1m)
Radiation angle (°)	30°
Voltage (V)	12VAC/DC
Power (W)	3W
Current (mA)	250mA
Dimmable	no
Working temperature (°C)	- 10°C ~ + 40°C
Storage temperature (°C)	- 15°C ~ + 60°C
To be used with	all types of magnetic and electronic transformers as long as the voltage does not exceed 12V. However, many electronic transformers require a minimum load (W). Severe damage or malfunction is caused when the total power (W) provided by the MR16(s) is lower than the minimum load of the transformer.
Colour temperature (K)	6000K
Weight (g)	36g
Packing	per piece, per 10

Product code	Description
011681	MR16 GX5.3, 3W, 12VAC/DC, 30°, 6000K day light [pc]

LED	3W high power
Lifetime	> 20.000 hour
Fitting	GX5.3
Dimensions	Ø50xH50mm
Material	silver grey aluminium alloy, white polycarbonate
LED colour(s)	cold white
Luminous flux (lm)	80lm
Luminous intensity (cd)	12.73cd
Illuminance (lx)	13.65 lux (1m)
Radiation angle (°)	30°
Voltage (V)	12VAC/DC
Power (W)	3W
Current (mA)	250mA
Dimmable	no
Working temperature (°C)	- 10°C ~ + 40°C
Storage temperature (°C)	- 15°C ~ + 60°C
To be used with	all types of magnetic and electronic transformers as long as the voltage does not exceed 12V. However, many electronic transformers require a minimum load (W). Severe damage or malfunction is caused when the total power (W) provided by the MR16(s) is lower than the minimum load of the transformer
Colour temperature (K)	9500K
Weight (g)	36g
Packing	per piece, per 10

Product code	Description
011683	MR16 GX5.3, 3W, 12VAC/DC, 30°, 9500K cold white [pc]
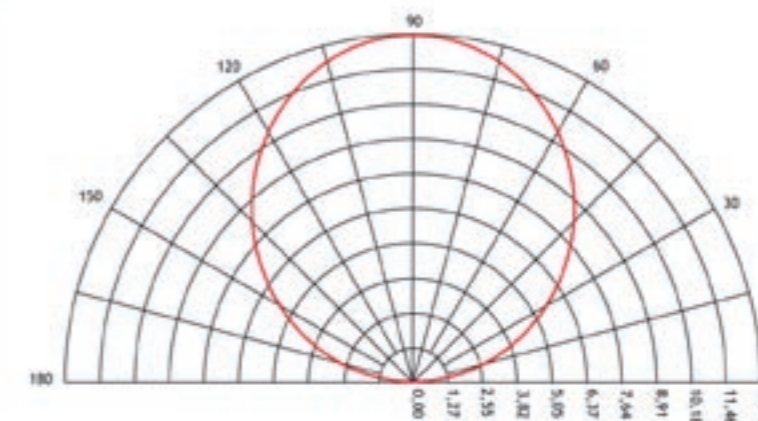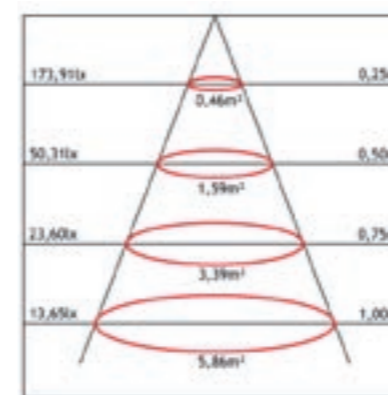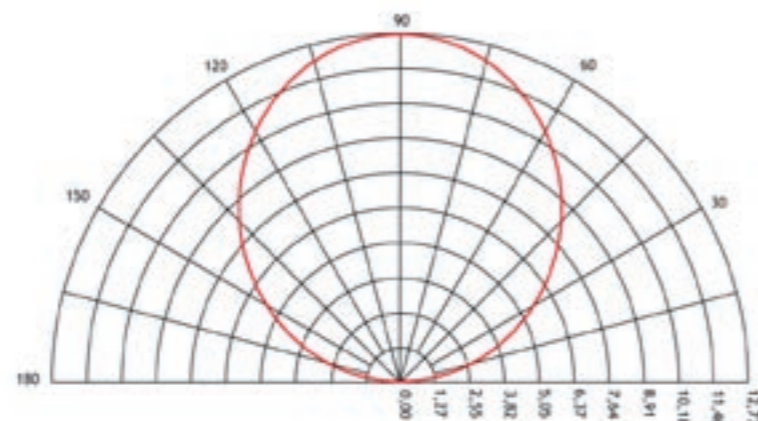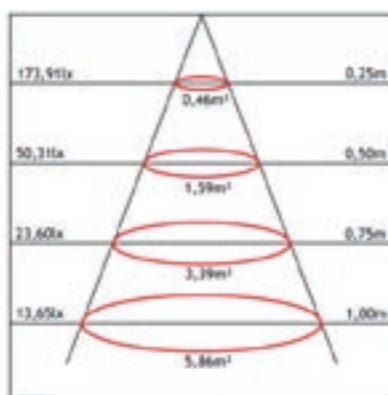
Power plug 12VDC   *14.4W*
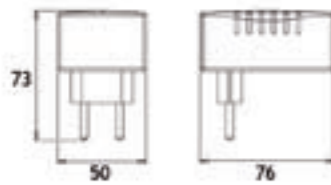
| Dimensions	L76xW50xH73mm
Power (W)	14.4W
Input	90VAC-264VAC
Output	12VDC
Efficiency (%)	70%
Protection	overvoltage and short circuit
Cooling	no
Working temperature (°C)	0-40°C
Storage temperature (°C)	- 20°C ~ + 85°C
Housing	plastic black
Cord	plug (230VAC) with 1m connection cable, PVC, 2x0.75mm²
Weight (g)	160g
Packing	per piece

Product code | Description
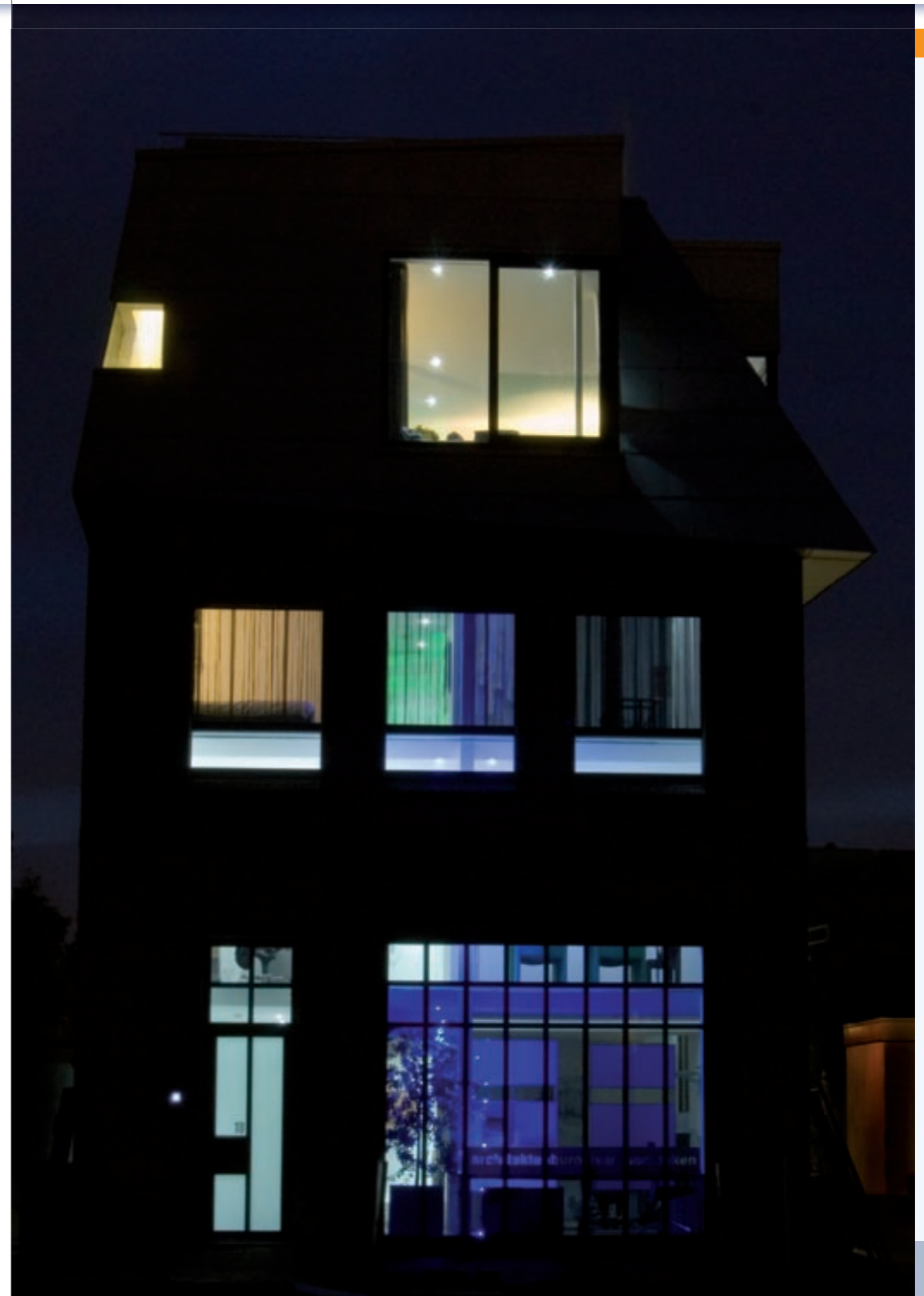011271 | Power plug 12VDC 14.4W [pc]

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142

LED Lamps

The Ivar Hopstaken bna bni architects (Amersfoort, The Netherlands) have used MR16s without fixtures in their offices. The end result is a very minimalistic light source with a highly aesthetic feel. The lamps function as orientation lighting, the bright white colour chosen very specifically.
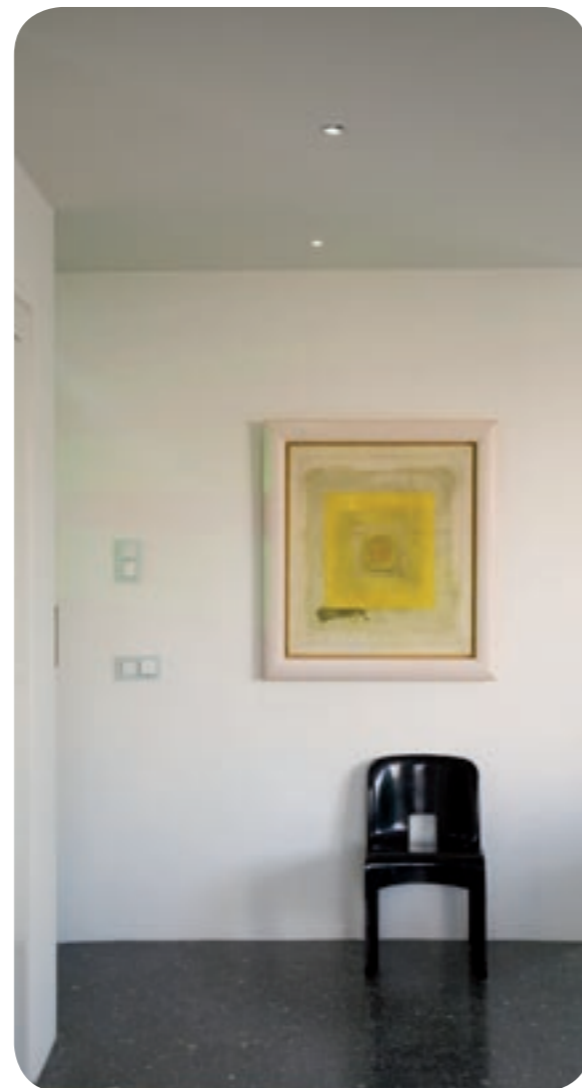
LED Lamps

The blue and green light in this project (Ivar Hopstaken bna bni architects, Amersfoort, The Netherlands) are used to create, especially at night, a special atmosphere. The steps are lighted from the walls with green MR16's. The columns that are visible from outside are lighted behind the facades with blue MR16's. In the evening this gives a beautiful vertical light-line behind the glazing.

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Multi-LED

Multi-LED

Properties
- Directly interchangeable with halogen (not dimmable)
- Beautiful warm colour
- Low energy-use, long life LED
- No UV/IR rays
- Optimal warmth regulation

Applications
- Home: bathroom, kitchen, bedroom, hallway
- Business/Retail: lounges, hotels, boardrooms, shops, restaurants, etc.
- Other: hospitals, stands, museums, etc.
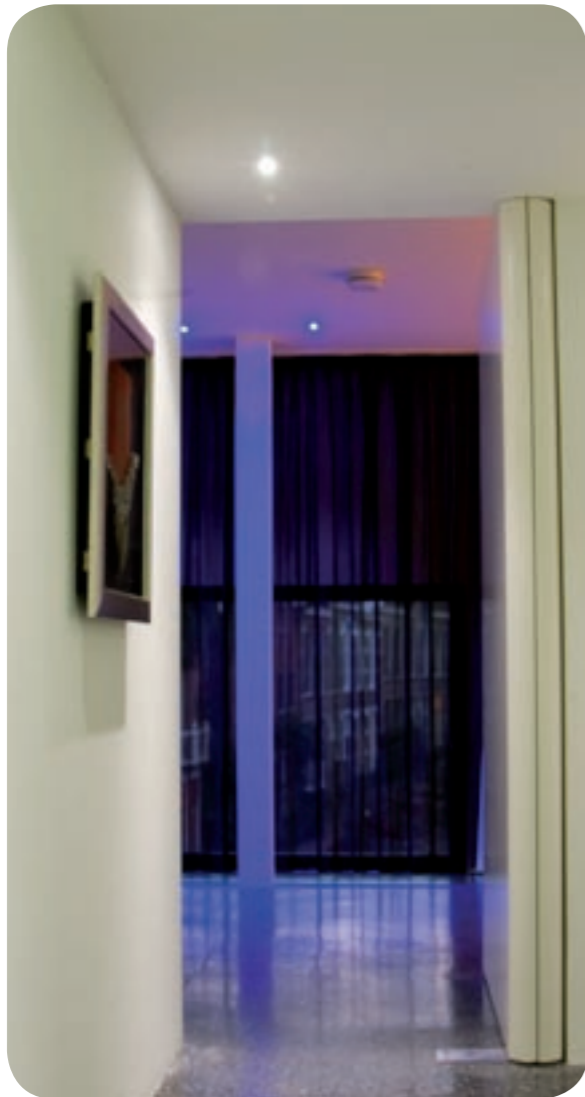
Multi-LED

The LEDs G4 and MR16 have a white plastic housing and various fittings (GU5,3, GU10 and E27) suitable for existing fixtures. The LEDs that are used have a pleasant warm colour temperature of 3000K and provide outstanding brightness. The set of 6 built-in spotlights with springs comes complete with distribution block, transformer and connection cables.

Connection
The E27 and GU10 can be connected to 230VAC. The G4 and GU5.3 fittings can be connected to all types of magnetic and electronic transformers, as long as the voltage is not higher than 12V. For many electronic transformers, however, there is a minimum power (W) applicable. When the connected power is lower than the minimum capacity of the transformer, problems may occur. In order to select the right power supply the Watt per lamp needs to be multiplied by the number of lamps to be connected. For optimal usage 5-10% extra power needs to be calculated. The G4 and MR16's are not dimmable.

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Multi-LED

Multi-LED

G4   *GU4*

Dimensions	Ø25xH11mm
Material	plastic, white
LED colour(s)	warm white
Radiation angle (°)	90°
Voltage (V)	12VDC
Power (W)	0.7W
Dimmable	no
Colour temperature (K)	3000K
Weight (g)	5g
Packing	per pc
Number of LEDs	14
Fitting	GU4
To be used with	12VDC power supply
Illuminance (lx)	138.8lx at 1m distance of the lamp, 13.9lx at 3m and 7lx at 5.3m

Product code
010779

Description
G4, 14 LEDs, 90˚, 12VAC/DC, warm white [pc]
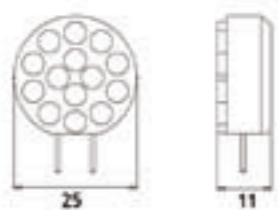
built-in set   MR16

Dimensions	Ø50xH18mm
Material	plastic, white
LED colour(s)	warm white
Radiation angle (°)	90°
Voltage (V)	230VAC (12VDC)
Power (W)	>1.5W/ spot
Dimmable	no
Colour temperature (K)	3000K
Weight (g)	905g/ set
Packing	per set
Composition	6 built- in spots plastic mounting box, 2m cable/spot, 7-way distribution block (L920xW620xH210mm), 12VDC transformer with 60cm cable and plug
Mounting	built-in (springs), mounting (plastic mounting box)
Number of LEDs	30 LEDs per spotlight
Illuminance (lx)	189lx at 1m distance of the lamp, 18.1lx at 3m and 7lx at 5m

Product code
011789

Description
Built-in spot set, 6 spots, 30 LEDs, warm white [set]
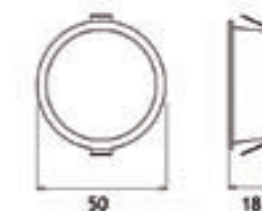
G4   *GU4*

Dimensions	Ø31xH11mm
Material	plastic, white
LED colour(s)	warm white
Radiation angle (°)	90°
Voltage (V)	12VDC
Power (W)	1W
Dimmable	no
Colour temperature (K)	3000K
Weight (g)	8g
Packing	per pc
Number of LEDs	21
Fitting	GU4
To be used with	12VDC power supply
Illuminance (lx)	160lx at 1m distance of the lamp, 16lx at 3m and 6.1lx at 5m

Product code
010781

Description
G4, 21 LEDs, 90˚, 12VAC/DC, warm white [pc]
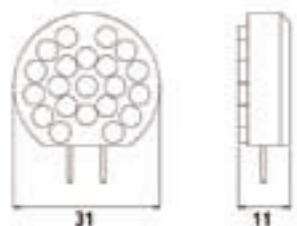
GU5.3   MR16

Dimensions	Ø50xH37.4mm
Material	plastic, white
LED colour(s)	warm white
Radiation angle (°)	30°
Voltage (V)	12VDC
Power (W)	1.8W
Dimmable	no
Colour temperature (K)	3000K
Weight (g)	25.5g
Packing	per pc
Number of LEDs	30
Fitting	GU5.3
To be used with	12VDC power supply
Illuminance (lx)	189lx at 1m distance of the lamp, 18.1lx at 3m and 7lx at 5m

Product code
011687

Description
MR16 GU5.3, 30 LEDs, 30˚, 12VAC/DC, warm white [pc]

TRIO light

TRIO light

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Multi-LED

Multi-LED
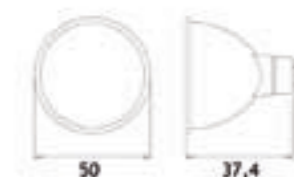
MR16 GU10

MR16   GU10

Dimensions	Ø50xH44.8mm
Material	plastic, white
LED colour(s)	warm white
Radiation angle (°)	30°
Voltage (V)	230VAC
Power (W)	3.9W
Dimmable	no
Colour temperature (K)	3000K
Weight (g)	33.5g
Packing	per pc
Number of LEDs	30
Fitting	GU10
Illuminance (lx)	189lx at 1m distance of the lamp, 18,1lx at 3m and 7lx at 5m

Product code
010797

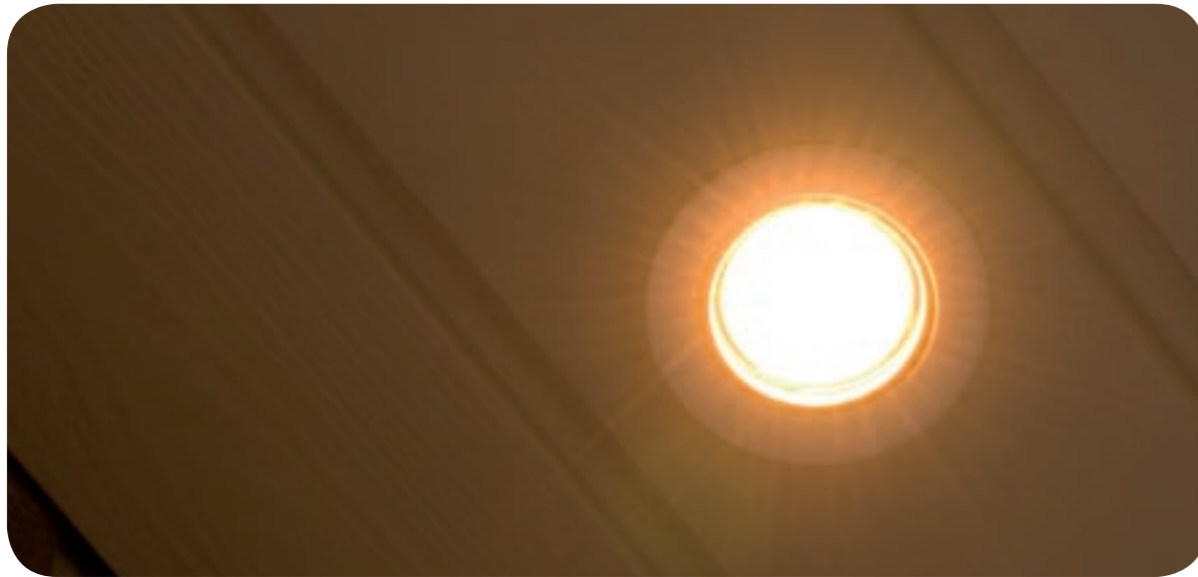Description
MR16, GU10, 30 LEDs, 30˚, 230VAC, warm white [pc]

50   44,8

MR16   E27
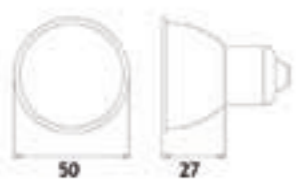
Dimensions	Ø50xH27,5mm
Material	plastic, white
LED colour(s)	warm white
Radiation angle (°)	45°
Voltage (V)	230VAC
Power (W)	4.4W
Dimmable	no
Colour temperature (K)	3000K
Weight (g)	54g
Packing	per pc
Number of LEDs	42
Fitting	E27
Illuminance (lx)	225lx at 1m distance of the lamp, 22lx at 3m and 9lx at 5m

Product code
020169

Description
MR16, E27, 42 LEDs, 45˚, 230VAC, warm white [pc]

50   27

MR16 GU10 warm white

MR16 GU10 warm white

MR16 GU10 warm white

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Luxeon K2

Luxeon K2

Properties
- Interchangeable with halogen 12 VAC/DC (not dimmable)
- Special 30 degrees lens which delivers a brilliant light diffusion
- Beautiful warm colour
- Low energy-use, long life LED
- No UV/IR rays in the bundle
- Optimal warmth regulation
- Luxeon K2 LED
- Available in standard fittings, GU5.3, GU10 and E27

Applications
- Home: bathroom, kitchen, bedroom, hallway
- Business/Retail: lounges, hotels, boardrooms, shops, restaurants, etc.
- Other: hospitals, stands, museums, etc.

Luxeon K2

This new series LED lamps has a Luxeon K2 LED. Luxeon K2 leds are the strongest and best performing leds around. They yield most light, an easier and more efficient warmth control and they last longer than any other LED. Luxeon K2 leds offer better light solutions than ever.

This series LED lamps with built-in K2 LED have a unique design and are provided with a special lens with 30 degrees bundle breadth, which delivers perfect radiation. The led lamps are available in beautiful, warm colours and several fittings.

Connection
The E27 and the GU10 need to be correctly connected to 230VAC. The GU5.3 lamp can be connected to all sorts of magnetic and electronic transformers, provided that the voltage is not higher than 12V. For many electronic transformers, however, there is a minimum power (W) applicable. When the connected power is lower than the minimum capacity of the transformer, problems may occur. In order to select the right power supply the Watt per lamp needs to be multiplied by the number of lamps to be connected. For optimal usage 5-10% extra power needs to be calculated. The MR16s are not dimmable.

MR16

GU5.3

Dimensions	Ø50xH37mm
Material	plastic, aluminium
LED colour(s)	warm white
Radiation angle (°)	30°
Voltage (V)	12VAC/DC
Power (W)	>3W
Dimmable	no
Colour temperature (K)	3000K
Weight (g)	50g
Packing	per pc
Fitting	GU5.3
To be used with	all types of magnetic and electronic transformers as long as the voltage does not exceed 12V. However, many electronic transformers require a minimum load (W). Severe damage or malfunction is caused when the total power (W) provided by the MR16(s) is lower than the minimum load of
LED	Luxeon K2
Lifetime	>30,000 hours
Ambient temperature (°C)	-20°C ~ +40°C
Working temperature (°C)	< + 60°C
Luminous flux (lm)	100lm

Product code
012101

Description
MR16, GU5.3, K2, 12VAC/DC, warm white [pc]
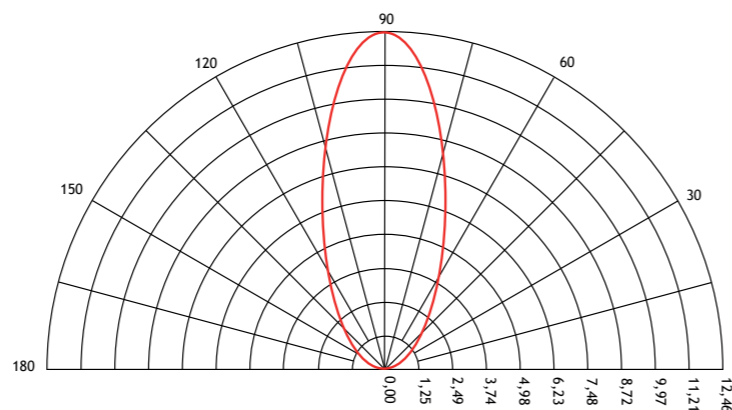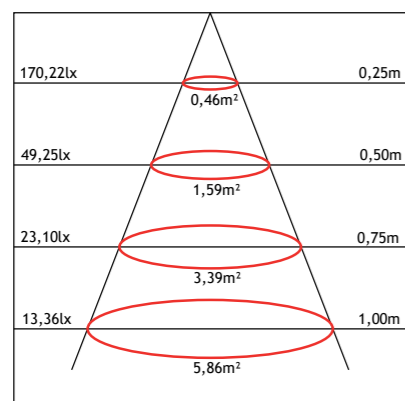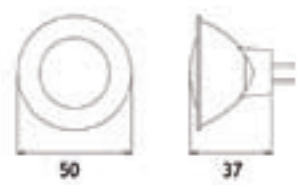
GU10

MR16

Dimensions	Ø50xH54mm
Material	plastic, aluminium
LED colour(s)	warm white
Radiation angle (°)	30°
Voltage (V)	230VAC
Power (W)	>3W
Dimmable	no
Colour temperature (K)	3000K
Weight (g)	47g
Packing	per pc
Fitting	GU10
LED	Luxeon K2
Lifetime	>30,000 hours
Ambient temperature (°C)	-20°C ~ +40°C
Working temperature (°C)	< + 60°C
Luminous flux (lm)	100lm

Product code
012105

Description
MR16, GU10, K2, 230VAC, warm white [pc]

TRIO light

TRIO light

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Luxeon K2

Luxeon K2
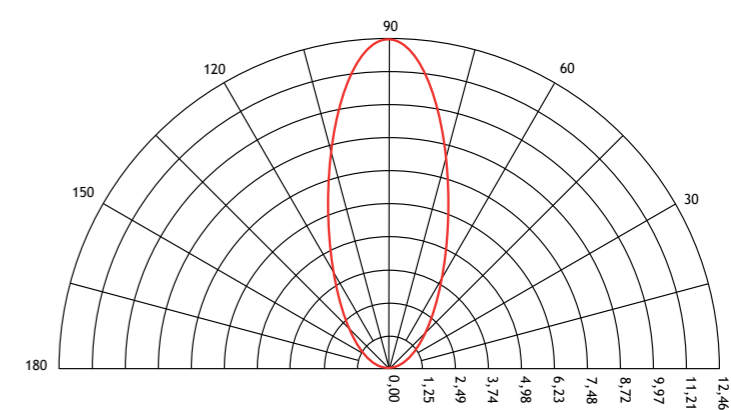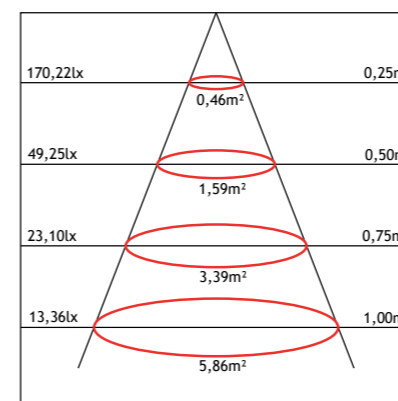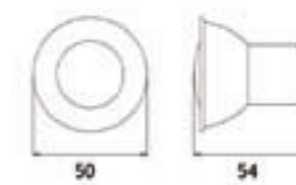
MR16   *E27*
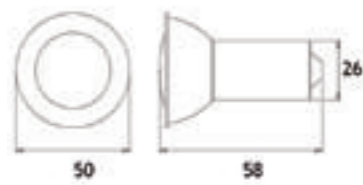
Dimensions	Ø50xL58xH26mm
Material	plastic, aluminium
LED colour(s)	warm white
Radiation angle (°)	30°
Voltage (V)	230VAC
Power (W)	>3W
Dimmable	no
Colour temperature (K)	3000K
Weight (g)	47g
Packing	per pc
Fitting	E27
LED	Luxeon K2
Lifetime	>30,000 hours
Ambient temperature (°C)	-20˚C ~ +40˚C
Working temperature (°C)	< + 60˚C
Luminous flux (lm)	100lm

Product code
012103

Description
MR16, E27, K2, 230VAC, warm white [pc]

50   58   26

170,22lx	0,25m
0,46m²	
49,25lx	0,50m
1,59m²	
23,10lx	0,75m
3,39m²	
13,36lx	1,00m
5,86m²	

90
120   60
150   30
180

0.00 1,25 2,49 3,74 4,98 6,23 7,48 8,72 9,97 11,21 12,46

TRIO
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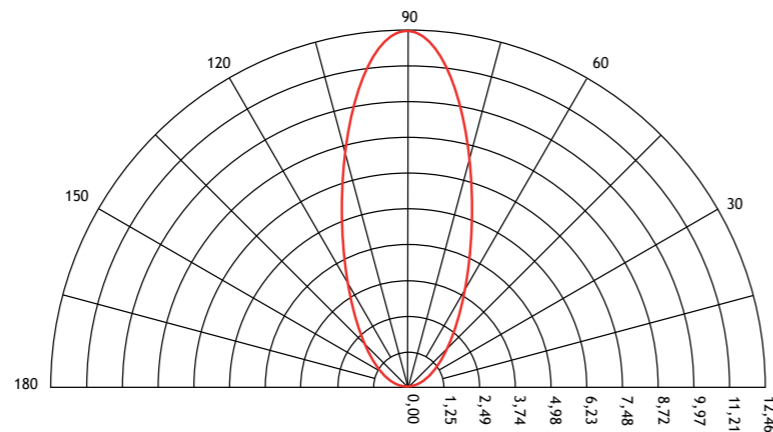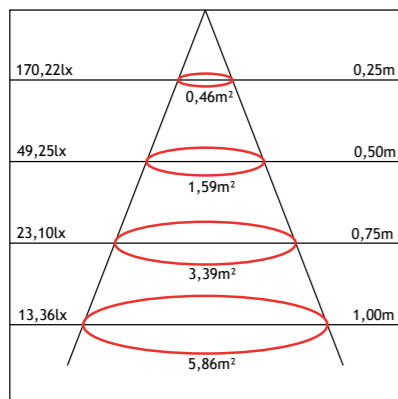
MR16 RGB

MR16 RGB

MR16 RGB

These MR16 RGB led-lamps make it possible to mix fascinating colours and to create the atmosphere yourself. Both can be either IR remotely controlled or used with a single switch. The 4 pre-set light programmes and the 16 fixed adjustments of the MR16s RGB with remote control enable you to create several fascinating colour schemes. The MR16 RGB led-lamp is available in two designs:

1. The single MR16 RGB - each lamp is controlled separately
2. MR16 RGB Master/Slave combination - a group of 1 master and several slaves which are controlled simultaneously and run through the same programme. With this system it is possible to connect 32 led-lamps.

Properties
• A special lens which delivers optimum light diffusion
• Several colour variations possible
• Can be controlled with IR-remote control
• Beautiful warm colour
• Low energy-use, long life LED
• No UV/IR rays
• Optimal warmth regulation
• Very bright high powered lens

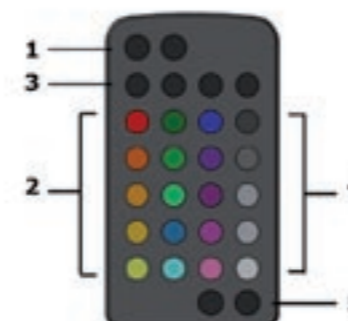**Remote control (see illustration)**
1.   On/off
2.   16 buttons for pre-set colours
3.   4 buttons for pre-programmed RGB programmes:
            -Flash: changes colour every second
            -Strobe: changes colour every 5 seconds
            -Fade: quickly changing colourschemes 16 colours
            -Smooth: slowly changing colourschemes (16 colours)
4.   4 buttons to adjust light intensity
5.   special: setup/cancel buttons to set ID address of the MR16 RGB

On/off button (without remote control)
If you keep switching the lamp on and off within every two seconds, it will automatically go to the next mode in the following sequence: flash, strobe, fade, smooth, white, red, green, blue etc. The sequence of programmes is indicated on the IR remote control from top left to bottom right.

Connection
The single MR16 RGB needs to be connected to a 12VDC low voltage transformer. The MR16 RGB Master and Slave work best with a 15VDC supply or a 24VDC when using more than 25 spotlights. To select the correct supply you need to multiply the amount of lamps to be connected with the wattage per lamp, and add 5-10% for optimal use.

MR16 RGB — GU5.3

Dimensions	Ø50xH51.5mm
Power (W)	5W
Housing	aluminium
Radiation angle (°)	60°
LED colour(s)	RGB
Packing	per piece, connection material not included
Weight (g)	70g
LED	3x1W, 1xred, 1xgreen, 1xblue
To be used with	12VDC power supply
Colour	white/ chrome
Lifetime	>20,000 hours
Control system	IR remote control or any line switch
Fitting	GU5.3
Voltage (V)	12VDC

Product code
011699

Description
MR16 GU5.3, 3x1W, 12VDC, RGB [pc]

MR16 RGB — Remote Control

Dimensions	L94xW52xH7.5mm
Housing	black plastic
Packing	per piece
Weight (g)	101g
To be used with	MR16 RGB
Batteries	1x cel 3V (+ Panasonic CR2025)
Facilities	- 4 buttons for pre-set RGB programmes - 16 buttons for pre-set colours - 4 buttons for intensity adjustment - On/ off

Product code
010807

Description
IR Remote control for MR16 RGB [stuk]
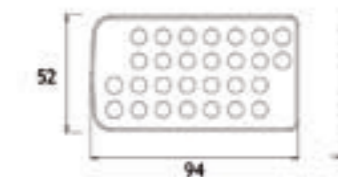
MR16 RGB — Master/ Slave

Dimensions	Ø50xH50mm
Power (W)	5W
Housing	aluminium
Radiation angle (°)	60°
LED colour(s)	RGB
Packing	per piece, connection material not included
Weight (g)	70g
LED	3x 1W, 1x red, 1x green, 1x blue
To be used with	15VDC power supply, or 24VDC when using more than 25 spots
Colour	white/ chrome
Lifetime	> 20,000 hours
Control system	IR remote control or any line switch
Facilities	up to 32 spots connectable
Voltage (V)	15VDC

Product code
011701
011703

Description
MR16 Master, 3x1W, 15VDC, RGB [pc]
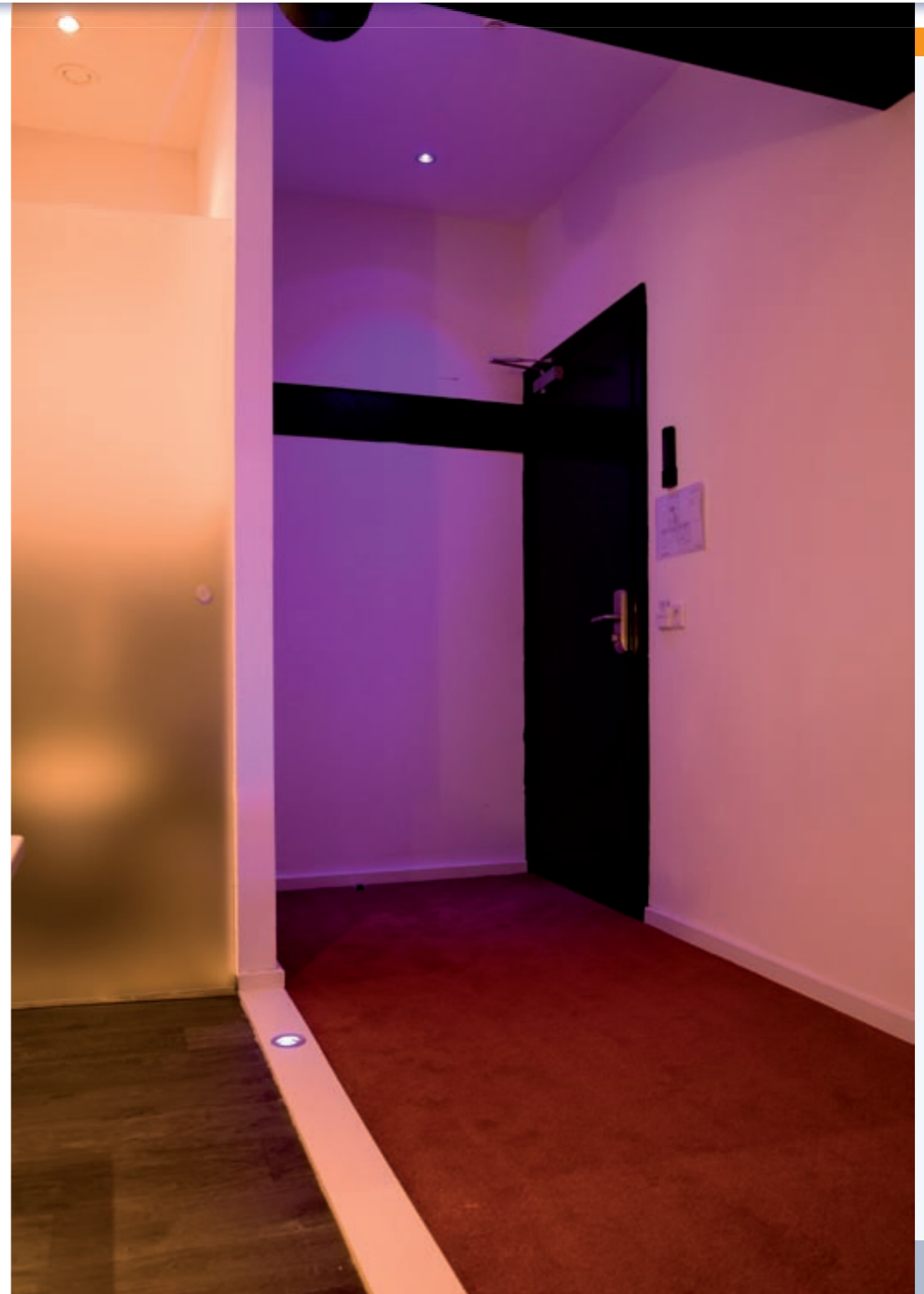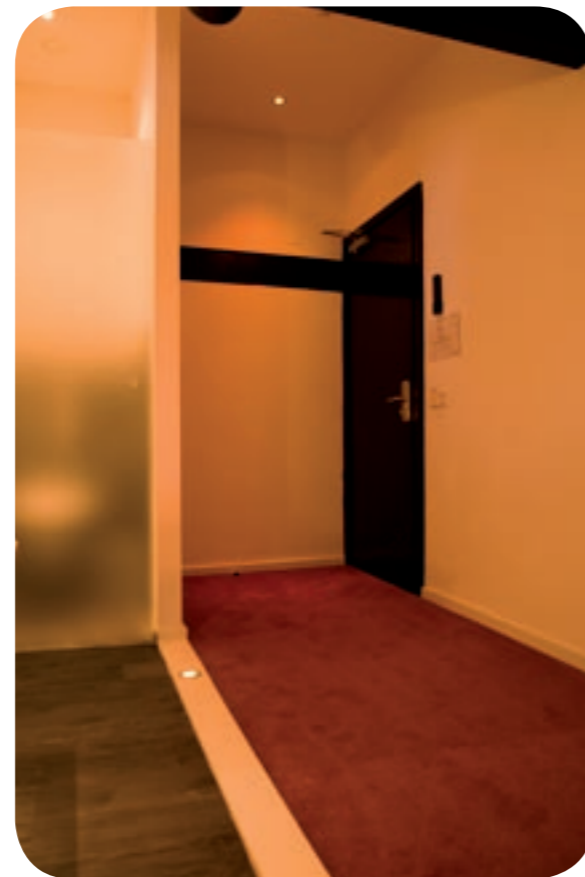MR16 Slave 3x1W, 15VDC, RGB [pc]
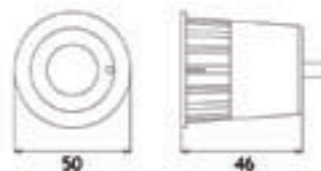
MR 16 RGB Master/Slave

Villa Ruimzicht Hotel Restaurant is located in a park at the edge of the centre of the city of Doetinchem (The Netherlands). The grand and majestic building has been renovated to what it was and since September 2007 it has been used as a hotel. Every room has been fitted with Tri-O-Light MR16 RGB spots. By applying a combination of a master and slaves, you can simultaneously change the light colour. Remote control enables the guest to personally change the light and the colour in the room.

MR16 RGB Master/Slave

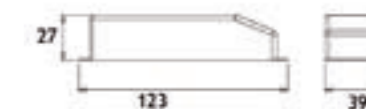Villa Ruimzicht Hotel Restaurants, Doetinchem, The Netherlands

TRIO light

4.5

Power supplies

TRIO light

4.5

Power supplies

Power supplies

Tri-O-Light has selected a number of stabilized 12VDC and 15VDC supplies and transformers. These supplies meet the highest requirements and function excellently in combination with the led lamps and spotlights from our product range. When the power supplies don't mention a protection category, they must be built in a cupboard. Take care of proper ventilation in that case. To minimize loss of voltage, make sure the cable is not longer than 20m.

Calculation
You can select the right power supply by multiplying the number of fixtures to be connected with the power per fixture, and add 5-10% for optimum use.

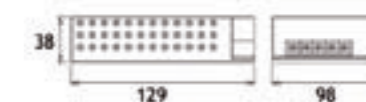
15W   **Transformer 12VDC**

Dimensions	L123xW39xH27mm
Power (W)	15W
Input	230VAC
Cooling	No
Mounting	Screw fasteners
Weight (g)	100g
Packing	per piece
To be used with	12VDC LED lamps and spots
Degree of protection (IP)	IP20
Efficiency (%)	90%

Product code   Description
011275   Transformer 12VDC 15W [pc]

40W   **Power supply 12VDC**

Dimensions	L129xW98xH38mm
Power (W)	40W
Input	85–264VAC
Output	12VDC, 10% adjustable
Efficiency (%)	78.0%
Mounting	screw fasteners
Weight (g)	340g
Packing	per pc
To be used with	12VDC LED lamps and spots

Product code   Description
011279   Power Supply 12VDC 40W [pc]

TRIO
light

TRIO
light

4.5

4.5

Power supply 12VDC   *60W*

Dimensions	L159xW97xH38mm
Power (W)	60W
Input	85~264VAC
Output	12VDC, 10% Adjustable
Efficiency (%)	79.0%
Mounting	screw fasteners
Weight (g)	440g
Packing	per piece
To be used with	12VDC LED lamps and spots

Product code
011281

Description
Power Supply 12VDC 60W [pc]
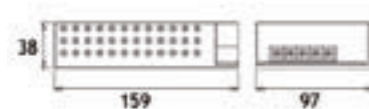
150W   Power supply 12VDC

Dimensions	L199xW110xH50mm
Power (W)	150W
Input	85~264VAC
Output	12VDC, 10% adjustable
Efficiency (%)	85.0%
Mounting	screw fasteners
Weight (g)	740g
Packing	per piece
To be used with	12VDC LED lamps and spots

Product code
011285

Description
Power Supply 12VDC 150W [pc]
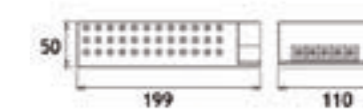
Power supply 12VDC   *100W*

Dimensions	L199xW98xH38mm
Power (W)	100W
Input	85~132/180~264VAC
Output	12VDC, 10% Adjustable
Efficiency (%)	83.0%
Mounting	screw fasteners
Weight (g)	580g
Packing	per piece
To be used with	12VDC LED lamps and spots

Product code
011283

Description
Power Supply 12VDC 100W [pc]
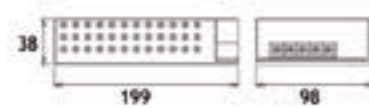
200W   Power supply 12VDC

Dimensions	L199xW99xH50mm
Power (W)	200W
Input	85~264VAC
Output	12VDC, 10% adjustable
Efficiency (%)	83.0%
Mounting	screw fasteners
Weight (g)	780g
Packing	pro Stück
To be used with	12VDC LED lamps and spots
Protection	forced cooling

Product code
011287

Description
Power Supply 12VDC 200W [pc]

Power supply 15VDC

60W

Dimensions	L159xW97xH38mm
Power (W)	60W
Input	85–264VAC
Output	15VDC, 10% Adjustable
Efficiency (%)	79.0%
Mounting	screw fasteners
Weight (g)	440g
Packing	per piece
To be used with	Chain LED System and MR16 RGB M/S

Product code
010567

Description
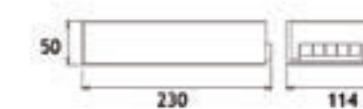Power Supply 15VDC 60W [per pc]
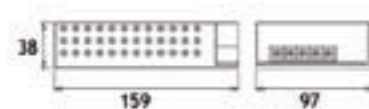
320W

Power supply 15VDC

Dimensions	L215xW115xH50mm
Power (W)	320W
Input	85–264VAC
Output	15VDC, 10% adjustable
Efficiency (%)	87.0%
Mounting	screw fasteners
Weight (g)	1002g
Packing	per piece
To be used with	Chain LED System and MR16 RGB M/S
Protection	forced cooling

Product code
010571

Description
Power Supply 15VDC 320W [per pc]

Power supply 15VDC

100W

Dimensions	L199xW98xH38mm
Power (W)	100W
Input	85–132/180–264VAC
Output	15VDC, 10% Adjustable
Efficiency (%)	83.0%
Mounting	screw fasteners
Weight (g)	580g
Packing	per piece
To be used with	Chain LED System and MR16 RGB M/S

Product code
010569

Description
Power Supply 15VDC 100W [per pc]