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FLC200

Projectors and Profile Projectors

Australia / NZ Edition 2019

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WE-EF LIGHTING
Projectors and Profile Projectors
Australia/NZ Edition | 2019

FLC200





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"Simplicity is the ultimate sophistication"

■ Leonardo da Vinci

At WE-EF there is a guiding principle of "less is more."

Product development focuses on creating designs that are timeless, purist, functional and intelligent. Consistency is crucial in the design language as well as in technical aspects of all families in the FLC200 range. To be precise, the FLC200 series is consistently based on balanced proportions and design features, resulting in lighting solutions with visual continuity that meet even the highest architectural demands.

WE-EF attaches great importance to details such as the transition of forms, gap widths, volumes and radii. The design is therefore created with direct liaison between the engineering and technical lighting departments in a process to optimise all parameters.

This strategy is demonstrated by the integration of the heat sinks on the back of the luminaires. Instead of being hidden, they become design elements and allow for the extremely high performance of the luminaires.

Cathedral of Our Lady, Antwerp (BE).
Lighting design: Susanna Antico Lighting Design Studio.
Photo: Serge Brison.



■ CASE STUDY

The Shrine of Remembrance

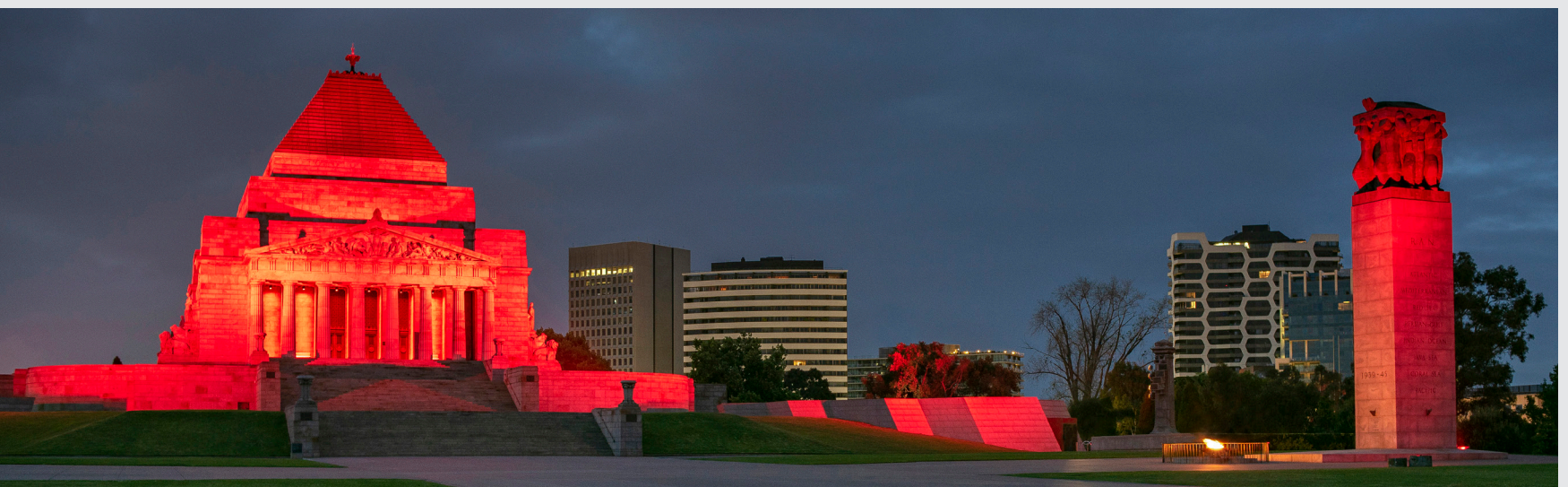
Enshrined in red for armistice centenary

Sunday 11 November 2018 marked the 100th anniversary of the armistice that ended the First World War (1914–18). The City of Melbourne paid homage to the occasion by lighting many of its memorials in a red hue. One such icon, the Shrine of Remembrance, located in the Royal Botanic Gardens of Melbourne, was illuminated in red for a week during November. This was achieved by simply applying a red colour filter over the top of FLC200 luminaires that are used to light the façade of the memorial and the cenotaph.

Usually the monument is bathed in a warm white light, which is how it has become known to those who are charged with protecting and maintaining it, as well as the many who visit each year. When the lighting was upgraded in recent years to achieve a more energy-efficient solution, the custodians stipulated that the incumbent high pressure sodium lamps which provided an almost yellow hue, were to be replaced with lights that could match their effect.

"We had to replicate the light that had been provided by high pressure sodium lamps for decades with LED. We could have used an amber LED, but we did an analysis on that and using a colour correction filter was the best solution. With the city as a backdrop it was pretty amazing. We've had nothing but positive feedback about it."
Darren Bucknall, Director of Buckford Illumination Group, explained.

Architect: Phillip Hudson and James Wardrop.
Photo: WE-EF.





■ CASE STUDY

Schierker Feuerstein Arena

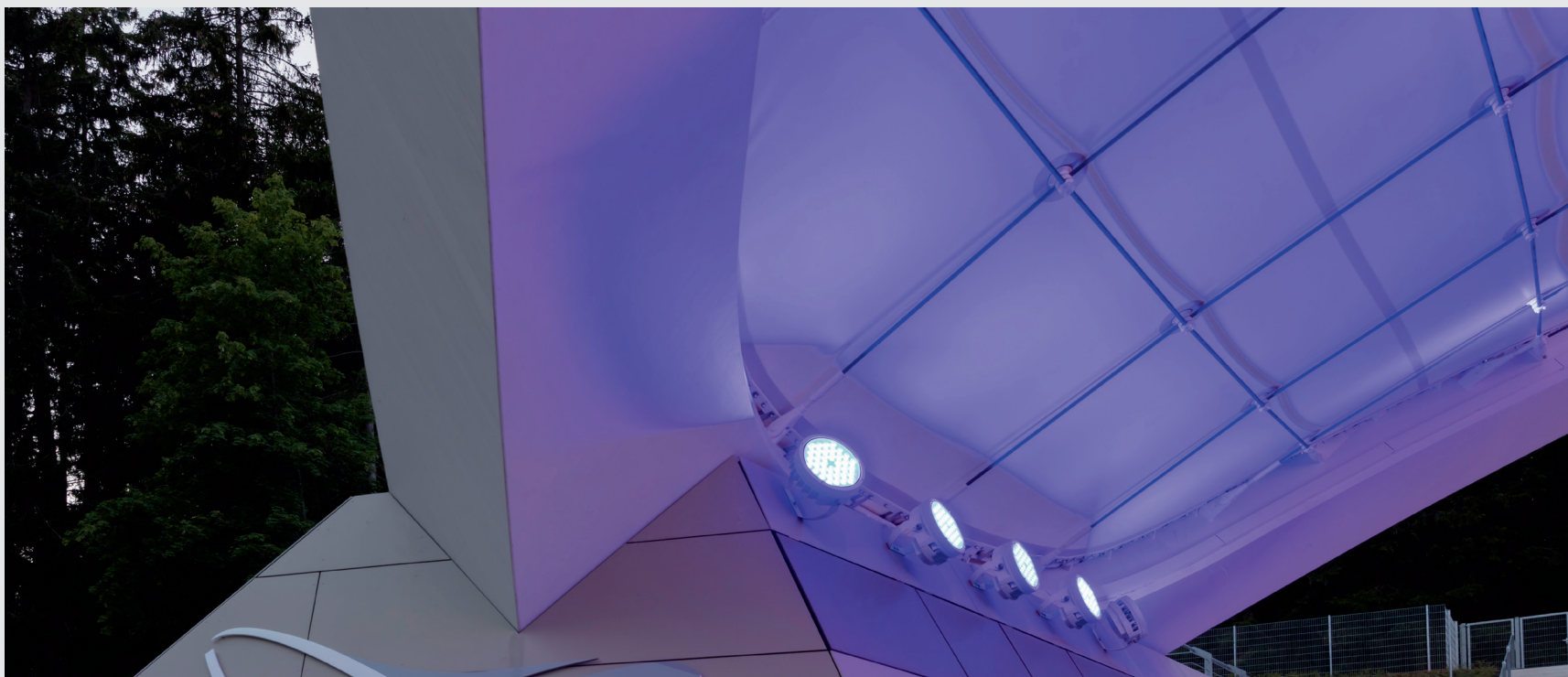
Wernigerode, Germany

The revitalised Feuerstein Arena is playing a key role in the development of the town and tourism; the listed former natural ice rink was transformed by the firm of Graft Architects into a multifunctional event area that can be used all year round. The Berlin firm won the Europe-wide tender in 2013 with a unique roof construction that is showcased with light in dynamic colours – WE-EF FLC260-CC LED projectors create flowing, atmospheric colour sequences.

The extravagant, curved 2,400 m² roof comprises a steel ring structure spanned by a steel rope net covered with PTFE-coated glass fibre membrane. The structure, which rests on the ground at just two points, seems to float above the arena. This impression is further enhanced by dynamic, coloured illumination of the roof on special occasions.

Five FLC260-CC LED projectors with RGBW colour changers that have been installed at each end of the roof make the underside shine in the colour of choice. The lens optics of the FLC colour changer series developed by WE-EF, and matched to the coloured LEDs, enable homogeneous colour mixing, soft colour transitions, high efficiency and maximum control of the light.

Architect: Graft Gesellschaft von Architekten.
Lighting design: Jackbenimble.





■ CASE STUDY

Block F Theatre, QUT

Brisbane, Australia

As part of QUT's strategy to enhance the student experience, the outdoor F Block Amphitheatre space has been upgraded to become a more functional outdoor learning space.

The usage of the amphitheatre area, illuminated with WE-EF's FLC230 LED projectors, has significantly increased since the project's completion.

Lighting design: Umow Lai Brisbane.
Photo: Jackie Chan.



■ CASE STUDY

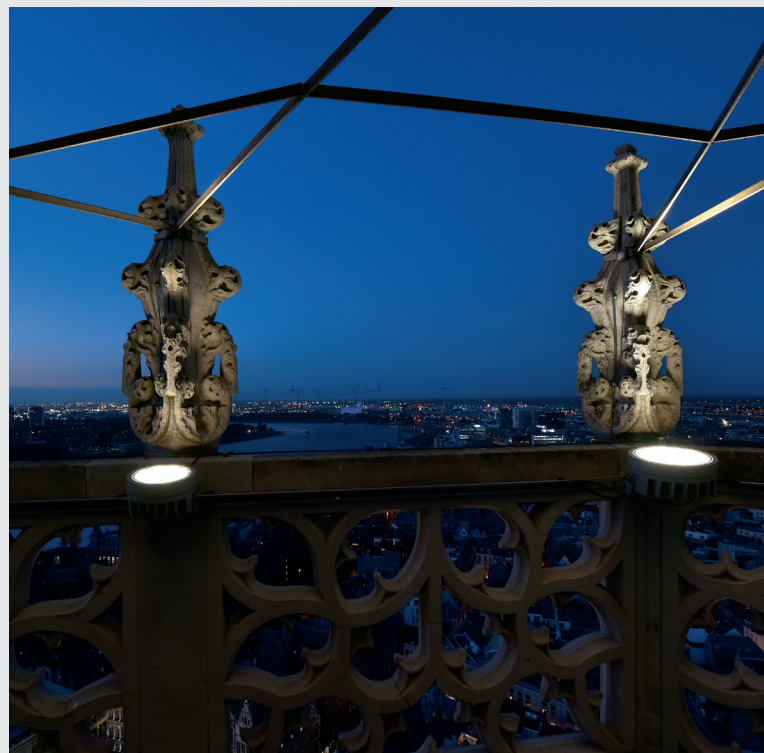
Cathedral of Our Lady

Antwerp, Belgium

On 1st September 2018, the city of Antwerp revealed a new lighting scheme for the iconic Cathedral of Our Lady to celebrate the 500th anniversary of the Cathedral's tower. The city wanted to highlight the majestic architecture of this landmark with an energy-efficient lighting solution.

The new FLC260 projectors have been used to illuminate the Cathedral Tower, discreetly blending into the façades for a minimal visual impact. The projectors are directly integrated onto the facade. They are strategically placed to ensure that no historic material was damaged. The new installation offers a more precise control of the light. Being so close to the building façade, the projectors emphasise the architectural details, which were washed away by the yellow light of the old lighting system. They bathe the edifice in white light, bringing out the true beauty of this masterpiece in stone.

Lighting design: Susanna Antico Lighting Design Studio.
Photo: Serge Brison.



WHY FLC200 PROJECTORS AND PROFILE PROJECTORS. BENEFITS AND APPLICATIONS

GLARE FREE, HIGH PERFORMANCE ILLUMINATION

Highly efficient LEDs and LED lenses made of PMMA have been specially developed by WE-EF to ensure consistent high performance from the projectors. The CAD-optimised lenses offer symmetric wide beam [B], medium beam [M], narrow beam [E], very narrow beam [EE] and very narrow beam 'sharp cut-off' [EES] light distributions. High efficiency is ensured by the optimised optics that prevents light from scattering inside the lens. At the same time, glare-free light is distributed uniformly.

Cathedral of Our Lady, Antwerp (BE)
Lighting design: Susanna Antico Lighting Design Studio.
Photo: Serge Brison.
FLC230.



AWARD-WINNING DESIGN

The intelligent design of the FLC200 series has won prestigious design awards, such as the German Innovation Award 2018.

Two FLC200 series projectors received awards in the Focus Open 2017. The six-member jury awarded a Special Mention prize to the FLC230-CC colour changer projector, while the FLC240 won gold.

The FLC230-CC colour changer projector also received the distinction "Winner" in the German Design Award 2018. In addition, both the FLC200 and the FLC200-CC were awarded prizes at the iF Design Award 2018.

Schierker Feuerstein Arena, Wernigerode (GER).
Architect: Graff Gesellschaft von Architekten.
Lighting design: Jackbenimble.
FLC260-CC.



VARIATIONS FOR EVERY APPLICATION

The FLC200 series has a modular structure and comes in four basic sizes with different wattages, tuneable white and RGBW/RGBA variants for coloured lighting and profile projector functionalities. In addition, the projectors can be precisely adjusted to create the desired lighting effect, using optical accessories such as wallwash and flood lenses, honeycomb louvres, glare shields and snoots.

The special FLC220 and FLC230 profile projectors can project gobos (GP variant), create clearly defined circles of light (ZP variant with zoom spot technology) or precisely illuminate the contours of polygon surfaces (FP variant with framing projector technology). The FLC220 and FLC230 profile projectors are available in 3000 K and 4000 K and the FLC230 profile projector is also available as a colour changer and in tuneable white.

WE-EF Thailand Lightbox.
Photo: WE-EF.
FLC230-CC [GP].



DYNAMIC CONTROL

The FLC200 and FLC200-CC projector range comes with sophisticated yet simple and easy-to-use control. Luminaires fitted with RGBW/RGBA LEDs are able to produce a wide variety of coloured lighting, including dynamic colour changing.

The dynamics, progressions and transitions as well as the combination of several projectors are all controlled with a DMX system and is available as a wired or a wireless system. This makes the colour changers suitable for temporary, dynamic coloured light applications as well as the subtle, continuous use of coloured light.

Schierker Feuerstein Arena, Wernigerode (GER).
Architect: Graft Gesellschaft von Architekten.
Lighting design: Jackbenimble.
FLC260-CC.



OVERVIEW FLC200 PROJECTORS AND PROFILE PROJECTORS

FLC200 LED PROJECTORS

FLC200 options

FLC200

[Factory-sealed] Monochrome Projector

FLC200-CC RGBW

[Factory-sealed] RGBW Colour Changing Projector

FLC200-CC RGBA

[Factory-sealed] RGBA Colour Changing Projector

FLC200-TW

[Factory-sealed] 2700-6000 K Tunable White Projector

IP Classification

IP66 [Factory-sealed]. Dust and water jet tight.

Impact Protection

IK07. Protected against impact equivalent of 0.5 kg mass dropped from 400 mm above.

Material

Marine-grade, die-cast aluminium alloy. 5CE superior corrosion protection including PCS hardware with Torx drive. Safety glass main lens. Silicone rubber gasket.

Finish

Powdercoat finish in signal black RAL 9004, white aluminium RAL 9006, grey aluminium RAL 9007 or traffic white RAL 9016. Other colour options are available on request.

Gear

Integral EC electronic converter, thermally separated.

Electrical Accessories

Integrated 6/6 kV surge protection. (SP10) 10/10 kV on request.

Mounting Accessories

Floodlight mounting bracket, single, double, triple and quad. Planted Root. Short post EM. Pole clamps, single and double. Spigot Cap.

Wiring

Two cable glands for improved wiring flexibility. Class I (Class II optional).

FLC200 PROJECTORS

Luminaire housing options

FLC220 / FLC230 / FLC240 / FLC260

Light source

LED 12-155 W

Nominal luminous flux range

1,378 – 20,720 lm

Light colour temperatures

3000 K and 4000 K. 2700 K available on request. CRI \geq 80

Available distributions

[B] [M] [E] [EE] [EES]

Optical accessories

Wallwash lens, linear spread lens, surface wash lens, honeycomb louvre, glare shield, snoot

Dimming

1-10 V analogue dimming or DALI on request

FLC200-CC PROJECTORS

Luminaire housing options

FLC220-CC / FLC230-CC / FLC240-CC / FLC260-CC

Light source

LED 24 -144 W

Nominal luminous flux range

1,650 – 12,240 lm

Light colour temperatures

RGBW (4000 K Standard), RGBA. CRI \geq 70

Available distributions

[B] [M] [E]

Optical accessories

Linear spread lens, wallwash lens*, snoot, glare shield

Dimming

RGBW and RGBA - DMX interface. Wireless DMX system available on request (please refer to p. 20 for options)

* only available for FLC230-CC and FLC240-CC

FLC200-TW PROJECTORS

Luminaire housing options

FLC220-TW / FLC230-TW / FLC240-TW / FLC260-TW

Light source

LED 22 -132 W

Nominal luminous flux range

2,760 – 16,560 lm

Light colour temperatures

2700-6000 K. CRI \geq 70

Available distributions

[B] [M] [E]

Optical accessories

Linear spread lens, wallwash lens*, snoot, glare shield

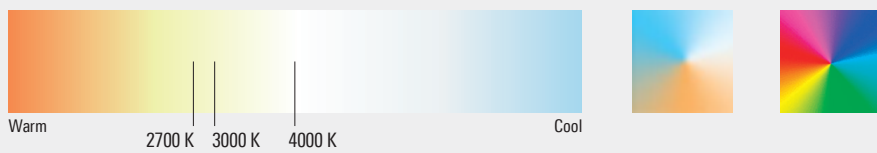
Dimming

DALI interface

* only available for FLC230-TW and FLC240-TW



LIGHT COLOUR TEMPERATURES [KELVIN]



FLC200 LED PROFILE PROJECTORS

FLC200 options

FLC200

Monochrome Profile Projector

FLC200-CC RGBW

RGBW Colour Changing Profile Projector

FLC200-CC RGBA

RGBA Colour Changing Profile Projector

FLC200-TW

2700-6000 K Tunable White Profile Projector

IP Classification

IP66. Dust and water jet tight.

Impact Protection

IK07. Protected against impact equivalent of 0.5 kg mass dropped from 400mm or above.

Material

Marine-grade, die-cast aluminium alloy. 5CE superior corrosion protection including PCS hardware with Torx drive. Safety glass main lens. Silicone rubber gasket.

Finish

Powdercoat finish in signal black RAL 9004, white aluminium RAL 9006, grey aluminium RAL 9007 or traffic white RAL 9016. Other colour options are available on request.

Profile Options

[GP] Gobo Projection, [ZP] Zoom Projection and [FP] Frame Projection.

Gear

Integral EC electronic converter, thermally separated.

Electrical Accessories

Integrated 1/2 kV surge protection. (SP10) 10/10 kV on request.

Mounting Accessories

Floodlight mounting bracket, single, double, triple and quad. Planted Root. Short post EM. Pole clamps, single and double. Spigot Cap.

Wiring

Two cable glands for improved wiring flexibility. Class I (Class II optional).

FLC200 PROFILE PROJECTORS

Luminaire housing options

FLC220 / FLC230

Light source

LED 24 -52 W

Nominal luminous flux range

3,465 – 6,907 lm

Light colour temperatures

3000 K and 4000 K. 2700 K available on request. CRI \geq 80

Profile Options

Gobo Projection, Zoom Projection and Frame Projection

Dimming

1-10 V analogue dimming or DALI on request

FLC200-CC PROFILE PROJECTORS

Luminaire housing options

FLC230-CC

Light source

LED 48 W

Nominal luminous flux range

3,300-4,080 lm

Light colour temperatures

RGBW (4000 K Standard), RGBA. CRI \geq 70

Profile Options

Gobo Projection, Zoom Projection and Frame Projection.

Dimming

DMX interface

FLC200-TW PROFILE PROJECTORS

Luminaire housing options

FLC230-TW

Light source

LED 44 W

Nominal luminous flux range

5,520 lm

Light colour temperatures

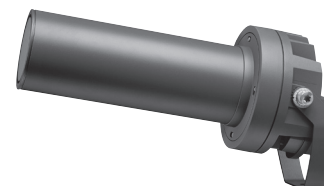
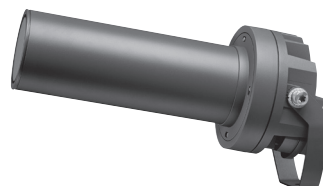
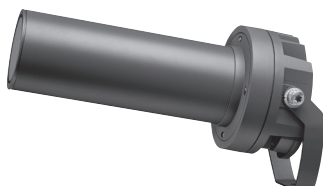
2700-6000 K. CRI \geq 70

Profile Options

Gobo Projection, Zoom Projection and Frame Projection

Dimming

DALI interface



OPTICAL OPTIONS AND ACCESSORIES FLC200 PROJECTORS



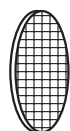
IO-20 LED
Wallwash lens

OR



IW
Honeycomb louvre

OR



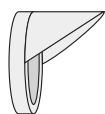
IO-360
Flood lens

OR



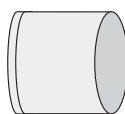
IO-180
Linear spread lens

OR



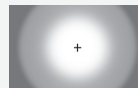
Glare shield

OR

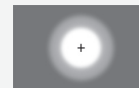


Snoot

DISTRIBUTION



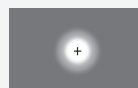
[B]



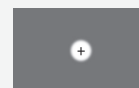
[M]



[E]



[EE]



[EES]

[B] Symmetric distribution, wide beam

[M] Symmetric distribution, medium beam

[E] Symmetric distribution, narrow beam

[EE] Symmetric distribution, very narrow beam

[EES] Symmetric distribution, very narrow beam, 'sharp cut-off'

NOTES

A maximum of one internal optical accessory.

IO-20 LED Wallwash Lens

Outstanding uniformity and broad corner-to-corner coverage are the hallmarks of this internally mounted accessory. For symmetric [M] versions.

All internal optical accessories are factory-installed within the luminaire. The factory-sealed qualities and advantages of the luminaire are fully maintained.

External accessory must be specified at the point of order as the housing is different with an external accessory.

■ OPTICAL OPTIONS AND ACCESSORIES FLC200-CC AND FLC200-TW PROJECTORS

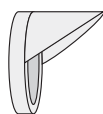


10-20 LED
Wallwash lens

OR

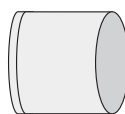


10-180
Linear spread lens



Glare shield

OR



Snoot

DISTRIBUTION



[B]



[M]



[E]

[B] Symmetric distribution, wide beam

[M] Symmetric distribution, medium beam

[E] Symmetric distribution, narrow beam

NOTES

A maximum of one internal optical accessory.

10-20 LED Wallwash Lens

Outstanding uniformity and broad corner-to-corner coverage are the hallmarks of this internally mounted accessory. For symmetric [M] versions. Not available with FLC220-CC

10-180 LED Linear Spread Lens

For symmetric [M] and [E] versions.

All internal optical accessories are factory-installed within the luminaire. The factory-sealed qualities and advantages of the luminaire are fully maintained.

External accessory must be specified at the point of order as the housing is different with an external accessory.

COLOUR AND CONTROL OPTIONS

Outdoor lighting scenarios are increasingly making use of the effect of coloured light. With careful planning and use, coloured light can subtly underline the look of architecture and its surroundings at night, dominantly highlighting it or even completely change it. With infinitely variable colour mixing, the new FLC200-CC colour changing projector offers exciting creative possibilities.

Adjacent are some colour-changing scenarios that show how you can individually control, via DMX addresses, each projector or define a group of projectors. These can then be synchronised over a set period of hours or selected days in the week.

Control options

	1-10V	DALI	DMX	WIRELESS DMX
FLC200	√	√	-	-
FLC200-CC	-	-	√	√
FLC200-TW	-	√	-	-
FLC200 PROFILE PROJECTOR	√	√	-	-
FLC200-CC PROFILE PROJECTOR	-	-	√	-
FLC200-TW PROFILE PROJECTOR	-	√	-	-

To order a luminaire with an available control option, please add the following code to the luminaire Part-ID:

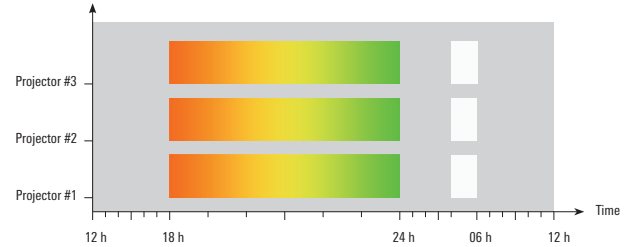
1-10V	DALI	DMX	WIRELESS DMX
+0011	+0013	+0012	+0018

Colour Boost

With RGBW colour mixing, the available electrical power of the projector is normally distributed evenly across all four channels. This means that a maximum of 25% of the electrical power is available to each channel. As a rule, however, a maximum of three channels are used for colour mixing. This means that only a maximum of 75% of the electrical power is available to them. This is where WE-EF colour boost technology comes in. When only three channels are used it distributes 100% of the electrical power to the three active channels, so that 33% instead of 25% of the total electrical power is available to each channel. Depending on the colours used, this increases the luminous efficacy by up to 40%.

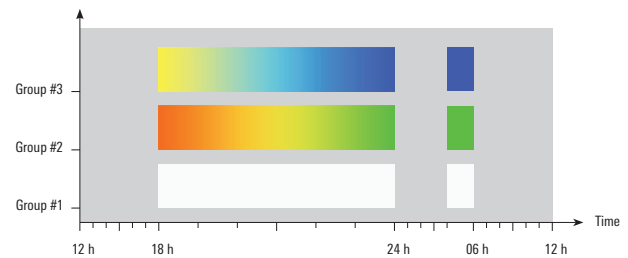


Example 1



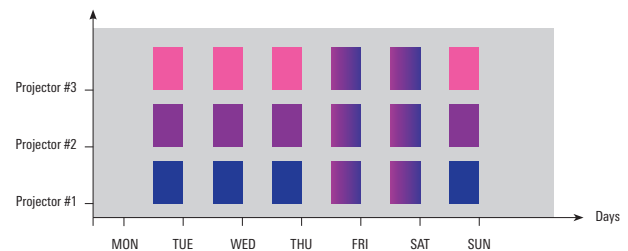
All projectors are uniformly addressed.
Synchronised colour changing over a set period of hours.

Example 2



Separate groups of projectors are defined and differently addressed.
Each group performs a specific scenario over a set period of hours.

Example 3



Specific projectors are differently addressed.
Each group performs a specific scenario over a set number of days.



Inner City Bypass, Brisbane (AUS). Lighting design: Raylinc Lighting. FLC230-CC.

PRODUCT FEATURES AND BENEFITS - FLC200 PROJECTORS

WE-EF Control

FLC200 projectors can be operated in a highly economic and environmentally friendly manner on a time or activity controlled basis. Dimming lowers power consumptions, improves lumens per watt efficacy and increases LED service life. FLC200-CC are operated through a DMX interface which allows for dynamic and highly responsive colour changing control.



Factory Sealed

Fully assembled in a humidity controlled environment, a factory-sealed luminaire is prewired and fitted with the specified light source. The luminaire does not need to be opened during installation. Mains connection is made either in a separate terminal box or externally. These features provide for fast and cost saving on-site installation, as well as the avoidance of installation errors.

FS

**FACTORY
SEALED**

PCS Hardware

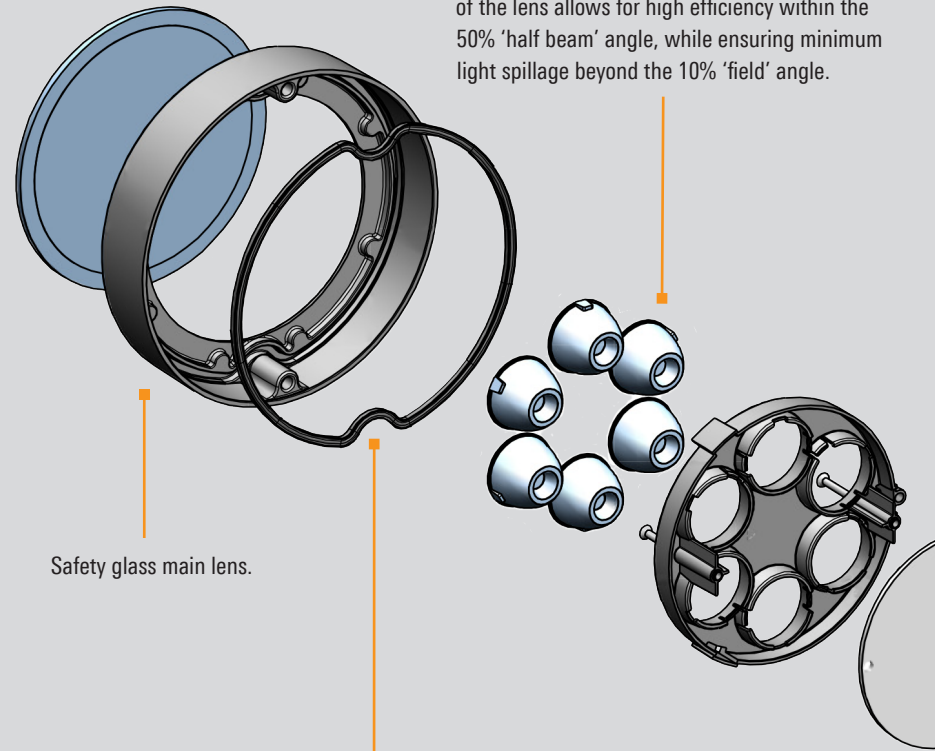
All exposed hardware is made from austenitic stainless steel, and additionally sealed with a tough, impregnated polymer coat, which fulfills two functions:

- Reduced friction between male and female threads causes a tighter fit between connected parts.
- Non-metallic barrier between the two metals, aluminium and steel, prevents galvanic corrosion that otherwise occurs, when metals of dissimilar electronegativities are in contact.

PCS



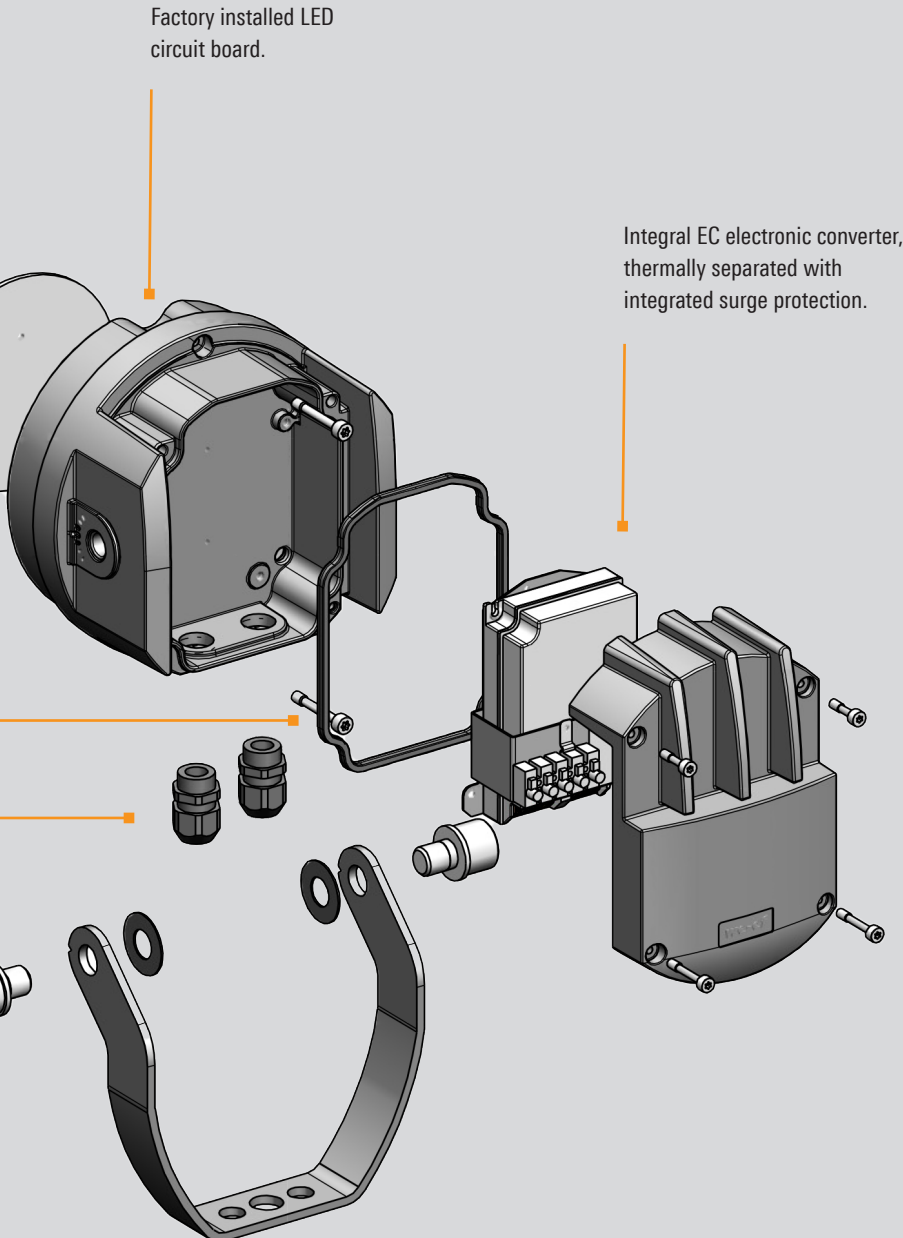
CAD-engineered and precision manufactured PMMA lenses and lens arrays deliver tightly controlled light distribution while limiting light spillage to an absolute minimum. The design of the lens allows for high efficiency within the 50% 'half beam' angle, while ensuring minimum light spillage beyond the 10% 'field' angle.



Safety glass main lens.

Weatherproof and non-ageing silicone rubber gasket provides excellent sealing qualities in corrosive and high temperature environments. The gasket contains CCG (Controlled Compression Gasket) technology, enhancing the long-term and maintained high IP ratings.

Two cable glands for improved wiring flexibility.



5CE System

Constructed from marine-grade aluminium, the FLC200 projector series is suitable for indoor or outdoor applications. All products in the range are IP66 and protected against corrosion with WE-EF's unique 5CE system.



OLC Technolog

Optimised light colour mixing within the entire beam, for highest aesthetic performance when illuminating critical architectural features and surfaces. In the unlikely event of failure of one or several LEDs within a luminaire, light levels drop, while uniformity is retained.



Tunable White Technology

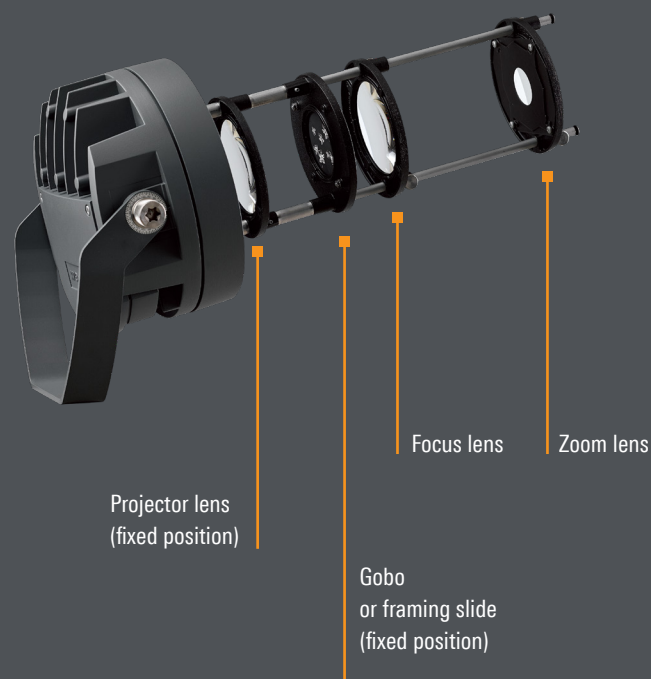
Tunable white technology combines white LEDs of different colour temperature and enables them to be controlled separately. As a result, in addition to being able to dim their luminous flux up and down, tunable white luminaires can also vary infinitely between warm white, neutral white and cold white light.



■ PRODUCT FEATURES AND BENEFITS - FLC200 PROFILE PROJECTORS

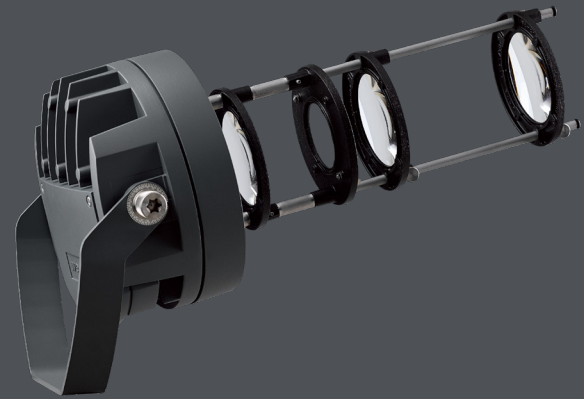
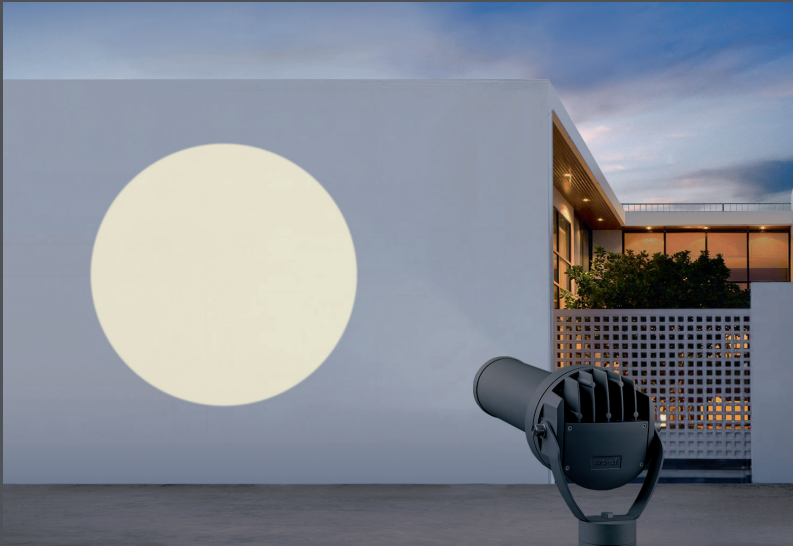
Thanks to LED technology, the quality of exterior lighting has been taken to a new level, making completely new, dynamic and individual lighting design possible. The new FLC200 LED profile projector range are the perfect instruments for realising powerful lighting effects in public spaces. The profile projector range is available in two sizes,

the smallest FLC220 and the FLC230. Each unit comes as a zoom spot projector [ZP] for producing sharply defined circles of light, a frame projector [FP] for illuminating polygon surfaces, or a gobo projector [GP] for projecting gobos onto surfaces.



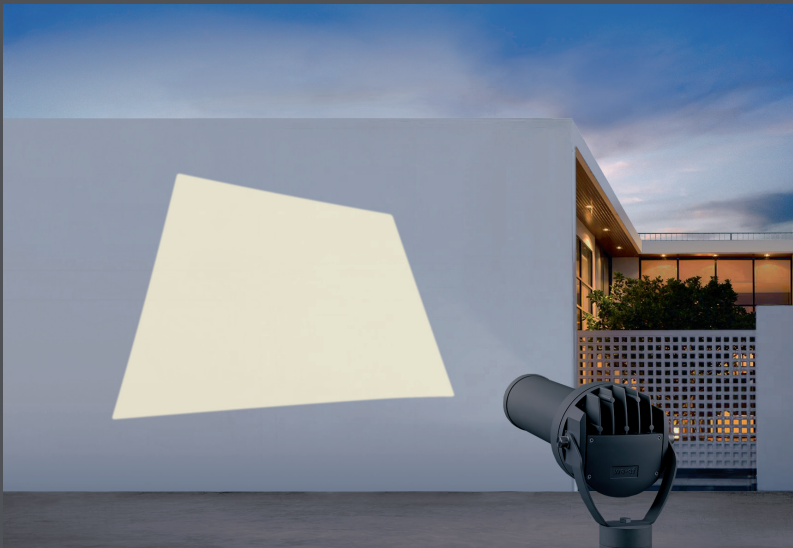
[GP] Gobo Projector, for projection of gobos onto a surface

- Spherical / triple flat convex lens system
- Projector lens for homogeneous light distribution
- Gobo available on request, can be supplied in steel (black) or glass
 - **FLC230 [GP]**
outside diameter = 86 mm/size B
max. printable area diameter = 60 mm
 - **FLC220 [GP]**
outside diameter = 66 mm/size M
max. printable area diameter = 48 mm
- Size of the illuminated surface (diameter zoom-spot) depends on the distance and the size of the printed area on the gobo
- Setting the size and sharpness of zoom-spot:
by releasing and moving the zoom lens, image can be larger or smaller
by releasing and moving the focus lens, image can be sharpened or blurred
- Zoom-spot is pre-set on delivery for a distance of 10 m



[ZP] Zoom-Spot Projector, to generate zoom spots

- Spherical / triple flat convex lens system
- Projector lens for homogeneous light distribution
- Setting the size and sharpness of zoom-spot:
by releasing and moving the zoom lens, image can be larger or smaller
by releasing and moving the focus lens, image can be sharpened or blurred
- Size of the illuminated surface (diameter zoom-spot) depends on the distance
- Zoom-spot is pre-set on delivery for a distance of 10 m



[FP] Frame Projector, for framing applications, polygon shape

- Spherical / triple flat convex lens system
- Projector lens for homogeneous light distribution
- Setting the size and sharpness of the polygon:
by releasing and moving the zoom lens, polygon can be larger or smaller
by releasing and moving the focus lens, polygon can be sharpened or blurred
- Size of the polygon (framing application) depends on the distance and the adjusted opening of the framing slide
- Frame projector is pre-set on delivery for a distance of 10 m

PRODUCT DETAILS - FLC200 PROJECTORS

[Factory-sealed] FLC200 LED projectors. IP66. IK07. Marine-grade, die-cast aluminium alloy. 5CE superior corrosion protection including PCS hardware. Powdercoat finish in RAL 9004, RAL 9006, RAL 9007 or RAL 9016. Silicone CCG® (Controlled Compression Gasket) technology. Safety glass lens.

Two cable glands to allow for through wiring and wiring flexibility. Factory installed LED circuit board. PMMA LED lenses.

Integral EC electronic converter in thermally-separated compartments. Advanced thermal management protects LEDs while optimising lumens output.

FLC200 LED monochrome projector:
Optional 1-10V or DALI interface on request.

FLC200-CC LED colour-changing projector:
DMX interface.

FLC200-TW LED tunable white projector:
DALI interface.

Light source:
Refer to the product pages.

Available distributions:
FLC200

[B] [M] [E] [EE] [EES]

FLC200-CC & FLC200-TW

[B] [M] [E]

Accessories:

Optical, page 29

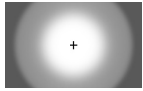
Mounting, page 39



Lighting design: Susanna Antico Lighting Design Studio. Photo: Serge Brison. FLC230.



FLC200 LED PROJECTOR SERIES



[B]



[M]



[E]



[EE]



[EES]



IO-20 wallwash lens.
See page 31 for details.



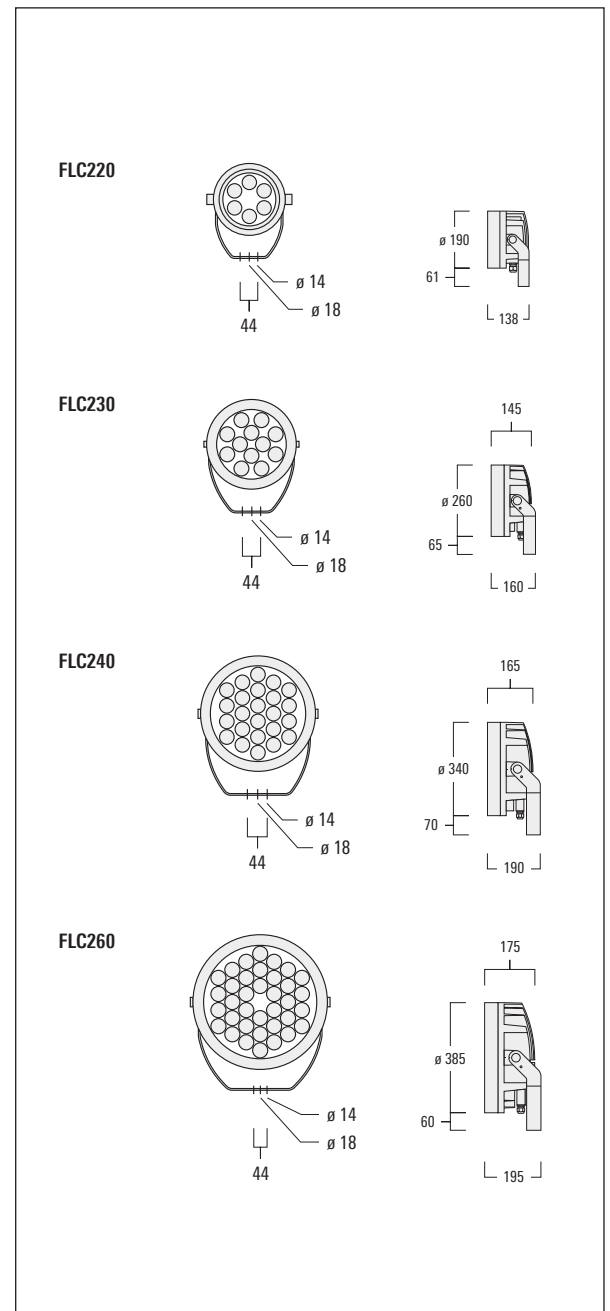
[B] Symmetric distribution, wide beam
[M] Symmetric distribution, medium beam
[E] Symmetric distribution, narrow beam

[EE] Symmetric distribution, very narrow beam
[EES] Symmetric distribution, very narrow beam, 'sharp cutoff'

[B]		3000 K	lm	4000 K	lm	cd/klm	C ₀ C ₁₈₀
FLC220	6 LED 12W/700 mA	139-9999	1629	139-2000	1879	997	28.6°/28.6°
FLC220	6 LED 18W/1050 mA	139-2009	2340	139-2010	2700	997	28.6°/28.6°
FLC220	6 LED 26W/1400 mA	139-2024	2993	139-2025	3453	968	28.6°/28.6°
FLC230	12 LED 24W/700 mA	139-1907	3257	139-1908	3758	981	29.7°/29.7°
FLC230	12 LED 36W/1050 mA	139-1909	4680	139-1910	5400	981	29.7°/29.7°
FLC230	12 LED 52W/1400 mA	139-1911	5986	139-1912	6907	948	29.7°/29.7°
FLC240	24 LED 48W/700 mA	139-1921	6515	139-1922	7517	981	29.7°/29.7°
FLC240	24 LED 72W/1050 mA	139-1923	9360	139-1924	10800	981	29.7°/29.7°
FLC240	24 LED 104W/1400 mA	139-1925	11971	139-1926	13813	948	29.7°/29.7°
FLC260	36 LED 72W/700 mA	139-1955	9772	139-1956	11275	981	29.7°/29.7°
FLC260	36 LED 108W/1050 mA	139-1959	14040	139-1960	16200	981	29.7°/29.7°
FLC260	36 LED 155W/1400 mA	139-1963	17957	139-1964	20720	948	29.7°/29.7°

[M]		3000 K	lm	4000 K	lm	cd/klm	C ₀ C ₁₈₀
FLC220	6 LED 12W/700 mA	139-2001	1629	139-2002	1879	3175	14.7°/14.7°
FLC220	6 LED 18W/1050 mA	139-2011	2340	139-2012	2700	3175	14.7°/14.7°
FLC220	6 LED 26W/1400 mA	139-2026	2993	139-2027	3453	3079	14.7°/14.7°
FLC230	12 LED 24W/700 mA	139-1830	3257	139-1831	3758	3039	15.3°/15.3°
FLC230	12 LED 36W/1050 mA	139-1836	4680	139-1837	5400	3039	15.3°/15.3°
FLC230	12 LED 52W/1400 mA	139-1842	5986	139-1843	6907	2922	15.3°/15.3°
FLC240	24 LED 48W/700 mA	139-1812	6515	139-1813	7517	3039	15.3°/15.3°
FLC240	24 LED 72W/1050 mA	139-1818	9360	139-1819	10800	3039	15.3°/15.3°
FLC240	24 LED 104W/1400 mA	139-1824	11971	139-1825	13813	2922	15.3°/15.3°
FLC260	36 LED 72W/700 mA	139-1806	9772	139-1807	11275	3039	15.3°/15.3°
FLC260	36 LED 108W/1050 mA	139-1791	14040	139-1792	16200	3039	15.3°/15.3°
FLC260	36 LED 155W/1400 mA	139-1797	17957	139-1798	20720	2922	15.3°/15.3°

[E]		3000 K	lm	4000 K	lm	cd/klm	C ₀ C ₁₈₀
FLC220	6 LED 12W/700 mA	139-2003	1629	139-2004	1879	7984	7.0°/7.0°
FLC220	6 LED 18W/1050 mA	139-2013	2340	139-2014	2700	7984	7.0°/7.0°
FLC220	6 LED 26W/1400 mA	139-2028	2993	139-2029	3453	7745	7.0°/7.0°
FLC230	12 LED 24W/700 mA	139-1832	3257	139-1833	3758	8202	7.3°/7.3°
FLC230	12 LED 36W/1050 mA	139-1838	4680	139-1839	5400	8202	7.3°/7.3°
FLC230	12 LED 52W/1400 mA	139-1844	5986	139-1845	6907	7892	7.3°/7.3°
FLC240	24 LED 48W/700 mA	139-1814	6515	139-1815	7517	8202	7.3°/7.3°
FLC240	24 LED 72W/1050 mA	139-1820	9360	139-1821	10800	8202	7.3°/7.3°
FLC240	24 LED 104W/1400 mA	139-1826	11971	139-1827	13813	7892	7.3°/7.3°
FLC260	36 LED 72W/700 mA	139-1808	9772	139-1809	11275	8202	7.3°/7.3°
FLC260	36 LED 108W/1050 mA	139-1793	14040	139-1794	16200	8202	7.3°/7.3°
FLC260	36 LED 155W/1400 mA	139-1799	17957	139-1800	20720	7892	7.3°/7.3°



FLC200 LED PROJECTOR SERIES

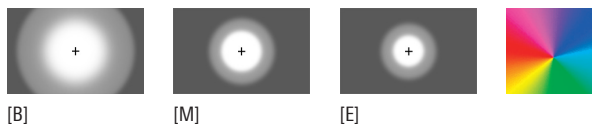
[EE]		3000 K	lm	4000 K	lm	cd/klm	C ₀ C ₁₀₀
FLC220	6 LED 12W/700 mA	139-2005	1629	139-2006	1879	36435	4.0°/4.0°
FLC220	6 LED 18W/1050 mA	139-2015	2340	139-2016	2700	36435	4.0°/4.0°
FLC220	6 LED 26W/1400 mA	139-2030	2993	139-2031	3453	35341	4.0°/4.0°
FLC230	12 LED 24W/700 mA	139-1834	3257	139-1835	3758	34566	4.1°/4.1°
FLC230	12 LED 36W/1050 mA	139-1840	4680	139-1841	5400	34566	4.1°/4.1°
FLC230	12 LED 52W/1400 mA	139-1846	5986	139-1847	6907	33874	4.1°/4.1°
FLC240	24 LED 48W/700 mA	139-1816	6515	139-1817	7517	34566	4.1°/4.1°
FLC240	24 LED 72W/1050 mA	139-1822	9360	139-1823	10800	34566	4.1°/4.1°
FLC240	24 LED 104W/1400 mA	139-1828	11971	139-1829	13813	33874	4.1°/4.1°
FLC260	36 LED 72W/700 mA	139-1810	9772	139-1811	11275	34566	4.1°/4.1°
FLC260	36 LED 108W/1050 mA	139-1795	14040	139-1796	16200	34566	4.1°/4.1°
FLC260	36 LED 155W/1400 mA	139-1801	17957	139-1802	20720	33874	4.1°/4.1°

[EES]		3000 K	lm	4000 K	lm	cd/klm	C ₀ C ₁₈₀
FLC220	6 LED 12W/700 mA	139-2007	1378	139-2008	1545	63895	2.7°/2.7°
FLC220	6 LED 18W/1050 mA	139-2017	1980	139-2018	2220	63895	2.7°/2.7°
FLC220	6 LED 26W/1400 mA	139-2032	2532	139-2033	2839	61978	2.7°/2.7°
FLC230	12 LED 24W/700 mA	139-1901	2756	139-1902	3090	61491	2.9°/2.9°
FLC230	12 LED 36W/1050 mA	139-1903	3960	139-1904	4440	61491	2.9°/2.9°
FLC230	12 LED 52W/1400 mA	139-1905	5065	139-1906	5679	59646	2.9°/2.9°
FLC240	24 LED 48W/700 mA	139-1915	5512	139-1916	6180	61491	2.9°/2.9°
FLC240	24 LED 72W/1050 mA	139-1917	7920	139-1918	8880	61491	2.9°/2.9°
FLC240	24 LED 104W/1400 mA	139-1919	10130	139-1920	10358	59646	2.9°/2.9°
FLC260	36 LED 72W/700 mA	139-1953	8268	139-1954	9271	61491	2.9°/2.9°
FLC260	36 LED 108W/1050 mA	139-1957	11880	139-1958	13320	61491	2.9°/2.9°
FLC260	36 LED 155W/1400 mA	139-1961	15195	139-1962	17036	59646	2.9°/2.9°

*Nominal lumen output based on LED manufacturers data at 85°C T.
For rated lumens at 25°C T. and latest data refer to www.we-ef.com.



FLC200-CC LED PROJECTOR SERIES



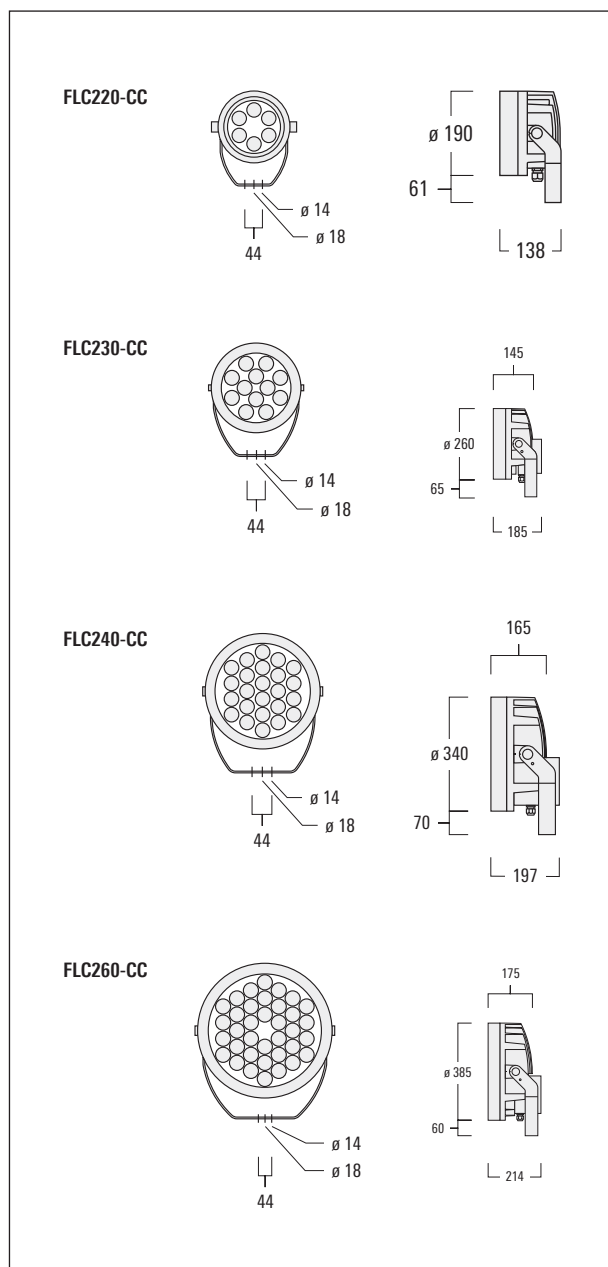
- [B] Wide beam distribution, symmetric
- [M] Medium beam distribution, symmetric
- [E] Narrow beam distribution, symmetric

[B]		RGBW	lm*	RGBA	lm*	cd/klm	C.C. _{min}
FLC220-CC	6 LED 24W	139-2038	2040	139-2146	1650	951	26°/26°
FLC230-CC	12 LED 48W	139-1929	4080	139-2137	3300	828	28°/28°
FLC240-CC	24 LED 96W	139-1931	8160	139-2140	6600	828	28°/28°
FLC260-CC	36 LED 144W	139-1965	12240	139-2143	9900	828	28°/28°

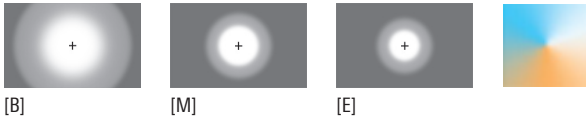
[M]		RGBW	lm*	RGBA	lm*	cd/klm	C.C. _{min}
FLC220-CC	6 LED 24W	139-2039	2040	139-2147	1650	2879	14°/14°
FLC230-CC	12 LED 48W	139-1913	4080	139-2139	3300	2214	16°/16°
FLC240-CC	24 LED 96W	139-1877	8160	139-2142	6600	2214	16°/16°
FLC260-CC	36 LED 144W	139-1889	12240	139-2145	9900	12214	16°/16°

[E]		RGBW	lm*	RGBA	lm*	cd/klm	C.C. _{min}
FLC220-CC	6 LED 24W	139-2040	2040	139-2148	1650	11980	7°/7°
FLC230-CC	12 LED 48W	139-1914	4080	139-2138	3300	6797	8°/8°
FLC240-CC	24 LED 96W	139-1879	8160	139-2141	6600	6797	8°/8°
FLC260-CC	36 LED 144W	139-1891	12240	139-2144	9900	6797	8°/8°

*All channels maximum performance
The indicated lumens refer to RGBW with white in 4000 K colour temperature.



FLC200-TW LED PROJECTOR SERIES



- [B] Wide beam distribution, symmetric
- [M] Medium beam distribution, symmetric
- [E] Narrow beam distribution, symmetric

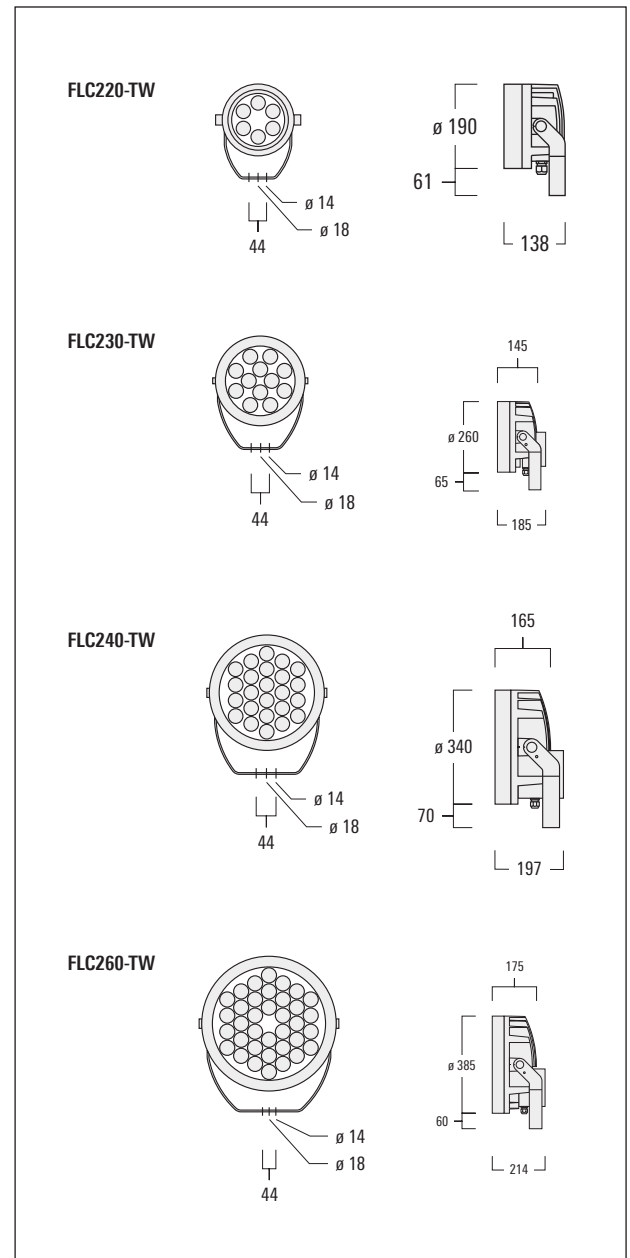


[B]		TW	lm*	cd/klm	C.C. _{lm}
FLC220-TW	6 LED 22W - 2700-6000 K	139-2041	2760	1390	21°/21°
FLC230-TW	12 LED 44W - 2700-6000 K	139-2044	5520	990	26°/26°
FLC240-TW	24 LED 88W - 2700-6000 K	139-2047	11040	990	26°/26°
FLC260-TW	36 LED 132W - 2700-6000 K	139-2050	16560	990	26°/26°

[M]		TW	lm*	cd/klm	C.C. _{lm}
FLC220-TW	6 LED 22W - 2700-6000 K	139-2043	2760	3268	13°/13°
FLC230-TW	12 LED 44W - 2700-6000 K	139-2045	5520	2766	15°/15°
FLC240-TW	24 LED 88W - 2700-6000 K	139-2048	11040	2766	15°/15°
FLC260-TW	36 LED 132W - 2700-6000 K	139-2051	16560	2766	15°/15°

[E]		TW	lm*	cd/klm	C.C. _{lm}
FLC220-TW	6 LED 22W - 2700-6000 K	139-2042	2760	12296	6°/6°
FLC230-TW	12 LED 44W - 2700-6000 K	139-2135	5520	10068	7°/7°
FLC240-TW	24 LED 88W - 2700-6000 K	139-2049	11040	10068	7°/7°
FLC260-TW	36 LED 132W - 2700-6000 K	139-2052	16560	10068	7°/7°

*All channels maximum performance

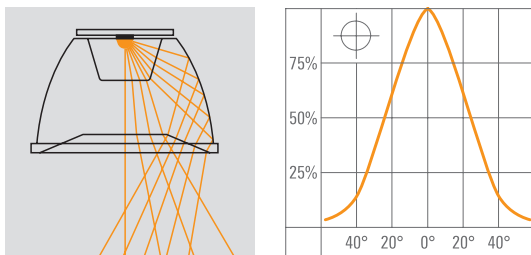


OPTICS

MAIN FEATURES OF WE-EF'S SYMMETRIC LENS SYSTEM

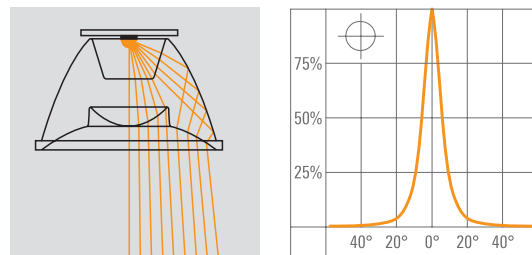
[B] Lens – Main Features *

- Symmetric distribution, wide beam
- 50% 'Half beam' angle typically within 20.5°/20.5° to 30°/30°
- 10% 'Field' angle typically within 45°/45°



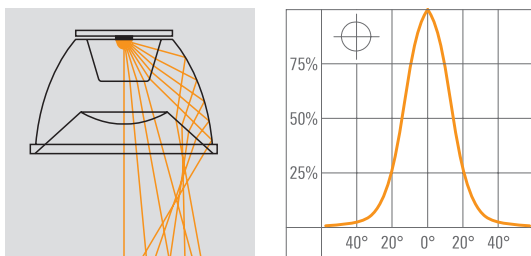
[EE] Lens – Main Features *

- Symmetric distribution, very narrow beam
- 50% 'Half beam' angle typically within 5.5°/5.5° to 7°/7°
- 10% 'Field' angle typically within 15°/15°



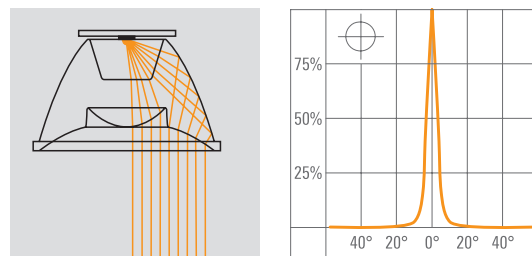
[M] Lens – Main Features *

- Symmetric distribution, medium beam
- 50% 'Half beam' angle typically within 10.5°/10.5° to 20°/20°
- 10% 'Field' angle typically within 30°/30°



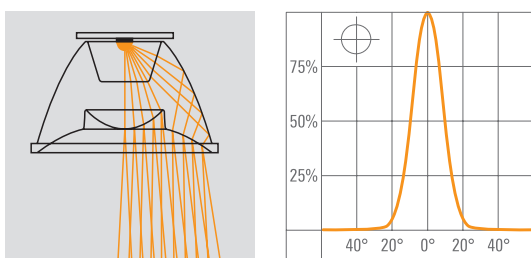
[EES] Lens – Main Features *

- Symmetric distribution, very narrow beam, 'sharp cut-off'
- 50% 'Half beam' angle typically within 5°/5°
- 10% 'Field' angle typically within 10°/10°



[E] Lens – Main Features *

- Symmetric distribution, narrow beam
- 50% 'Half beam' angle typically within 7.5°/7.5° to 10°/10°
- 10% 'Field' angle typically within 20°/20°



*The illustrations and diagrams shown here represent WE-EF proprietary optics; details may vary depending on luminaire model.

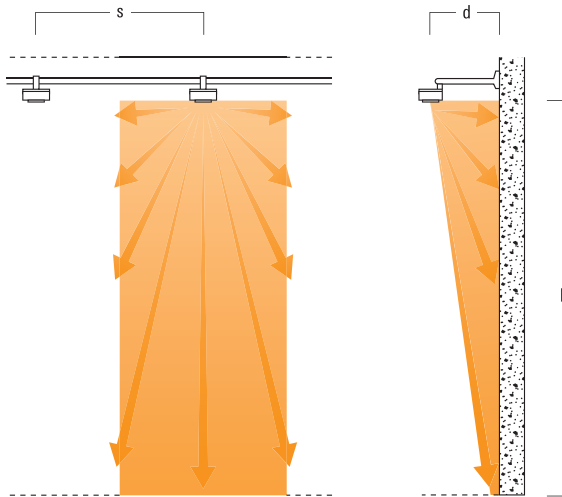
OPTICAL ACCESSORIES

IO-20 LED Wallwash Lens

Outstanding uniformity and broad corner-to-corner coverage are the hallmarks of this internally mounted accessory.

Wallwash lens – For symmetric [M] versions.

IO-20	for FLC220	139-2035
IO-20	for FLC230	139-1848
IO-20	for FLC240	139-1854
IO-20	for FLC260	139-1860



Specifically developed for the lighting of architectural surfaces, in combination with WE-EF [M] symmetric medium beam LED optics. Luminaires fitted with the IO-20 wallwash lens are typically positioned at $0.125 \times h$ away from the target surface and spaced up to $1.75 \times d$ apart:

h = height of wall/target surface

$d = 0.125 \times h$ = distance from the wall/target surface

$s = 1.75 \times d$ = spacing between luminaires

The IO-20 LED wallwash lens is factory-installed within the luminaire.

The factory-sealed qualities and advantages of the luminaire are fully maintained.



Internal Accessories

One internal optical accessory. For example: linear spread or flood lens; or louvre. Factory-installed.

Linear spread lens

IO-180	for FLC220	139-2036
IO-180	for FLC230	139-1849
IO-180	for FLC240	139-1855
IO-180	for FLC260	139-1861

Flood lens

IO-360	for FLC220	139-2037
IO-360	for FLC230	139-1850
IO-360	for FLC240	139-1856
IO-360	for FLC260	139-1862

Honeycomb louvre

IW	for FLC220	139-2034
IW	for FLC230	139-1851
IW	for FLC240	139-1857
IW	for FLC260	139-1863

External Accessories

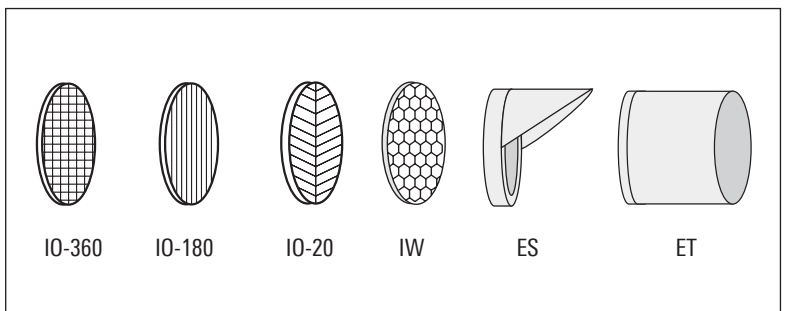
One external optical accessory. External accessory must be specified during order placement.

Glare shield

ES	for FLC220	139-1986
ES	for FLC230	139-1852
ES	for FLC240	139-1858
ES	for FLC260	139-1864

Snoot

ET	for FLC220	139-1987
ET	for FLC230	139-1853
ET	for FLC240	139-1859
ET	for FLC260	139-1865



PRODUCT DETAILS - FLC200 PROFILE PROJECTORS

FLC200 LED profile projectors. IP66. IK07.
Marine-grade, die-cast aluminium alloy.
5CE superior corrosion protection including PCS
hardware. Powdercoat finish RAL 9004, RAL 9006,
RAL 9007 or RAL 9016. Silicone CCG® (Controlled
Compression Gasket) technology. Safety glass lens.

Two cable glands to allow for through wiring and
wiring flexibility. Factory installed LED circuit board.
PMMA LED lenses.

Integral EC electronic converter in thermally-separated
compartments. Advanced thermal management protects
LEDs while optimising lumens output.

FLC200 LED monochrome profile projector:
Optional 1-10V or DALI interface on request.

FLC200-CC LED colour-changing profile projector:
DMX interface.

FLC200-TW LED tunable white profile projector:
DALI interface.

Light source:
Refer to product pages

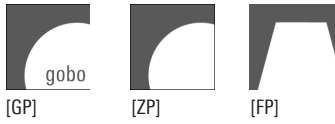
Available distributions:
[GP]*[ZP][FP]
*Gobo motif on request,
to be ordered separately

Accessories:
Mounting, page 39



Saint Bruno Church of Voiron (FRA). FLC230 [GP].

FLC200 LED PROFILE PROJECTOR SERIES



[GP] Gobo projection
 [ZP] Zoom projection
 [FP] Frame projection



FLC200 LED Profile Projector

[GP]		3000 K	lm	4000 K	lm	cd/klm	C_0C_{180}
FLC220	LED-FT 24W/700 mA	139-2128	3465	139-2129	3615	5525	6°/6°
FLC220	LED-FT 37W/1050 mA	139-2116	4700	139-2124	4900	5525	6°/6°
FLC230	12 LED 36W/1050 mA	139-1880	4680	139-1881	5400	6175	8°/8°
FLC230	12 LED 52W/1400 mA	139-1882	5986	139-1883	6907	6175	8°/8°

[ZP]		3000 K	lm	4000 K	lm	cd/klm	C_0C_{180}
FLC220	LED-FT 24W/700 mA	139-2126	3465	139-2127	3615	9563	8°/8°
FLC220	LED-FT 37W/1050 mA	139-2117	4700	139-2123	4900	9563	8°/8°
FLC230	12 LED 36W/1050 mA	139-1872	4680	139-1873	5400	9378	8°/8°
FLC230	12 LED 52W/1400 mA	139-1874	5986	139-1875	6907	9378	8°/8°

[FP]		3000 K	lm	4000 K	lm	cd/klm	C_0C_{180}
FLC220	LED-FT 24W/700 mA	139-2130	3465	139-2131	3615	9563	8°/8°
FLC220	LED-FT 37W/1050 mA	139-2118	4700	139-2125	4900	9563	8°/8°
FLC230	12 LED 36W/1050 mA	139-1884	4680	139-1885	5400	9378	8°/8°
FLC230	12 LED 52W/1400 mA	139-1886	5986	139-1887	6907	9378	8°/8°

FLC200-CC LED Profile Projector

[GP]		RGBW	lm	RGBA	lm	cd/klm	C_0C_{180}
FLC230-CC LED	12 LED 48W	139-1934	4080	139-2155	3300lm	3236	8°/8°

[ZP]		RGBW	lm	RGBA	lm	cd/klm	C_0C_{180}
FLC230-CC LED	12 LED 48W	139-1933	4080	139-2154	3300lm	7315	7°/7°

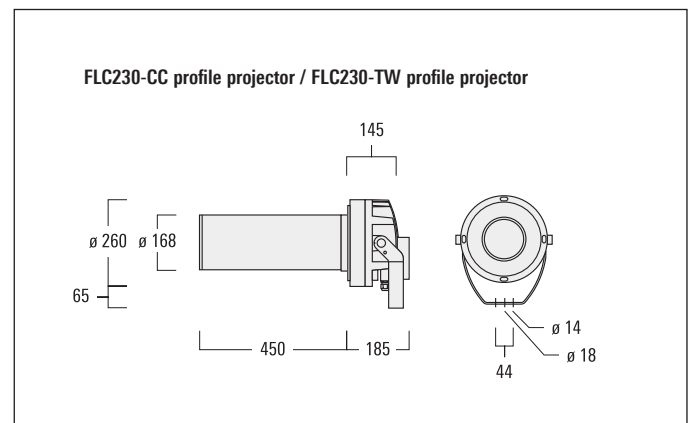
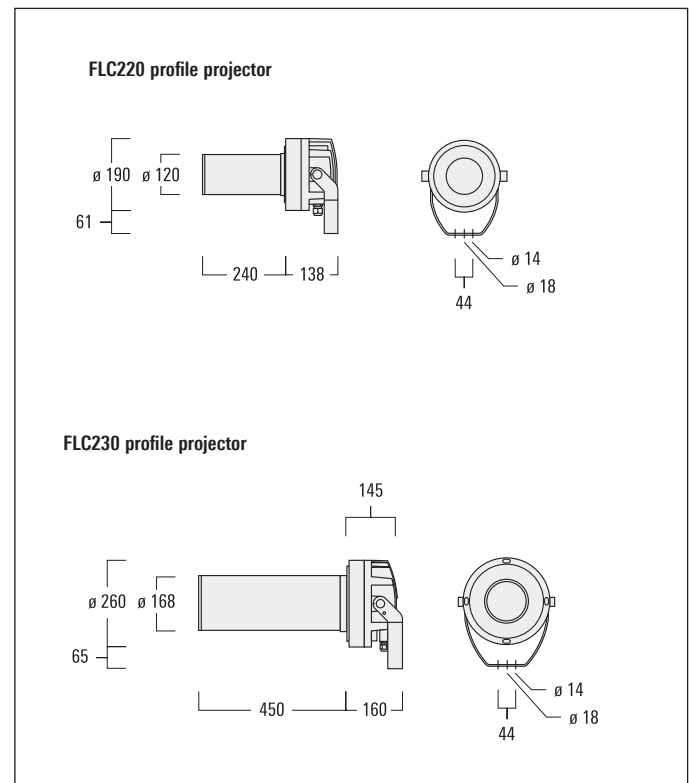
[FP]		RGBW	lm	RGBA	lm	cd/klm	C_0C_{180}
FLC230-CC LED	12 LED 48W	139-1935	4080	139-2156	3300lm	7315	7°/7°

FLC200-TW LED Profile Projector

[GP]		TW	lm	cd/klm	C_0C_{180}
FLC230-TW LED	12 LED 44W - 2700-6000 K	139-2158	5520	3236	8°/8°

[ZP]		TW	lm	cd/klm	C_0C_{180}
FLC230-TW LED	12 LED 44W - 2700-6000 K	139-2046	5520	7315	7°/7°

[FP]		TW	lm	cd/klm	C_0C_{180}
FLC230-TW LED	12 LED 44W - 2700-6000 K	139-2159	5520	7315	7°/7°



■ WIRING SCHEMATICS - SINGLE LAYOUT - FLC200-CC PROJECTORS

A DMX network consists of a DMX controller – the master of the network – and one or more projectors, that belong to a DMX universe.

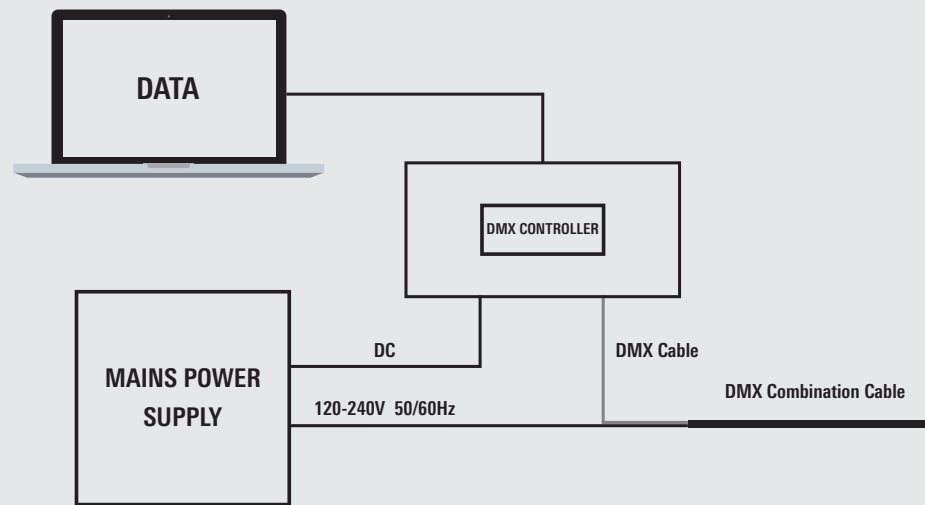
If the projectors are delivered with a combination cable, it is not necessary to open the projectors for electrical connection.

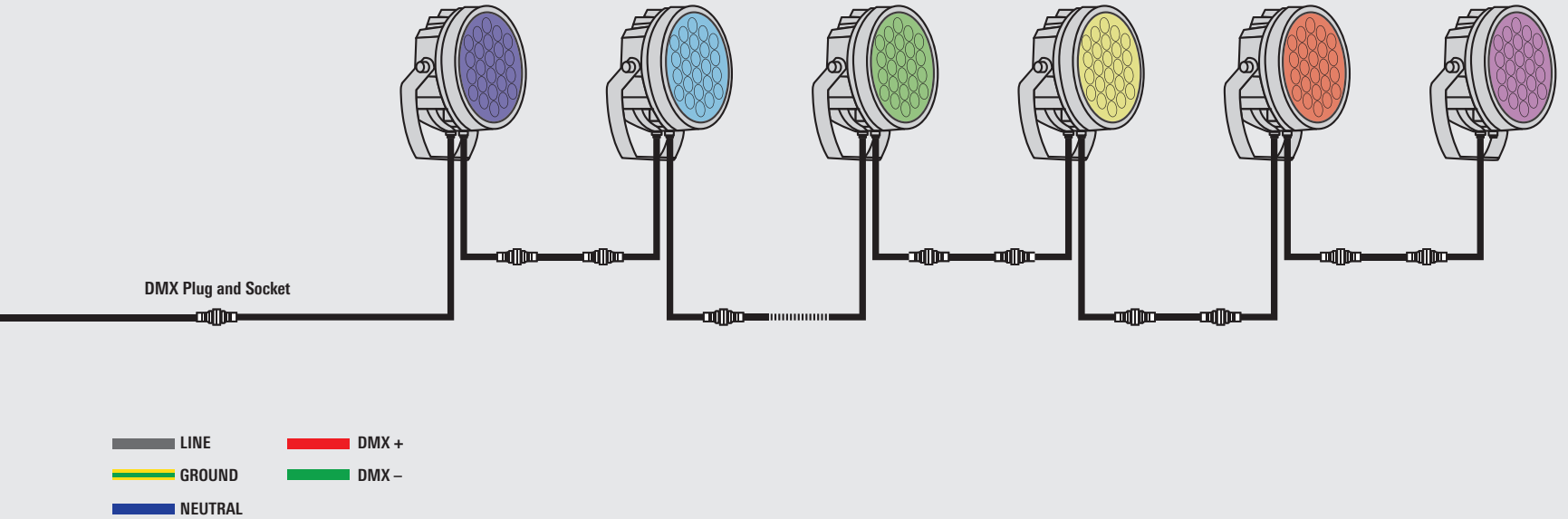
The DMX specification requires a termination resistor to be connected to the last projector to avoid mirroring of the signal.

If the projectors are delivered without combination cable, the termination chamber must be opened for connection on site. The projectors are equipped with two cable entries, max. 14 mm diameter. A suitable crimping tool is necessary for assembly.

The DMX combination cable needs to be protected by a conduit when used in soil, water or concrete.

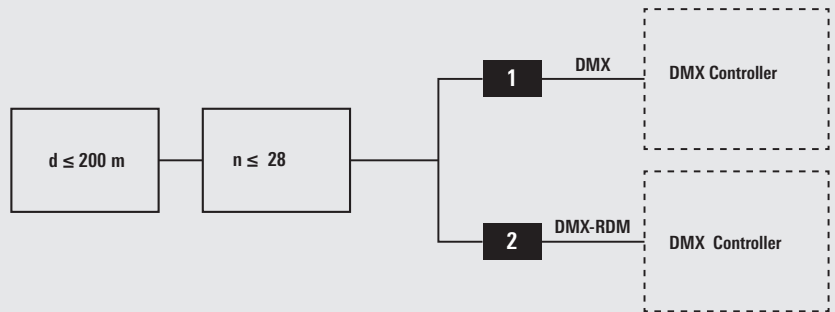
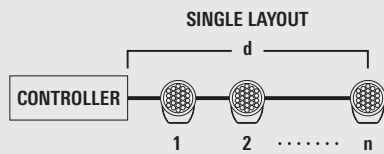
The cable carries the three power cords and one twisted pair for the DMX signal plus shielding. If optional sensors or switching devices are to be used, the cable size depends on the devices used. Please always follow the manufacturer's instructions. All external sources must be connected to the DMX controller via a relay.





Standard DMX is a unidirectional protocol, which means that the data continuously flows in one direction – from the controller to the projectors. With RDM (Remote Device Management) the DMX system becomes bi-directional and data flows in both directions i.e. to the projectors and back and simplifies the installation and address allocation.

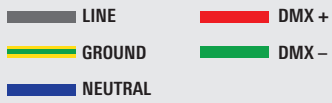
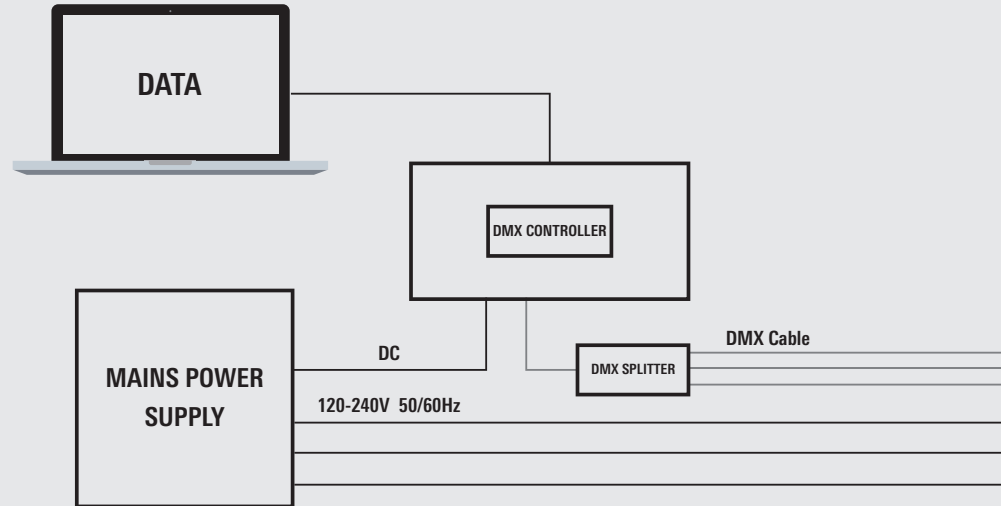
Distance	No. of Projectors	Option	Equipment List
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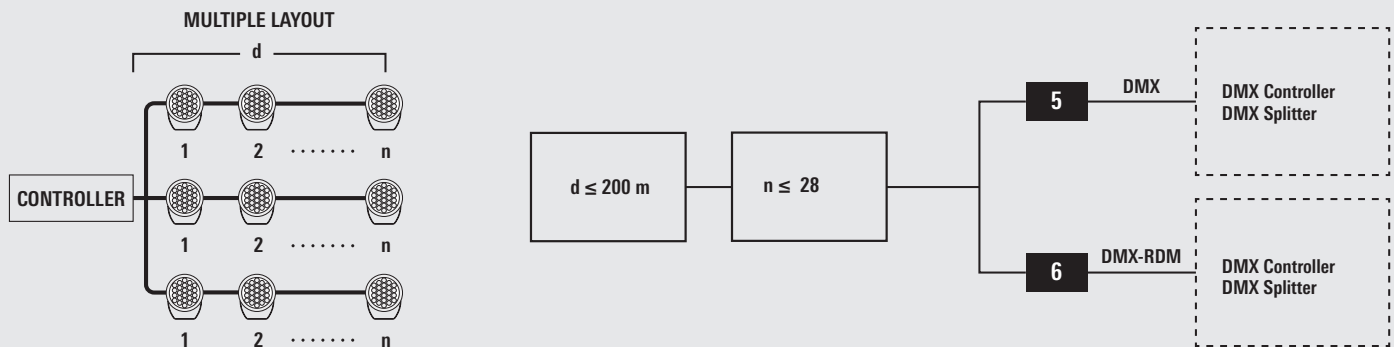
■ WIRING SCHEMATICS – MULTIPLE LAYOUT - FLC200-CC PROJECTORS

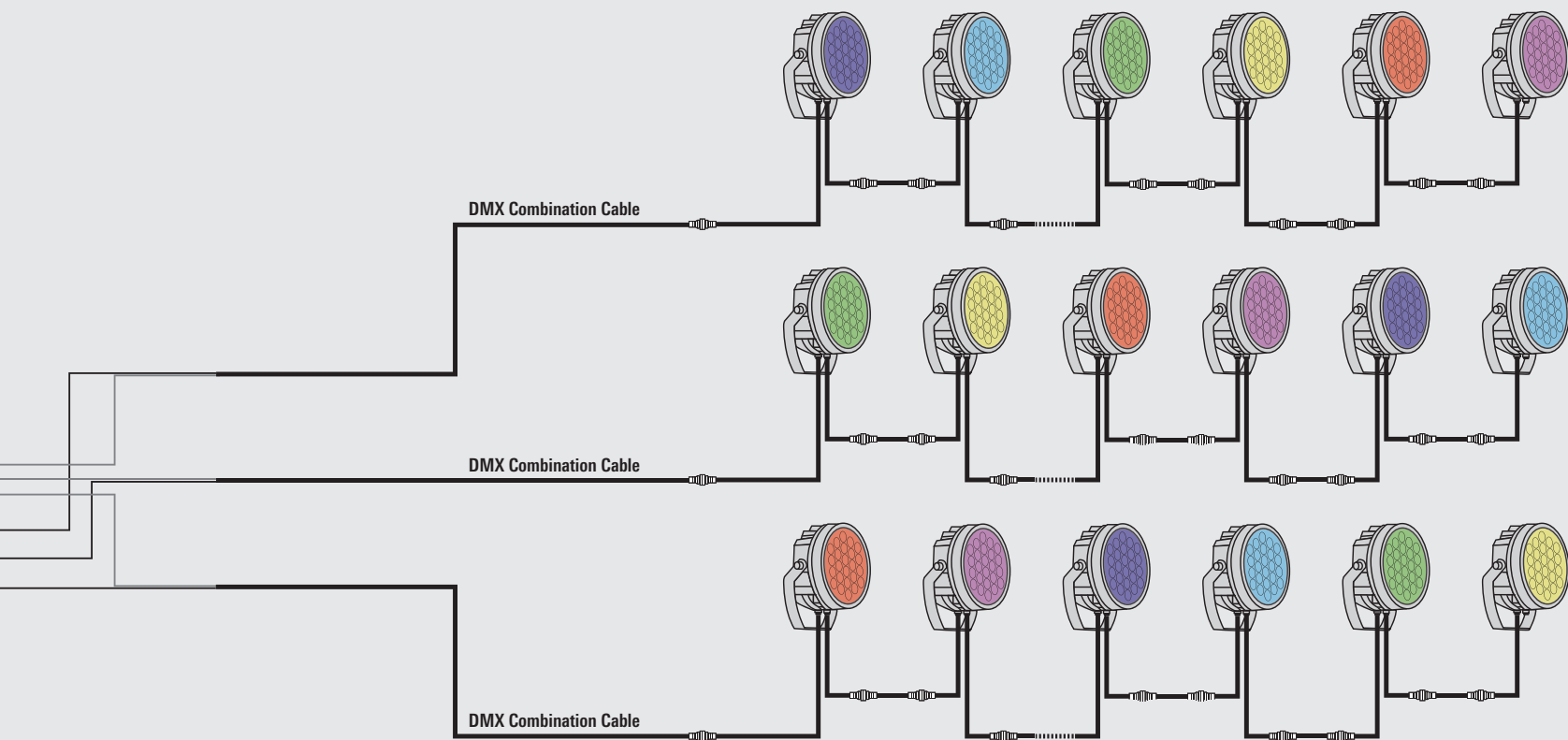
For a multiple layout, a splitter must be used as a multiplexer for the DMX signal.

For the DMX controller with RDM, the splitter is also used for protection as it electrically decouples the signal. A DMX termination plug is also required for each final projector. Otherwise, the same applies as on page 32-33.



For applications with 50 or more projectors WE-EF recommends the use of the bi-directional DMX Controller. This controller is also necessary if external sensors are to be installed.





■ WIRING SCHEMATICS - WIRELESS SYSTEM - FLC200-CC PROJECTORS

In the wireless system transceivers and repeaters replace the cables for the DMX signal transmission. The information for the colour control is transmitted by wireless signal.

The transceiver, which also works as a receiver, transmits the encrypted DMX signal via wireless signal to all subscribers of the network. Each projector has a built-in transmitter and receiver that transforms the wireless signal back into a classic DMX signal and can also communicate bi-directionally (RDM).

The projectors must be connected to the mains power supply. For connection, only the gear chamber must be opened. The projectors are equipped with two cable entries,

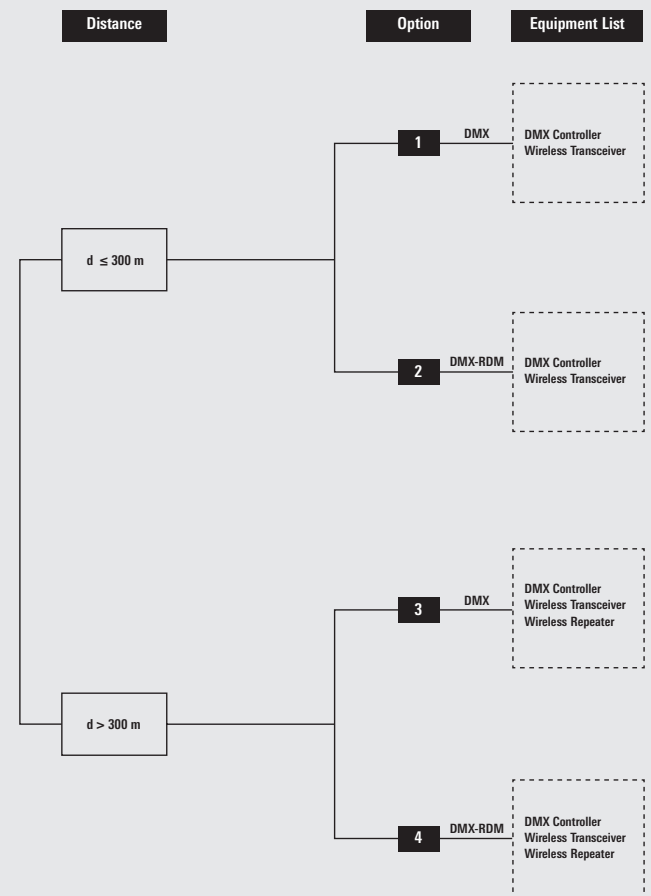
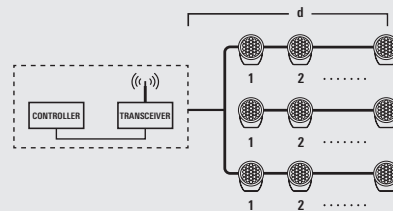
for cables with a max. 14 mm diameter. The power supply line must be suitable for the application.

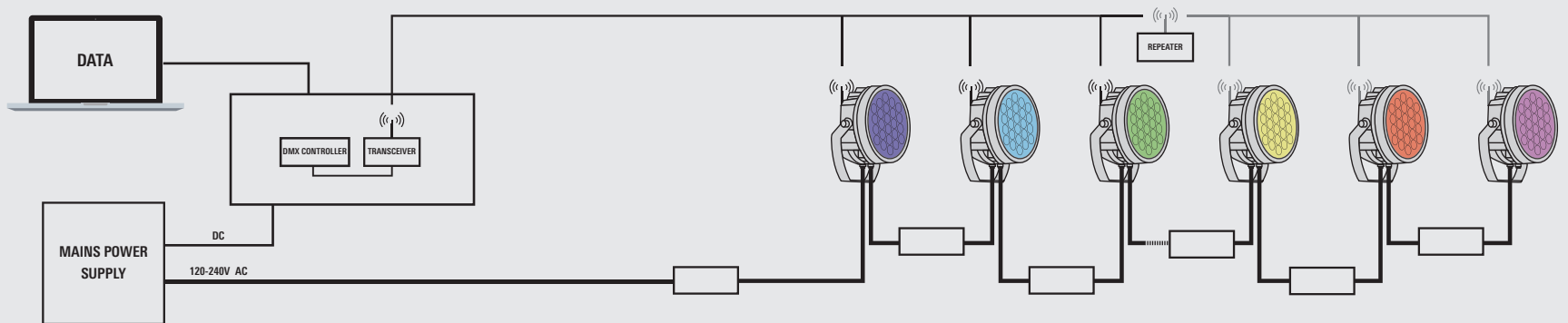
The commissioning of the projectors (addressing) is via wireless signal. The signal strength can also be queried via wireless.

If optional sensors or switching devices are to be used, the cable diameter depends on the devices used. Please always follow the manufacturer's instructions. All external sources must be connected to the DMX controller via a relay.

Options 1 and 3 use a unidirectional DMX Controller, while options 2 and 4 use a bi-directional DMX Controller (RDM ready). Due to the fact that the system contains a wireless-transmitted DMX signal no mirroring can occur and therefore no termination resistor is needed.

The maximum distance between the transceiver and the final projector is 300 m (line-of-sight). Trees, buildings etc. may reduce the maximum distance. To increase the range, a repeater can be used. Cascading the repeater signal is not possible. The system works in the 2.4 GHz band. Other sources in the signal band must be considered (W-LAN).





400-9009 Wireless Transceiver

IP67. Wireless transmission of the signal up to 300 m.
 2.4 GHz. Max. Output power 100mW.
 Connection terminals max. AWG13. 85-264VAC / 47-70Hz / 3W.



400-9010 Wireless Repeater

IP67. Amplifies and increases the range of the DMX signal.
 2.4 GHz. Max. Output power 100mW.
 Connection terminals max. AWG13. 85-264VAC / 47-70Hz / 3W.



■ INSTALLATION AND MAINTENANCE

This section is intended as an overview only.

For exact step-by-step installation instructions please refer to www.we-ef.com (FLC200 product pages) or contact WE-EF.

Maintenance

Apart from cleaning the product's exterior surfaces, no special maintenance work is required. Do not use high-pressure cleaners.

Protect our environment: Discard used LEDs in compliance with the most recent environmental legislation.

Notice:

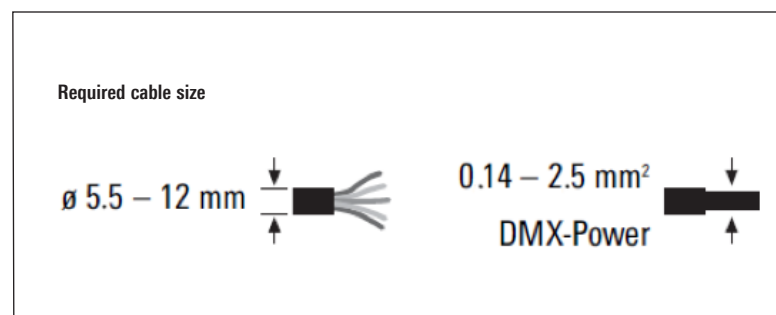
The luminaires must be installed and maintained by a suitably qualified person in compliance with the latest applicable regulations and relevant legislation.

In case of component failure due to abnormal circumstances or at end of life, replacement must be carried out by a suitably qualified and trained professional.

■ FLC200 PROJECTORS

Windage area

FLC220	0.030 m ²
FLC230	0.054 m ²
FLC240	0.090 m ²
FLC260	0.116 m ²



In case of questions please
contact our Installer Hotline:

Monday - Friday 7.00am -7.00pm AEST
+61 458 933 399



MOUNTING ACCESSORIES - FLC200 SERIES

Marine-grade aluminium construction. 5CE superior corrosion protection including PCS hardware. Powdercoat finish in RAL 9004, RAL 9006, RAL 9007 or RAL 9016.

Short post				kg
for FLC200 Series	270-9038	EM1-M16	Short post	2.0

Matching planted root to be ordered separately.

Planted root for short post – Galvanised steel				kg
for FLC200 Series	300-0461	ESV4	Planted root	4.4

Must be ordered in conjunction with EM short post.

Pole clamps TS Series				kg
for FLC200 Series	147-0543	TS1-2/M12	Pole clamp ø 76-89	1.4
	147-0526	TS1-2/M12	Pole clamp ø 102-114	1.5
	147-0544	TS1-2/M12	Pole clamp ø 114-133	1.7
	147-0545	TS2-2/M12	Pole clamp ø 76-89	1.4
	147-0527	TS2-2/M12	Pole clamp ø 102-114	1.5
	147-0546	TS2-2/M12	Pole clamp ø 114-133	1.6

