JEL PRODUCTS
SUSTAINABLE | LIGHTING | SOLUTIONS

INSTRUCTION MANUAL

DarkLicht M Series

Full cut off LED luminaires, one manual for the housing family: the DarkLicht M300 and M150 in AC and 24 V DC, and the DarkLicht Mini work lamp.

DOCUMENT	REVISION	DATE	LANGUAGE
MAN-DLM-EN	1	07 / 09 / 2026	EN

Read before installation | Keep for future use | Qualified personnel only | DRKM01 to DRKM05

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Contents

This manual covers the DarkLicht M housing family: the M300 and M150 floodlights and the Mini work lamp. They share one reflector principle, one light distribution and one cut off range. The DarkLicht WP wall pack has a manual of its own, MAN-DLW-EN. Where a section applies to one type only, the type is named in the heading or in the row.

WHICH TYPE DO YOU HAVE

Code on the label	Type
DRKM05	DarkLicht M300 AC, 300 W, remote BLD320
DRKM04	DarkLicht M300 DC, 300 W, 20 to 32 VDC
DRKM03	DarkLicht M150 AC, 150 W, remote BLD240
DRKM02	DarkLicht M150 DC, 150 W, 20 to 32 VDC
DRKM01	DarkLicht Mini, 30 W, 10 to 50 VDC

The label is on the rear of the housing. Section 2.5 explains the second code on it, which is not an article number.

PRODUCT PAGES

Photometric files, drawings, the datasheets and the current version of this manual.

jelproducts.nl/en/products/darklicht-m

Mini: /darklicht-mini

KEEP THIS MANUAL

Store it with the site or machine documentation and pass it on to every person who works on the luminaire.

1 About this document

Read this manual and understand its safety instructions before you install, operate or maintain the luminaire. Failure to do so can result in serious injury or death.

1.1 Who this document is for

This manual is written for the buyer, the installer, the machine and light tower builder, the maintenance technician and the end user. Assembly, installation, commissioning and maintenance may only be carried out by a qualified person: someone with electrical training who can recognise the risks described here and avoid the hazards that arise during the work.

Every person who works on the luminaire must have read these warnings and must follow them. Keep the manual for the service life of the installation.

1.2 Hazard classes

Safety information in this manual is graded. The class tells you how serious the consequence is if the instruction is ignored.

DANGER
A hazard with a high level of risk which, if not avoided, will result in death or serious injury.

WARNING
A hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

CAUTION
A hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

NOTE
Information that matters for a correct result but that is not related to a hazard.

1.3 Symbols


Electrical hazard
Live parts. Isolate the supply before working on the luminaire.


General hazard
Described in the text beside the symbol.


Optical radiation
Do not look into the operating light source.


Hot surface
The housing and the driver run warm in service.


Crush hazard
Moving parts during mounting and aiming.


Two persons
This step must be carried out by two people.


Read the manual
Read and understand it before use.


Protective earth
Terminal for the protective earth conductor.


CE marking
Complies with the applicable European legislation.


Separate collection
Not unsorted municipal waste.

1.4 Feedback

The latest version is on the product page. If you find an error, write to info@jelproducts.nl. We would rather correct a sentence than have an installer guess.

1.5 Revision history and what this edition replaces

The three types have been supplied with three separate DCbright manuals, M300, M150 and M30, each of twelve pages. **This edition supersedes all three.** Where they disagree, this manual applies. The WP wall pack has a manual of its own, MAN-DLW-EN.

Date	Revision	Change
2026	-	DCbright Manual M300, Manual M150 and Manual M30, twelve pages each. Superseded
7 September 2026	1	First edition of the JEL Products manual, M300, M150 and Mini in one document, to the JEL Products manual standard. **Corrected against the DCbright manuals:** the ambient range is minus 45 to plus 50 degrees Celsius, the service life is TM-21 L90B05 above 103,500 h and not the LM70 figures printed there, the warranty is 5 years and not 3, the AC and DC versions of the M carry separate article codes, and the cut off is a factory setting

2 The product

The DarkLicht does not use lenses. A patented parabolic reflector throws the light forward and down and cuts it off completely above an angle between 63 and 75 degrees that is set at the factory to the ordered position, so the luminaire delivers full working light next to housing, a carriageway or a protected area with an upward light output ratio of nil. The M housing family carries that reflector in three sizes: a 300 W and a 150 W floodlight and a 30 W work lamp.

2.1 The three types

M300. The heavy cut off floodlight for light towers, cranes and sites, in AC with a remote driver or in 24 V DC. DRKM05 and DRKM04

M150. The same reflector in a shorter housing, with a second hole pattern in the face of the bracket. DRKM03 and DRKM02

Mini. The compact cut off work lamp for machines and vehicles, 10 to 50 VDC, connector in the housing. DRKM01

	M300	M150	Mini
Article base code	DRKM05 AC · DRKM04 DC	DRKM03 AC · DRKM02 DC	DRKM01
Luminous flux	51,300 lm	25,700 lm	4,800 lm
Power	300 W	150 W	30 W
Efficacy	171 lm/W	171 lm/W	160 lm/W
Supply	90 to 305 VAC, or 20 to 32 VDC	90 to 305 VAC, or 20 to 32 VDC	10 to 50 VDC
Driver	Remote BLD320 on AC, on board on DC	Remote BLD240 on AC, on board on DC	On board
Cut off	63 to 75 degrees in five positions, set at the factory to order. ULOR 0 per cent at every position		
Housing and front	Cast aluminium, e-coated Titanium Black. Impact resistant glass, IK08		
Termination	AC: H07BQ-F 4 cores, 2.0 m, free ends. DC: 2 cores, 0.3 m, free ends		Deutsch DTP04 in the housing, no cable
Ingress	IP66, IP67, IP68 and IP69K		
Ambient	minus 45 to plus 50 °C		
Weight	5.5 kg	3.6 kg	1.0 kg
Warranty	5 years on the complete luminaire		

The whole DarkLicht line shares one light distribution, so one measured set covers every type at its own flux and a lighting designer works with one photometric behaviour at every mounting height. The manufacturer calls the Mini the DL M30; JEL sells it as the Mini so that a customer sees at once that it is the smaller model.

2.2 Intended use

The DarkLicht M types are intended for permanent professional installation as area, task and perimeter lighting, outdoors or indoors, within the ambient temperature range and the supply range of the type you have, wherever the light has to reach the work and not the neighbour, the sky or the driver approaching the site. The M is mounted on a mast, a light tower, a crane jib or a structure on its foot; the Mini on a machine or a vehicle. All are aimed by the cut off position, ordered from a lighting design. Typical applications:

Type	Where it is used
M300 and M150	Mobile and towable light towers, tower cranes and mobile cranes, construction and infrastructure sites, night work on and alongside roads, industrial sites bordering housing, rail works and possession lighting, demolition and remediation sites, event and temporary site lighting, yards and laydown areas near dwellings, sites under an NSVV obtrusive light condition, ports and terminals with a residential boundary, agricultural sites near housing
Mini	Service and maintenance vehicles, forklifts and reach trucks, asphalt machines and paving trains, small excavators and loaders, sweepers and winter service vehicles, mobile crane booms on the Crane Light Director, municipal and utility vehicles, airport ground support, work zones alongside public roads, night work near housing, agricultural machines, rail maintenance vehicles

2.3 What the luminaire is not for

The following uses are outside the intended use. They are not covered by the warranty and, in several cases, they are unsafe.

- **Explosive atmospheres.** No DarkLicht is ATEX or IECEx certified. None may be installed in a zoned hazardous area.
- **Mains on a DC version, or a battery supply on an AC version.** The AC and DC M300 are the same housing. Only the type label and the tail tell them apart.
- **Mains directly into an M.** On the AC versions mains goes to the remote driver. The luminaire itself is a 50 V device. For a wall pack that takes mains directly see the DarkLicht WP.
- **Ambient above plus 50 degrees Celsius.** There is no high temperature DarkLicht.
- **Permanent immersion.** IP68 is verified as a test class, not as a continuous operating condition. IP69K covers washdown, not submersion.
- **Permanent salt exposure beyond C5.** There is no 316L DarkLicht.
- **Aiming above the cut off range.** The reflector is designed for 63 to 75 degrees. Tilted beyond 75 degrees the cut off is lost and the luminaire becomes a floodlight with a glare problem, which is the thing it was bought to avoid.
- **Uplighting, facade washing or lighting a wall above the luminaire.** Nothing leaves the reflector above the cut off, by design.
- **Consumer, decorative or domestic lighting.**
- **Emergency or escape route lighting from an internal battery.** No DarkLicht has battery back up or a self test.
- **A facade, a ceiling or a canopy.** For a wall take the DarkLicht WP, for a ceiling or a canopy the Manta, for a column in a yard the DarkLicht D.
- **Operation with a damaged glass, housing, bracket, tail or connector**, or on the AC versions with a driver other than the one supplied.

2.4 Order codes

DRKM04-40K-BIC

DRKM05 · DRKM04	M300 in AC with the remote BLD320, and in 20 to 32 VDC
DRKM03 · DRKM02	M150 in AC with the remote BLD240, and in 20 to 32 VDC
DRKM01	Mini, 30 W, 10 to 50 VDC
57K to 27K	5700, 5000, 4000, 3000, 2700 K
22K · 18K · 17K	Amber 2200, 1800 and 1700 K, the DarkSky DS-1 range
BIC	Bi-colour, tuneable white 4000 K with 2200 K and 1700 K, switched in operation, section 9.3

The cut off angle is specified at order and set at the factory; it is not adjustable on site. Bracket, control protocol, cable length, the mating connector and the Ra 80 or Ra 90 option are confirmed at quotation and are not part of the code.

NOTE, THE M CODES ON THE DATASHEET

The DarkLicht M datasheet of August 2026 prints DRKM04 for the M300 and DRKM03 for the M150, in AC and DC alike. Our product specification and our photometric files carry **separate codes for AC and DC**: DRKM05 and DRKM04 for the M300, DRKM03 and DRKM02 for the M150, DC always the lower number. This manual uses those codes; the datasheet is being corrected.

2.5 The type label, and the second code on it

The type label on the rear of the housing carries the article code, the electrical data, the protection class, the ingress rating and the serial number. On the AC versions the driver carries a label of its own. Both also show a **second code that is not an article number and that will not match what you ordered**. That is correct and it is deliberate.

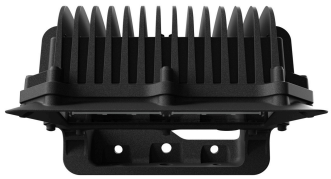
NOTE

The second code is a JEL Products internal production code, such as DL-M-300DC-24V. It records the specific printed circuit board fitted, the production batch and the production date. We use it for traceability, for warranty and for service. It carries no information you need in order to specify, order or reorder a luminaire.

When you contact us about a luminaire, quote both. The article code tells us what it is. The internal code tells us exactly which one it is, which board is in it and when it was built. **Photograph the label before you fit the luminaire:** on a light tower head it is out of reach.

WARNING, AC AND DC LOOK IDENTICAL

The AC and the DC M300, and the AC and the DC M150, are the same housing and the same foot. From the front nothing tells them apart. **Read the label and look at the tail:** a 2.0 m four core tail with free ends is AC, a 0.3 m two core tail in red and black is DC. Mains on a DC luminaire destroys it immediately.



The rear of the M150: the fin field, the connection compartment where the tail lands, and the type label. The driver is never in the housing

3 Technical data

All values apply to the standard configuration at 4000 K and 25 degrees Celsius ambient, including reflector losses and driver consumption, with the cut off in the standard position. A hyphen means the entry does not apply to that type. The AC and the DC version of an M share every optical and mechanical value; only the electrical rows differ.

	M300 **DRKM05 AC · DRKM04 DC**	**M150** **DRKM03 AC · DRKM02 DC**	**Mini** **DRKM01**
PERFORMANCE			
Luminous flux	51,300 lm	25,700 lm	4,800 lm
Power consumption	300 W	150 W	30 W
Efficacy	171 lm/W	171 lm/W	160 lm/W
Cut off angle	63 to 75 degrees in five shield positions S1 to S5, set at the factory to the ordered position, section 3.4. Upward light output ratio 0 per cent at every position		
Colour temperature	5700, 5000, 4000, 3000, 2700 K, amber 2200, 1800 and 1700 K, and tuneable white 4000 K with 2200 K and 1700 K		
Colour rendering	Ra above 70 standard, Ra 80 or Ra 90 on request. MacAdam step 3 or better		
ELECTRICAL AND DRIVER			
Supply, AC version	90 to 305 VAC, 50 or 60 Hz	90 to 305 VAC, 50 or 60 Hz	-
Supply, DC version	20 to 32 VDC, 24 V nominal	20 to 32 VDC, 24 V nominal	10 to 50 VDC, 12, 24 or 36 V nominal
Current draw, AC	2.7 A at 110 V, 1.4 A at 220 V	1.4 A at 110 V, 0.7 A at 220 V	-
Current draw, DC	12.5 A at 24 V	6.3 A at 24 V	2.5 A at 12 V, 1.3 A at 24 V, 0.8 A at 36 V
Driver	AC: remote BLD320, 225 × 68 × 38.5 mm, 1,120 g, fits the DRB-1. DC: on the board	AC: remote BLD240, 215 × 67.5 × 33.5 mm, 1,100 g, fits the DRB-1. DC: on the board	On the board
Driver life	Above 100,000 h at Tc 75 °C, Tc minus 40 to plus 90 °C, on every AC driver		
Inrush current, AC	31.2 A peak, T50 1.3 ms at 220 V	66 A peak, T50 0.5 ms at 220 V	-
Luminaires per MCB, B16 · C16 · C25 · D16	2 · 4 · 7 · 8	3 · 6 · 9 · 10	-
Surge protection	6 kV line to line, 10 kV line to earth, IEC 61000-4-5, on the AC drivers. Surge and reverse polarity protected on the board on DC		
Power factor	Above 0.95 at 60 to 100 per cent load, AC		-
Dimming and control	AC: 0 to 10 V, PWM, DALI-2, or set over NFC. DC: on request		On request
Cable and termination	AC: H07BQ-F 2 × 2.5 plus 2 × 0.5 mm², 2.0 m, free ends. DC: 2 × 2.5 mm², 0.3 m, free ends	AC: H07BQ-F 4 cores, 2.0 m, free ends. DC: 2 × 1.5 mm², 0.3 m, free ends	No cable. Deutsch DTP04 two pole receptacle in the housing

Luminaires per MCB is the driver manufacturer figure on an ABB S200 at 220 V, a guide for engineering and not a substitute for the installation calculation. Tuneable white and the amber colours change the luminous flux; the quotation states the figure that applies.

3 Technical data, continued

	M300 and M150	Mini
CONSTRUCTION		
Housing	Cast aluminium, less than 0.08 per cent copper. Conversion layer plus two layer titanium-based e-coating, Titanium Black	
Optic	Patented parabolic reflector, no lens	
Bracket	Fixed bracket, aluminium, one foot with three holes	Fixed bracket, aluminium, foot with three holes
Front	Impact resistant glass, IK08 to IEC 62262	
Protection class	Class II	
Ingress protection	IP66, IP67, IP68 and IP69K, each class tested separately, so IP69K does not imply IP68	
Vibration and shock	6 G at the resonant frequency, IEC 60068-2-6, shock IEC 60068-2-27	
Corrosion class	C5 industrial and marine, ISO 9223	
DIMENSIONS, LIFE AND WARRANTY		
Dimensions, from the drawing	M300 287 mm over the bracket, 350 mm long, 207 mm deep. M150 268 × 248 × 180 mm, section 3.1 and 3.2	179 × 120 × 95 mm, section 3.3
Weight, with bracket	5.5 kg · 3.6 kg	1.0 kg
Ambient and storage	minus 45 to plus 50 degrees Celsius, stored dry in the original packaging	
LED service life, TM-21 L90B05	above 103,500 h at 50 °C	
Warranty	5 years on the complete luminaire	

WHERE THE DRIVER IS

Two answers in one family. On the **DC M and the Mini** the drivers are on the board: nothing outside the luminaire, one sealed component on a two core tail or, on the Mini, on a Deutsch connector. On the **AC M** the driver is a remote BLD320 or BLD240 on a 2.0 m tail, bare or in a DRB-1, outside the wash zone and reachable at ground level. Mains never enters an M; the only DarkLicht that takes mains directly is the WP wall pack, which has its own manual.

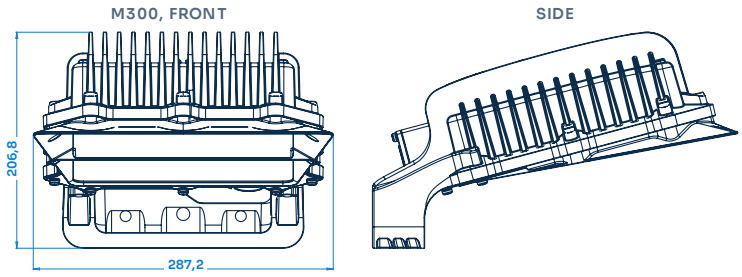
> **NOTE, THE 103,500 HOURS**
>
> The LED life of the DarkLicht range is L90B05 above 103,500 h, lower than the 360,000 h of the JEL floodlight range. That is a property of the reflector platform, not a defect, and it is still twenty years of dusk to dawn operation. The older DCbright documents print an LM70 figure of 345,083 h; L90 is the stricter and the correct measure, and this manual uses it.

WHAT THIS FAMILY DOES NOT DO

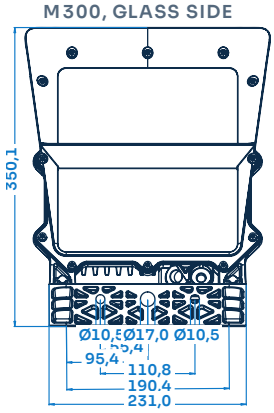
High temperature	No HT version of any type. Above plus 50 degrees Celsius ambient the reflector platform is not offered
316L	No stainless version. The housing is e-coated aluminium to C5 on every type
A facade	For a wall the DarkLicht WP wall pack, manual MAN-DLW-EN
Mini on AC	The Mini is a 10 to 50 V machine lamp, nothing else
Ordering a cut off	Specified at order and set at the factory. It cannot be changed on site. Where nothing is specified the luminaire leaves at S2, 72 degrees

3.1 Dimensions, weight and wind load, M300

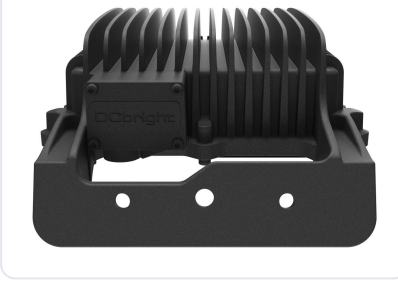
All drawings are dimensioned in millimetres and are taken from the production drawing of the M300. DXF and STEP models are available on request. The housing sits in a fixed aluminium bracket whose foot carries three holes; the glass faces down and forward, the fin field faces up and back.



M300, looking at the foot, and from the side. 287.2 mm over the bracket, 206.8 mm deep over the housing, the foot 231 mm wide. The housing sits at its working angle in the arms



The glass side, 350.1 mm long, with the foot and its three holes below the reflector



The M300 from the rear: the fin field, the cover of the connection compartment where the tail is wired in, and the label. The driver of an AC M is remote

DIMENSIONS, FROM THE DRAWING

Over the bracket	287.2 mm wide
Housing	350.1 mm long over the glass, 206.8 mm deep
Foot	231 mm wide

MOUNTING INTERFACE

Centre hole	1 × Ø 17 mm, for M16
Outer holes	2 × Ø 10.5 mm on 110.8 mm centres, for M10
Bolts	3, section 6.1

WEIGHT

Luminaire with bracket	5.5 kg, AC and DC
Remote driver, AC	plus 1,120 g, outside the luminaire

WIND LOAD, CALCULATED FROM THE ENVELOPE

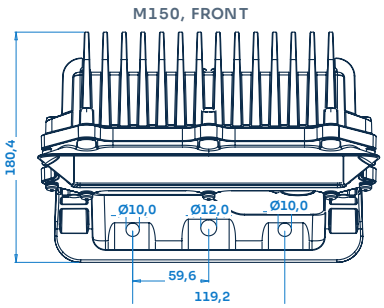
Frontal at nil tilt	0.056 m²
Frontal at 20 degrees	0.081 m²
Side	0.035 m²
Force at 45 m/s	Approximately 118 N at 20 degrees, Cd 1.15, air density 1.25 kg/m³

NOTE, THE DATASHEET ENVELOPE

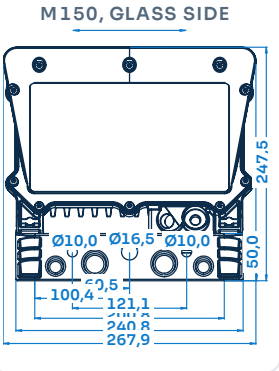
The datasheet gives 370 × 230 × 150 mm. The production drawing dimensions the luminaire at 287.2 mm over the bracket, 350.1 mm over the glass and 206.8 mm deep. This manual follows the drawing. The wind figures are calculated envelope areas with the Cd of the tested D series; the 2023 wind report does not cover the M. On a light tower mast at full height that 118 N acts at the top of a long lever: the mast manufacturer's head load limit is what decides.

3.2 Dimensions, weight and wind load, M150

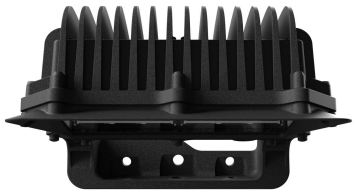
The M150 is a shorter housing on a bracket of the same idea. Its foot is a 240.8 × 50 mm plate with three holes, and the front face of the bracket carries a second set of three holes, so the M150 can be bolted down onto a surface or against a vertical face without an adapter.



M150, looking at the foot, and from the side. 267.9 mm over the bracket, 180.4 mm deep, the foot 240.8 mm wide



The glass side, 247.5 mm long, with the two hole patterns of the bracket below it



The M150 from the front: the reflector behind the glass, the arms and the foot

DIMENSIONS, FROM THE DRAWING

Over the bracket	267.9 mm wide
Housing	247.5 mm long over the glass, 180.4 mm deep
Foot	240.8 × 50 mm

MOUNTING INTERFACE, FOOT

Centre hole	1 × Ø 16.5 mm, for M16
Outer holes	2 × Ø 10 mm on 121.1 mm centres, for M8

MOUNTING INTERFACE, FRONT FACE

Centre hole	1 × Ø 12 mm, for M10
Outer holes	2 × Ø 10 mm on 119.2 mm centres, for M8

WEIGHT AND WIND

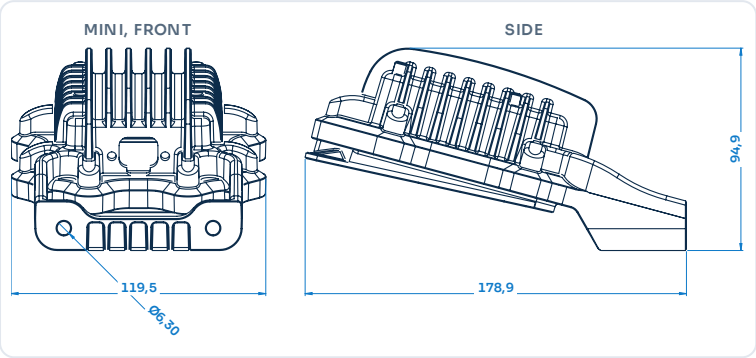
Luminaire with bracket	3.6 kg. Plus 1,100 g driver outside on the AC version
Frontal, nil · 20 degrees	0.035 · 0.053 m²
Side	0.032 m²
Force at 45 m/s	Approximately 77 N at 20 degrees, Cd 1.15

NOTE, TWO HOLE PATTERNS, TWO BOLT SIZES

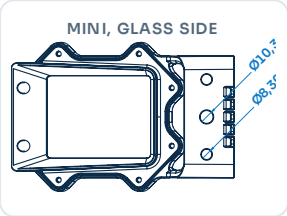
The datasheet envelope of 250 × 230 × 140 mm is superseded by the drawing. The foot and the front face of the bracket **do not share a pattern**: 121.1 mm centres and an M16 in the foot, 119.2 mm centres and an M10 in the face. Drill from the face you are using, with the luminaire off the structure.

3.3 Dimensions, weight and wind load, Mini

The Mini is the same reflector in a housing the size of a hand, on a fixed bracket whose foot carries three holes, with a second pair of holes in the rear face of the bracket. The Deutsch DTP04 receptacle sits in the rear face of the housing between the arms, so there is no tail.



Mini, looking at the foot, and from the side. 178.9 mm over the bracket, 94.9 mm deep, the DTP04 receptacle in the rear face between the arms



The Mini, glass side, 119.5 mm, with the foot alongside

The Mini from the side: the same reflector in a housing the size of a hand

DIMENSIONS, FROM THE DRAWING	
Envelope	178.9 mm over the bracket, 119.5 mm over the glass, 94.9 mm deep
MOUNTING INTERFACE	
Foot holes	1 × Ø 10.3 plus 2 × Ø 8.3 mm, for M8 and M6
Rear holes	2 × Ø 6.3 mm, for M6, in the rear face of the bracket
Bolts	3, section 6.1
WEIGHT AND WIND	
Luminaire with bracket	1.0 kg
Wind, frontal · side	0.012 · 0.008 m², academic on a machine

NOTE

The datasheet says 170 × 120 × 70 mm; the drawing gives 178.9 over the bracket and 94.9 deep over the fins. This manual follows the drawing. On a machine the 6 G vibration rating, not the wind figure, sizes the bolts.

The Mini from the rear: the DTP04 receptacle between the arms, and the two holes in the rear face of the bracket

3.4 The cut off, and what it does to the light

A DarkLicht has no lens. A patented parabolic reflector throws the light forward and down and cuts it off completely above the set angle. That angle, measured from the vertical below the luminaire, lies between 63 and 75 degrees in five shield positions on the reflector, and is **set at the factory** to the position specified at order. The upward light output ratio is nil at every position: what changes is how far the light reaches, not how much there is. The whole DarkLicht line shares one light distribution, so one set of photometric files covers the M300, the M150 and the Mini at their own luminous flux.

Position	Cut off	Beam angle	Typical use
S1	75°	132°	Maximum reach, sites without a sensitive boundary
S2	72°	123°	Wider cover where the boundary allows it. Supplied where no position is specified
S3	69°	-	The usual position for a yard, a car park or a site compound
S4	66°	-	A site with housing on one side
S5	63°	-	Tight boundaries, a site directly against housing or a carriageway

The beam angle is the full angle at 50 per cent of the peak intensity in the C0 to C180 plane. At 69 degrees and below the distribution has no 50 per cent point above the cut off, so no beam angle is stated. The photometric files carry the two measured **shield positions** of the reflector, S1 and S2; S3 to S5 are built on the same shield at order. The bracket pivot is not the cut off: it is the tilt, and it stays at nil. Section 6.6 says what the installer checks.

WHAT THE CUT OFF IS FOR

A conventional floodlight lights everything in front of it: the work, the sky, the neighbour and the driver approaching the site. A site that is told to reduce its light normally aims its floodlights down until the work is no longer lit. The DarkLicht is built the other way round. The reflector puts the light on the ground and stops it at an angle, so the luminaire is aimed at the ground it has to light and the boundary is built into the luminaire. That is the difference between a shield that someone has to fit and an optic that cannot be forgotten, or moved.

OBTRUSIVE LIGHT

ULOR	0 per cent at nil tilt, at every cut off setting
Guidance	NSVV guideline on obtrusive light, EN 12464-2, EN 12193
DarkSky DS-1	Met at 1700 to 2200 K, third party tested
Colour for DS-1	Amber 2200, 1800 or 1700 K, or tuneable white with 4000 K for the work and 2200 or 1700 K for the night, section 9.3

WARNING, TILT UNDOES THE CUT OFF

The cut off is a property of the luminaire at its **nil tilt attitude**, glass down and the housing in its bracket at the working angle. Tilt the whole luminaire up to reach further and light goes above the horizontal like on any floodlight. **Reach is chosen with the cut off position, not with the tilt.** A permitting condition written against a DarkLicht assumes nil tilt.

The reflector behind the glass of the M300. No lens, no diffuser: the shape of the reflector is the optic

3.5 Standards and verification

Subject	Standard	By
Luminaire safety	IEC/EN 60598-1, -2-5. The Mini also ENEC	In house, ENEC body
EMC emission and immunity	EN 55015, EN 61547	TÜV
Marine EMC	IEC 60533, bridge and open deck	TÜV
Ingress	IEC 60529, ISO 20653	In house
Impact	IEC 62262, IK08 glass	In house

Subject	Standard	By
Vibration, M and Mini	IEC 60068-2-6, 6 G at resonance, shock IEC 60068-2-27	In house
Corrosion	ISO 9223, class C5	In house
Obtrusive light	NSVV guideline, DarkSky DS-1 at 1700 to 2200 K, EN 12464-2, EN 12193	Third party
Photometry	IES LM-79, TM-21 for lifetime	In house
Substances	RoHS, REACH	Self-declaration

This table lists how the product is verified. The harmonised standards named on the declaration of conformity are listed separately in section 14.1. Photobiological safety is covered in section 4.3. The DarkSky DS-1 test is the one a planning condition or a nature permit refers to; ask us for the report when a permit file needs it. To check the authenticity of a test or inspection report and certificate, contact JEL Products on +31 (0)33 785 9809 or at info@jelproducts.nl.

WHAT EACH RATING MEANS HERE

IK08	The glass front, 5 joules, IEC 62262. The glass is the sloping underside of the luminaire and faces the ground; on a machine that is where a stone comes from. Where material flies, the Piranha with its IK10 polycarbonate front is the better lamp, but it has no cut off
IP69K	The high pressure steam jet test of ISO 20653. Every type in this manual carries it. It is why a Mini on a sweeper survives the wash at the end of every shift
6 G	The vibration rating of the M and the Mini at resonance. It applies to the luminaire on its bracket; the bolts into the tower, the crane or the machine are yours
Class II	No protective earth of its own on any type. On the AC M the driver box and the tray **are** earthed
C5	Industrial and marine, ISO 9223. A port terminal or a coastal site is within it; permanent salt immersion is not

The Mini: the same reflector in a housing the size of a hand, with the connector in the rear face

The M150 from the front. Housing, bracket and glass are one sealed unit on the foot

4 Safety

This chapter lists the hazards that arise when a DarkLicht is installed, operated and maintained, and what to do about each of them. It does not replace the national and local electrical, machinery and working at height regulations that apply on your site.

4.1 Electrical hazard

DANGER, LIVE PARTS

Working on a driver, in a driver box or on the tail of an AC luminaire while the supply is on can cause death or serious injury. Isolate the supply, secure it, and verify that the circuit is dead before you touch a conductor. Check twice.

DANGER, MAINS NEVER ENTERS AN M

On DRKM05 and DRKM03 mains goes to the **remote driver**; the tail carries the driver output and the temperature signal only. DRKM04, DRKM02 and the Mini are DC devices. Mains on any of these tails destroys the luminaire and creates a shock hazard. **No type in this manual takes mains directly.**

- Every type is a Class II luminaire. The housing is not earthed through the supply, but on an AC M the driver box, the driver tray and any metal enclosure must be earthed correctly.
- Make the connection to the standards and directives that apply in your country and, on a machine or a light tower, to the builder's file. Stay within the supply range in chapter 3. **Read the label before you connect.**
- Only use the driver and the cable supplied for an AC luminaire. Keep one metre to a radio receiver.

4.2 Falling objects

WARNING, FALLING LUMINAIRE

A luminaire that comes loose from a light tower head, a crane jib, a mast or a machine can injure whoever is under it. Verify the structure before mounting, use all three bolts in the foot, and fit a secondary retention wherever the luminaire is above a walkway or a working area, and always on anything that moves.

The M300 weighs 5.5 kg, the M150 3.6 kg and the Mini 1.0 kg. Under EN 60598-1 the suspension has to withstand four times the mass; on a machine or a tower rated at 6 G, six times, repeatedly. An M300 on a telescopic mast at 9 m is up there in the wind: **the mast head and its bolts are the weak point, not the foot**.

4.3 Optical radiation

WARNING, OPTICAL RADIATION

Never look into the operating light source. Direct exposure at close range can cause permanent eye damage. On a DarkLicht that means looking up into the glass from below; from beside or behind the luminaire there is nothing to see, which is the point of the cut off.

Photobiological safety is classified to **EN 62471**, with the blue light hazard assessed to **IEC/TR 62778**. That gives a **hazard distance**: beyond it the luminaire is Risk Group 1 and no exposure limit is reached in normal viewing. It is set by the peak intensity, so it hardly changes with the cut off setting. The figures below come from our own LM-63 photometric files at shielding position S2, the higher of the two.

Type	Peak intensity	Hazard distance
M300, AC and DC	65,600 cd	**4.3 m**
M150, AC and DC	32,900 cd	3.1 m
Mini	6,100 cd	1.3 m

The rule on site. Take **5 m** for an M300, **4 m** for an M150 and **3 m** for a Mini. Nobody works or stands within that distance looking up into the glass. On a light tower at working height the distance is met by the mounting height alone; on a crane jib being lowered and on a machine it is not, and the luminaire is mounted and checked with the supply off.

Method: the square root of the peak intensity divided by the threshold illuminance at the Risk Group 1 boundary, taken as 3,500 lx. Amber and 3000 K builds are a little lower, 2200 K on the M300 gives 4.0 m. Calculated from our own photometric files, not a measurement report.

4.4 Hot surfaces

CAUTION, HOT HOUSING

An M300 puts 300 W through a fin field that faces the sky. In service, and in a plus 50 degrees Celsius summer on a site, the housing is too hot to hold. Let it cool before handling. The case of the remote driver of an AC version may reach plus 90 degrees Celsius.

- Isolate the supply and let the luminaire cool to hand temperature before any work.
- Do not mount an M or a Mini against an exhaust, a generator canopy outlet or an engine block. On a light tower the luminaires sit above the canopy, not in its exhaust plume.
- Never run cold water onto hot glass. The thermal shock can break it, see section 10.5. On a DarkLicht the glass is the underside and a lance from the ground hits it first.
- The remote driver of an AC M sits in an ambient of at most plus 50 degrees Celsius. On a light tower that rules out the generator compartment.

4.5 Crush and handling

CAUTION, MOVING PARTS

Once the pivot bolts are slack the housing of an M turns freely in its arms, 5.5 kg on the M300. Keep fingers clear of the pivots and of the gap between the housing and the arms while squaring the housing. On a crane jib or a telescopic mast, the machine is switched off and the mast lowered before anyone touches the luminaire.

- Wear gloves, safety boots and a hard hat during assembly and installation.
- Do not work alone at height. Use rated and secured ladders, lifts or the tower's own access, and never use the luminaire or its bracket as a handhold or a step.

4.6 Heat and surroundings

- Keep at least 75 mm clear above the fin field and around the housing, and 150 mm around a driver box. Do not cover or wrap the luminaire and do not mount it against insulation material.
- Keep the fins clear. On a light tower they collect dust and on a machine mud, and trapped dirt reduces cooling and shortens the life of the LEDs. No type in this manual has a fan or a vent.
- Do not install a DarkLicht near a heat source that takes it beyond plus 50 degrees Celsius ambient. There is no high temperature version of any type.
- Do not expose the luminaire to corrosive chemicals outside its corrosion class without checking with your supplier first. There is no 316L DarkLicht; for permanent salt exposure and process chemistry beyond C5 the answer is a different product.

4.7 Laying the luminaire down

CAUTION

Stand an M or a Mini on its **bracket foot**, the way it was delivered, with the glass facing down and clear of the bench. **Never rest it on its glass.** A chipped glass edge becomes a leak path at the first washdown.

On a DarkLicht the glass is the sloping underside of the luminaire and it is what the luminaire lands on if it is put down carelessly. The foot is a flat aluminium plate and carries the weight without complaint, which is why the M and the Mini are shipped standing on it.

NOTE

Keep the free ends of the tail of a DC M capped and dry until the joint is made, and keep the cap on the receptacle in the rear of the Mini until the mating connector goes on. A connector with grit in the cavities does not seal, and on the Mini the connector is the one place where the IP69K rating leaves the housing.

4.8 What must never be done

DANGER, DO NOT OPEN THE HOUSING

Do not remove the glass, the glass frame or any part of the housing, and do not shorten or cut a tail. The seal, the ingress protection and the electrical safety all depend on a housing that has not been opened. Nothing on a DarkLicht is designed to be opened in the field. Opening it voids the warranty and the declaration of conformity.

- Do not modify, repair or open the luminaire. Repairs are carried out by JEL Products or by a company it appoints.
- Do not install or switch on a luminaire with a cracked glass or a damaged housing, bracket, tail or connector, and do not use it as listed in section 2.3.
- Do not connect mains to a DC M, to the Mini or to the tail of an AC M, do not reverse the polarity on a DC luminaire, and do not put a luminaire on a supply outside the range on its label. The DC M stops at 32 V; the Mini at 50 V.
- Do not mount an M on the centre bolt alone, and do not move or modify the reflector shield: the cut off is a factory setting.
- Do not put the driver of an AC M in the wash zone or above plus 50 degrees Celsius, and do not tilt the luminaire upward to gain reach. Order the cut off position for the site instead, section 3.4.

4.9 Emergency and exceptional situations

- If an electrical fault occurs in a luminaire, a driver or a driver box, switch off the supply immediately.
- If a luminaire is severely damaged during operation, by a load, a bucket or a collision, switch off the supply immediately and do not switch it on again until the luminaire has been replaced or released by JEL Products. A cracked glass on a lamp that still works is still a luminaire out of service.
- No DarkLicht has battery back up. None of them provides emergency or escape route lighting.

4.10 Potential health consequences

If ignored	Consequence
Working on a live driver, box or tail	Severe injury or death by electric shock
Mains connected to a DC luminaire or to the tail of an AC M	Destroyed luminaire, arc, fire and shock risk
Looking up into the operating glass	Permanent eye damage, at close range on the M300
Touching a hot housing or driver	Burns, minor to moderate
One bolt, or no secondary retention above a walkway	Injury from a falling luminaire of up to 5.5 kg
Luminaire used as a handhold or step	Fall from height, bent bracket
Fingers at the pivot	Crushing, minor to moderate injury
Cold water on hot glass	Broken glass, fragments falling, loss of ingress protection
Luminaire rested on its glass	Chipped edge, water ingress, later failure
Luminaire tilted upward for reach	Light above the horizontal, glare to drivers and neighbours, a breached permit condition

NEVER, ON ANY DARKLICHT


Never open the housing or remove the glass


Never rest the luminaire on its glass


Never carry or suspend it by the tail or the connector


Never aim a pressure washer at the cable entry or the connector


Never cover the fin field or box it in


Never fit a driver other than the one supplied

5 Preparation

Everything that has to be right before the first bolt goes into the structure.

5.1 Transport and storage

- Transport and store the luminaire in its original packaging, in a dry place, at **minus 45 to plus 50 degrees Celsius**.
- Do not stack pallets beyond the marking on the packaging.
- Store the box the right way up, so that the luminaire stands on its foot and the glass does not carry the weight.
- Keep the cap on the connector of the Mini, and the tail coiled in the box until the luminaire is at its position. The 0.3 m DC tail is short enough to be pinched under the foot during handling; the 2.0 m AC tail is long enough to be trodden on.
- On a light tower that travels between sites, the luminaires travel on the mast, lowered and folded per the tower manufacturer's instruction, not loose in the cab.

5.2 Contents of the delivery

1 ×	DarkLicht luminaire in the ordered configuration, on its bracket, with the cut off at the ordered position. Tail: 2.0 m with free ends on the AC M, 0.3 m with free ends on the DC M, no tail on the Mini
1 ×	Remote BLD320 or BLD240 driver on DRKM05 and DRKM03. Bare, or in a DRB-1 driver box if ordered
1 ×	This instruction manual

> **NOTE, THE MATING CONNECTOR IS AN ACCESSORY**
>
> The Mini carries a Deutsch DTP04 receptacle in its housing. **The mating plug is not supplied as standard**; it is ordered with the luminaire or fitted from the machine builder's stock. The DC M has free ends and needs a junction box, section 7.4. Check the packing list.

Mounting bolts for the structure are not supplied, because they depend on the structure. **The safety cable is not supplied as standard**, see section 6.4.

5.3 Unpacking

1. Read the label on the box and check that the article code matches what you ordered and what the lighting design or the machine specification says. An AC and a DC M300 look identical.
2. Cut the tape along the seams. Do not push the knife deeper than the tape: the glass is just under the lid on an M.
3. Lift the luminaire out by the bracket, never by the tail or the connector.
4. Check that the article code on the type label matches the code on the box, note the internal production code as well, see section 2.5, and **read the supply type on the label**.
5. Inspect the glass, the housing, the bracket, the tail and the connector for cracks, impact damage or a missing cap.
6. Keep the packaging until the luminaire is installed and working. A luminaire that has to be returned travels in its own box.

> **WARNING, DAMAGED PRODUCT**
>
> If you find any damage, do not install the luminaire and do not switch it on. Contact JEL Products.

The M300 as delivered: housing in its bracket, standing on the foot, glass clear of the bench

5.4 Tools

The list names the bolt and not a spanner size, because the bolt into the structure is your choice: bring a socket or ring spanner that fits the M16, M10, M8 or M6 you have chosen for the foot.

Tool	Used for
Socket or ring spanner for the foot bolts	Three per luminaire: M16 plus 2 × M10 on the M300, M16 plus 2 × M8 on the M150 foot, M8 plus 2 × M6 on the Mini
Socket or ring spanner for the pivot bolts	The pivot on each bracket arm of the M and the Mini, when the housing is squared to nil tilt, section 6.3
Torque wrench, 5 to 200 Nm	Foot bolts and pivots, section 6.5
Deutsch DTP crimp tool, size 12 contacts	The mating plug on the machine harness of the Mini, section 7.5
Two open ended spanners for the cable gland	The gland in the junction box or the driver box, one holds the body, one turns the cap nut
Wire stripper and cutter, end sleeve crimping tool	Preparing the tail and the site cable for the terminals
Voltage tester	Verifying that the circuit is dead before a cover comes off
Multimeter	Checking the supply voltage, on DC under load at the connector
Insulation resistance tester	Commissioning an AC installation, chapter 8
Heat gun	Heat shrink tubing over a gland or a joint, section 7.7
Inclinometer, or a phone with one	Checking that the luminaire is at nil tilt, section 6.3
NFC programmer or a DALI-2 tool	Setting the remote driver of an AC M, section 9.2

Do not drill the foot to another pattern. The holes are what the rating was tested with.

NOT SUPPLIED WITH THE LUMINAIRE

Site cable	Sized from section 7.8, to the junction box on a DC M, to the connector on a Mini, to the driver on an AC M
Junction box, DC M	An IP67 box with two M20 glands where the 0.3 m tail meets the site cable, section 7.4
Mating connector, Mini	Deutsch DTP06-2S with wedge lock and two size 12 contacts, section 7.5
Junction box, AC M	An IP67 box where the 2.0 m tail meets the cable to the driver, unless the driver box is within reach, section 7.6
Mounting bolts	A4 or 316 stainless steel or hot dip galvanised class 8.8, with locking
Safety cable	Ordered separately, see section 6.4
Heat shrink tubing and self amalgamating tape	For sealing a gland or a joint, section 7.7
Threadlocker	On a machine, a crane or a tower, always

ONE PERSON OR TWO

One person fits a Mini, or an M150 at ground level on a lowered mast. An M300 on a crane jib or a fixed mast is a two person job: 5.5 kg held out at arm's length while the first bolt goes in is where fingers get caught.

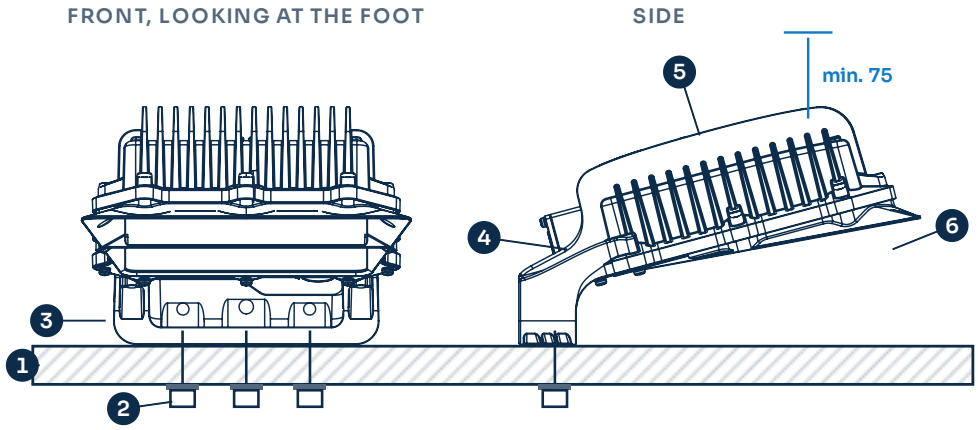
The Mini as delivered. No tail: the connector is in the rear face

6 Mechanical mounting

An M and a Mini stand on the foot of their bracket. Bolt the foot to the structure first, check the cut off position on the label, then make the electrical connection. The luminaire is never tilted to aim it: it sits at nil tilt and the cut off decides the reach.

DANGER

Isolate the supply and secure it against being switched on again before you start. On a machine, a crane or a light tower, switch the machine off, lower the mast and lock it out. Installation may only be carried out by a qualified person.



Mounting principle, M300. Two views from the production drawing to scale. Three bolts through the foot, the housing at its working angle in the arms, the glass down and forward, and the fin field 75 mm clear of anything above it

1. Load bearing structure: the head of a light tower, a crane jib bracket, a mast top plate, a wall or a beam. Verify it for four times the weight in chapter 3, and on anything that moves for 6 G in every direction
2. Three bolts through the foot, M16 in the centre and M10 or M8 in the outer holes, washer under the head, torque per section 6.5
3. Bracket foot, 231 mm wide on the M300, 240.8 × 50 mm on the M150, flat on the structure. The M150 can also be bolted by its front face
4. Pivot bolt in each bracket arm. The housing is clamped on them at nil tilt, the working angle it was measured at. The pivot is not the cut off, section 6.6
5. Fin field, facing up and back. Minimum **75 mm** free space above it. No fan, no vents: the fins are the only cooling path
6. The glass, facing down and forward. Light leaves here and stops at the cut off angle; nothing goes above the horizontal at nil tilt

BEFORE YOU GO UP

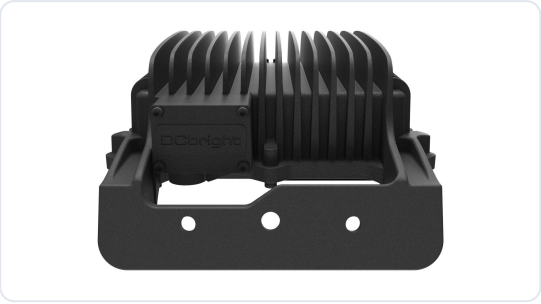
- The lighting design or the machine specification is on site, with position, ordered cut off position and mounting height per luminaire.
- The surface under the foot is flat and at least as large as the foot: a foot bolted onto a curved jib section without a plate is under permanent bending load and cracks at the bend.
- The structure carries four times the weight, and on a machine 6 G. A light tower head designed for four metal halide floods is checked for the new load and the new wind area.
- Mounting hardware is A4 or 316 stainless steel or hot dip galvanised class 8.8, with a locking method. The cable route and, on an AC M, the driver position outside the wash zone are decided.
- The supply circuit can be isolated and secured, and the machine can be locked out.

6.1 The bracket foot, M300, M150 and Mini

1. **Check the position.** Follow the lighting design or the machine specification. Check that the mounting surface is flat, clean and free of obstructions, and that the structure carries the load.
2. **Mark and drill the holes from the foot,** three per luminaire: Ø 17 in the centre and Ø 11 for the outer holes on the M300, Ø 17 and Ø 9 on the M150 foot, Ø 9 and Ø 7 on the Mini. Drill with the luminaire off the structure.
3. **On an AC M, mount the driver first,** outside the wash zone, in an ambient of at most plus 50 degrees Celsius, section 7.6.
4. **Offer the luminaire up** and fit the centre bolt with a washer under the head, A4 or 316 stainless steel or hot dip galvanised class 8.8, finger tight.
5. **Fit the two outer bolts,** finger tight, and square the foot to the structure. There is no pan on the foot: the direction the luminaire faces is the direction the foot is bolted in.
6. **Tighten all three bolts to the torque** in section 6.5 with a torque wrench, centre bolt first.
7. **Check the cut off mark** on the label against the design per section 6.6. It is a factory setting; a luminaire with the wrong position goes back, it is not adjusted.
8. **Check the attitude.** The foot is horizontal, or the front face vertical, and the housing sits at nil tilt in the arms. Record the cut off position.
9. **Fit the secondary retention** if section 6.4 applies.

> **NOTE, THE FOOT HAS NO PAN**
>
> Unlike the JEL floodlights the DarkLicht bracket has no slots: the light distribution is asymmetric and the luminaire is meant to face straight out from the structure it is on. Where a direction has to be adjusted, it is adjusted on the mounting plate, or on a light tower by turning the head.

> **WARNING, DO NOT USE THE LUMINAIRE AS A HANDHOLD**
>
> An M on a mast top or a crane walkway looks like a grab handle. It is not. Neither the housing nor the bracket is a handhold or a step.



The foot of the M300 with its three holes, seen from the rear. The M150 and the Mini feet are the same idea in a smaller size

FIXING PER LUMINAIRE

	Centre hole	Outer holes	Centres
M300, 5.5 kg	Ø 17, M16	2 × Ø 10.5, M10	110.8 mm
M150 foot, 3.6 kg	Ø 16.5, M16	2 × Ø 10, M8	121.1 mm
M150 face	Ø 12, M10	2 × Ø 10, M8	119.2 mm
Mini, 1.0 kg	Ø 10.3, M8	2 × Ø 8.3, M6	Per the foot

AFTER MOUNTING, BEFORE WIRING

- ☐ Three foot bolts tightened to torque, locked and marked.
- ☐ Cut off position on the label checked against the design and recorded, pivots at torque.
- ☐ Luminaire at nil tilt: foot horizontal or face vertical, checked with an inclinometer.
- ☐ Secondary retention fitted where required.
- ☐ Tail free, not pinched under the foot, with room for a drip loop.
- ☐ Nothing within 75 mm above the fin field.
- ☐ AC M only: the driver sits outside the wash zone.

6.2 The mounting configurations

Which one you have follows from the position and from the type. What changes is what the foot is fixed to, how the cable arrives, and whether the luminaire moves in service.

Light tower. The DC M300 or M150 on the head of a mobile tower, 24 V from the tower's battery or generator set, no inverter. The usual position for the M

Crane, mast or structure. The M on a jib bracket, a mast top or a beam, AC through the remote driver or DC from a distribution. The M150 by its face on a vertical plate

Machine. The Mini on a welded plate on a sweeper, a paver, a loader or a crane boom, 10 to 50 V from the machine on one plug

WHAT CHANGES PER CONFIGURATION

Configuration	What to decide before the first bolt
Light tower	The head plate carries three M luminaires or more; the tower manufacturer's head load limit and the wind area of section 3.1 decide. 24 V from the tower on one feed per luminaire or per pair, section 7.8, joined at the head in a junction box. The luminaires travel on the lowered mast
Crane jib	A welded bracket with a flat plate for the foot, the AC driver in the machinery deck or a DC feed from the crane's distribution, a secondary retention on every luminaire, and the boundary check from the ground with the jib at working height
Mast or structure	The M on a mast top plate or a beam, the driver box at the base or on the structure outside the wash zone, the tail extended per section 7.6, and the cut off position ordered for the mounting height
Machine or vehicle	The Mini on a welded plate, bolted through with a locking method, the harness clamped within 300 mm of the plug, and the 6 G rating in mind: the bolts into the plate are yours

The M150 bolted by its face to a vertical plate: the second hole pattern in the bracket, section 3.2

The Mini on a machine. One plug is the installation

A wall pack position is not an M position. For a facade take the DarkLicht WP, which hangs on a plate and takes mains directly; it has a manual of its own, MAN-DLW-EN.

6.3 Mounting attitude and position

Attitude	Foot horizontal or face vertical, the housing at its working angle in the arms, glass down and forward. That is nil tilt, the attitude the photometry and the ULOR of nil assume
Not permitted	Tilting the luminaire upward for reach on its pivots, and mounting an M glass up or on its side. The cut off only works with the reflector the way up it was measured. Square the housing in its arms with an inclinometer and torque the pivots
Cable exit	The tail leaves the rear of the housing on the M; the Mini has its connector in the rear face. Route the cable down and away with a drip loop, and clamp it within 300 mm on anything that moves
Clearance	At least 75 mm above the fin field. The gap between the fins and a canopy or a hood stays open; do not pack it
Driver box clearance	At least 150 mm around a DRB-1 on an AC M
Maximum mounting height	50 m. No limit on the elevation of the site itself. A telescopic light tower is at 9 to 12 m
Wash down zones	Every type is IP69K and may sit in the wash down zone. **A DRB-1 may not**: put it outside, or use the 316L Power Box
Salt and chemistry	C5 on every type. Beyond that, permanent salt immersion or process chemistry, there is no DarkLicht
Heat	The ambient at the fins must stay below plus 50 degrees Celsius. Above a generator canopy in summer, measure it
Cold	Every type runs to minus 45 degrees Celsius and starts at full output. Keep the Mini's connector capped until it is mated, so no frost forms in the cavities

6.4 Secondary retention

WARNING

Fit a secondary retention wherever the luminaire is mounted above a walkway or a working area, and always on anything that moves: a light tower, a crane, a machine or a vehicle. An M on a tower head at 9 m over a site compound is above people all night.

NOTE, THE SAFETY CABLE IS AN ORDERED ITEM

The safety cable is **not supplied as standard**. It is supplied with the luminaire when it is ordered, and it is rated for the weight of the luminaire it is supplied for. State the type: an M300 at 5.5 kg needs a different cable from a Mini at 1.0.

Length	1 m
Rating	Matched to the weight of the luminaire it is supplied for
Anchor	To the structure, independent of the foot bolts, not to the tail and not to the connector
Supply	Ordered separately, never as standard

1. Choose an anchor point independent of the foot bolts that carries four times the mass of the luminaire. At 1 m the cable is short, so the anchor has to be close. Pick it before you drill.
2. Loop the cable around that anchor and attach the other end to the bracket, around an arm, not to the housing and not to the tail.
3. Leave a little slack, enough to lower the housing for service but not so much that the luminaire can gather speed if the fixings fail.
4. Record the safety cable in the site or machine documentation, so that it is inspected at every maintenance visit and every crane or tower inspection.

DANGER

Do not substitute a cable, chain or strap of your own without having it rated. A longer cable turns a drop into a swing, and a 5.5 kg housing swinging under a jib hits whoever is on the ground before it hits anything else.

6.5 Tightening torques

Use a torque wrench. Overtightening a stainless bolt in an aluminium thread strips it; undertightening lets it work loose at 6 G.

Connection	Size	Torque
Foot bolt, centre, M300 and M150, class 8.8	M16	175 Nm
Foot bolts, outer, M300, class 8.8	2 × M10	40 Nm
Foot bolts, outer, M150, class 8.8	2 × M8	20 Nm
Face bolts, M150, class 8.8	M10 plus 2 × M8	40 and 20 Nm
Foot bolts, Mini, class 8.8	M8 plus 2 × M6	20 and 8 Nm
Pivot bolts in the bracket arms, M and Mini	Per the bolt fitted	M10 40 Nm, M8 20 Nm, M6 8 Nm
Cable gland cap nut, box	M20	2.5 Nm, and dimension L in section 7.7

Torques apply to clean, dry, undamaged class 8.8 threads. For an A4 or 316 bolt, use an anti-seize compound and reduce the torque by about a third; into a tapped aluminium thread, never beyond the figure for the bolt size. Where the hardware comes from another supplier, that supplier's torque takes precedence. The mast or tower manufacturer's figure applies to the head bolts.

The M150 from the side: the pivot bolt in the arm clamps the housing at nil tilt. The cut off is a factory setting on the reflector shield, not here

6.6 The cut off, a factory setting

The cut off is a position of the **reflector shield** inside the sealed housing. The shield has five positions, **S1 to S5**, 75 to 63 degrees, and the luminaire is built at the factory to the position specified at order. It is the same on the M and the Mini, because they share the reflector. **Nothing about it is adjustable on site**: not the shield, not the reflector, and not the bracket, whose pivot sets the tilt, and the tilt stays at nil.

1. Specify the position at order from the lighting design. Where none exists: **S3, 69 degrees**, for a yard or a compound; S5, 63 degrees, where housing or a carriageway lies directly on the boundary; S1, 75 degrees, only where nothing beyond the reach is sensitive.
2. On delivery, check the cut off position on the label and the packing list against the design, luminaire by luminaire, before anything goes up a mast.
3. Mount the luminaire at nil tilt and switch on from a safe distance. Check from the boundary, not from under the luminaire, that the light stops where the design says. Record the position on the site drawing.
4. Where the boundary is wrong for the site, do not tilt the housing and do not touch the shield. Contact JEL Products: a different position is a factory job, or a different luminaire.

WARNING, THE TILT IS NOT A SUBSTITUTE FOR THE CUT OFF

A housing tilted up on its pivots for a few metres more reach is a floodlight with light above the horizontal and a reflector at an angle it was never measured at. A housing tilted down to tighten the boundary loses reach it was bought for. If the design needs more reach than S1 gives at that height, the answer is a higher mounting point or a second luminaire.

NOTE, S1 AND S2 IN THE PHOTOMETRIC FILES

The IES files on the product page carry the two shielding positions of the reflector, S1 and S2. A lighting designer working in DIALux uses the file that matches the position that will be ordered, and the order states that position. If the delivered luminaire and the design disagree, the luminaire is exchanged, not adjusted.

7 Electrical installation

DANGER, LIVE PARTS

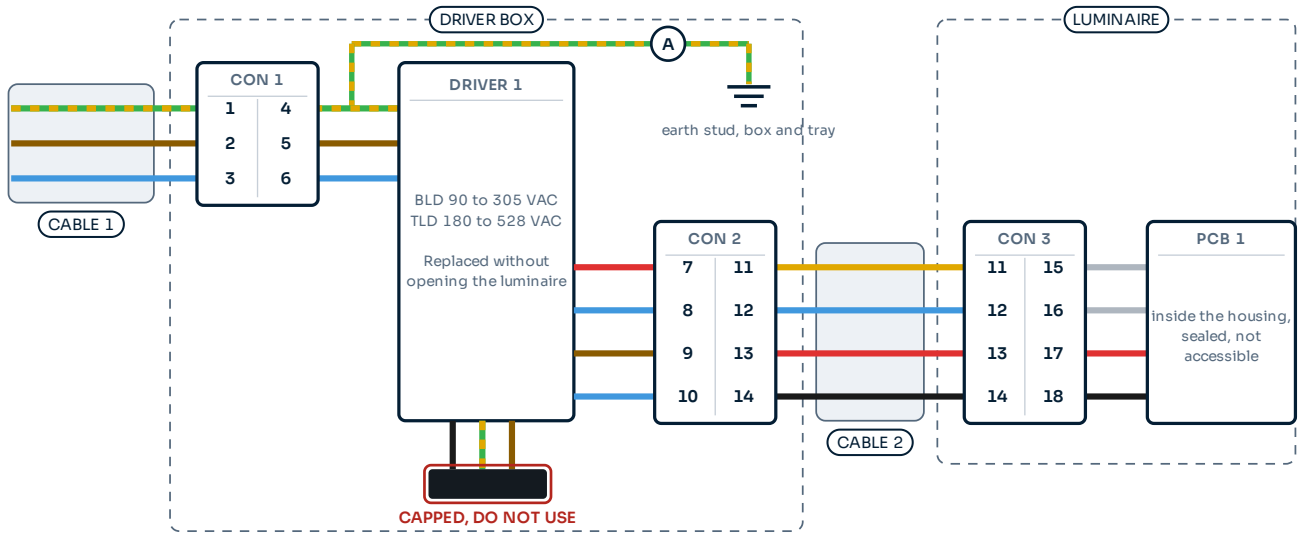
Isolate the supply, secure it against being switched on again, and verify that the circuit is dead before a cover comes off or a connector is opened. Only a qualified person may make the electrical connection.

7.1 Architecture, the AC M300 and M150

On DRKM05 and DRKM03 the driver sits **outside the luminaire**. Mains arrives at connector 1 in the driver box, the driver feeds connector 2, and cable 2, which on the M is the four core tail of 2.0 m, carries the driver output and the temperature signal to the luminaire. That is why a driver fault on an AC M is a ground level job, and why the driver must never ride the mast.

ONE DIAGRAM FOR EVERY AC VERSION IN THE RANGE

The diagram below is the same diagram as in the other JEL manuals: the conductor count, the colours, the connectors and the terminal numbering are shared across the range. On the M300 the driver is the **BLD320**, on the M150 the **BLD240**, and cable 2 is the H07BQ-F tail of the luminaire, 2 × 2.5 mm² for the driver output and 2 × 0.5 mm² for the temperature signal, 2.0 m long. Connector 3 is inside the luminaire and is not accessible.



CABLE 1, mains	1 green and yellow earth · 2 brown phase · 3 blue phase or neutral. Mains voltage
DRIVER to CON 2	7 red TEMP + · 8 blue TEMP − · 9 brown DRI OUT + · 10 blue DRI OUT −
CABLE 2	11 yellow TEMP + · 12 blue TEMP − · 13 red DRI OUT + · 14 black DRI OUT −. No mains, no earth
CON 3 to PCB 1	15 grey · 16 grey · 17 red DRI OUT + · 18 black DRI OUT −
A	The incoming earth conductor lands on the earth stud of the driver box, and earths the box and the tray. The luminaire is Class II and is not earthed
CAPPED	**The black, green and brown conductors on the driver are capped off and are not connected. Do not use them**

Every conductor, colour and terminal number as on the production drawing. Cable 1 carries mains, cable 2 the driver output and the temperature feedback

DANGER, THE CAPPED CONDUCTORS ARE NOT SPARE WIRES

The driver leaves the factory with **three capped conductors: black, green and brown**, part of the driver control lead and **not connected on purpose**. Leave the cap in place and do not use them as an earth, a neutral or a spare core. Adding dimming later is a driver change, done by JEL Products or by a qualified person with the driver documentation.

The incoming **earth conductor lands on the earth stud of the driver box**, marked **A**, and earths the box and the tray. Cable 2 carries no protective earth and the luminaire itself is not earthed: the driver sits outside the housing, so the luminaire is Class II.

This diagram applies to models from 2025 onward. For an older luminaire, check the connection against the diagram supplied with it before you rewire anything.

7.2 Conductors, DRKM05 and DRKM03

No	Colour	From, to	Function
1	Green and yellow	Incoming cable to CON 1	Earth
2	Brown	Incoming cable to CON 1	Phase
3	Blue	Incoming cable to CON 1	Phase or neutral
4	Green and yellow	CON 1 to driver 1	Earth
5	Brown	CON 1 to driver 1	Phase
6	Blue	CON 1 to driver 1	Phase or neutral
7	Red	Driver 1 to CON 2	Temperature, plus, NTC plus
8	Blue	Driver 1 to CON 2	Temperature, minus, NTC minus
9	Brown	Driver 1 to CON 2	Driver output, plus
10	Blue	Driver 1 to CON 2	Driver output, minus
11	Yellow	CON 2 to CON 3, the tail	Temperature, plus, 0.5 mm²
12	Blue	CON 2 to CON 3, the tail	Temperature, minus, 0.5 mm²
13	Red	CON 2 to CON 3, the tail	Driver output, plus, 2.5 mm²
14	Black	CON 2 to CON 3, the tail	Driver output, minus, 2.5 mm²
15	Grey	CON 3 to PCB	Dimming signal, plus
16	Grey	CON 3 to PCB	Dimming signal, minus
17	Red	CON 3 to PCB	Driver output, plus
18	Black	CON 3 to PCB	Driver output, minus

WARNING, THE THIN PAIR IS THE TEMPERATURE PAIR

The two 0.5 mm² cores in the tail, conductors 11 and 12, carry the temperature signal from the luminaire to the driver. **They are not a dimming input.** Dimming enters at the driver; conductors 15 and 16 are inside the luminaire. An installation that leaves the thin pair unconnected leaves the thermal protection disconnected, and an M300 without thermal protection on a plus 50 degree afternoon is a warranty claim we will decline.

Connector 3 and the board are inside the sealed housing. Rows 15 to 18 are listed so that the numbering matches the other JEL manuals and the production drawing; nothing in those rows is touched on site.

7.3 Circuit breakers

Maximum number of luminaires on one miniature circuit breaker, the driver manufacturer figure on an ABB S200 at 220 V.

Driver	B16	C16	C25	D16
BLD320, M300 AC	2	4	7	8
BLD240, M150 AC	3	6	9	10

It is the **inrush** that limits the count, not the running current: the BLD320 peaks at 31.2 A with a T50 of 1.3 ms and the BLD240 at 66 A and 0.5 ms, while an M300 draws 1.4 A at 220 V. Two M300 on a B16 is the figure a site electrician does not expect; a C characteristic is the normal choice on a lighting circuit with drivers. A guide for the engineering phase, not a substitute for the installation calculation.

NOTE

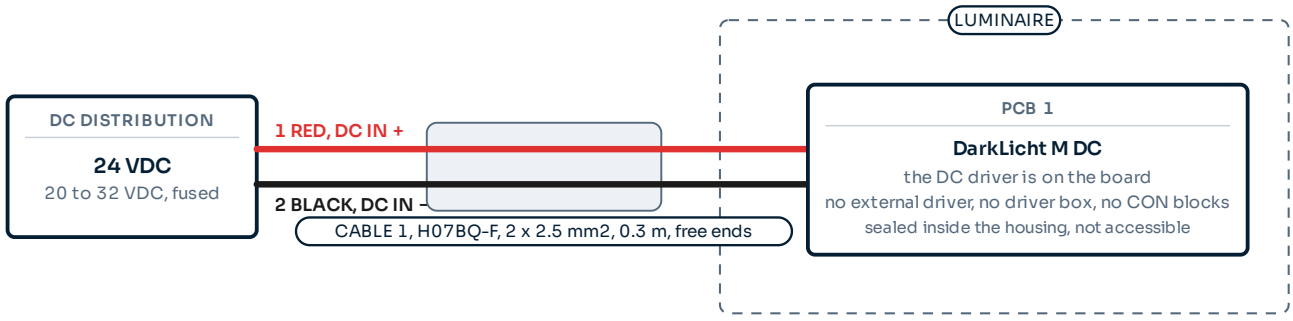
Where a residual current device is fitted, the combined leakage current of the circuit decides the count. One AC M draws at most 0.7 mA.

ON A GENERATOR

An AC M on a site generator sees the same inrush limits as on the grid, and a generator set with electronic protection can trip on the combined inrush of a bank switched together. Stagger the switching, or size the breaker per the table.

7.4 Architecture, the DC M300 and M150, and the joint

DRKM04 and DRKM02 have their drivers on board. There is no external driver and no driver box. A two core tail of 0.3 m with **free ends** leaves the luminaire, red and black, and the joint with the site cable is made in an IP67 junction box or in the terminal box of the machine, within reach of the tail. On a light tower the tail is joined to the tower harness at the head.



CABLE 1 1 red DC IN + · 2 black DC IN –. Two cores, no earth conductor and no control conductors
POLARITY **Reversing plus and minus does not light the luminaire and can damage the board. Check the marking at both cable ends**
CLASS II No protective earth conductor runs to the luminaire. Earth the DC distribution and any metal enclosure per the installation

Never connect a DC luminaire to an AC supply, and never connect an AC luminaire to mains without its driver.

Two conductors and a fuse. Red is plus, black is minus, on every DC luminaire in the JEL range

Core	Tail	Function
1	Red	DC in, plus. 20 to 32 V, 24 V nominal
2	Black	DC in, minus

Tail termination	Free ends, 0.3 m, no connector
Joint	IP67 junction box with M20 glands, or the machine's terminal box. Screw or spring terminals rated for the current, end sleeves on both cables
Current at 24 V	12.5 A on the M300, 6.3 A on the M150
Tail	2 × 2.5 mm² on the M300, 2 × 1.5 mm² on the M150
Protection	Reverse polarity and surge protected on the board
Fuse	Sized to the cable, per luminaire or per circuit, 16 A on a single M300 is typical
Dimming	On request, built to order

DANGER, POLARITY AND SUPPLY TYPE

Never connect a DC M to an AC supply, never reverse the polarity, never exceed 32 V. Each destroys the luminaire, outside any warranty.

WARNING, 12.5 A AT THE TIP OF A MAST

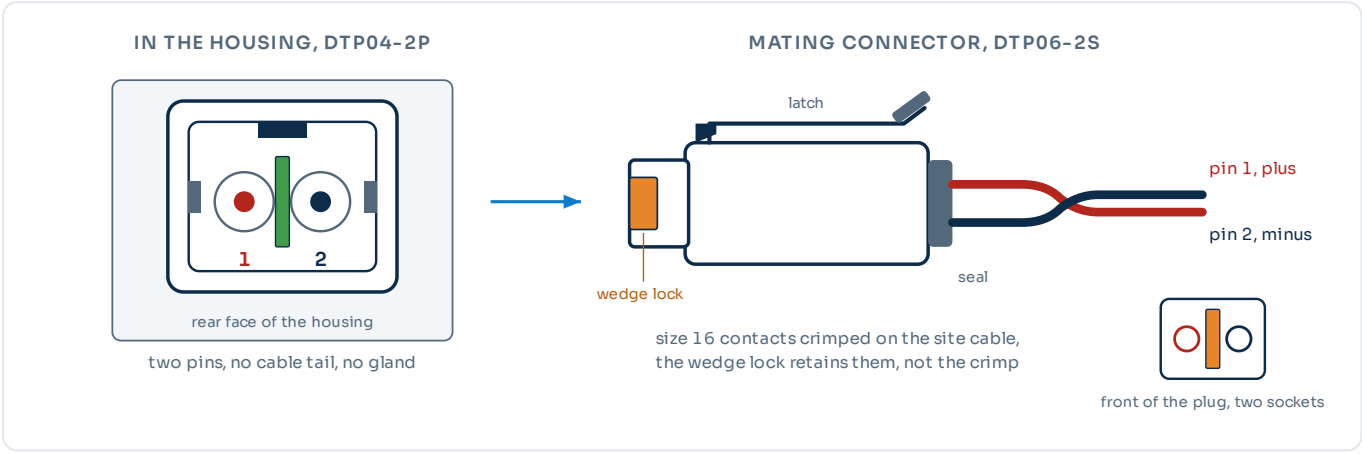
The M300 DC is the heaviest DC load in the JEL range: 12.5 A at 24 V, 15 A at 20 V. **Site cable 2.5 mm² at least, terminals rated for 16 A, end sleeves on every conductor.** A warm joint on an M300 is a loose terminal or a missing sleeve. Measure at the joint under load, not at the battery.

MAKING THE JOINT

1. Fit the junction box within reach of the 0.3 m tail, where it can be opened for service, glands pointing down.
2. Strip both cables to suit the glands and the terminals, fit end sleeves, and feed them through their glands.
3. Land red on plus and black on minus, one conductor per terminal, and check the polarity against the supply before the box is closed.
4. Tighten the glands to 2.5 Nm, pull to confirm, close the box, and clamp the site cable within 300 mm of it so that vibration works on the clamp. Keep the free ends capped and dry until then.

7.5 The Mini and its connector in the housing

The Mini has no tail. A **Deutsch DTP04-2P receptacle** sits in the rear face of the housing, between the bracket arms, and the machine harness ends in the mating DTP06-2S. Drivers on board, 10 to 50 V, so a 12, 24 or 36 V machine takes the same lamp. One plug is the installation: no gland, no joint, no cable to route or damage.



The DTP04-2P in the rear face and the DTP06-2S plug on the machine harness. Size 12 contacts, 25 A each, far above the 2.5 A of a Mini at 12 V

Pin	Function	Note
1	DC in, plus	10 to 50 V. Red in the harness by convention
2	DC in, minus	Black in the harness by convention

Receptacle	Deutsch DTP04-2P, two pole, size 12 contacts, in the housing
Mating plug	Deutsch DTP06-2S with wedge lock WP2S and two size 12 socket contacts, for 2.5 to 4.0 mm². An accessory, not supplied as standard
Current	2.5 A at 12 V, 1.3 A at 24 V, 0.8 A at 36 V
Protection	Reverse polarity and surge protected on the board
Fuse	Per luminaire or per circuit, sized to the cable, 5 A typical
Dimming	On request, built to order

DANGER

Never connect the Mini to an AC supply, never reverse the polarity, never exceed 50 V. A 48 V system with a charger on it can exceed 50 V at the end of a charge: measure it before you connect.

FITTING THE MATING PLUG

1. Strip the harness and crimp the two size 12 socket contacts with the DTP crimp tool. The DTP contact is the large one; a DT tool does not crimp it.
2. Push the contacts into the DTP06-2S until they click, plus to 1 and minus to 2, and fit the wedge lock.
3. Take the cap off the receptacle, mate the plug until the latch clicks, and pull to check.
4. Clamp the harness within 300 mm of the plug, on the machine, so that vibration works on the clamp and not on the contacts.

NOTE, THE RECEPTACLE IS THE ONLY OPENING

On the Mini the receptacle is part of the sealed housing. It does not come out and it is not replaced on site. A damaged receptacle is a return, section 12.4. Where the harness has to be disconnected on a washed machine, cap the receptacle; open, it is the one place where the IP69K rating leaves the luminaire.

7.6 Where the driver of an AC M goes

On DRKM05 and DRKM03 the driver is the one part of the installation that is outside the luminaire, and its position decides the service life of the driver and the comfort of every later driver exchange. It goes where it is cool, dry and reachable; the tail of the luminaire is extended to it where 2.0 m is not enough.

1. **Choose the driver position first.** Outside the wash zone, outside the generator compartment, within minus 40 to plus 50 degrees Celsius ambient, and reachable at ground level. On a mast the DRB-1 at the foot; on a crane in the machinery deck; on a light tower in the cabinet, never on the mast.
2. **Where the 2.0 m tail reaches the box, land it in the box** on connector 2, four cores, per section 7.2. One gland, no joint.
3. **Where it does not, make the joint in an IP67 junction box,** four cores of the same colours, a gland for each cable and dimension L per section 7.7. Extend both pairs; a run with the thin pair left out has no thermal protection.
4. **Size the extension on section 7.8.** The driver output is about 50 VDC at 6.4 A on the M300 and 4.8 A on the M150.
5. **Earth the driver box and the tray.** The luminaire is Class II; the box is not.

WARNING, THE DRIVER AMBIENT

The driver is rated for a case temperature of plus 90 degrees Celsius, which it reaches in a plus 50 degree ambient under full load. A DRB-1 in a generator compartment, in the sun on a steel deck or under a black canopy roof runs past that, and the driver is the part that fails first. Measure the ambient at the box on the hottest afternoon of the year, not on the day of installation.

NOTE, ONE DRIVER, ONE LUMINAIRE

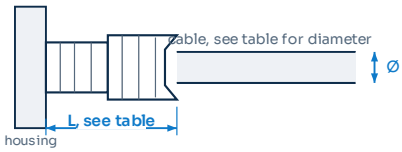
Every AC M has its own BLD320 or BLD240, programmed for it. Two luminaires never share a driver, and a driver from a Shark or a Barracuda does not run an M300 at the right current, section 12.3.

BLD320, M300	225 × 68 × 38.5 mm, 1,120 g, 90 to 305 VAC. Fits the DRB-1
BLD240, M150	215 × 67.5 × 33.5 mm, 1,100 g, 90 to 305 VAC. Fits the DRB-1
DRB-1	One driver up to 320 W, 276 × 194 × 86.5 mm, 4.2 kg, IP66 and IP67. Outside the wash zone
316L Power Box	The same driver in solid 316L, where the box sits in the wash zone
Bare driver	Supplied bare as standard, for an existing cabinet or a tray, with both connections inside an IP67 junction box
Driver ambient	minus 40 to plus 50 degrees Celsius, Tc to plus 90

DRB-1 driver box. One driver up to 320 W, so it takes the BLD320 of an M300 exactly

7.7 Cable glands

No type in this manual has a gland to tighten on the luminaire: the M tail is moulded in at the factory and the Mini has a connector. The glands you meet are those of the driver box and the junction box behind an M. Tighten a cap nut to 2.5 Nm and to the dimension in the table, measured over the gland. That is a more reliable instruction on a mast than a torque figure alone. Then apply heat shrink tubing and self amalgamating tape over the gland on anything that is washed. Dimension L runs from the face of the box to the end of the cap nut, with the cable fitted; it is not the thread length.



Where dimension L is measured

Cable	M12×1.5 -D-SI 4 to 8	M20×1.5 -2H 4 to 8	M20×1.5 -H 5 to 10	M20×1.5 6 to 12	M20×1.5 -D 8 to 14
H07BQ-F 4G0.5 mm², Ø 6.7 mm	17.7 mm	19.8 mm	n/a	n/a	n/a
H07BQ-F 2G2 mm², Ø 7.3 mm	18.4 mm	19.9 mm	n/a	n/a	n/a
H07BQ-F 2G1.5 + 2G0.5 mm², Ø 8 mm	18.9 mm	20.0 mm	20.4 mm	n/a	n/a
H07BQ-F 4G1.5 + 2G0.5 mm², Ø 10.4 mm	n/a	n/a	21.3 mm	22.2 mm	n/a
H07BQ-F 2G2.5 + 2G0.5 mm², Ø 9.5 mm	n/a	n/a	**21.1 mm**	n/a	n/a
H07BQ-F 4G2.5 + 2G0.5 mm², Ø 12.3 mm	n/a	n/a	n/a	n/a	21.0 mm
SiHF-08 2×1 mm², Ø 7.9 mm	18.9 mm	20.0 mm	n/a	n/a	n/a
SiHF-08 2×2.5 + 2×0.5 mm², Ø 10.7 mm	n/a	n/a	21.3 mm	n/a	n/a
EPDM H07RN-F 3G1.5 mm², Ø 10 mm	n/a	n/a	**21.3 mm**	n/a	n/a

This table is identical across the JEL range, so a site with DarkLichts, Sharks and Barracudas on it works to one set of figures. The rows in bold are the ones that apply here: the four core tail of the AC M, 2 × 2.5 plus 2 × 0.5 mm², where it enters a driver box or a junction box; and the H07RN-F 3G1.5 recommended for the mains side of a box. The two core DC tail of the M works to the same figures in an M20 × 1.5-H gland in the junction box of section 7.4. Here n/a means the combination is outside the clamping range of that gland and must not be used. Where a cable and a gland do not appear together in this table, ask JEL Products before you fit them.

7.8 Cable length and voltage drop

Beyond the tail the cable is supplied by the tower builder, the machine builder or the installer, so the cross section is a decision and not a given. The rule is that the voltage drop between the source and the luminaire must not exceed **2 V**. On the mains side of an AC M that is a normal mains calculation and the cable is never the limit; on DC it is, and on the M300 it is the whole design.

DC M AT 24 V, ONE LUMINAIRE, 2 V DROP

Cross section	M300 12.5 A	M150 6.3 A
2.5 mm²	11 m	23 m
4 mm²	18 m	36 m
6 mm²	27 m	54 m
10 mm²	46 m	91 m
16 mm²	73 m	145 m

MINI, ONE LUMINAIRE

Cross section	12 V, 2.5 A 1 V drop	24 V, 1.3 A 2 V drop	36 V, 0.8 A 2 V drop
1.5 mm²	17 m	66 m	107 m
2.5 mm²	29 m	110 m	179 m
4 mm²	46 m	176 m	286 m

NOTE, THE M300 ON A TELESCOPIC MAST

Four M300 on a 9 m mast on one 24 V feed draw 50 A. On 6 mm² that feed stays inside 2 V for about 7 m, which is **less than the mast is tall**. Feed each luminaire, or each pair, on its own cable from the base, and take the drop over the mast cable reel into account. Several luminaires on one cable: divide the length by their number, as a first estimate.

AC M, THE EXTENDED TAIL

Driver output	About 50 VDC, 6.4 A on the M300 and 4.8 A on the M150. An extension stays inside 2 V to about **22 m in 2.5 mm²**, 36 m in 4, 54 m in 6 and 89 m in 10 mm² on the M300; 30, 48, 71 and 119 m on the M150. The thin pair follows in the same cable

All lengths are the maximum at the stated drop, copper, two conductors, one way, rho 0.0175. Where the installation calls for a tighter limit, size the cross section on that.

7.9 Making the connection

DANGER, READ THE LABEL FIRST

On DRKM05 and DRKM03 **mains goes to the driver and only the driver output reaches the luminaire**. DRKM04, DRKM02 and the Mini are DC devices and mains destroys them instantly. **No type in this manual takes mains on its tail.** An AC and a DC M look the same from the front; the tail tells them apart.

1. Confirm the circuit is dead and secured, and on a machine or a tower that it is locked out.
2. **DC M:** make the joint in the junction box per section 7.4, red to plus and black to minus, check the polarity with a meter at the terminals, and close the box.
3. **Mini:** fit the DTP06-2S to the harness per section 7.5 and mate it to the receptacle in the housing.
4. **AC M:** mount the driver or the driver box outside the wash zone and the generator compartment, in an ambient between minus 40 and plus 50 degrees Celsius, reachable. Earth the box, the tray and any metal enclosure. Land the tail on connector 2 in the box, or extend it in an IP67 junction box per section 7.6. Use end sleeves, one conductor per terminal, and keep the thin pair with the power pair.
5. Tighten every gland to 2.5 Nm and to dimension L in section 7.7, then seal with heat shrink tubing and self amalgamating tape on anything that is washed.
6. Support and clamp the tail and the site cable with a drip loop below the entry, so that no load reaches the gland or the connector. On anything that moves, clamp within 300 mm.
7. Check that no conductor is pinched under a cover and that every gasket sits in its groove all the way round.

TOWER AND MACHINE BUILDERS

Fuse	Per luminaire, sized to the cable: 16 A on an M300, 10 A on an M150, 5 A on a Mini
Switching	On the supply. A relay that chatters toggles a tuneable white luminaire, section 9.3
Load dump and cranking	The board is surge protected. The DC M goes out below 20 V and comes back by itself; the Mini rides through a 10 V crank

8 Commissioning

Do not switch on until every item below has been checked. Most warranty cases that turn out not to be a product fault trace back to a step skipped here.

8.1 Checks before switching on

- ☐ Conditions within the range for that type, chapter 3, and no broken mechanical part: glass, housing, bracket, tail, connector.
- ☐ Supply type and voltage checked against the label: mains to the driver on an AC M, 20 to 32 V or 10 to 50 V measured **under load** at the joint on a DC M, or at the connector on a Mini.
- ☐ DC only: polarity checked at the plug, plus to 1, minus to 2. Plug latched and the cable clamped.
- ☐ AC M only: all four cores of the tail through to connector 2, the driver outside the wash zone within plus 50 °C ambient, the box earthed and closed.
- ☐ Foot: three bolts at torque, locked and marked. Pivots at torque, the housing at nil tilt.
- ☐ Cut off position on the label checked against the design on every luminaire, and recorded.
- ☐ Secondary retention fitted where section 6.4 requires it, and on anything that moves.
- ☐ Nothing within 75 mm above the fin field, and nobody within the hazard distance of section 4.3 looking up into the glass.

8.2 First power up

1. Restore the supply.
2. Confirm that it illuminates. **Do not look up into the glass**, see section 4.3.
3. Walk to the boundary and check that the light stops where the design says. Look back at the luminaire from the boundary: **from outside the cut off you should not see the reflector lit**. If you do, the attitude is wrong or the wrong position was delivered.
4. Correct if required: switch off, square the foot to nil tilt, torque, switch on and check again. A wrong cut off position is not corrected on site, section 6.6.
5. Record the installation: both label codes, the serial number, the position, the cut off position, the colour temperature, the mounting height, the date and the installer.

8.3 Handover

Leave this manual with the site, tower or machine documentation, together with the record from step 6 of section 8.2.

> **WARNING**
> Never adjust, open or work on the luminaire while it is energised, and never on a machine or a tower that is not locked out. Isolate first, every time.

> **NOTE, THE CUT OFF CHECK IS THE COMMISSIONING**
> On a floodlight, commissioning is aiming. On a DarkLicht it is the walk to the boundary. A permit condition, a neighbour or a highway authority will judge the installation from there, so that is where the installer judges it too. Photograph the view from the boundary at handover; it is the evidence if a complaint comes.

> **NOTE, MEASURE THE VOLTAGE AT THE LUMINAIRE**
> On a light tower the battery may read 25 V while the M300 at the top of the mast sees 20 V under load, because of the run, the reel and the other luminaires on the same feed, and at 20 V the M is on its floor. **Measure at the connector with everything running**, section 7.8.

> **NOTE, TUNEABLE WHITE ON FIRST POWER UP**
> A tuneable white build comes up in its default colour, normally 4000 K. Section 9.3 explains how it is switched, and it is worth demonstrating that to the operator at handover, because the night colour is the reason it was bought.

The M150 fitted and running. The light is on the ground in front of it and the housing itself is dark from the side

9 Operation and dimming

9.1 Normal operation

A DarkLicht needs no operator action in normal service. It switches with the circuit and reaches full output immediately, with no warm up and no restrike delay, and it may be switched as often as the site or the machine requires. At minus 45 degrees Celsius it starts at full output. There is no lamp to change and nothing to adjust from year to year, and the cut off does not drift.

9.2 What each type accepts

Type	What it accepts
DRKM05, DRKM03, AC M	**0 to 10 V, PWM or DALI-2**, at the remote BLD320 or BLD240, on a driver ordered with dimming. Or a fixed level set over **NFC** on the driver without power. A lower wattage is a driver setting and is ordered as a suffix
DRKM04, DRKM02, DC M	**On request.** The drivers are on the board, so dimming is a build option and not a site fitted accessory. A standard DC M is a switched luminaire
DRKM01, Mini	**On request**, as the DC M. A standard Mini is a switched work lamp
Tuneable white, BIC	4000 K with 2200 K and 1700 K, switched in operation. See section 9.3. Available on every type

9.3 Tuneable white and the DarkSky colours

A tuneable white DarkLicht carries the working white and the DarkSky colours in one housing and switches between them **on the supply itself**, using how long the luminaire has been off. There is no second control line and no separate switch on the luminaire. On a site that is the day and night regime: 4000 K while the work is on, amber when the site is quiet and the permit says so.

What you do	What happens
Switch on after more than 5 seconds off	The luminaire comes up in its **default colour**, 4000 K, whatever colour it was showing before
Switch off and back on within 5 seconds	The luminaire steps to the **next colour**: 2200 K, and on the next short cycle 1700 K
Repeat the short cycle	It steps round the colours, as often as you like
Several luminaires out of step	Switch the whole group off, **wait 30 seconds**, and switch on. All of them reset to the default colour and are back in step

Because the switching is on the supply, a tuneable white luminaire fed from a relay that chatters, or from a tower circuit that dips when the generator starts, can change colour on its own. Where the colour has to be dependable, feed it from a clean switched circuit. On a DALI-2 build the colour can also be selected over the bus; the quotation says which.

NOTE, THE DARKSKY DS-1 COLOURS

Amber 2200, 1800 and 1700 K are the colours at which the DarkLicht has been third party tested against DarkSky DS-1. A permit that names DS-1 is met by ordering one of those colours, or tuneable white and running the amber at night. It is not met by dimming 4000 K down: the spectrum is the condition, not the level.

NOTE, DIMMING AND THE FLUX FIGURES

Every luminous flux figure in chapter 3 is the figure at full output and at 4000 K. A dimmed luminaire and the amber colours deliver less light. If the design relies on a setting, the lighting calculation states it.

9.4 What the luminaire does by itself

- **Thermal foldback.** The luminaire measures its internal temperature and reduces the current as it rises. On overheating it switches off and comes back when it has cooled. On the AC M that runs through the temperature pair in the tail.
- **Reverse polarity protection.** On DC, a reversed supply does not damage the luminaire and does not light it.
- **Surge protection.** On every type, on the board on DC, and on the AC drivers 6 kV line to line and 10 kV line to earth.
- **Undervoltage.** The DC M shuts down below 20 V and restarts by itself when the supply returns; the Mini runs down to 10 V. The AC drivers behave the same below their input range.

9.5 What the luminaire does not do

- It does not carry an emergency function. See section 4.9.
- It does not accept a control protocol that is not in its build. Sending DALI to a 0 to 10 V driver has no effect, and a DC luminaire has no control input at all.
- It does not change its cut off electrically. The cut off is mechanical, section 6.6.
- It does not share a driver. Every AC M has its own BLD320 or BLD240, programmed for it.

10 Maintenance

DANGER

Isolate the supply and secure it before any maintenance work, lock out the machine and lower the mast. Let the luminaire cool to hand temperature before touching it.

10.1 Interval

Environment	Interval
Fixed structure, mast or building	Once a year
Light towers, cranes, machines and vehicles	Every service, and check the foot bolts, the pivots and the retention every time the tower moves site
Demolition, earthworks, dust or mud	Every service, clean the fins and the glass at every wash
Ports and coastal sites	Every six months
Food production and washdown	Weekly, daily on heavy soiling, and after every run on a high fat load. Protocol in section 10.5

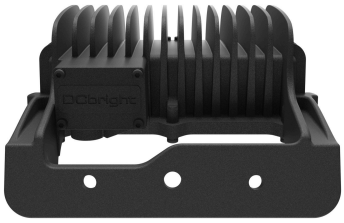
Too little cleaning shortens the life of the product, most of all where the fins fill with dust or the glass, which faces the ground, collects a film that scatters light upward.

10.2 Inspection

- ☐ Glass, housing and seals: impact damage, cracks, a chipped glass edge, corrosion, a film on the glass.
- ☐ Three foot bolts tight. Retighten to the torque in section 6.5.
- ☐ Pivots tight, the housing still at nil tilt.
- ☐ Bracket and structure sound: no cracks at the bend of the foot, no cracked weld under it.
- ☐ Secondary retention present, intact and correctly attached.
- ☐ Tail and site cable: chafe, damage, intact insulation, no exposed conductor, drip loop still below the entry, clamp still holding.
- ☐ Connector latched and clean, or the gland tight and the box cover bolts tight, no moisture trace at a gasket.
- ☐ Fins clear of dust, mud and grease, the 75 mm above them open.
- ☐ Attitude unchanged: foot horizontal, luminaire at nil tilt, and from the boundary the reflector still dark.
- ☐ **AC M only:** the driver is still outside the wash zone and its box is dry inside.

10.3 Records

Record every inspection, fault, repair and replacement, with both codes from the label. Under warranty, that record is the difference between a fast decision and a long discussion.



The fin field of the M150. This is what has to stay clear, and on a light tower it faces the sky and collects everything that falls

WHY THE FINS AND THE GLASS BOTH MATTER

The DarkLicht has no fan, no vents and no moving part. Everything the LEDs produce leaves through the fins, and the housing is sealed precisely so that nothing gets in. Dust on the fins raises the junction temperature, and the lifetime figures in chapter 3 assume a clean heat sink. **The glass faces the ground**, so it takes less rain washing than a floodlight and more dust from below; a dirty glass scatters light in every direction, including above the cut off. On a cut off luminaire the glass is part of the optic.

CAUTION

Do not hammer, pry or scrape between the fins. A soft brush, water and compressed air clear them. A screwdriver breaks a fin, and the fin is cast into the housing.

10.4 Cleaning, on site and in a normal environment

1. Switch off the supply, lock out the machine, lower the mast and let the luminaire cool.
2. Remove loose dust, mud and debris with water and a soft brush.
3. Clean the housing and the glass with a soft cloth or sponge, water and a mild detergent. The glass is the underside: clean it from below, with the luminaire cold.
4. Clear the fins, then dry the glass with a soft cloth. No grit under the cloth.

CAUTION

Do not use solvents, caustic cleaners or abrasives. Do not aim a high pressure lance at the connector, at the cable entry, at the edge of the glass or at a box cover. The DarkLicht is rated IP69K, but the connector, the gland and the glass seal are the places where pressure does damage, and the tower or the machine around it may not be IP69K at all.

10.5 Cleaning, washdown areas and food production

In a food or washdown area the DarkLicht is cleaned to JEL Products protocol B5.17, version 1.0 of 27 May 2026. Written for the food industry, it is the stricter of the two procedures and it is the one a HACCP file asks for. It applies to every type in this manual.

BEFORE YOU START

- Switch off the supply to the luminaire.
- Let the luminaire cool to hand temperature.
- Inspect the glass, the seals, the connector or the gland, the cable and the housing for damage.

PERMITTED

Water	Clean mains water, lukewarm, maximum plus 40 degrees Celsius
Cloth	Soft microfibre cloth
Sponge	Soft sponge

NOT PERMITTED

Cleaning agents	No aggressive or chemical cleaners, no foaming agents, no solvents
Chemistry	No chlorine based, acid based or alkaline cleaners, no alcohols, no degreasers
Mechanical	No wire brushes, no abrasives, no scouring agents
Steam	No steam cleaning
Pressure	No high pressure above 80 bar

IP69K is what makes this possible. Every type carries IP69K, the high pressure steam jet test, and that is what a wash-down regime actually applies. Chlorine on an aluminium housing takes the coating. That is why the chemistry row is there.

PROCEDURE

1. **Pre-rinse.** Rinse with clean water to remove loose soiling. Use a broad jet and do not hold it on the connector, the cable entry, the glass edge or a box cover.
2. **Manual cleaning.** Clean the surface with a soft sponge or microfibre cloth and clean lukewarm water only.
3. **High pressure cleaning.** Maximum 80 bar, maximum plus 40 degrees Celsius, minimum distance 50 cm. Do not spray at right angles onto the glass seal or the connector for any length of time.
4. **Rinse.** Rinse the luminaire with clean water.
5. **Inspect.** Check the glass, the seals, the fixings and for any sign of moisture inside.

PREVENTING DAMAGE

WARNING, THERMAL SHOCK

Never clean hot glass with cold water. **Do not apply water at all to a luminaire warmer than plus 60 degrees Celsius.** The glass is the underside: if it breaks, it falls on whoever is holding the lance.

Cleaning outside these limits can damage the glass, cause leakage, attack the seals and void both the ingress classification and the warranty.

FREQUENCY

Normal production environment	Weekly
Heavy soiling	Daily
High fat load	After every production run

Source: JEL Products document B5.17, version 1.0, 27 May 2026. Ask us for the full protocol if you need it for a HACCP file.

11 Fault finding

Work through this table before reporting a fault. Isolate the supply before any action that involves opening a box or a connector. Most faults reported to us on this family turn out to be the supply voltage at the top of a mast, a connector, a luminaire connected as the wrong version, or a luminaire tilted by eye.

Symptom	Applies to	Probable cause	Action
No light at all	All	Supply off, breaker tripped, fuse blown, or a break in the harness	Check the breaker or fuse and measure the supply at the joint, at the connector, or at connector 2
No light, supply present at the joint or the connector	DC M, Mini	Reversed polarity, a loose terminal, a contact not seated in the plug, or the on board driver failed	Check red to plus and black to minus; on a Mini check that both contacts click in the plug. Otherwise the luminaire is exchanged, section 12.2
No light, supply present at the driver	AC M	Driver failed, or the temperature pair not connected so the driver reads an open circuit	Check all four cores of the tail through to connector 2, then replace the driver at ground level, section 12.3
Goes out when the generator loads up, comes back at idle	DC M	Supply below 20 V at the luminaire under load: long run, thin harness, reel, weak battery	Measure at the joint under load. Increase the cross section or feed each luminaire separately, section 7.8
Luminaire destroyed on switch on	DC, AC tail	Mains connected to a DC luminaire or to the tail of an AC M	Not a warranty case. Read the label, section 2.5, and replace the luminaire
Breaker trips on switch on	AC M	Too many drivers on one breaker for the inrush	Reduce the number per breaker or change the characteristic, section 7.3
Dims back by itself	All	Thermal foldback: ambient above plus 50, fins packed with dust, or mounted above a generator exhaust	Check the ambient, clear the fins, move the luminaire
Flicker or unstable output	All	Loose contact in the plug, a corroded connector, or a dimming signal picking up interference	Reseat the contacts, replace a corroded plug, separate the control conductors from the mains conductors
Luminaire stays at partial output	AC M	Dimming input at a low level, or an NFC setting from a previous project	Check the control signal and the driver setting, section 9.2
Control signal does nothing	All	That protocol is not in this build, or the luminaire is DC	Check the quotation against section 9.2
Changes colour on its own	Tuneable white	The supply is being interrupted for less than 5 seconds: a chattering relay or a dip when the generator starts	Feed it from a clean switched circuit, section 9.3
Light beyond the boundary, or a neighbour complains	All	A wider cut off position ordered than the site needs, the luminaire tilted upward, or a dirty glass scattering light	Square the foot to nil tilt, clean the glass, check the ordered position against the design, section 6.6. A different position is a factory job
Ragged boundary, reach differs across the beam	All	The housing twisted in its arms, or luminaires with different cut off positions mixed on one site	Square the housing, torque the pivots, check the label of every luminaire against the design
Output visibly lower than the design	All	Dirty glass, blocked fins, or a driver at a lower setting	Clean per section 10.4 or 10.5, check the setting, then measure again
Moisture inside the luminaire	All	Chipped glass edge, a luminaire rested on its glass, or a lance held on the glass seal	Do not open it. Return to JEL Products, section 12.4
Water in the plug	DC M, Mini	Wedge lock missing, a contact seal missing, or the receptacle left open on a washed machine	Dry the cavities, refit the plug complete with wedge and seals, cap anything unmated
Luminaire came loose	All	Centre bolt only, a cracked weld under the foot, or no secondary retention	Refit per chapter 6 on all three bolts with a rated safety cable and a plate under the foot
Early driver failure, repeated	AC M	The driver ambient is above plus 50 degrees Celsius, or the driver is in the generator compartment	Measure the ambient at the driver. Relocate it, section 7.6

If the fault is not in this table, or if the action does not resolve it, contact JEL Products with the article code and the internal production code from the type label, the position on the site, the tower or the machine, the date of installation and what you have already checked. See section 2.5 for the two codes.

12 Repair and spare parts

The DarkLicht is built so that nothing needs to be reached in service, and that cuts both ways. On the AC M the driver sits outside the housing and is replaced at ground level. On the DC M and the Mini the driver is on the board: there, a driver fault is a luminaire exchange, and the tail or the connector is what makes that exchange a short job.

12.1 What is replaceable on site

Part	Reference	Note
Remote driver, M300 AC	BLD320	225 × 68 × 38.5 mm, 1,120 g, 90 to 305 VAC. Replaced without opening the luminaire. Quote the version and the setting
Remote driver, M150 AC	BLD240	215 × 67.5 × 33.5 mm, 1,100 g, 90 to 305 VAC. As above
Driver box	DRB-1	276 × 194 × 86.5 mm, 4.2 kg, IP66 and IP67. One driver up to 320 W
316L Power Box	On request	The same driver in solid 316L, where the box sits in the wash zone
Bracket	On request	Aluminium, complete with pivot bolts. The M300, the M150 and the Mini brackets differ, chapter 3
Pivot bolts	On request	Supplied as a set per luminaire
Mating connector, Mini	DTP06-2S	With wedge lock WP2S and two size 12 contacts. The accessory of section 7.5
Connector cap	On request	For a receptacle that is unmated on a washed machine
Safety cable	On request	1 m, rated to the luminaire weight. Not supplied as standard, see section 6.4

Brackets, connectors and safety cables are supplied against a specification rather than a shelf article number, because they follow the type. State both codes from the type label and we issue the right part.

DRB-1 driver box. One driver up to 320 W, the BLD320 of an M300 or the BLD240 of an M150

The rear of the M300. Nothing on the housing is opened in service; a DC fault is a luminaire exchange on the same foot

Quote the article code and the internal production code from the type label in any spare part order, see section 2.5. A driver programmed for a lower wattage runs the luminaire at that wattage, and a BLD240 does not run an M300.

12.2 What is not replaceable on site

DANGER

Do not open the housing, do not remove the glass or the glass frame, and do not cut a tail. Opening the luminaire ends its ingress protection, its electrical safety, its warranty and its declaration of conformity.

- The light source is not replaceable in the field. At the end of its life the complete luminaire is returned or replaced.
- The reflector and its shield are part of the sealed housing. Their shape and position are the optic; nothing about them is changed on site, section 6.6.
- **On a DC M and a Mini the driver is on the board** and is not a field part. A driver fault means the luminaire is exchanged on its tail or its connector. That is the trade for having nothing outside the housing.
- The glass and its seal are not replaceable in the field. A cracked or chipped glass returns to JEL Products.
- The tail is moulded into the housing and the Mini receptacle is part of it. A damaged tail or receptacle is a return, not a splice.
- Repair, overhaul and modification are carried out by JEL Products or by a company it appoints. In case of doubt, return the luminaire for inspection.

12.3 Driver replacement, AC M

1. Isolate the supply and secure it. Verify the circuit is dead. Let the driver cool.
2. Open the driver box and photograph the wiring before you disconnect anything. Note the ambient: above plus 50 degrees Celsius the position is the fault and the new driver will fail as well.
3. Disconnect the driver at CON 1 and CON 2, following the table in section 7.2.
4. Fit the replacement BLD320 or BLD240, programmed for the same wattage and the same dimming protocol, and reconnect according to section 7.2, one conductor per terminal. A different driver is not permitted.
5. Close the box, check the seal, restore the supply and run the checks in section 8.1. Record the replacement, with the date and both codes from the label, in the site documentation.

NOTE

The internal production code tells us which board is in the luminaire the driver has to work with. Quote both codes.

12.4 Returning a luminaire

1. Contact JEL Products before you send anything. We will tell you whether the fault is a field repair, a driver exchange or a return.
2. Have both codes from the type label ready, plus the position on the site, the tower or the machine, the date of installation and what you have already checked from chapter 11.
3. Pack the luminaire in its original box, standing on its foot, glass protected, never resting on the glass. Leave the bracket on it and the cap on the connector.
4. State what the luminaire was doing when it failed: the supply voltage measured at the connector, the cut off position, and whether it was washed that day.

NOTE

Do not open a luminaire before returning it, not even to look. An opened housing changes a warranty assessment into a discussion, and the evidence we need is usually inside the seal you would break.

WHAT WE LOOK AT ON A RETURN

The internal code	Which board, which batch, which production date
The glass seal and the entry	Whether water got in, and from where
The board	Overvoltage, reverse polarity or mains on a DC luminaire leave a signature
The glass	Impact, thermal shock or a chipped edge
The bracket	Whether three bolts were used, and whether a retention was fitted
The driver	Case temperature history and failure mode, on the AC M

The Mini. A DC luminaire returns with the cap on its receptacle and the bracket on it

13 Removal and disposal

13.1 Taking the luminaire out of service

1. Isolate the supply and secure it, lock out the machine and lower the mast. Verify the circuit is dead, then disconnect the tail in the junction box on a DC M or at the driver box on an AC M, or unmate the connector on a Mini.
2. Cap the free ends, or the receptacle of a Mini, so they stay clean in storage.
3. Release the secondary retention last, not first.
4. Undo the three foot bolts with the housing held throughout. Leave the bracket on the luminaire.
5. Label the luminaire with its position, its cut off position and its article code before it leaves the site. If it is to be reinstalled, pack it in its original box, standing on its foot and never resting on its glass.

WARNING, WORKING AT HEIGHT

Removal is the moment a luminaire falls. On a mast or a jib have the second person in place before you loosen anything, and keep the area below clear. A 5.5 kg housing that comes off two of its three bolts swings before it drops.

13.2 Disposal

Electrical equipment does not belong in household or unsorted municipal waste. Under European Directive 2012/19/EU it must be collected separately and processed by an approved recycling facility. Observe the national and regional rules at the place of disposal.

The cast aluminium housing and bracket are recyclable materials; the LED board, the driver, the glass and the cable go to electronic waste, glass or plastics. Separate the housing from the electronics at the recycler rather than in the field. The DarkLicht contains no mercury and no lead above the RoHS limits.

Glossary

Beam angle	Full angle between the directions where the intensity has fallen to 50 per cent of the peak
BLD320, BLD240	The remote drivers of the AC M300 and M150
C5	Corrosivity category per ISO 9223, industrial and marine
Cd · A	Drag coefficient times frontal area, the figure used for wind load
CRI, Ra	Colour rendering index
Cut off	The angle from the vertical above which the reflector emits no light, 63 to 75 degrees
DALI-2	Addressable digital lighting control protocol, on the AC drivers
DarkSky DS-1	The DarkSky approved luminaire standard, met at 1700 to 2200 K
DTP04-2P, DTP06-2S	The larger Deutsch two pole receptacle in the Mini and its mating plug, size 12 contacts
Hazard distance	The distance beyond which the luminaire is Risk Group 1 per IEC/TR 62778
IK	Impact rating per IEC 62262
Shield position, S1 to S5	The five factory positions of the reflector shield, 75 to 63 degrees of cut off
L90B05	90 per cent of initial output retained by 95 per cent of the units
MCB	Miniature circuit breaker
NFC	Near field communication, used to set the driver without power
Nil tilt	The attitude the photometry assumes: foot horizontal, housing at its working angle, glass down
NSVV	The Dutch lighting society, whose guideline on obtrusive light a permit condition usually cites
NTC	Negative temperature coefficient, the temperature sensor in the luminaire
Tail	The factory fitted cable on the luminaire, 0.3 or 2.0 m
BIC	Bi-colour, the tuneable white build, 4000 K with 2200 K and 1700 K, switched from the supply
ULOR	Upward light output ratio
WEEE	Waste electrical and electronic equipment

Specifications are subject to change. This manual describes the standard configurations. Where a project specification differs, the project documentation takes precedence.

14 Appendix

14.1 Declaration of conformity

EU Declaration of Conformity, 9 December 2025

JEL Products B.V., Ampèrestraat 19e, 3861 NC Nijkerk, The Netherlands, declares under its sole responsibility that the products it covers are in conformity with the essential requirements of the directives below. The DarkLicht range is named in its product scope as **DarkLicht Series, including the M300, M150 and Mini**, with all electrical, optical and mechanical variants within the defined type codes, wattages, voltages and colour temperatures.

DIRECTIVES	
Low Voltage	2014/35/EU
EMC	2014/30/EU
RoHS	2011/65/EU and (EU) 2015/863
WEEE	2012/19/EU

DECLARATION	
Date	9 December 2025
Place of issue	Nijkerk
Signed by	L. de Graaf, Technical Director
Serial number	See product marking
Year of manufacture	2024 to 2026

APPLIED HARMONISED STANDARDS

EN IEC 60598-1 luminaires, general requirements. EN IEC 60598-2-5 floodlights. EN IEC 61347-1 lamp controlgear, general. EN IEC 61347-2-13 LED controlgear. EN IEC 62384 LED driver performance. EN IEC 60529 IP classification. EN IEC 61000-6-2 EMC immunity, industrial. EN IEC 61000-6-4 EMC emission, industrial. EN ISO 12100 risk assessment, where applicable.

The technical file is compiled and maintained by JEL Products B.V. at the address above. The **signed declaration** is available on request and is supplied with the project documentation. Document: EU DECLARATION OF CONFORMITY_DCbright_EU_09122025. On a machine or a light tower, the luminaire is a component and the builder's declaration under the Machinery Directive covers the installation.

14.2 Warranty

Type	Term
M300 and M150, AC and DC	5 years on the complete luminaire
Mini	5 years on the complete luminaire
Remote driver, AC M	5 years, within the driver ambient of section 7.6
Bracket	5 years, with the luminaire

Warranty runs from the date of delivery under the JEL Products warranty terms and covers material and manufacturing defects.

It does not apply where the luminaire has been installed, operated or maintained contrary to this manual, where the housing has been opened or a tail cut, where mains has been connected to a DC version or to the tail of an AC M, where the supply was outside the range on the type label, where the temperature pair of an AC M has been disconnected, where the driver has been installed in the wash zone, the generator compartment or above plus 50 degrees Celsius ambient, where the luminaire has been mounted on fewer than three bolts, where the reflector shield has been moved or modified, where it has been cleaned outside the limits in section 10.5, or where it has been used outside the intended use in section 2.2.

> **NOTE**
> Improper installation, operation or maintenance may also invalidate the certificate and the declaration of conformity, not only the warranty.

14.3 Related documents

Document	Where
DarkLicht M datasheet, Rev. 1, 20 August 2026	Product page
DarkLicht Mini datasheet, Rev. 1, 20 August 2026	Product page
DarkLicht WP manual, MAN-DLW-EN, for the wall pack	Product page of the WP
Photometric files per type, shielding positions S1 and S2, EULUMDAT and IES	Product page
Dimensioned drawings, DXF and STEP	On request
DarkSky DS-1 third party test report	On request
Crane Light Director datasheet and instruction	Product page, on request
Driver box manual, DRB-1 and 316L Power Box	On request
Signed declaration of conformity	On request, and with the project documentation
Test and inspection reports, see section 3.5	On request

14.4 What this manual replaces

This edition supersedes the three DCbright Operating Instructions M300 of 21 April 2026, M150, and M30 of 11 March 2026. Where an older document and this manual disagree, this manual applies. The WP wall pack has its own manual, MAN-DLW-EN.

Five points are corrected against those documents: the ambient range is **minus 45 to plus 50 degrees Celsius**, not minus 40; the expected life is stated as **TM-21 L90B05 above 103,500 h**, not as the LM70 figure of 345,083 h printed there; the warranty is **5 years**, not 3; the M carries **separate article codes for AC and DC**, section 2.4; and the five cut off positions S1 to S5 are **factory settings specified at order**, not adjustments made on site as the 2026 datasheets say. One point is stated more precisely: the M300 instruction prints a power of 150 W and an output of 48,000 lm, where the M300 is a 300 W luminaire at 51,300 lm.

> **NOTE**
> If you hold a printed copy, check the revision on the cover against the version on the product page before you rely on a figure. A manual in a tower file can be several years old.

CONTACT

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To verify the authenticity of a test or inspection report and certificate, contact us on the number above. Quote both codes from the type label.

Product page

Photometric files, drawings, the two datasheets and the current version of this manual.

jelproducts.nl/en/products/darklicht-m

DOCUMENT

Number	MAN-DLM-EN
Revision	1
Date	7 September 2026
Language	English
Applies to	DRKM05, DRKM04, DRKM03, DRKM02 and DRKM01
Pages	See the footer