Lighting tools
for the future

LARGE BELL LED | SMALL BELL LED

Decorative lighting and efficient
LED technology for parks, residential areas,
service roads and collection roads

office | industry | traffic | retail | public | sports

siteco
AN OSRAM BUSINESS

LARGE BELL LED | SMALL BELL LED
A new era is born

A classic, decorative design, simultaneously better light, outstanding optics and significantly lower costs: the BELL in the new LED variant is the future-fit solution for decorative lighting tasks in outdoor areas. Two construction sizes, two light colours, several control variants and different enclosures make it a highly flexible all-rounder.

SMALL BELL LED
for town squares, parks, residential areas, service and collection roads with mounting heights between 3.5 and 5 metres.

LARGE BELL LED
for town squares, parks, residential areas, service and collection roads with mounting heights between 4 and 6 metres.

State-of-the-art and striving towards the future

- rapid amortisation due to major energy savings (> 75 %)
- outstanding lighting technology
- environmental protection due to CO_2 reduction
- intelligent lighting control for additional reduction of operating costs
- further savings potential with upgrade option to future LED generations
- maximum future safety due to Siteco gear tray technology

Refurbishing with maximum convenience

Efficiency is the buzzword, and saving energy and thus also achieving lower operating costs is of primary importance. Efficiency though is also now demanded by EU legislation. And following the ban on incandescent lamps, high pressure mercury vapour lamps will also be removed from the market to 2015. Precisely those lamps that are found in many obsolete lighting systems in fact. The time has come to prepare for the future. Both the BELL LED and the special BELL LED module are ideally suited for the modernising or expanding of existing installations with low effort and simple handling, and the optical appearance is maintained.

BELL construction

Mast and bracket

Usually kept with refurbishment. The service life of masts is a good 50 years.

Housing

With modernisations the housing is usually not replaced either. The value of the luminaire itself is maintained.

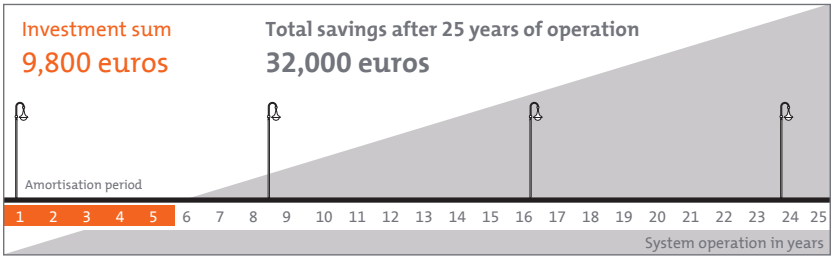
BELL LED module

Practical, simple and easy. Highly simple mounting is focused on with refurbishments, because BELL LED modules have an integral LED gear tray and new enclosure. These are inserted together with a few flicks of the wrist. The LED gear tray and enclosure are also available separately if required.

Decorative lighting
The BELL can also be installed on twin or multiple brackets, meaning flexibility for applications and design.

Rapid amortisation

Energy costs are of major importance for the lighting of roads and open areas. Energy-efficient, long life LED technology pays off, because when an existing system is modernised the investment costs are significantly lower than installing a new system. Investments are already amortised after around five years.

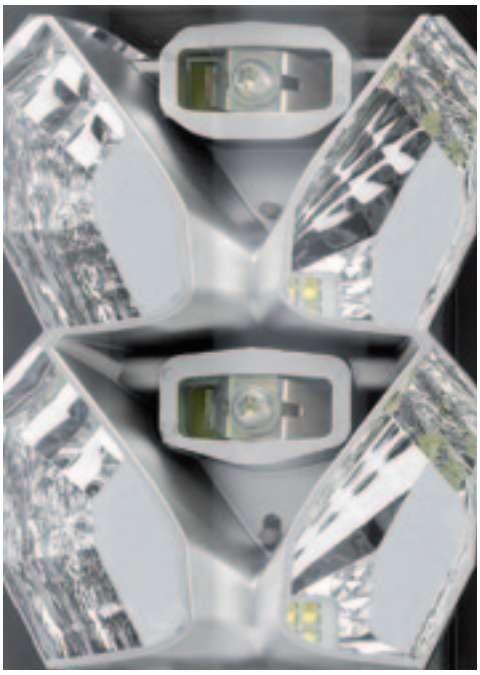


Modernisation compared to continued operation:
Basis for calculation: *static cost comparison, 1 km carriageway, 28 light points, 4,000 operating hours/year, 0.17 euros per kWh;* ***old system:*** *HME 125 W, 2,400 h with 100 % (137 W) 1,600 h reduced mode (89 W);* ***new system:*** *LARGE BELL LED, 2,400 h with 100 % (38 W); 1,600 h reduced mode (16 W)*
Calculate the amortisation times *for your system with the Siteco Cost Efficiency Calculator.*
More on page 22 or at www.siteco.com/eco-calculator

Optics
BELL LED brings a maximum of light onto the working plane due to optimised lighting technology.

Refurbishment with high-end technology

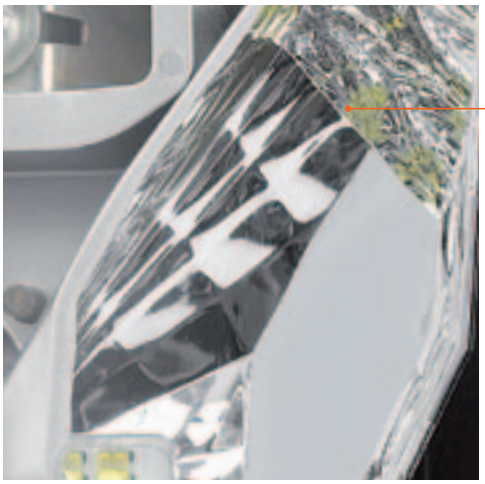
No compromises should be taken with investments, because deciding on modernisation is simultaneously a decision for the future. This is why the BELL LED is the bell luminaire with the best lighting technology until now, and with both efficiency and safety for the future, because the special LED module has a high-precision optical system. Facetted reflectors split the light of the high power LEDs and distribute this directionally onto the working plane. In this way the BELL LED optimally meets the demands for various traffic situations.



The BELL LED module

Optimal thermal management
Thermal management has been ideally implemented with BELL luminaires upgraded from conventional light sources to LED technology. The LEDs are directly connected to the heat sink, and this guarantees maximum heat dissipation and maximum service life of the components.

Instant luminous flux
Standard-compliant light from the very beginning: complete luminous flux is available from the LED module directly after switching on, and even after switching on a second time. Start-up times known from conventional lamps no longer apply.



High Definition Reflector (HD-R)
Highly precise facetted reflectors target the rays of high power LEDs for asymmetric, wide light distribution onto roads and town squares. This system also prevents glare for car drivers, pedestrians and residents.

The BELL enclosure can be removed simply by rotating.

To remove the old gear tray only two screws need to be loosened.

It's all about handling

Simple and practical: refurbishing the BELL to LED is done with just a few flicks of the wrist. The cover is rotated away and the gear tray with the old lamp is removed. With the BELL LED module, the gear tray and LED module are already connected to the enclosure and these can be inserted together. Regular relamping as with conventional lamps is no longer necessary due to the long service life of the LED modules. The use of LED technology means that soiling of the luminaire is also lower because LED light attracts significantly less insects.

Instruction sequence as a download on the internet at **www.siteco.com/bell-video** or simply read in the QR code with the Smart Phone.

The LED module is fastened to the housing via a retaining wire. This means both hands are free for the connection.

The LED module with gear tray and enclosure is inserted into the luminaire as a complete unit.

Did you know?

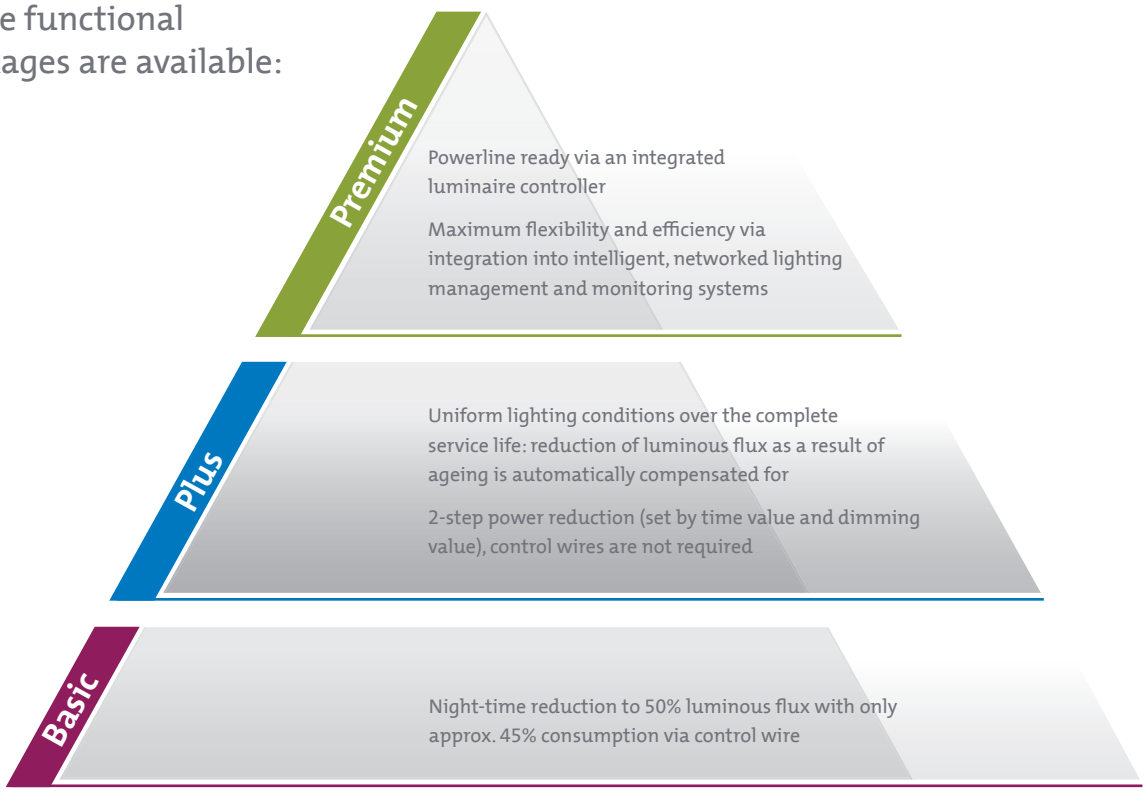
Tried-and-tested housing technology with a classic design and professional LED lighting technology at the same time – the BELL LED module is not the first modernisation solution offered by Siteco. Two years ago the company laid the central foundation for LED variants of the classic town and park luminaires with the LED Module 520. Energy-efficient, with electronic control according to needs and with two light colours. Our experience translates into your advantage.

Light according to needs
Intelligent light control makes the BELL LED into a lighting solution for all situations.

Intelligent control saves energy

Not every traffic situation, type of weather or time of the day needs the same quantity of light. At the same time, the lighting must always comply with legislative standards. The maxim is as little as possible and as much as required. Conventional light sources and ballasts are unable to achieve this; only modern LED technology can be dimmed and switched without energy losses. Even individual control is possible with supplementary electronic components. Three functional packages can be selected.

Three functional packages are available:



The functions in detail:

Basic functional package
- electronic power reduction to 50% luminous flux
- overheat protection

Plus functional package
- constant luminous flux control
- time-dependent luminous flux control
- flexible luminous flux parameterisation
- electronic power reduction to 50% luminous flux
- overheat protection

Premium functional package
- Siteco Light Control
- constant luminous flux control
- time-dependent luminous flux control
- flexible luminous flux parameterisation
- electronic power reduction to 50% luminous flux
- overheat protection

A feel-good factor for the town

When illuminating urban areas, safety and compliance with standards is focused on, but in towns with squares, streets and prestigious roads, design with light is also important. The specific requirement is that during daytime the luminaires have to blend harmoniously into the urban appearance.

Light for living environments in towns and cities is confidently achieved by the BELL LED. The two available light colours of neutral white and warm white give flexibility to lighting design and make the LED luminaire a future-fit alternative to solutions with conventional lamps.

Neutral white

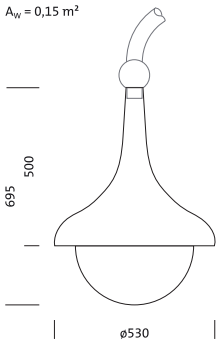
Designing with light

The BELL LED with its neutral white light colour ensures especially efficient and colour-true lighting.
But you have the choice:
you can also bathe your streets and open areas in warm white LED light.

Warm white

LED

LARGE BELL LED | with transparent cover



LARGE BELL LED for suspended mounting to curved mast extension or wall bracket | with white LED with reflectors, asymmetric light with homogeneous, wide distribution; additional reduction of light spill to the rear due to shielding on building side; with transparent cover | microprocessor-controlled LED operating electronics; according to version with differing control function for lighting management and monitoring* | luminaire housing of glass-fibre reinforced polyester; Siteco® metallic grey (DB 702S); cover of PMMA

Protection rating: IP54
Insulation class: II
(luminaire suitable for curved mast extension in single or twin arrangements and wall bracket with bayonet catch)
Recommended mounting height: MH= 4..6m

* all versions with temperature monitoring for protection of LEDs from thermal overload
Basic version: with luminous flux reduction via 230V control voltage | no luminous flux constancy |
Plus version: with luminous flux constancy over complete service life | with integrated, programmable timer for luminous flux reduction at two levels | settable luminous flux for max. operation and for both reduction levels | all parameters settable via Service Box | on request: can be integrated via SDI into existing digital control systems and controlled from a central control point | alternative luminous flux reduction via 230V control voltage
Premium version: functional range as with Plus version, but for individual monitoring and control of the luminaire from a central control point from any distance via LON-PowerLine without supplementary control wire (instead of SDI)

Luminaire can be operated with factory pre-setting. The pre-setting with the Plus version can be modified with the dismantled luminaire, and with the Premium version can be modified with the mounted or dismantled luminaire

IP 54

Lamps	P_{nom} begin service life	P_{nom} end service life	P_{red} at 50% lumin. flux	Wt. (kg)	Order No.
with ECG Basic					
2x LED module nw	38	38	16	9.7	5XA1561A1A108
2x LED module ww	38	38	16	8.6	5XA1561E1A108
with ECG Plus					
2x LED module nw	32	38	16	8.6	5XA1561A1B108
2x LED module ww	32	38	16	8.6	5XA1561E1B108
with ECG Premium					
2x LED module nw	32	38	16	9.9	5XA1561A1C108
2x LED module ww	32	38	16	8.8	5XA1561E1C108

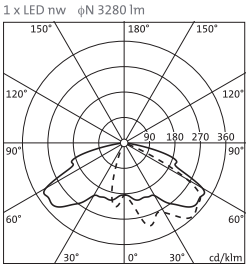
- please order SLC lighting management components for the Premium version separately if required
- please order shielding on building side separately if required
- please order curved mast extension separately
- luminaire colour: Siteco® metallic grey (DB 702S) as standard | (further RAL colours and DB colour tones on request)

Mandatory accessories (see accessories for curved mast extensions)

Accessories

Article	Wt. (kg)	Order No.
shielding on building side	0.1	5NA15600XB1
Siteco® Servicebox, for Plus version	1.7	5EA6TEF01

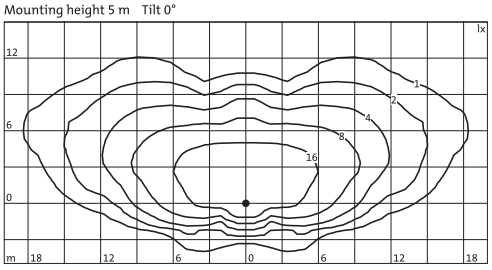
5XA1561A1A108
1 x LED nw ϕN 3280 lm



C 0/180 C 90/270

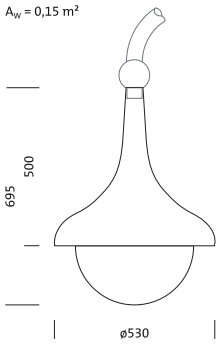
Luminous intensity class according to EN13201-2: G1

Mounting height 5 m Tilt 0°



LED

LARGE BELL LED | with stippled cover



LARGE BELL LED for suspended mounting to curved mast extension or wall bracket | with white LED with reflectors, asymmetric light with homogeneous, wide distribution; additional reduction of light spill to the rear due to shielding on building side; with stippled cover | microprocessor-controlled LED operating electronics; according to version with differing control function for lighting management and monitoring* | luminaire housing of glass-fibre reinforced polyester; Siteco® metallic grey (DB 702S); cover of PMMA

Protection rating: IP54
Insulation class: II
(luminaire suitable for curved mast extension in single or twin arrangements and wall bracket with bayonet catch)
Recommended mounting height: MH= 4..6m

* all versions with temperature monitoring for protection of LEDs from thermal overload
Basic version: with luminous flux reduction via 230V control voltage | no luminous flux constancy |
Plus version: with luminous flux constancy over complete service life | with integrated, programmable timer for luminous flux reduction at two levels | settable luminous flux for max. operation and for both reduction levels | all parameters settable via Service Box | on request: can be integrated via SDI into existing digital control systems and controlled from a central control point | alternative luminous flux reduction via 230V control voltage
Premium version: functional range as with Plus version, but for individual monitoring and control of the luminaire from a central control point from any distance via LON-PowerLine without supplementary control wire (instead of SDI)

Luminaire can be operated with factory pre-setting. The pre-setting with the Plus version can be modified with the dismantled luminaire, and with the Premium version can be modified with the mounted or dismantled luminaire

IP 54

Lamps	P_{nom} begin service life	P_{nom} end service life	P_{red} at 50% lumin. flux	Wt. (kg)	Order No.
with ECG Basic					
2x LED module nw	38	38	16	8.6	5XA1561A1A208
2x LED module ww	38	38	16	9.7	5XA1561E1A208
with ECG Plus					
2x LED module nw	32	38	16	8.6	5XA1561A1B208
2x LED module ww	32	38	16	9.6	5XA1561E1B208
with ECG Premium					
2x LED module nw	32	38	16	8.8	5XA1561A1C208
2x LED module ww	32	38	16	8.8	5XA1561E1C208

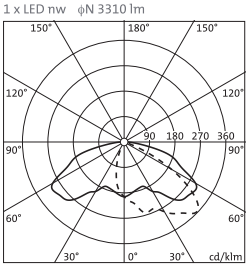
- please order SLC lighting management components for the Premium version separately if required
- please order shielding on building side separately if required
- please order curved mast extension separately
- luminaire colour: Siteco® metallic grey (DB 702S) as standard | (further RAL colours and DB colour tones on request)

Mandatory accessories (see accessories for curved mast extensions)

Accessories

Article	Wt. (kg)	Order No.
shielding on building side	0.1	5NA15600XB1
Siteco® Servicebox, for Plus version	1.7	5EA6TEF01

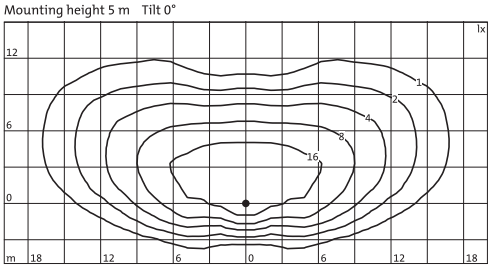
5XA1561A1A208
1 x LED nw ϕN 3310 lm



C 0/180 C 90/270

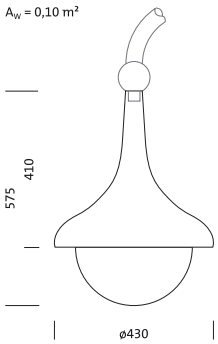
Luminous intensity class according to EN13201-2: G1

Mounting height 5 m Tilt 0°



LED

SMALL BELL LED | with transparent cover



SMALL BELL LED for suspended mounting to curved mast extension or wall bracket | with white LED with reflectors, asymmetric light with homogeneous, wide distribution; additional reduction of light spill to the rear due to shielding on building side; with transparent cover | microprocessor-controlled LED operating electronics; according to version with differing control function for lighting management and monitoring* | luminaire housing of glass-fibre reinforced polyester; Siteco® metallic grey (DB 702S); cover of PMMA

Protection rating: IP54
Insulation class: II
(luminaire suitable for curved mast extension in single or twin arrangements and wall bracket with bayonet catch)
Recommended mounting height: MH= 3.5..5m

* all versions with temperature monitoring for protection of LEDs from thermal overload
Basic version: with luminous flux reduction via 230V control voltage | no luminous flux constancy |
Plus version: with luminous flux constancy over complete service life | with integrated, programmable timer for luminous flux reduction at two levels | settable luminous flux for max. operation and for both reduction levels | all parameters settable via Service Box | on request: can be integrated via SDI into existing digital control systems and controlled from a central control point | alternative luminous flux reduction via 230V control voltage
Premium version: functional range as with Plus version, but for individual monitoring and control of the luminaire from a central control point from any distance via LON-PowerLine without supplementary control wire (instead of SDI)

Luminaire can be operated with factory pre-setting. The pre-setting with the Plus version can be modified with the dismantled luminaire, and with the Premium version can be modified with the mounted or dismantled luminaire

IP 54

Lamps	P_{nom} begin service life	P_{nom} end service life	P_{red} at 50% lumin. flux	Wt. (kg)	Order No.
with ECG Basic					
1x LED module nw	19	19	9	5.9	5XA1571A1A108
1x LED module ww	19	19	9	5.9	5XA1571E1A108
with ECG Plus					
1x LED module nw	16	19	9	5.9	5XA1571A1B108
1x LED module ww	16	19	9	5.9	5XA1571E1B108
with ECG Premium					
1x LED module nw	16	19	9	6.2	5XA1571A1C108
1x LED module ww	16	19	9	6.2	5XA1571E1C108

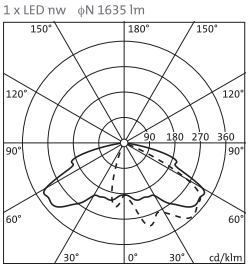
- please order SLC lighting management components for the Premium version separately if required
- please order shielding on building side separately if required
- please order curved mast extension separately
- luminaire colour: Siteco® metallic grey (DB 702S) as standard | (further RAL colours and DB colour tones on request)

Mandatory accessories (see accessories for curved mast extensions)

Accessories

Article	Wt. (kg)	Order No.
shielding on building side	0.1	5NA15700XB1
Siteco® Servicebox, for Plus version	1.7	5EA6TEF01

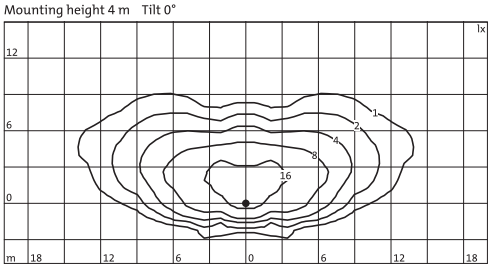
5XA1571A1A108
1 x LED nw ϕN 1635 lm



C 0/180 C 90/270

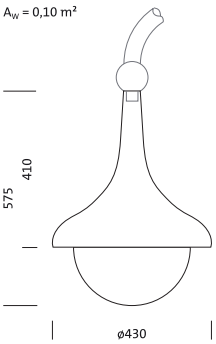
Luminous intensity class according to EN13201-2: G1

Mounting height 4 m Tilt 0°



SMALL BELL LED | with stippled cover

SMALL BELL LED for suspended mounting to curved mast extension or wall bracket | with white LED with reflectors, asymmetric light with homogeneous, wide distribution; additional reduction of light spill to the rear due to shielding on building side; with stippled cover | microprocessor-controlled LED operating electronics; according to version with differing control function for lighting management and monitoring* | luminaire housing of glass-fibre reinforced polyester; Siteco® metallic grey (DB 702S); cover of PMMA



LED

Protection rating: IP54
Insulation class: II
(luminaire suitable for curved mast extension in single or twin arrangements and wall bracket with bayonet catch)
Recommended mounting height: MH= 3.5..5m

* all versions with temperature monitoring for protection of LEDs from thermal overload
Basic version: with luminous flux reduction via 230V control voltage | no luminous flux constancy |
Plus version: with luminous flux constancy over complete service life | with integrated, programmable timer for luminous flux reduction at two levels | settable luminous flux for max. operation and for both reduction levels | all parameters settable via Service Box | on request: can be integrated via SDI into existing digital control systems and controlled from a central control point | alternative luminous flux reduction via 230V control voltage
Premium version: functional range as with Plus version, but for individual monitoring and control of the luminaire from a central control point from any distance via LON-PowerLine without supplementary control wire (instead of SDI)

Luminaire can be operated with factory pre-setting. The pre-setting with the Plus version can be modified with the dismantled luminaire, and with the Premium version can be modified with the mounted or dismantled luminaire

IP 54

Lamps	P_{nom} begin service life	P_{nom} end service life	P_{red} at 50% lumin. flux	Wt. (kg)	Order No.
with ECG Basic					
1x LED module nw	19	19	9	5.9	5XA1571A1A208
1x LED module ww	19	19	9	5.9	5XA1571E1A208
with ECG Plus					
1x LED module nw	16	19	9	5.9	5XA1571A1B208
1x LED module ww	16	19	9	5.9	5XA1571E1B208
with ECG Premium					
1x LED module nw	16	19	9	6.2	5XA1571A1C208
1x LED module ww	16	19	9	6.2	5XA1571E1C208

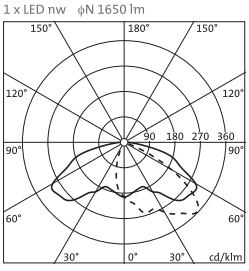
- please order SLC lighting management components for the Premium version separately if required
- please order shielding on building side separately if required
- please order curved mast extension separately
- luminaire colour: Siteco® metallic grey (DB 702S) as standard | (further RAL colours and DB colour tones on request)

Mandatory accessories (see accessories for curved mast extensions)

Accessories

Article	Wt. (kg)	Order No.
shielding on building side	0.1	5NA15700XB1
Siteco® Servicebox, for Plus version	1.7	5EA6TEF01

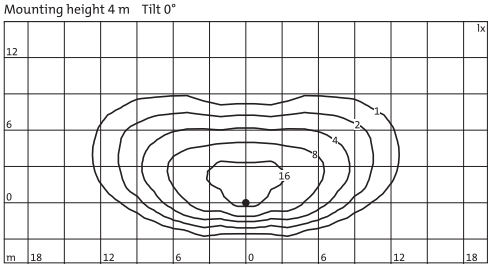
5XA1571A1A208
1 x LED nw ϕN 1650 lm

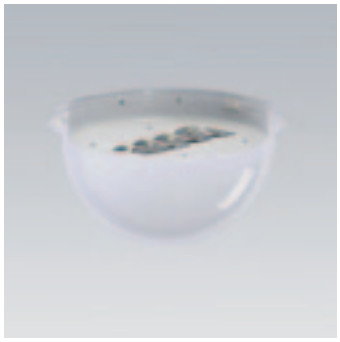


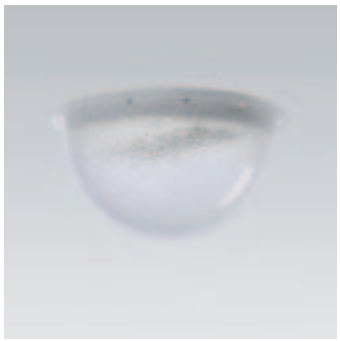
C 0/180 C 90/270

Luminous intensity class according to EN13201-2: G1

Mounting height 4 m Tilt 0°

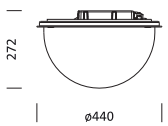






LED

LARGE BELL LED module | with transparent or stippled cover



LARGE BELL LED module incl. optical cover for upgrading existing luminaires with conventional lamps | with white LED with reflectors, asymmetric light with homogeneous, wide distribution; additional reduction of light spill to the rear due to shielding on building side; with transparent or stippled cover | microprocessor-controlled LED operating electronics; according to version with differing control function for lighting management and monitoring* | cover of PMMA

Protection rating: (as luminaire)
Insulation class: II

* all versions with temperature monitoring for protection of LEDs from thermal overload
LED module, Basic version: with luminous flux reduction via 230V control voltage | no luminous flux constancy |
LED module, Plus version: with luminous flux constancy over complete service life | with integrated, programmable timer for luminous flux reduction at two levels | settable luminous flux for max. operation and for both reduction levels | all parameters settable via Service Box | on request: can be integrated via SDI into existing digital control systems and controlled from a central control point | alternative luminous flux reduction via 230V control voltage

Luminaire can be operated with factory pre-setting. The pre-setting with the Plus version can be modified with the dismantled luminaire

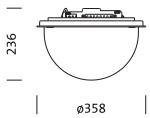
Lamps	P_{nom} begin service life	P_{nom} end service life	P_{red} at 50% lumin. flux	Wt. (kg)	Order No.
with ECG Basic, enclosure, transparent					
2x LED module nw	38	38	16	4.2	5XA1561A1A1
2x LED module ww	38	38	16	3.1	5XA1561E1A1
with ECG Basic, enclosure, transparent structured					
2x LED module nw	38	38	16	3.1	5XA1561A1A2
2x LED module ww	38	38	16	4.2	5XA1561E1A2
with ECG Plus, enclosure, transparent					
2x LED module nw	32	38	16	3.1	5XA1561A1B1
2x LED module ww	32	38	16	3.1	5XA1561E1B1
with ECG Plus, enclosure, transparent structured					
2x LED module nw	32	38	16	3.1	5XA1561A1B2
2x LED module ww	32	38	16	4.1	5XA1561E1B2

- please order shielding on building side separately if required

Accessories

Article	Wt. (kg)	Order No.
shielding on building side	0.1	5NA15600XB1
Siteco® Servicebox, for Plus version	1.7	5EA6TEF01

SMALL BELL LED module | with transparent or stippled cover



SMALL BELL LED module incl. optical cover for upgrading existing luminaires with conventional lamps | with white LED with reflectors, asymmetric light with homogeneous, wide distribution; additional reduction of light spill to the rear due to shielding on building side; with transparent or stippled cover | microprocessor-controlled LED operating electronics; according to version with differing control function for lighting management and monitoring* | cover of PMMA

Protection rating: (as luminaire)
Insulation class: II
Recommended mounting height: MH= 3.5..5m

* all versions with temperature monitoring for protection of LEDs from thermal overload
LED module, Basic version: with luminous flux reduction via 230V control voltage | no luminous flux constancy |
LED module, Plus version: with luminous flux constancy over complete service life | with integrated, programmable timer for luminous flux reduction at two levels | settable luminous flux for max. operation and for both reduction levels | all parameters settable via Service Box | on request: can be integrated via SDI into existing digital control systems and controlled from a central control point | alternative luminous flux reduction via 230V control voltage

Luminaire can be operated with factory pre-setting. The pre-setting with the Plus version can be modified with the dismantled luminaire

LED

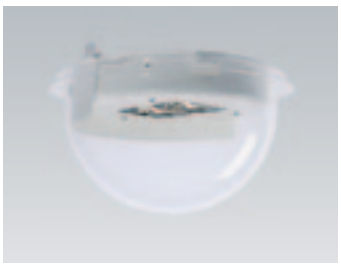
Lamps	P_{nom} begin service life	P_{nom} end service life	P_{red} at 50% lumin. flux	Wt. (kg)	Order No.
with ECG Basic, enclosure, transparent					
1x LED module nw	19	19	9	2.3	5XA1571A1A1
1x LED module ww	19	19	9	2.3	5XA1571E1A1
with ECG Basic, enclosure, transparent structured					
1x LED module nw	19	19	9	2.3	5XA1571A1A2
1x LED module ww	19	19	9	2.3	5XA1571E1A2
with ECG Plus, enclosure, transparent					
1x LED module nw	16	19	9	2.3	5XA1571A1B1
1x LED module ww	16	19	9	2.3	5XA1571E1B1
with ECG Plus, enclosure, transparent structured					
1x LED module nw	16	19	9	2.3	5XA1571A1B2
1x LED module ww	16	19	9	2.3	5XA1571E1B2

- please order shielding on building side separately if required

Accessories

Article	Wt. (kg)	Order No.
shielding on building side	0.1	5NA15700XB1
Siteco® Servicebox, for Plus version	1.7	5EA6TEF01

Optical accessories



Shielding on building side
for both construction sizes | can be mounted without tools

Type	Wt. (kg)	Order no.
Shielding on building side, LARGE BELL LED	0.1	5NA15600XB1
Shielding on building side, SMALL BELL LED	0.1	5NA15700XB1

Electronics accessories

Siteco® Service Box
for parameterising the operating electronics of all Siteco LED 'Plus' version road luminaires | maximum energy efficiency via individual adaptation of lighting level, switching time and reduction level | setting of static colours and dynamic colour sequences with corresponding luminaires | Service Box includes software* | with plug-in coupling for connection of Y-cable | housing of plastic; plug-in coupling with protection cap IP54 | insulation class II

Type	Wt. (kg)	Order no.
Siteco® Service Box	2.4	5EA6TEF01

incl. Y-cable for looping the Service Box into luminaire supply cable | incl. 'workshop' cable set for parameterising the unmounted luminaire in the workshop; safety plug on one end

* adoption of complete colour sequences and software updates possible via PC incl. mini USB interface for connection to PC

Spare parts

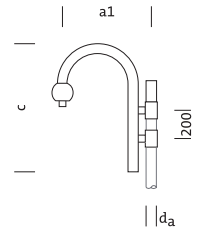
LED replacement gear tray
LED gear tray for LARGE and SMALL BELL LED for replacement or upgrading with continued use of cover | with white LEDs with reflectors for homogeneous, asymmetric wide light distribution | microprocessor-controlled LED operating electronics; according to version with differing control function for light management and monitoring*

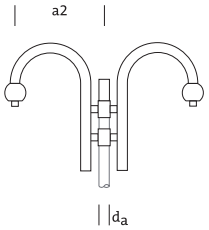
Type	Wt. (kg)	Order no.
LED replacement gear tray, LARGE BELL		
with ECG Basic nw	2.4	5XA1561A1A
with ECG Plus nw	2.4	5XA1561A1B
with ECG Basic ww	2.4	5XA1561E1A
with ECG Plus ww	2.4	5XA1561E1B
LED replacement gear tray, SMALL BELL		
with ECG Basic nw	1.8	5XA1571A1A
with ECG Plus nw	1.8	5XA1571A1B
with ECG Basic ww	1.8	5XA1571E1A
with ECG Plus ww	1.8	5XA1571E1B

Optical enclosure
transparent and stippled | PMMA

Type	Wt. (kg)	Order no.
Cover for LARGE BELL		
transparent	1.3	5NA14600XG
stippled	1.2	5NA14601XG
Cover for SMALL BELL		
transparent	0.8	5NA14700XG
stippled	0.8	5NA14701XG

Curved mast extension



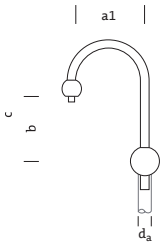


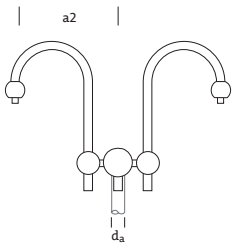
Curved mast extension, 'offset'

Mast mounting element with clamp | twin fixing to mast, fixing with grub screws | steel, galvanised and coated, Siteco® metallic grey (DB 702S)* | suitable for cylindrical masts

	a1	a2	c
SMALL BELL	445	445	829
LARGE BELL	595	595	1040

Type	Mast spigot: d_a (mm)	Wt. (kg)	Order no.
Curved mast extension for SMALL BELL			
Single bracket	60	9.8	5NY15711XA08
Single bracket	76	10.4	5NY15721XA08
Twin bracket	76	18.9	5NY15722XA08
Curved mast extension for LARGE BELL			
Single bracket	76	11.2	5NY15621XA08
Twin bracket	76	19.8	5NY15622XA08



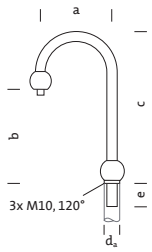


Curved mast extension, 'inline'

Mast mounting element with ball element | fixing to mast via internal expanding clamp without visible screws | steel, galvanised and coated, Siteco® metallic grey (DB 702S)* | suitable for conical and cylindrical masts

	a1	a2	b	c
SMALL BELL	360	460	436	829
LARGE BELL	500	610	500	1040

Type	Mast spigot: d_a (mm)	Wt. (kg)	Order no.
Curved mast extension for SMALL BELL			
Single bracket	60	5.6	5NY15711XX08
Single bracket	76	6.1	5NY15721XX08
Twin bracket	76	11.5	5NY15722XX08
Curved mast extension for LARGE BELL			
Single bracket	76/89	11.2	5NY15621XX08
Twin bracket	76/89	18.9	5NY15622XX08



Curved mast extension, 'standard'

Mast mounting element with ball element | fixing to mast via grub screws below ball; guidance via tube supports entering into mast | steel, galvanised and coated, Siteco® metallic grey (DB 702S)* | suitable for conical and cylindrical masts

	a	b	c	e
SMALL BELL	450	360	725	115
LARGE BELL	500	465	850	200

Type	Mast spigot: d_a x l (mm)	Wt. (kg)	Order no.
Curved mast extension for SMALL BELL			
Single bracket	60 x 100	9.7	5NY15711XF08
Single bracket	76 x 100	9.9	5NY15721XF08
Curved mast extension for LARGE BELL			
Single bracket	76 x 100	10.8	5NY15621XF08

* standard luminaire colour: Siteco® metallic grey (DB 702S) | for luminaire colour black (RAL 9005) please replace the number '8' at the end of the order number with '1' (further RAL and DB colours on request)

Tools for the calculation of outdoor lighting systems

The modernisation of obsolete streetlighting systems pays off. Around 2.7 billion kWh of energy, 1.6 million tons of CO_2 and therefore 400 million euros are available for this in Germany alone. The quickest way to implement this is the refurbishment of old lighting installations with new, energy-efficient luminaires and lighting technologies. With Siteco's online calculation programme you can easily find out which energetic savings potential exists. Our website has tools such as the cost efficiency calculator for such purposes:

Cost Efficiency Calculator

The Siteco Cost Efficiency Calculator is a web application for evaluating the cost efficiency of two outdoor lighting installations. The installations ('comparison installation' and 'new installation') can be compared to each other over a variable service life in terms of investment costs and operating costs. For evaluating cost efficiency the amortisation of an investment over the service life is calculated both statically and dynamically and displayed in figures and tables.

The cost efficiency calculator makes available the following information and services:

- a clear comparison of the old and new system
- precise data for investment, operating and energy costs
- reliable amortisation calculations
- tabular and graphical display of results
- simple step-for-step user guidance
- creation and saving of individual projects
- documentation and download of results as PDF files

Further information or direct to the Cost Efficiency Calculator at
http://www.siteco.com/eco-calculator

Maintenance factor with Siteco LED outdoor luminaires

The technological transformation caused by LED technology has also caused a change in the consideration of the maintenance factor. Until now, luminaire manufacturers only had to consider the luminaire maintenance factor (LMF).

Maintenance factor until now (conventional lamp):

MF	=	LLMF	x	LSF	x	LMF
Maintenance factor		Lamp luminous flux maintenance factor		Lamp service life factor		Luminaire maintenance factor
		Lamp manufacturer				Luminaire manufacturer

With the use of LED technology, a luminaire manufacturer must now take into account all three elements of the maintenance factor, as LEDs have become an integral part of the complete concept of a luminaire.

Maintenance factor with LED luminaires:

MF	=	LLMF	x	LSF	x	LMF
Maintenance factor		Lamp luminous flux maintenance factor		Lamp service life factor		Luminaire maintenance factor
		Luminaire manufacturer				

Because the functionality and capabilities of LEDs differ fundamentally from conventional light sources, there are now new features to be considered with the specific characteristics of this maintenance factor comparison. It must also be considered how different manufacturers handle the technical possibilities and potential of LEDs and take these into account.

About the specific factors:

1. The LLMF (lamp luminous flux maintenance factor)

This considers the physically-dependent luminous flux decrease of a lamp over the complete lamp service life (degradation). LEDs are also subject to this ageing process. And here as well there is an age-dependent reduction in luminous flux. How this reduction in luminous flux is specified is dependent upon a wide variety of factors such as the quality of LEDs, their current feed and also thermal management.

This is why with Siteco luminaires there is no fixed LLMF value but a value individually specified according to the LEDs used in the luminaire. This value is taken from the characteristic curve of the manufacturer. All LLMF values refer though to an operating life of 50,000 hours and a nominal ambient temperature of 25° C.
In Central Europe the average outdoor temperature during luminaire operating hours is +5° C. This temperature, 20 K less than ambient temperature in laboratory conditions, leads in practice to improvements in efficiency and service life.

The factor is
- 0.88 with the LARGE BELL LED Basic
- 0.88 with the SMALL BELL LED Basic

Improvement of LLMF via intelligent control (with Plus and Premium):

Because Siteco intelligently exploits the electronic control capabilities of LEDs for increasing efficiency, the age-dependent reduction in luminous flux of LEDs is compensated for with power tracking. This ensures constant luminous flux over the complete service life of 60,000 hours. This function for constant luminous flux control is available with the BELL LED Plus and Premium versions.

LLMF is therefore
- 1.0 with LARGE BELL LED Plus and Premium
- 1.0 with SMALL BELL LED Plus and Premium

2. The LSF (lamp service life factor)

This considers premature failing of lamps. Because of the high demand for quality when selecting LEDs for Siteco outdoor luminaires, the probability of failure of an LED is very low. The failure rate is between 0 and 2%.
The LSF is therefore 0.98 with all Siteco LED outdoor luminaires.

3. The LMF (luminaire maintenance factor)

The LMF considers the following factors:
1. protection rating in the lamp compartment
2. cleaning interval
3. air impurities in the luminaire vicinity

The protection rating with Siteco outdoor luminaires is always IP5x or IP6x.
The cleaning interval and air impurities are criteria that need to be specified individually according to situation and on-site conditions.

The factor is specified for the protection rating in relation to the cleaning interval (1, 2, 3 ,4 years) and soiling from the vicinity (low, middle, high). The values can be seen in the table expanded for the special features of Siteco LED luminaires.

Table for defining the LMF for Siteco LED luminaires (1.11.2011):

Cleaning interval (in years)	1.0			2.0			3.0			4.0		
Air pollution	G	M	H	G	M	H	G	M	H	G	M	H
Protection rating of lamp compartment												
IP5X	0.99	0.96	0.96	0.97	0.92	0.91	0.95	0.88	0.82	0.94	0.85	0.75
IP6X	1.00	0.98	0.98	0.98	0.95	0.95	0.97	0.93	0.90	0.96	0.92	0.86

Air pollution: L=low; M=middle; H=high

Further information about the maintenance factor for Siteco LED outdoor luminaires on the internet at
http://www.siteco.com/uploads/tx_usersitecodownloads/Maintenance_Factor_LED_Outdoor_Luminaires.pdf