



ODSL 200

Omnidirectional LED sector light

ODSL 200 omnidirectional sector light is an innovative, compact sector light with accurate sector borders. This light is equipped with a replaceable LED optical unit. The range of the light, depending on colour and flash character, is between 6 and 10 NM ($T_c = 0,74$).

- Sectors are verified at Sabik's photometric range prior to delivery
- Field installation is easy thanks to the adjustable base
- Precision alignment, at site, can be done with a gun sight (has to be ordered separately)
- After installation sector alignments remain unchanged even if the LED optical unit is replaced
- Light can be delivered with an external weather cover
- The standard sector light is available as a 3, 6 or 12 layer model
- Small area of uncertainty between the sectors, typically less than $0,5^\circ$
- Integrated flasher with daylight switch and a 16 A solar panel charger
- Programmable with Sabik IR programming devices or Bluetooth Control
- This light can be equipped with remote monitoring and synchronization
- Patented omnidirectional LED sector light technology



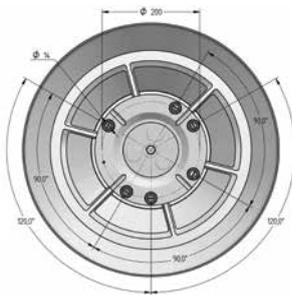
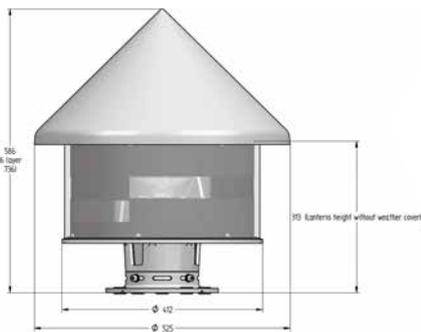
Optical performance

Maximum fixed intensity per tier and colour

| | | | |
|-----------------|--------|--------|--------|
| Max power 3,5 W | 250 cd | 250 cd | 600 cd |
|-----------------|--------|--------|--------|

Main Technical Specification

| | |
|--|---|
| Lens visual/Mechanical diameter | 200 mm |
| Lens material | UV stabilized acrylic |
| Light source | High Power Light Emitting Diodes |
| Vertical divergence | 2°@50% of peak intensity (FWHM) |
| Unit lifetime | Up to 10 years |
| Weight lantern | 3-tier 10,5 kg, 6-tier 13,4 kg, 12-tier 22,4 kg |
| Weight including weather cover | 3-tier 14 kg, 6-tier 17,4 kg, 12-tier 26,4 kg |
| Height | 3-tier 577 mm, 6-tier 727 mm, 12-tier 1027 mm |
| Temperature range | -40° – +60°C |
| Supply Voltage | 10 – 32 VDC |
| Solar panel charger | 16 A PWM charger |
| Power consumption | 3,5 watts/tier |
| Degree of protection | IP 67 |
| Cable length | 2 m / 6 m |



Order Overview ODSL 200

Product codes

ODSL 200

ODSL-200-3, 3 layer lantern

ODSL-200-6, 6 layer lantern

ODSL-200-12, 12 layer lantern

ODSL 200 WEATHER COVER

ODSL-200-3WC, 3 layer weather cover

ODSL-200-6WC, 6 layer weather cover

ODSL-200-12WC, 12 layer weather cover

Gun sight for exact alignment

821035

Option matrix

| | |
|------------------------------------|---|
| OPT 4: GPS sync | Integrated GPS sync with external GPS antenna |
| OPT 9: LightGuard GSM + GPS | Integrated GSM based monitoring with external antennas |
| OPT 10: LightGuard GSM | Integrated GSM based monitoring with external GSM antenna |



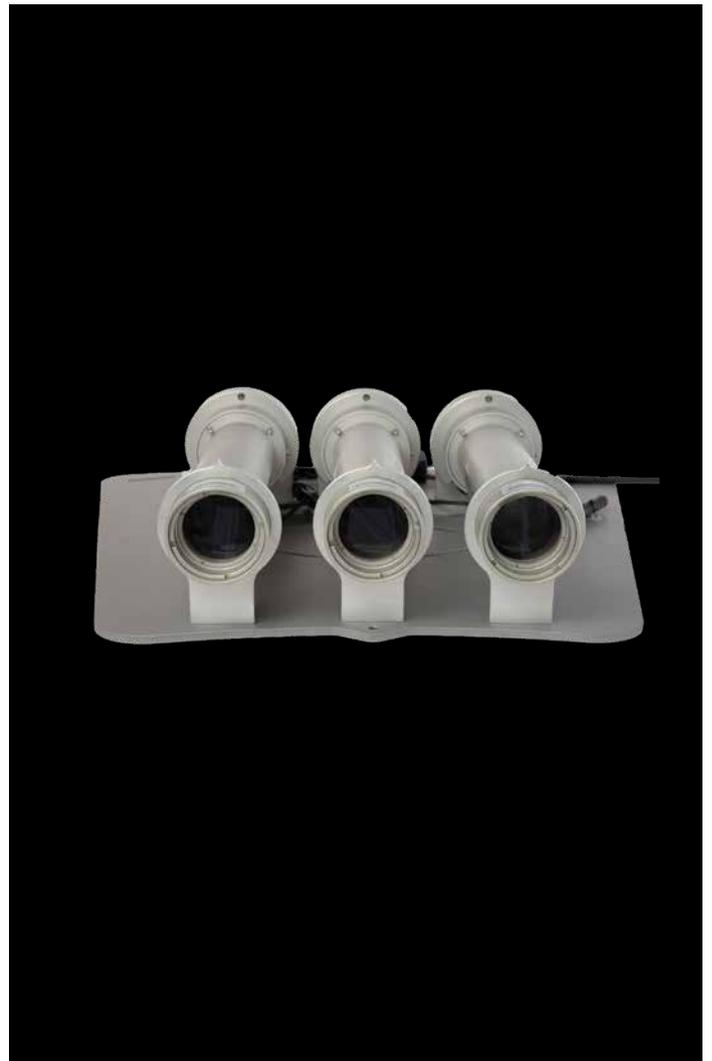
VLS-46

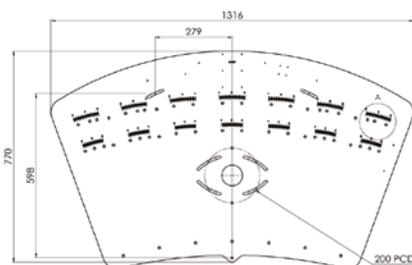
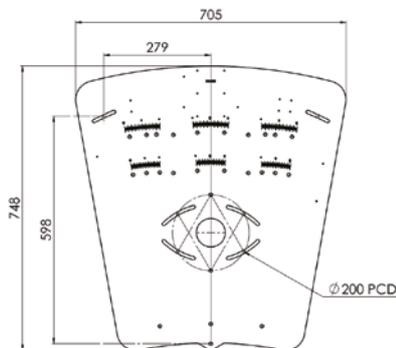
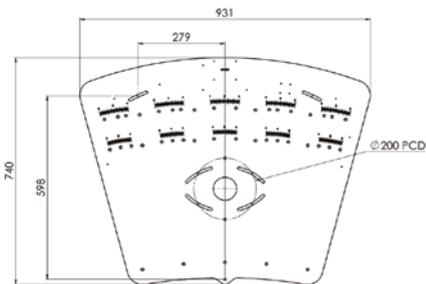
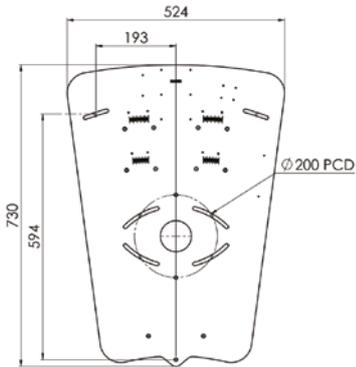
Adjustable LED sector light
15 -19 NM by night
1.6 - 3.0 NM by day

The VLS-46 is ideal for harbours with narrow or difficult approaches. The modular design allows up to seven projectors to be placed side by side. This can be used to create unique sector angles, flash patterns and intensities.

The VLS-46 has been designed to take advantage of the latest LED technology. The key features include:

- **Peak intensity up to 14,800cd**
- **Large vertical divergence for visibility by all types of vessels**
- **Only one tower is required, compared with range lights. This reduces the installation and maintenance cost by half**
- **Each projector can be individually adjusted to the width required for the application, within the limits defined in this brochure and product manual**
- **Energy-efficient LED technology is ideal for solar-powered sites**
- **Maintenance free design (no moving parts) will save money and time**
- **Lightweight marine-grade aluminium construction makes the unit light and easy to handle**





Optical Performance

| Maximum peak intensity | | | | |
|------------------------|--------|--------|---------|---------|
| 5° | 9000cd | 8300cd | 14800cd | 12300cd |
| 10° | 2300cd | 2140cd | 3480cd | 3030cd |

Optical specification

| | |
|------------------------------|---|
| Light source | High Power Light Emitting Diode (LED) |
| Horizontal divergence | 5°, adjustable from 0.5 – 5° (linear adjustment) 10°, adjustable from 1.0° (linear adjustment) |
| Vertical divergence | ±1.8° @ 50% intensity & ±1.9° @ 10% intensity ±3.6° @ 50% intensity & ±3.7° @ 10% intensity |
| Temperature control | LEDs monitored for constant intensity control and over temp protection |

Main Technical Specification

| | |
|------------------------------|--|
| Nominal Range | 5 degrees, up to 15 NM 10 degrees, up to 12 NM |
| Lens | Acrylic and glass |
| Base | Marine grade aluminium |
| Body | Marine grade aluminium and injection moulded UV stable plastic |
| Designed service life | 10 years |
| Weight | 2.4 - 19.1 kg |
| Temperature range | -30° – +50°C |
| Voltage | 10-30 VDC |
| Solar charger | N/A |
| Degree of protection | IP 67 |
| Cable length | 2 m / 6 m |

Order Overview VLS-46

Product code

| Code | Note |
|-------------------------------------|---|
| VLS-46-D-Cc(-Cc)(-Cc)(-Cc)(-GS)-BPY | |
| D | Divergence |
| C | Color (R, G, W, Y) |
| c | Quantity of projectors in that colour (1-7) |
| BP | Base plate ((BP2, BP3, BP5, BP7) |

Option matrix

| | |
|----|--|
| GS | Internal GPS sync module as factory option |
|----|--|



VLS-46 Ultra

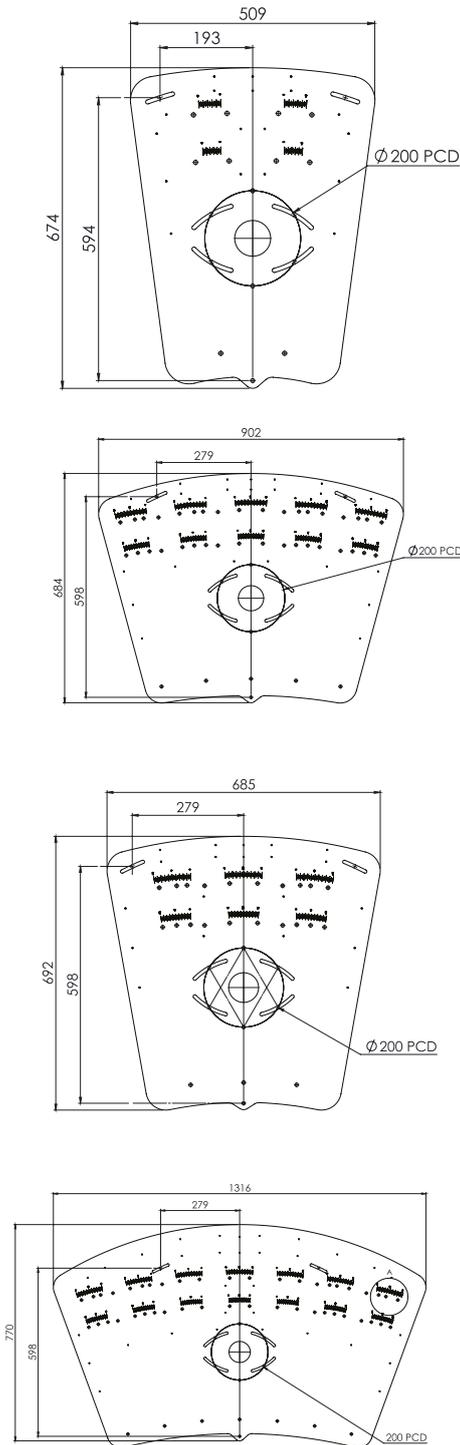
21 - 25NM by night @ 0.74T
3.9 - 6.2NM by day @ 0.74T

The VLS-46 Ultra is ideal for harbours with narrow or difficult approaches. The modular design allows up to seven projectors to be placed side by side. This can be used to create unique sector angles, flash patterns and intensities.

The VLS-46 Ultra has been designed to take advantage of the latest LED technology. The key features include:

- Peak intensity up to 169000cd
- 1 minute of arc boundary precision when viewed from 5,000 metres
- Large vertical divergence for visibility by all types of vessels
- Only one tower is required, compared with range lights. This reduces the installation and maintenance cost by half
- Sectors are adjustable. Each projector can be individually adjusted to the width required for the application, within the limits defined in this brochure and product manual
- Energy-efficient LED technology is ideal for solar-powered sites
- Maintenance-free design (no moving parts) will save money and time
- Lightweight marine-grade aluminium construction makes the unit light and easy to handle. For example, three 5° projectors including mounting plate weigh approximately 21.8kg





Optical Performance

| Maximum peak intensity | | | |
|------------------------|---------|----------|----------|
| 5° | 40000cd | 169000cd | 167000cd |
| 10° | 10780cd | 47000cd | 45500cd |

Optical specification

| | |
|------------------------------|---|
| Light source | High Power Light Emitting Diode (LED) |
| Horizontal divergence | 5°, adjustable from 0.5° – 5° (linear adjustment) 1°, adjustable from 1.0° (linear adjustment) |
| Vertical divergence | ±1.8° @ 50% intensity ±1.9° @ 10% intensity ±3.6° @ 50% intensity ±3.7° @ 10% intensity |
| Temperature control | LEDs monitored for constant intensity control and over temperature protection |

Main Technical Specification

| | |
|------------------------------|--|
| Nominal Range | 5 degrees, up to 21.0 NM 10 degrees, up to 17.8 NM |
| Lens | Acrylic and glass |
| Base | Marine grade aluminium |
| Body | Marine grade aluminium and injection moulded UV stable plastic |
| Designed service life | 10 years |
| Weight | 2.4 - 19.1 kg |
| Temperature range | -30° – +50°C |
| Voltage | 10-30 VDC |
| Solar charger | N/A |
| Degree of protection | IP 67 |
| Cable length | 2 m / 6 m |

Order Overview VLS-46 Ultra

Product code

| Code | Note |
|--------------------------------------|---|
| VLS-46U-D-Cc(-Cc)(-Cc)(-Cc)(-GS)-BPY | |
| D | Divergence |
| C | Color (R, G, W) |
| c | Quantity of projectors in that colour (1-7) |
| BPY | Base plate (BP2, BP3, BP5, BP7) |

Option matrix

| | |
|----|--|
| GS | Internal GPS sync module as factory option |
|----|--|



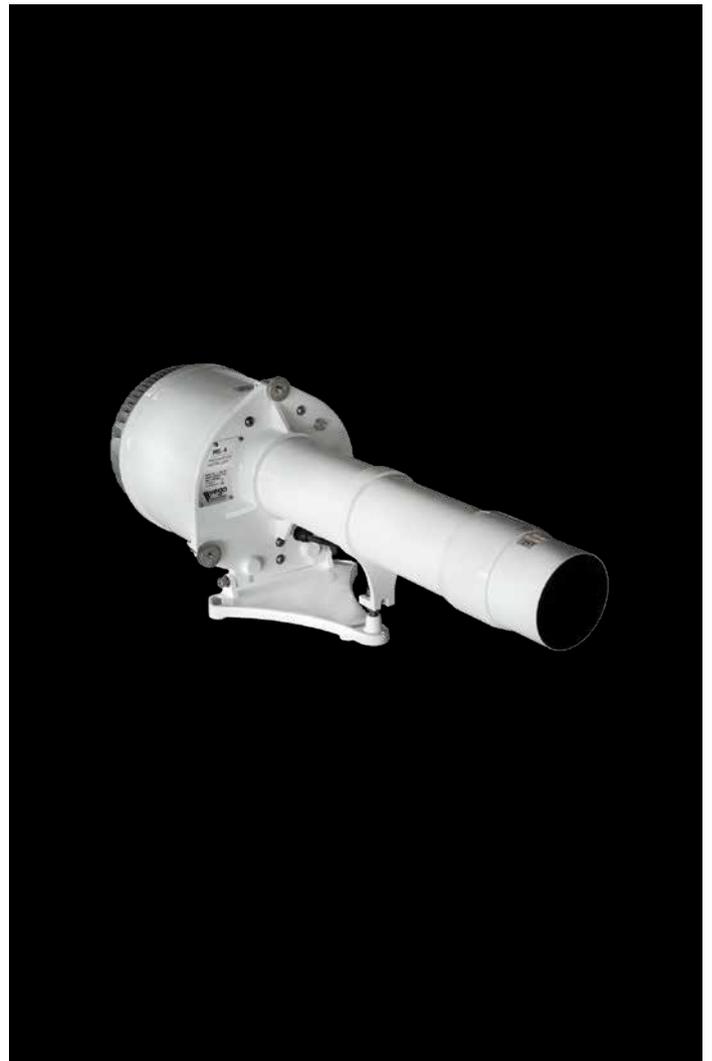
PEL-4

3.5°, 5° and 10° horizontal divergences

The PEL-4 is a precise aid to navigation. When sailing through hazardous waters, the PEL-4 will provide sharp visual feedback whether you are inside or outside a sector. If combined with oscillating boundary, the exact position within the sector will also be known.

The PEL-4 is equipped with LED technology and is bright enough to be used day and night. It is energy efficient and maintenance free as well. This makes it solar-power friendly and removes costly re-lamping visits.

- Horizontal divergence available from 3.5° to 10°
- Weatherproof enclosure suitable for external mounting
- Maintenance-free LED (easy to replace if needed)
- Constant-current LED drivers
- Fully programmable IALA flash characters
- Adjustable day and night intensity from 0.3% to 100%
- Automatic day/night detection and change-over
- Optional security code
- Programmable low-voltage cut-out
- Selectable master/back-up operation mode
- Digital input/output
- Optional oscillating boundary



Optical Performance

Maximum peak intensity

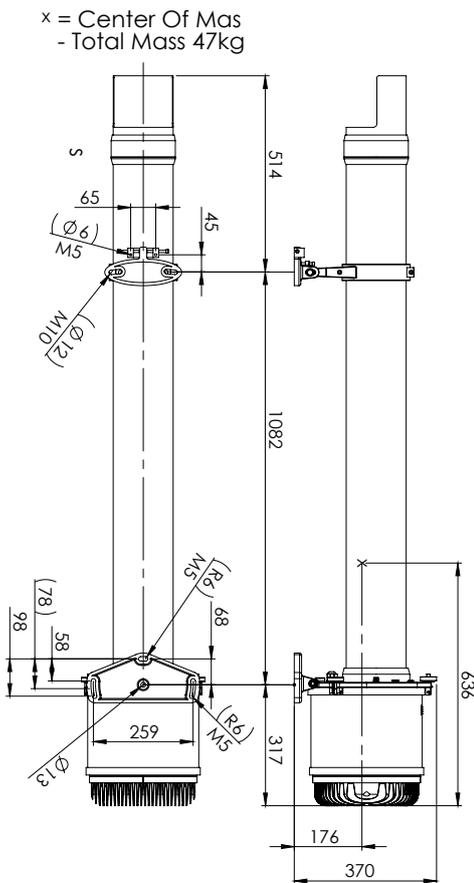
| | | | |
|-------------|----------------|----------------|-----------------|
| 3.5D | 77500cd | 77500cd | 350000cd |
| 5D | 50000cd | 50000cd | 225000cd |
| 10D | 20200cd | 20200cd | 91000cd |

Optical specification

| | |
|------------------------------|---------------------------------------|
| Light source | High Power Light Emitting Diode (LED) |
| Horizontal divergence | 3.5D: 3.5° |
| | 5D: 5° |
| | 10D: 10° |
| Vertical divergence | 3.5D: 2° |
| | 5D: 3° |
| | 10D: 5.3° |

Main Technical Specification

| | |
|-----------------------------|--|
| Lens | Acrylic and glass |
| Base | Bronze |
| Body | Bronze, stainless steel, marine-grade aluminum |
| Weight | 47 kg |
| Flash character | 256 flash characters |
| Temperature range | -35° to +85°C |
| Voltage | 12/24 VDC (10 to 30 VDC) |
| Degree of protection | IP 67 |
| Cable length | 2 m / 6 m |



Order Overview PEL-4

Product code

| Code | Note |
|------------------|--|
| PEL-4-D-S | |
| D | Horizontal subtense (3.5°, 5°, 10°) |
| S | Sector OB = Oscillating boundary FX = Fixed boundary |

Option matrix

| | |
|-----------|----------------------------|
| GS | Only available with VSU-29 |
|-----------|----------------------------|



PEL-6

6 NM by day @ 0.74T
25 NM by night @ 0.74T

The PEL-6 is a part of Sabik Marine flagship precision sector light offering. It combines modern optical design techniques with decades of experience to provide very sharp sector boundaries and impressive range day or night.

- Market leading boundary definition and sector accuracy
- Up to 6 NM range in daylight
- Over 21 NM night range in coloured sectors and 25 NM in white
- Automatic intensity reduction for night use
- Oscillating boundary option provides up to four extra sectors
- Rugged construction and sealing – proven life exceeds 20 years in typical harsh marine environment

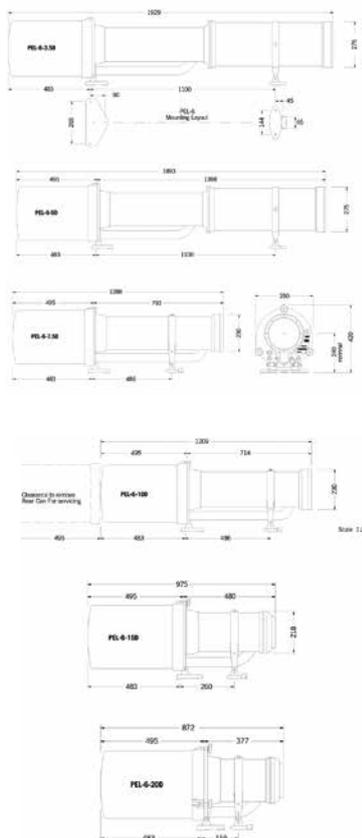


Optical Performance

| Maximum peak intensity | | | |
|------------------------|----------|----------|----------|
| 3.5° | 196164cd | 174368cd | 726532cd |
| 5° | 96151cd | 85468cd | 356116cd |
| 7° | 37985cd | 37985cd | 158273cd |
| 10° | 24084cd | 21408cd | 89199cd |

Optical specification

| | |
|-----------------------|---------------------------|
| Light source | 250W TH Lamp |
| Horizontal divergence | Available: 3.5, 5, 7, 10° |
| Vertical divergence | 3.5°: 2.1° |
| | 5°: 3° |
| | 7°: 3.9° |
| | 10°: 4.3° |



Main Technical Specification

| | |
|-----------------------|--|
| Nominal Range | Up to 24.8 NM |
| Lens | Precision ground glass |
| Base | Bronze |
| Body | Gunmetal, stainless steel, copper tube |
| Designed service life | 20 years |
| Temperature range | -40° – +50°C |
| Voltage | 24 VDC to 28 VDC |
| Degree of protection | IP 66 |
| Cable length | 2 m / 6 m |

Order Overview PEL-6

Product code

| Code | Note |
|-----------|--|
| PEL-6-D-S | |
| D | Horizontal subtense (3.5°, 5°, 7°, 10°) |
| S | Sector OB = Oscillating boundary FX = Fixed boundary |

Option matrix

| | |
|----|----------------------------|
| GS | Only available with VSU-29 |
|----|----------------------------|

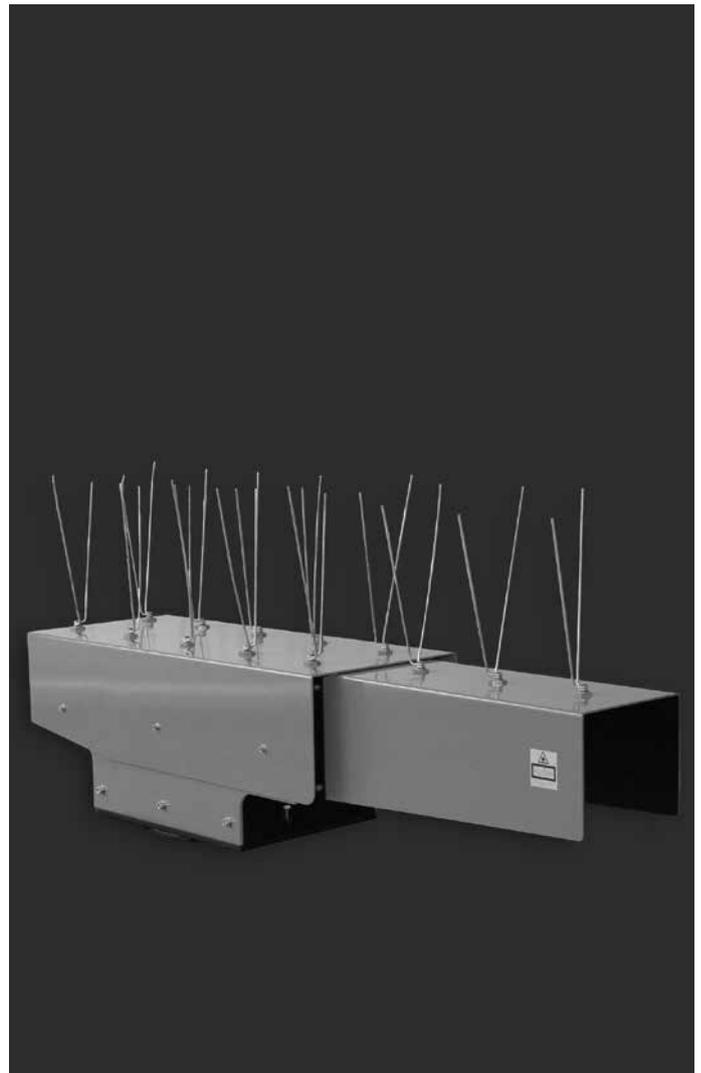


E8593

**LED Projector sector light,
up to 21 M / 4 M daytime range**

The E8593 is a high-performance, power efficient high intensity marine LED Projector sector light with beam configuration tailored to customer requirements at the factory. All E859X Lanterns feature factory configured Day and Night mode, luminous intensity, fast PWM control generating reduced intensities, as well as Fixed-and-Flashing (FFL) rhythmic characters or Slow Flash Front (SFF). The field proven E8593 supports Opposite-Isophase sector signal control reducing the latency of spatial awareness update for the mariners: the white sector signal is active during the eclipse of coloured sectors and vice versa, resulting in immediate awareness about leaving the white sector without the delay caused by the common eclipse.

- **Power efficient Day/Night light signalling system for port entry lights or leading line systems replacement**
- **Factory-customized sector configuration with precision of $\leq 0.05^\circ$ (3')**
- **Day and Night mode luminous intensities down to 10%**
- **Internal LED diagnostics with condition output**
- **Optional Opposite-Isophase sector signal control**
- **Available with triaxial acceleration sensor for Structural Health Monitoring of the AtoN mast**
- **Easy to install – requires only aiming the composite beam vertically**
- **No planned maintenance needed**

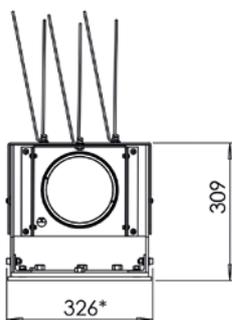
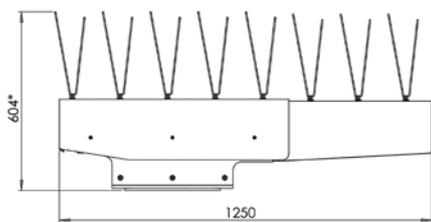


Optical performance

| | | | |
|---|-------------------|--------|--------|
| Number of sectors | 3 (R, W, G) | | |
| Typical luminous intensity of the light signal per colour | 250,000 cd | | |
| Nominal range, Night / Day (T=0.74) | up to 21 M / 4 M | | |
| Subtense angle per sector (total approximately 7.5°) | ≤ 1.2° | ≤ 1.2° | ≤ 2.5° |
| Vertical divergence angle | 1.2° | 2.5° | 1.2° |
| Power consumption in flash | ≤ 45 W | ≤ 90 W | ≤ 90 W |
| Achievable boundary resolution | ~ 0.1° (6'... 9') | | |
| Beam direction adjustment in field conditions, Hor/Vert | ± 180° / ± 2° | | |

Main technical specification

| | |
|--|---|
| Light source | High Power Light Emitting Diode (LED) clusters |
| Vertical divergence | 1.2° or 2.5° (FWHM) |
| Lens material | optical glass |
| Enclosure material | polycarbonate optical unit potted in resin on aluminium bottom plate, marine grade aluminium sides and protective cover, painted steel mounting plate |
| Weight | < 50 kg |
| Operating environment | -40 °C to +55 °C |
| Power supply voltage | 12 VDC (10–24 VDC) |
| Power consumption in flash | up to 90 W depending on configuration |
| Degree of ingress protection | IP 67 |
| Overall height (excl. bird deterrents) | 309 mm, width 326 mm, depth 1250 mm |
| Focal plane height | 205 mm |
| Installation | 3 x 14mm on 200 mm circle |
| Cable length | 2 m / 6 m |



Order Overview E8593

Product codes

Since this product is usually ordered in AtoN site specific configuration, simple ordering codes covering all possible alternatives are not available.

Product code example: E8593.GWR.F2.G1

- Projector sector light for IALA Region B with integrated Flasher E8672 and GPS capability

Option matrix

| | |
|---------------------------------|-----------|
| Sector lights for IALA Region A | E8593.RWG |
| Sector lights for IALA Region B | E8593.GWR |

Accessories

| | |
|--|--------------------|
| Bird deterrent rod set (incl. screws) | 8264.050 |
| Cable Connector, 90deg, female 6 + PE-position | C016 30F006 100 10 |
| Programmable Flasher, integrated | E8672 |
| Programmable Flasher with GPS, integrated | E8672.G |
| TelFiCon™-Flasher for complete AtoN telematics, integrated | E9272 |