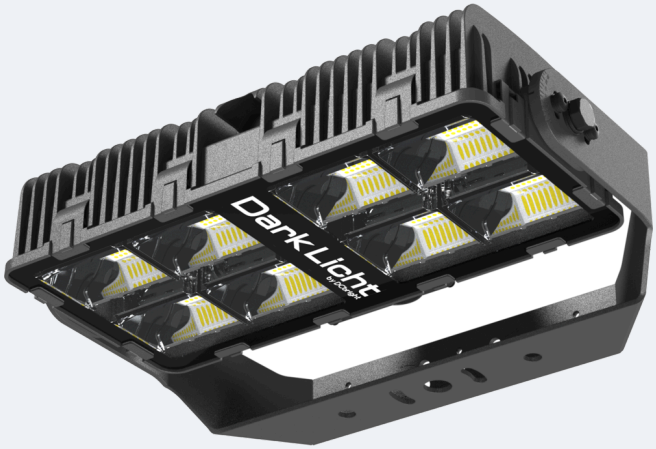
JEL PRODUCTS
SUSTAINABLE | LIGHTING | SOLUTIONS

COLLECTED TECHNICAL DATASHEETS

DarkLicht One, Two and Three

The high mast family, from 51,200 to 307,800 lumens out of a single housing with 0 % upward light. Three sizes on one reflector platform, each with its own datasheet.

DATASHEETS	OUTPUT RANGE	POWER	TYPE
3	102,600 to 307,800 lm	600 to 1800 W	Glare free LED area light



DarkLicht One | DarkLicht Two | DarkLicht Three

Contents

Every datasheet in this document has the same five sections: what it is and where it is used, the light output and the optics, the full specification, the mechanics and the driver, and the ordering information. The page numbers run through the whole document.

THE DATASHEETS IN THIS DOCUMENT

HOW TO READ THIS DOCUMENT

This is the complete set for one product. Every version has its own datasheet with the same five sections, so a specification can be compared line by line between the versions without opening a second document.

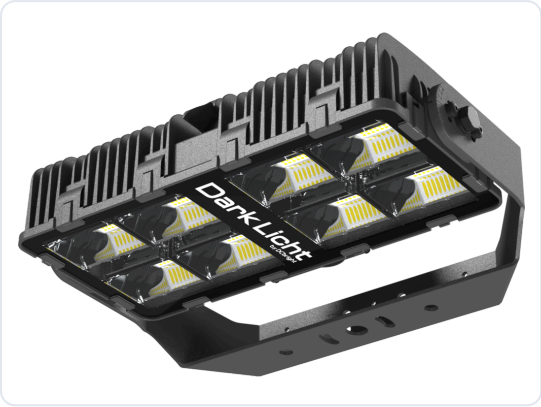
The photometry is measured per optic and the IES files are on the product page. Where a figure depends on the build, the specification states the condition next to it rather than in a footnote.

WHAT IS NOT IN THIS DOCUMENT

Smaller full cut off	The DarkLicht D and the DarkLicht M
High masts	JEL supplies masts to 50 m with engineering and foundations. Separate datasheet

GLARE FREE LED AREA LIGHT

DarkLicht One



Shown: DarkLicht One, 102,600 lm, cut off set to 69°.

CE | IP67 | IK07 | Class II | C5 ISO 9223 | Ta −45 … +50 °C | 180–528 VAC | up to 102,600 lm | ULOR 0 % | DarkSky DS-1 | EN 12193 | NSVV

Three power levels, 51,200 to 102,600 lumens out of a single luminaire, with 0 % upward light. The high mast decides whether a site meets its obtrusive light condition.

LUMINOUS FLUX	POWER	EFFICACY
102,600 lm	600 W	171 lm/W
ULOR	**CUT OFF**	**IMPACT**
0 %	63–75°	IK07

Values apply to the standard version at 4000 K, Ta 25 °C, including reflector losses and driver consumption, with the cut off set to the standard position.

WHY IT IS SPECIFIED

The high mast is where obtrusive light is created. It is the highest, brightest and most visible source on a site and it is seen from the greatest distance. Solving light control at the top of the mast solves most of the problem in one step.

Full output from one position. 51,200 to 307,800 lumens on the same reflector technology, so a project can dimension per mast without changing the light distribution or the calculation.

Cut off without adding masts. On a high mast project the mast, the foundation, the trench and the cabling cost more than the luminaires. At 171 lumens per watt with the cut off in place, no extra mast is needed.

WHERE IT IS USED

- Container and intermodal terminal high masts
- Port and quay areas with a residential boundary
- Tower cranes, on the tower crane frame
- Sports fields and training grounds
- Logistics and distribution high mast lighting
- Vehicle storage and compound lighting
- Large car parks and park and ride sites
- Rail yards and marshalling areas
- Bulk storage and laydown yards
- Waste and recycling facilities
- Large agricultural and horticultural sites

VERSIONS

	DarkLicht One
Flux	51,200 to 102,600 lm
Power	320 · 400 · 600 W
Size	365 × 550 × 160
Weight	14.0 to 15.0 kg
Driver	Internal to 400 W

From 600 W the driver goes up the mast with the luminaire. Its mass and wind area must be counted, see the wind load table.

Light output and optics

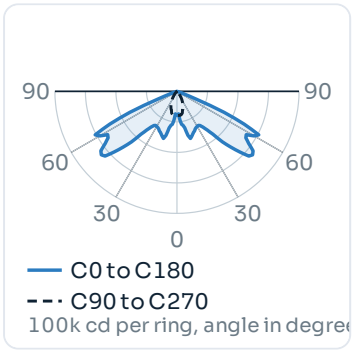
Values apply to the Three at Ta 25 °C with the cut off in the standard position. The whole DarkLicht line shares one light distribution, so the diagrams below apply to every type at its own luminous flux.

BEAM CHARACTERISTICS

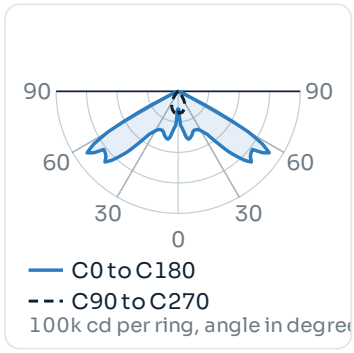
Setting	Distribution	Cut off	Beam angle 50 % of peak	Typical use
63°	Full cut off, asymmetric	63°	–	Tight boundaries, a site directly against housing or a carriageway
66° and 69°	Full cut off, asymmetric	66° and 69°	–	The usual settings for a yard or a car park
72°	Full cut off, asymmetric	72°	123°	Wider cover where the boundary allows it
75°	Full cut off, asymmetric	75°	132°	Maximum reach, sites without a sensitive boundary

The DarkLicht does not use lenses. A patented parabolic reflector throws the light forward and down and cuts it off completely above the set angle, which is adjusted on site between 63 and 75 degrees rather than chosen at order. The two diagrams show the two shielding positions of the reflector. The whole DarkLicht line shares one light distribution, so one measured set covers every type in the range and a lighting designer works with one photometric behaviour at every mounting height.

LIGHT DISTRIBUTION



Shielding position 1



Shielding position 2

OBTRUSIVE LIGHT

ULOR at 0° tilt	**0 %**
Cut off angle	Adjustable in the field from 63° to 75°
Standards	NSVV guideline · DarkSky DS-1 · EN 12464-2 · EN 12193

A conventional floodlight lights everything in front of it, including the sky, the neighbour and the driver approaching the site. The DarkLicht range is built the other way around: a patented parabolic reflector, not a lens, cuts the light off completely above an angle that is set in the field between 63 and 75 degrees. Upward light output ratio is 0 %, and the luminaires have been third party tested against the DarkSky DS-1 requirements at colour temperatures between 1700 and 2200 K.

COLOUR AND CONSISTENCY

Colour temperatures	5700 K, 5000 K, 4000 K, 3000 K, 2700 K, amber 2200 K, 1800 K, 1700 K
Tuneable white	4000 K with 2200 K and 1700 K, switchable in operation
DarkSky DS-1	Met at 1700 to 2200 K, third party tested
Colour rendering	Ra > 70 standard, optionally 80 or 90
Colour consistency	MacAdam step 3 or better
LED service life	TM-21 L90B05 > 103,500 h

Full specification

All values apply to the standard configuration at 25 °C ambient, including lens losses and driver consumption. A hyphen means the entry does not apply to that version.

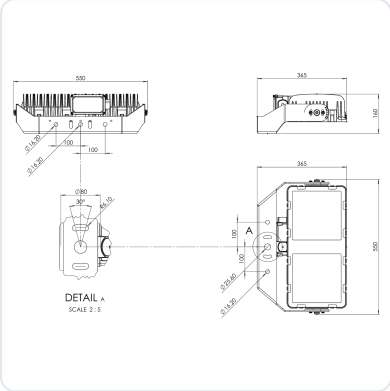
	DarkLicht One
PERFORMANCE	
Luminous flux	51,200 lm at 320 W · 68,400 lm at 400 W · 102,600 lm at 600 W
Efficacy	160 lm/W at 320 W, 171 lm/W above
Upward light output ratio	0 % at 0° tilt
Cut off angle	63°, 66°, 69°, 72° or 75°, set in the field
ELECTRICAL AND DRIVER	
Supply voltage range	180–528 VAC or 250–740 VDC, 50/60 Hz
Current draw	1.5 to 2.7 A at 220 V · 0.8 to 1.6 A at 380 V
Power factor at full load	> 0.9 at 60 to 100 % load
Surge protection	6 kV line to line, 10 kV line to earth (IEC 61000-4-5)
Dimming	0–10 V, PWM, DALI-2, or over NFC
Driver	Internal BLD320 at 320 W · internal TLD400 at 400 W · external TLD600 at 600 W
Driver life	≥ 100,000 h at Tc 75 °C, MTBF ≥ 320,000 h
CONSTRUCTION	
Housing	Cast aluminium, less than 0.08 % copper
Optic	Patented parabolic reflector, no lens
Bracket	High tensile 316L stainless steel, unlimited rotation from -20° to +20°
Front	Impact resistant glass. The luminaire is classified IK07
Protection class	Class II
Ingress protection	IP66 and IP67
Impact resistance	IK07 (IEC 62262). The construction is in practice IK08 but there is no test report for it
Corrosion class	C5 industrial and marine (ISO 9223)
DURABILITY, DIMENSIONS AND WIND LOAD	
Ambient temperature	−45 to +50 °C
LED service life	TM-21 L90B05 > 103,500 h
Dimensions	365 × 550 × 160 mm
Weight, luminaire	14.0 to 15.0 kg
Weight, with external driver	23.0 kg at 600 W
Wind load, frontal at 0°	75,400 mm²
Wind load, frontal at 20°	88,400 mm²
Wind load, side, luminaire	32,775 mm²
Wind load, side, with driver	73,275 mm²
Drag coefficient	Cd 1.22 luminaire, Cd 1.23 with driver
Warranty	5 years, extendable to 10 years under a maintenance agreement

Wind load data is from the DarkLicht wind rating report. The rows with the external driver are the ones that matter for a mast calculation: at 600 W and above the driver goes up the mast, which adds about nine kilograms and more than doubles the side area. A calculation that uses only the luminaire row is not conservative.

Mechanics, mounting and driver

All drawings are to scale and dimensioned in millimetres. DXF and STEP models are available on request.

HOUSING AND BRACKET



Dimensions	365 × 550 × 160 mm, 14.0 to 15.0 kg
Bracket	High tensile 316L, unlimited from -20° to +20°
Front	Impact resistant glass, luminaire classified IK07
Optic	Patented parabolic reflector

WIND LOAD FOR THE MAST

Frontal at 0°	75,400 mm²
Frontal at 20°	88,400 mm²
Side, luminaire only	32,775 mm²
Side, with external driver	73,275 mm², at 600 W
Cd	1.22 luminaire, 1.23 with driver
Count the driver	At 600 W it goes up the mast

MOUNTING AND ACCESSORIES

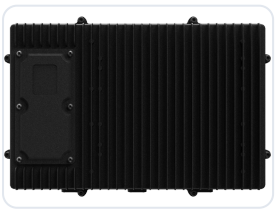
Standard bracket	High tensile 316L, supplied as standard
Tower crane frame	Available. Separate datasheet
DRB-2 driver box	For the external drivers at 600 W and above
High masts	JEL supplies masts to 50 m with engineering and foundations. Separate datasheet
Ten year warranty	Under a maintenance agreement with JEL or an appointed party
Smaller version	DarkLicht D and DarkLicht M

DRIVER

320 W	Internal BLD320
400 W	Internal TLD400
600 W	External TLD600
Enclosure	DRB-2 or a tray, up the mast with the luminaire

From 600 W the driver goes up the mast. That is nine kilograms and more than twice the side area, and it is the single most common omission in a high mast calculation. Both rows are in the wind load table for that reason.

DRB-2 DRIVER BOX



Use	Housing for the external drivers
DRB-2	Systems up to 2,000 W. 441 × 290 × 145 mm, 10.4 kg, IP66 and IP67
Ingress protection	IP66 and IP67
Alternative	Open tray, where the mast head allows it

Ordering, standards and documents

ORDER CODE

Example **DL1-40K-600W**

DarkLicht One, 4000 K, 600 W

DL1	DarkLicht One
320W · 400W · 600W	The three power levels of the One
57K · 50K · 40K · 30K · 27K · 22K · 18K · 17K	Colour temperature, including the DarkSky DS-1 range
TW	Tuneable white, 4000 K with 2200 K and 1700 K

The cut off angle is not ordered, it is set on site. Driver placement, control protocol and the tower crane frame are confirmed at order.

COMBINATIONS

Tuneable white with DS-1 colours	Possible
Tower crane frame	Available on this type
DALI-2 and NFC	Standard
Ten year warranty	Under a maintenance agreement
IP68 or IP69K	Not on these types
DC supply	Not available

STANDARDS AND VERIFICATION

Subject	Standard	Verification
Luminaire safety	IEC/EN 60598-1, -2-5	In-house test
EMC emission and immunity	EN 55015, EN 61547 · IEC 60533 marine, bridge and open deck	TÜV
Ingress	IEC 60529 and ISO 20653. IP66, IP67	In-house test
Impact	IEC 62262 IK07	In-house test
Corrosion	ISO 9223 class C5, industrial and marine	In-house test
Obtrusive light	NSVV guideline · DarkSky DS-1 at 1700 to 2200 K · EN 12464-2 · EN 12193	Third party test
Photometry	IES LM-79, IES files per optic	In-house test
Substances	RoHS, REACH	Self-declaration

BEFORE YOU ORDER

A DIALux calculation and a mast schedule from our engineers, on your site drawing.

Masts to 50 m with engineering and foundations, from one supplier.

Five years warranty, extendable to ten under a maintenance agreement.

PRODUCT PAGE

IES files and revision history, DXF and STEP on request, and project references.
jelproducts.nl/en/products/dcbright-darklicht

WHERE IT EARNS ITS PLACE

The large DarkLicht types earn their place on projects that would otherwise not be permitted. The high mast decides whether a site meets its obtrusive light condition, and it is also the position where compensating with extra masts is most expensive. Solving the light control in the reflector at the top of the mast is the cheapest place in the entire project to solve it.

Notes. Values are for the standard configuration. The cut off angle is set on site and does not change the luminous flux, only where the light lands. The stated LED service life of L90B05 > 103,500 hours is the figure for the DarkLicht range and is lower than the 360,000 hours of the floodlight range; that is a property of this reflector platform. The JEL range is not ATEX or Ex certified.

GLARE FREE LED AREA LIGHT

DarkLicht Two

Shown: DarkLicht Two, 205,200 lm, cut off set to 69°.

CE | IP67 | IK07 | Class II | C5 ISO 9223
Ta −45 … +50 °C | 180–528 VAC | up to 205,200 lm
ULOR 0 % | DarkSky DS-1 | EN 12193 | NSVV

Two power levels, 136,800 to 205,200 lumens out of a single luminaire, with 0 % upward light. The high mast decides whether a site meets its obtrusive light condition.

LUMINOUS FLUX	POWER	EFFICACY
205,200 lm	1,200 W	171 lm/W
ULOR	**CUT OFF**	**IMPACT**
0 %	63–75°	IK07

Values apply to the standard version at 4000 K, Ta 25 °C, including reflector losses and driver consumption, with the cut off set to the standard position.

WHY IT IS SPECIFIED

The high mast is where obtrusive light is created. It is the highest, brightest and most visible source on a site and it is seen from the greatest distance. Solving light control at the top of the mast solves most of the problem in one step.

Full output from one position. 51,200 to 307,800 lumens on the same reflector technology, so a project can dimension per mast without changing the light distribution or the calculation.

Cut off without adding masts. On a high mast project the mast, the foundation, the trench and the cabling cost more than the luminaires. At 171 lumens per watt with the cut off in place, no extra mast is needed.

WHERE IT IS USED

- Container and intermodal terminal high masts
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- Sports fields and training grounds
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- Vehicle storage and compound lighting
- Large car parks and park and ride sites
- Rail yards and marshalling areas
- Bulk storage and laydown yards
- Waste and recycling facilities
- Large agricultural and horticultural sites

VERSIONS

	DarkLicht Two
Flux	136,800 to 205,200 lm
Power	800 · 1,200 W
Size	635 × 550 × 160
Weight	24.8 kg
Driver	External

From 600 W the driver goes up the mast with the luminaire. Its mass and wind area must be counted, see the wind load table.

Light output and optics

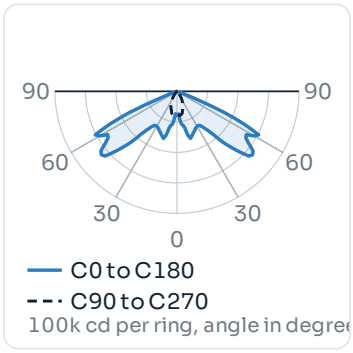
Values apply to the Three at Ta 25 °C with the cut off in the standard position. The whole DarkLicht line shares one light distribution, so the diagrams below apply to every type at its own luminous flux.

BEAM CHARACTERISTICS

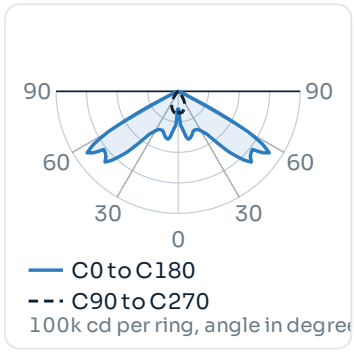
Setting	Distribution	Cut off	Beam angle 50 % of peak	Typical use
63°	Full cut off, asymmetric	63°	–	Tight boundaries, a site directly against housing or a carriageway
66° and 69°	Full cut off, asymmetric	66° and 69°	–	The usual settings for a yard or a car park
72°	Full cut off, asymmetric	72°	123°	Wider cover where the boundary allows it
75°	Full cut off, asymmetric	75°	132°	Maximum reach, sites without a sensitive boundary

The DarkLicht does not use lenses. A patented parabolic reflector throws the light forward and down and cuts it off completely above the set angle, which is adjusted on site between 63 and 75 degrees rather than chosen at order. The two diagrams show the two shielding positions of the reflector. The whole DarkLicht line shares one light distribution, so one measured set covers every type in the range and a lighting designer works with one photometric behaviour at every mounting height.

LIGHT DISTRIBUTION



Shielding position 1



Shielding position 2

OBTRUSIVE LIGHT

ULOR at 0° tilt	**0 %**
Cut off angle	Adjustable in the field from 63° to 75°
Standards	NSVV guideline · DarkSky DS-1 · EN 12464-2 · EN 12193

A conventional floodlight lights everything in front of it, including the sky, the neighbour and the driver approaching the site. The DarkLicht range is built the other way around: a patented parabolic reflector, not a lens, cuts the light off completely above an angle that is set in the field between 63 and 75 degrees. Upward light output ratio is 0 %, and the luminaires have been third party tested against the DarkSky DS-1 requirements at colour temperatures between 1700 and 2200 K.

COLOUR AND CONSISTENCY

Colour temperatures	5700 K, 5000 K, 4000 K, 3000 K, 2700 K, amber 2200 K, 1800 K, 1700 K
Tuneable white	4000 K with 2200 K and 1700 K, switchable in operation
DarkSky DS-1	Met at 1700 to 2200 K, third party tested
Colour rendering	Ra > 70 standard, optionally 80 or 90
Colour consistency	MacAdam step 3 or better
LED service life	TM-21 L90B05 > 103,500 h

Full specification

All values apply to the standard configuration at 25 °C ambient, including lens losses and driver consumption. A hyphen means the entry does not apply to that version.

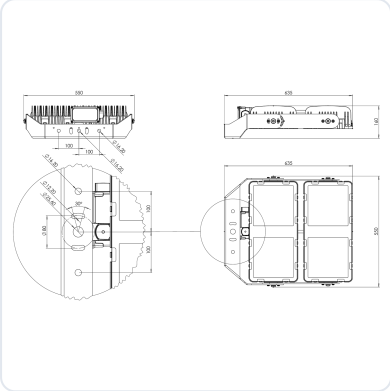
	DarkLicht Two
PERFORMANCE	
Luminous flux	136,800 lm at 800 W · 205,200 lm at 1,200 W
Efficacy	171 lm/W
Upward light output ratio	0 % at 0° tilt
Cut off angle	63°, 66°, 69°, 72° or 75°, set in the field
ELECTRICAL AND DRIVER	
Supply voltage range	180–528 VAC or 250–740 VDC, 50/60 Hz
Current draw	3.7 to 5.5 A at 220 V · 2.2 to 3.2 A at 380 V
Power factor at full load	> 0.9 at 60 to 100 % load
Surge protection	6 kV line to line, 10 kV line to earth (IEC 61000-4-5)
Dimming	0–10 V, PWM, DALI-2, or over NFC
Driver	External TLD800, or 2 × TLD600 in the DRB-2 or on a tray
Driver life	≥ 100,000 h at Tc 75 °C, MTBF ≥ 320,000 h
CONSTRUCTION	
Housing	Cast aluminium, less than 0.08 % copper
Optic	Patented parabolic reflector, no lens
Bracket	High tensile 316L stainless steel, unlimited rotation from -20° to +20°
Front	Impact resistant glass. The luminaire is classified IK07
Protection class	Class II
Ingress protection	IP66 and IP67
Impact resistance	IK07 (IEC 62262). The construction is in practice IK08 but there is no test report for it
Corrosion class	C5 industrial and marine (ISO 9223)
DURABILITY, DIMENSIONS AND WIND LOAD	
Ambient temperature	−45 to +50 °C
LED service life	TM-21 L90B05 > 103,500 h
Dimensions	635 × 550 × 160 mm
Weight, luminaire	24.8 kg
Weight, with external driver	36.6 kg at 1,200 W
Wind load, frontal at 0°	75,400 mm²
Wind load, frontal at 20°	135,200 mm²
Wind load, side, luminaire	63,825 mm²
Wind load, side, with driver	104,325 mm²
Drag coefficient	Cd 1.22 luminaire, Cd 1.23 with driver
Warranty	5 years, extendable to 10 years under a maintenance agreement

Wind load data is from the DarkLicht wind rating report. The rows with the external driver are the ones that matter for a mast calculation: at 600 W and above the driver goes up the mast, which adds about nine kilograms and more than doubles the side area. A calculation that uses only the luminaire row is not conservative.

Mechanics, mounting and driver

All drawings are to scale and dimensioned in millimetres. DXF and STEP models are available on request.

HOUSING AND BRACKET



Dimensions	635 × 550 × 160 mm, 24.8 kg
Bracket	High tensile 316L, unlimited from -20° to +20°
Front	Impact resistant glass, luminaire classified IK07
Optic	Patented parabolic reflector

WIND LOAD FOR THE MAST

Frontal at 0°	75,400 mm²
Frontal at 20°	135,200 mm²
Side, luminaire only	63,825 mm²
Side, with external driver	104,325 mm²
Cd	1.22 luminaire, 1.23 with driver
Count the driver	The driver always goes up the mast

MOUNTING AND ACCESSORIES

Standard bracket	High tensile 316L, supplied as standard
Tower crane frame	Available on the DarkLicht One. Separate datasheet
DRB-2 driver box	For the external drivers at 600 W and above
High masts	JEL supplies masts to 50 m with engineering and foundations. Separate datasheet
Ten year warranty	Under a maintenance agreement with JEL or an appointed party
Smaller version	DarkLicht D and DarkLicht M

DRIVER

800 W	External TLD800
1,200 W	External, 2 × TLD600
Enclosure	DRB-2 or a tray, up the mast with the luminaire

From 600 W the driver goes up the mast. That is nine kilograms and more than twice the side area, and it is the single most common omission in a high mast calculation. Both rows are in the wind load table for that reason.

DRB-2 DRIVER BOX

Use	Housing for the external drivers
DRB-2	Systems up to 2,000 W. 441 × 290 × 145 mm, 10.4 kg, IP66 and IP67
Ingress protection	IP66 and IP67
Alternative	Open tray, where the mast head allows it

Ordering, standards and documents

ORDER CODE

Example **DL2-40K-1200W**

DarkLicht Two, 4000 K, 1,200 W

DL2	DarkLicht Two
800W · 1200W	The two power levels of the Two
57K · 50K · 40K · 30K · 27K · 22K · 18K · 17K	Colour temperature, including the DarkSky DS-1 range
TW	Tuneable white, 4000 K with 2200 K and 1700 K

The cut off angle is not ordered, it is set on site. Driver placement and control protocol are confirmed at order.

COMBINATIONS

Tuneable white with DS-1 colours	Possible
Tower crane frame	On the DarkLicht One only
DALI-2 and NFC	Standard
Ten year warranty	Under a maintenance agreement
IP68 or IP69K	Not on these types
DC supply	Not available

STANDARDS AND VERIFICATION

Subject	Standard	Verification
Luminaire safety	IEC/EN 60598-1, -2-5	In-house test
EMC emission and immunity	EN 55015, EN 61547 · IEC 60533 marine, bridge and open deck	TÜV
Ingress	IEC 60529 and ISO 20653. IP66, IP67	In-house test
Impact	IEC 62262 IK07	In-house test
Corrosion	ISO 9223 class C5, industrial and marine	In-house test
Obtrusive light	NSVV guideline · DarkSky DS-1 at 1700 to 2200 K · EN 12464-2 · EN 12193	Third party test
Photometry	IES LM-79, IES files per optic	In-house test
Substances	RoHS, REACH	Self-declaration

BEFORE YOU ORDER

A DIALux calculation and a mast schedule from our engineers, on your site drawing.

Masts to 50 m with engineering and foundations, from one supplier.

Five years warranty, extendable to ten under a maintenance agreement.

PRODUCT PAGE

IES files and revision history, DXF and STEP on request, and project references.
jelproducts.nl/en/products/dcbright-darklicht

WHERE IT EARNS ITS PLACE

The large DarkLicht types earn their place on projects that would otherwise not be permitted. The high mast decides whether a site meets its obtrusive light condition, and it is also the position where compensating with extra masts is most expensive. Solving the light control in the reflector at the top of the mast is the cheapest place in the entire project to solve it.

Notes. Values are for the standard configuration. The cut off angle is set on site and does not change the luminous flux, only where the light lands. The stated LED service life of L90B05 > 103,500 hours is the figure for the DarkLicht range and is lower than the 360,000 hours of the floodlight range; that is a property of this reflector platform. The JEL range is not ATEX or Ex certified.

GLARE FREE LED AREA LIGHT

DarkLicht Three

Shown: DarkLicht Three, 307,800 lm, cut off set to 69°.

CE | IP67 | IK07 | Class II | C5 ISO 9223 | Ta −45 … +50 °C | 180–528 VAC | 307,800 lm | ULOR 0 % | DarkSky DS-1 | EN 12193 | NSVV

The largest full cut off luminaire in the range, 307,800 lumens out of a single housing, with 0 % upward light. The high mast decides whether a site meets its obtrusive light condition.

LUMINOUS FLUX	POWER	EFFICACY
307,800 lm	1,800 W	171 lm/W
ULOR	**CUT OFF**	**IMPACT**
0 %	63–75°	IK07

Values apply to the standard version at 4000 K, Ta 25 °C, including reflector losses and driver consumption, with the cut off set to the standard position.

WHY IT IS SPECIFIED

The high mast is where obtrusive light is created. It is the highest, brightest and most visible source on a site and it is seen from the greatest distance. Solving light control at the top of the mast solves most of the problem in one step.

Full output from one position. 51,200 to 307,800 lumens on the same reflector technology, so a project can dimension per mast without changing the light distribution or the calculation.

Cut off without adding masts. On a high mast project the mast, the foundation, the trench and the cabling cost more than the luminaires. At 171 lumens per watt with the cut off in place, no extra mast is needed.

WHERE IT IS USED

- Container and intermodal terminal high masts
- Port and quay areas with a residential boundary
- Tower cranes, on the tower crane frame
- Sports fields and training grounds
- Logistics and distribution high mast lighting
- Vehicle storage and compound lighting
- Large car parks and park and ride sites
- Rail yards and marshalling areas
- Bulk storage and laydown yards
- Waste and recycling facilities
- Large agricultural and horticultural sites

VERSIONS

	DarkLicht Three
Flux	307,800 lm
Power	1,800 W
Size	905 × 550 × 160
Weight	35.0 kg
Driver	External

From 600 W the driver goes up the mast with the luminaire. Its mass and wind area must be counted, see the wind load table.

Light output and optics

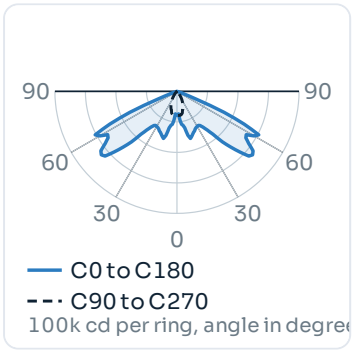
Values apply to the Three at Ta 25 °C with the cut off in the standard position. The whole DarkLicht line shares one light distribution, so the diagrams below apply to every type at its own luminous flux.

BEAM CHARACTERISTICS

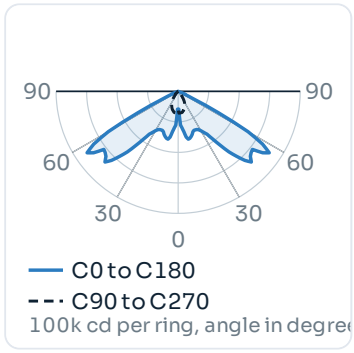
Setting	Distribution	Cut off	Beam angle 50 % of peak	Typical use
63°	Full cut off, asymmetric	63°	–	Tight boundaries, a site directly against housing or a carriageway
66° and 69°	Full cut off, asymmetric	66° and 69°	–	The usual settings for a yard or a car park
72°	Full cut off, asymmetric	72°	123°	Wider cover where the boundary allows it
75°	Full cut off, asymmetric	75°	132°	Maximum reach, sites without a sensitive boundary

The DarkLicht does not use lenses. A patented parabolic reflector throws the light forward and down and cuts it off completely above the set angle, which is adjusted on site between 63 and 75 degrees rather than chosen at order. The two diagrams show the two shielding positions of the reflector. The whole DarkLicht line shares one light distribution, so one measured set covers every type in the range and a lighting designer works with one photometric behaviour at every mounting height.

LIGHT DISTRIBUTION



Shielding position 1



Shielding position 2

OBTRUSIVE LIGHT

ULOR at 0° tilt	**0 %**
Cut off angle	Adjustable in the field from 63° to 75°
Standards	NSVV guideline · DarkSky DS-1 · EN 12464-2 · EN 12193

A conventional floodlight lights everything in front of it, including the sky, the neighbour and the driver approaching the site. The DarkLicht range is built the other way around: a patented parabolic reflector, not a lens, cuts the light off completely above an angle that is set in the field between 63 and 75 degrees. Upward light output ratio is 0 %, and the luminaires have been third party tested against the DarkSky DS-1 requirements at colour temperatures between 1700 and 2200 K.

COLOUR AND CONSISTENCY

Colour temperatures	5700 K, 5000 K, 4000 K, 3000 K, 2700 K, amber 2200 K, 1800 K, 1700 K
Tuneable white	4000 K with 2200 K and 1700 K, switchable in operation
DarkSky DS-1	Met at 1700 to 2200 K, third party tested
Colour rendering	Ra > 70 standard, optionally 80 or 90
Colour consistency	MacAdam step 3 or better
LED service life	TM-21 L90B05 > 103,500 h

Full specification

All values apply to the standard configuration at 25 °C ambient, including lens losses and driver consumption. A hyphen means the entry does not apply to that version.

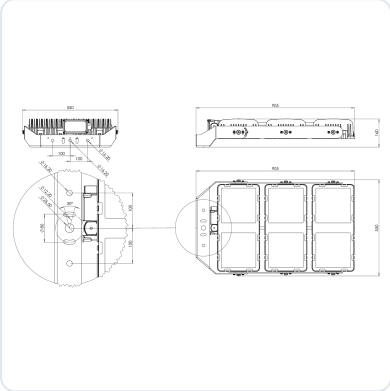
	DarkLicht Three
PERFORMANCE	
Luminous flux	307,800 lm at 1,800 W
Efficacy	171 lm/W
Upward light output ratio	0 % at 0° tilt
Cut off angle	63°, 66°, 69°, 72° or 75°, set in the field
ELECTRICAL AND DRIVER	
Supply voltage range	180–528 VAC or 250–740 VDC, 50/60 Hz
Current draw	8.2 A at 220 V · 4.8 A at 380 V
Power factor at full load	> 0.9 at 60 to 100 % load
Surge protection	6 kV line to line, 10 kV line to earth (IEC 61000-4-5)
Dimming	0–10 V, PWM, DALI-2, or over NFC
Driver	External, 3 × TLD600 in the DRB-2 or on a tray
Driver life	≥ 100,000 h at Tc 75 °C, MTBF ≥ 320,000 h
CONSTRUCTION	
Housing	Cast aluminium, less than 0.08 % copper
Optic	Patented parabolic reflector, no lens
Bracket	High tensile 316L stainless steel, unlimited rotation from -20° to +20°
Front	Impact resistant glass. The luminaire is classified IK07
Protection class	Class II
Ingress protection	IP66 and IP67
Impact resistance	IK07 (IEC 62262). The construction is in practice IK08 but there is no test report for it
Corrosion class	C5 industrial and marine (ISO 9223)
DURABILITY, DIMENSIONS AND WIND LOAD	
Ambient temperature	−45 to +50 °C
LED service life	TM-21 L90B05 > 103,500 h
Dimensions	905 × 550 × 160 mm
Weight, luminaire	35.0 kg
Weight, with external driver	On request
Wind load, frontal at 0°	75,400 mm²
Wind load, frontal at 20°	182,000 mm²
Wind load, side, luminaire	94,875 mm²
Wind load, side, with driver	On request
Drag coefficient	Cd 1.22 luminaire, Cd 1.23 with driver
Warranty	5 years, extendable to 10 years under a maintenance agreement

Wind load data is from the DarkLicht wind rating report. The rows with the external driver are the ones that matter for a mast calculation: at 600 W and above the driver goes up the mast, which adds about nine kilograms and more than doubles the side area. A calculation that uses only the luminaire row is not conservative.

Mechanics, mounting and driver

All drawings are to scale and dimensioned in millimetres. DXF and STEP models are available on request.

HOUSING AND BRACKET



Dimensions	905 × 550 × 160 mm, 35.0 kg
Bracket	High tensile 316L, unlimited from -20° to +20°
Front	Impact resistant glass, luminaire classified IK07
Optic	Patented parabolic reflector

WIND LOAD FOR THE MAST

Frontal at 0°	75,400 mm²
Frontal at 20°	182,000 mm²
Side, luminaire only	94,875 mm²
Side, with external driver	On request
Cd	1.22 luminaire, 1.23 with driver
Count the driver	The driver always goes up the mast

MOUNTING AND ACCESSORIES

Standard bracket	High tensile 316L, supplied as standard
Tower crane frame	Available on the DarkLicht One. Separate datasheet
DRB-2 driver box	For the external drivers at 600 W and above
High masts	JEL supplies masts to 50 m with engineering and foundations. Separate datasheet
Ten year warranty	Under a maintenance agreement with JEL or an appointed party
Smaller version	DarkLicht D and DarkLicht M

DRIVER

1,800 W	External, 3 × TLD600
Enclosure	DRB-2 or a tray, up the mast with the luminaire

From 600 W the driver goes up the mast. That is nine kilograms and more than twice the side area, and it is the single most common omission in a high mast calculation. Both rows are in the wind load table for that reason.

DRB-2 DRIVER BOX

Use	Housing for the external drivers
DRB-2	Systems up to 2,000 W. 441 × 290 × 145 mm, 10.4 kg, IP66 and IP67
Ingress protection	IP66 and IP67
Alternative	Open tray, where the mast head allows it

Ordering, standards and documents

ORDER CODE

Example **DL3-40K-1800W**

DarkLicht Three, 4000 K, 1,800 W

DL3	DarkLicht Three
1800W	The single power level of the Three
57K · 50K · 40K · 30K · 27K · 22K · 18K · 17K	Colour temperature, including the DarkSky DS-1 range
TW	Tuneable white, 4000 K with 2200 K and 1700 K

The cut off angle is not ordered, it is set on site. Driver placement and control protocol are confirmed at order.

COMBINATIONS

Tuneable white with DS-1 colours	Possible
Tower crane frame	On the DarkLicht One only
DALI-2 and NFC	Standard
Ten year warranty	Under a maintenance agreement
IP68 or IP69K	Not on these types
DC supply	Not available

STANDARDS AND VERIFICATION

Subject	Standard	Verification
Luminaire safety	IEC/EN 60598-1, -2-5	In-house test
EMC emission and immunity	EN 55015, EN 61547 · IEC 60533 marine, bridge and open deck	TÜV
Ingress	IEC 60529 and ISO 20653. IP66, IP67	In-house test
Impact	IEC 62262 IK07	In-house test
Corrosion	ISO 9223 class C5, industrial and marine	In-house test
Obtrusive light	NSVV guideline · DarkSky DS-1 at 1700 to 2200 K · EN 12464-2 · EN 12193	Third party test
Photometry	IES LM-79, IES files per optic	In-house test
Substances	RoHS, REACH	Self-declaration

BEFORE YOU ORDER

A DIALux calculation and a mast schedule from our engineers, on your site drawing.

Masts to 50 m with engineering and foundations, from one supplier.

Five years warranty, extendable to ten under a maintenance agreement.

PRODUCT PAGE

IES files and revision history, DXF and STEP on request, and project references.
jelproducts.nl/en/products/dcbright-darklicht

WHERE IT EARNS ITS PLACE

The large DarkLicht types earn their place on projects that would otherwise not be permitted. The high mast decides whether a site meets its obtrusive light condition, and it is also the position where compensating with extra masts is most expensive. Solving the light control in the reflector at the top of the mast is the cheapest place in the entire project to solve it.

Notes. Values are for the standard configuration. The cut off angle is set on site and does not change the luminous flux, only where the light lands. The stated LED service life of L90B05 > 103,500 hours is the figure for the DarkLicht range and is lower than the 360,000 hours of the floodlight range; that is a property of this reflector platform. The JEL range is not ATEX or Ex certified.