Luxsolar and LXS are registered trademarks of C&E S.r.l., a company that since 1988 produces special equipment for the Oil&Gas Industry. Working in this sector, we realized that there was an increasing need of reliable lighting systems, suitable for dangerous and potentially explosive atmospheres.

In 2005, to satisfy the specific demand of LED Aircraft Warning Lights, C&E S.r.l. created Luxsolar.

Today, after a decade marked by a stable and growing global market presence, Luxsolar has become the first manufacturer of Aircraft Warning Lights that, using LED technology, can offer a complete range from low intensity LIOL (10cd) to medium intensity MIOL (20.000cd) and high intensity HIOL for ATEX Zone 2 (200.000cd).

Design and Quality are important to Luxsolar, as well as the possibility to rely on a network of certified American and European suppliers. All the products are designed and manufactured at the company headquarter in Oggiono, Italy. This work style has allowed Luxsolar to become the only company in the aeronautic field, to obtain ENAC Certification.

Luxsolar and LXS products are submitted to a constant improvement process, thanks to an intense R&D activity conducted both independently and in collaboration with major Universities and Research Centres.

Thanks to its ability to offer individual solutions for customers and to produce lighting systems compliant to local and international regulations, Luxsolar processes purchase orders from around the world.

Luxsolar mission is to create more and more sustainable products, thanks to a constant innovation in the field of light signalling devices.

At Luxsolar, everything is made for passion.

#madeforpassion
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AIRCRAFT WARNING LIGHTS FOR HAZARDOUS AREAS

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As specified by Annex 14 of ICAO regulations, Low Intensity Obstruction Light can be used to warn the presence of obstacles up to 45m height, that may be present on offshore platforms, flares and other structures.

This beacon is the simplest device according to ICAO standards. It provides steady burning red light with two types of intensity: ≥ 10cd for Type A Ex and ≥ 32cd for Type B Ex.

Low intensity obstacle lights, Type A Ex, can be used alone.

Low intensity obstacle lights, Type B Ex, can be used either alone or in combination with medium intensity obstacle lights, Type B Ex.
**LOW INTENSITY**

LIOL-A Ex/LIOL-B Ex

**Twilight sensor**

- Stabilised light output:
  - LIOL-A: >10 cd
  - LIOL-B: >32 cd

**Features**

- Based on LED technology
- Red flashing light (FAA)
- Red steady burning light (ICAO-FAA)
- Standard circuits or TWIN*
- Infrared version*

**Compliance**

- FAA (Type L-810)
- ATEX certified
- EN/IEC 60079-0
- EN/IEC 60079-1
- EN/IEC 60079-31 regulations

**Certification**

- FAA
- ATEX
- ICAO

**International Patents:** Granted and Pending

**Typical Application**

**Certification**

- CE
- Ex
- IECEx
- STIA
- ATEX
- ICAO

**Compliance**

- FAA
- CAP168

**Features**

- Patented RAL 7035 aluminium body
- Borosilicate glass dome
- Cable gland M25x1,5

**Typical Application**

- IP66

---

Low Intensity Obstruction Light is compliant to ICAO (Low Intensity – Type A or B), FAA (Type L-810) and ATEX certified.

This beacon has been designed for hazardous areas with Ex d IIC e Ex tb protection and is compliant to EN/IEC 60079-0, EN/IEC 60079-1, EN/IEC 60079-31 regulations.

These Aircraft Warning Lights are suitable for the installation in hazardous areas (Zone 1, 2, 21 e 22) where there are flammable and explosive vapours, gas or dust and are suitable for outdoor installation.

This LED device is the ideal solution for an efficient, light and compact obstacle signalling, able to guarantee a product life exceeding ten years, along with a reduced power consumption.

LIOL-A Ex/ LIOL-B Ex beacon has a red steady burning light with an omnidirectional light beam and a patented optical reflector, able to ensure a vertical beam spread of 10°, according to ICAO Annex 14.
## LOW INTENSITY

### LIOL-A Ex and LIOL-B Ex

#### TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>OPTICAL FEATURES</th>
<th>MECHANICAL FEATURES</th>
</tr>
</thead>
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<tr>
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<td>• Painted RAL 7035 aluminium body</td>
</tr>
<tr>
<td>• RED light - Steady Burning (ICAO - FAA)</td>
<td>• Borosilicate glass dome</td>
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<td>• RED light - Flashing (FAA)</td>
<td>• Degree of protection: IP66</td>
</tr>
<tr>
<td>• LIOL-A Ex: &gt;10 cd</td>
<td>• Operation temperature: -50°C to +55°C</td>
</tr>
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<td>• LIOL-B Ex: &gt;32 cd</td>
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</tr>
<tr>
<td>• Cd emission: +6° e +10°</td>
<td>• Lamp unit weight: 6kg</td>
</tr>
<tr>
<td>• Horizontal beam radiation: 360°</td>
<td></td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>• Optical reflector</td>
<td></td>
</tr>
<tr>
<td>• ATEX execution: Ex II 2GD Ex de IIC T6 Gb</td>
<td></td>
</tr>
<tr>
<td>Ex tb IIIC T6°C Db IP66</td>
<td></td>
</tr>
</tbody>
</table>

#### TWIN OPTION

- Twin version: two galvanically separate circuits in the same fixture
- Fault alarm
- Automatic changeover from normal to backup light

#### INFRARED OPTION

- IR Wavelength - 850nM

#### ELECTRICAL FEATURES

- Power supply AC or DC
- Power consumption LIOL-B Ex: 4W (for DC)
- LED fed at constant current

#### ORDER CODE

**L810-LXS-Exde-**

1. **≥10cd = A**
2. **≥32cd = B**
3. **Customer’s request = U**
4. **With integrated Junction Box = J**
5. **Standard = S**
6. **24VDC = 0**
7. **12VDC = 1**
8. **12/24VDC = 2**
9. **115/230VAC = 6**
10. **From Control Panel = 8**

- **S** = Single light
- **T** = Twin light
- **I** = Visible light + infrared LEDs
- **0** = Without twilight sensor and without alarm
- **1** = With twilight sensor and alarm
- **2** = Without twilight sensor and with alarm
- **8** = From Control Panel

- **R** = Red

#### APPLY TO

- Stack - Chimney - Tower crane
- Offshore Platform
- Chemical and petrochemical plant

#### CERTIFICATION

- ATEX certificate no. CESI 13ATEX037
- DGAC/STAC approval nr. 2013A048
- ENAC approval nr. 0135182/ENAC/CIA
- ASD404 certificate no. ASD404/CERT/117-2019
- CE marking

#### COMPLIANCE

- ICAO Aerodromes -Annex 14 Volume 1, Chapter 6: Low intensity, Type A-B steady burning obstacle light
- FAA AC150/5345-43 E.B. #67 type L-810
- Licensing of aerodromes - CAP168 - Chapter 4
- Airport Standard Directive - Malaysian Regulation [ASD404]
LOW INTENSITY

LIOL-A Ex and LIOL-B Ex
TECHNICAL SPECIFICATIONS

SIDE VIEW

FRONT VIEW

FIXING DIMENSIONS
According to ICAO - Annex 14 Medium Intensity Obstruction Lights - Type A Ex, B Ex or C Ex - have to be used where the obstacle is particularly large and the height of the surrounding ground is more than 45m in hazardous areas.

Medium Intensity Obstacle Lights Type A Ex and C Ex have to be used alone, whereas Medium Intensity Obstacle Lights, Type B Ex, should be used either alone or in combination with Low Intensity Obstacle Lights, Type B Ex.

The Medium Intensity Obstruction Lights Type A Ex is **white flashing 20,000cd during day mode and 2,000cd during night mode.**

The Medium Intensity Obstruction Lights Type B Ex is **red flashing 2,000cd during night mode.**

The Medium Intensity Obstruction Lights Type C Ex is **red steady burning 2,000cd during night mode.**
**MIOL-B Ex eb mb op is/MIOL-C Ex eb mb op is**

Medium Intensity Obstruction Light is according to ICAO (Medium Intensity – Type B or C), FAA (Type L-864). Our beacons are ATEX and IECEx certified.

This beacon is the ideal solution for an efficient, lightweight and compact obstacle signalling.

MIOL-B Ex is emits a red flashing light, while MIOL-C Ex emits red steady burning light.

**INTERNATIONAL PATENTS: GRANTED AND PENDING**

Medium Intensity Obstruction Light is according to ICAO (Medium Intensity – Type B or C), FAA (Type L-864). Our beacons are ATEX and IECEx certified.

**FEATURES**

- Approved “op is” as per IEC 60079-28
- Optical Radiation

**CERTIFICATION**

- IECEx
- ATEX
- ICAO
- TWIN
- BASE
- DOME

**COMPLIANCE**

- FAA

**TYPICAL APPLICATION**

- Based on LED technology
- Red flashing light (MIOL-B)
- Red steady burning light (MIOL-C)

MIOL-B Ex eb mb op is/MIOL-C Ex eb mb op is

- Borosilicate glass tube protection
- Patented chimney effect for optimum cooling of the beacon
- Stabilised light output: 2,000 cd
- Based on LED technology
- Red flashing light (MIOL-B)
- Red steady burning light (MIOL-C)
- Standard circuits or TWIN
- Patented optical lens fastened with metal clamps
- Anti-condensation Gore-Tex valve
- Spirit level
- Anodised aluminium body
- Air-cooling system for +65% heat dissipation

INTERNATIONAL PATENTS: GRANTED AND PENDING

Medium Intensity Obstruction Light is according to ICAO (Medium Intensity – Type B or C), FAA (Type L-864). Our beacons are ATEX and IECEx certified.

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**FEATURES**

- Approved “op is” as per IEC 60079-28
- Optical Radiation

**CERTIFICATION**

- IECEx
- ATEX
- ICAO
- TWIN
- BASE
- DOME

**COMPLIANCE**

- FAA

**TYPICAL APPLICATION**

- Based on LED technology
- Red flashing light (MIOL-B)
- Red steady burning light (MIOL-C)

MIOL-B Ex eb mb op is/MIOL-C Ex eb mb op is

- Borosilicate glass tube protection
- Patented chimney effect for optimum cooling of the beacon
- Stabilised light output: 2,000 cd
- Based on LED technology
- Red flashing light (MIOL-B)
- Red steady burning light (MIOL-C)
- Standard circuits or TWIN
- Patented optical lens fastened with metal clamps
- Anti-condensation Gore-Tex valve
- Spirit level
- Anodised aluminium body
- Air-cooling system for +65% heat dissipation

INTERNATIONAL PATENTS: GRANTED AND PENDING

Medium Intensity Obstruction Light is according to ICAO (Medium Intensity – Type B or C), FAA (Type L-864). Our beacons are ATEX and IECEx certified.

This beacon is the ideal solution for an efficient, lightweight and compact obstacle signalling.

MIOL-B Ex is emits a red flashing light, while MIOL-C Ex emits red steady burning light.
**MEDIUM INTENSITY**

**MIOL-B Ex eb mb op is/MIOL-C Ex eb mb op is**

**TECHNICAL SPECIFICATIONS**

### OPTICAL FEATURES
- Based on LED technology
- RED light 2,000cd
- Horizontal beam radiation: 360°
- Vertical beam spread: 4°
- PMMA lens (PMMA)
- Light output alignment device
- ATEX execution Zone 1: II 2GD
  - Ex eb mb op is IIIC T6 Gc
  - Ex op is IIIC T80° Db IP66
- ATEX execution Zone 2: II 3GD
  - Ex eb mb IIIC T6 Gc
  - Ex tb IIIC T80° Dc IP66
- IECEx execution Zone 1: Ex eb mb op is IIIC T6 Gb
  - Ex op is IIIC T80°C Db IP66
- IECEx execution Zone 2: Ex eb mb IIIC T6 Gc
  - Ex tb IIIC T80°C Dc IP66

### GENERAL OPTIONS
- Horizontal beam radiation: 180°
- Power supply AC or DC
- GPS (Global Position System) Sincro
- Fault alarm

### TWIN VERSION OPTIONS
- Twin version: two galvanically separated circuits in the same fixture
- Fault alarm
- Automatic changeover from normal to backup light

### MECHANICAL FEATURES
- Borosilicate glass tube protection
- RAL 2004 painted aluminium body lamp
- Degree of protection: IP66
- Anti-Condensation Gore-Tex Valve
- Ambient temperature: -30°C to +50°C
- Storage temperature: -30°C to +50°C
- Lamp unit weight: 6kg

### ELECTRICAL FEATURES
- Alarm/remote status control
- Electronic control parts installed outside the beacon
- Average power consumption for MIOL-B Ex:
  - @20fpm: 9W
  - @40fpm: 12W
  - @60fpm: 15W
- Average power consumption for MIOL-C Ex (Steady Burning): 54W
- LED feeded at constant current
- Lightning protection
- No RF-radiations
- Range section of connectable conductors: da 0,5 a 2,5 mm²

### CERTIFICATIONS
- ATEX certificate for Zone 1 nr EPT 18 ATEX 3019X
- ATEX certificate for Zone 2 nr EPTI 18 ATEX 0353X
- IECEx certificate for Zone 1 - in progress
- IECEx certificate for Zone 2 nr. IECEx EUT 18.0029X
- ENAC approval nr. 0135182/ENAC/CIA
- DGAC/STAC approval nr. 2013A037
- ASD404 Malaysian certificate ASD404/CERT/118-2019
- CE marking

### COMPLIANCE
- ICAO Aerodromes -Annex 14 Vol. 1, Chapter 6: Medium intensity, Type B flashing obstacle light MIOL-B type or Type C steady burning obstacle light MIOL-C type
- FAA AC150/5345-43F E.B. #67 type L-864

### ORDER CODE

<table>
<thead>
<tr>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
<th>Column 4</th>
<th>Column 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>B</td>
<td>S</td>
<td>T</td>
<td>8</td>
</tr>
</tbody>
</table>

- **Flashing light = B**
- **Steady Burning light = C**
- **Single = S**
- **Twin = T**
- **180° = 1**
- **360° = 2**

**Z1 = Zone 1**
**Z2 = Zone 2**
**8 = Power Supply from Control Panel**

---

**C&E SRL** - lxs@luxsolar.com - www.luxsolar.com - Ph. +39.0341.260926
MIOL-B Ex eb mb op is/MIOL-C Ex eb mb op is
TECHNICAL SPECIFICATIONS

- L864-LXS-200-Ex-B/C average emission level at 90°C ambient temp.
- ICAO ANNEX 14 medium intensity type B/C Min. Required Intensity
- ICAO ANNEX 14 medium intensity type B/C Max. Required Intensity

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**SINGLE VERSION**
SIDE VIEW

**TOP VIEW**

**TWIN VERSION**
SIDE VIEW

---

**BOTTOM VIEW**

---

**LEVEL ADJUSTEMENT SCREWS**

---

**BOTTOM VIEW WITHOUT WIND COLLECTOR**

---

---
The Medium Intensity Obstruction Light is compliant to ICAO (Medium Intensity – Type A), FAA (Type L-865). Our beacons are ATEX and IECEx certified.

Thanks to a *lifetime >10 years* and a *low power consumption*, this beacon is the ideal solution for an *efficient, lightweight* and *compact* obstacle signalling.

**MIOL-A Ex** emits *white flashing light*.

**INTERNATIONAL PATENTS: GRANTED AND PENDING**

The Medium Intensity Obstruction Light is compliant to ICAO (Medium Intensity – Type A), FAA (Type L-865). Our beacons are ATEX and IECEx certified.

Thanks to a *lifetime >10 years* and a *low power consumption*, this beacon is the ideal solution for an *efficient, lightweight* and *compact* obstacle signalling.

**MIOL-A Ex** emits *white flashing light*.

**CERTIFICATION**
- CE
- ATEX
- ICAO
- FAA

**COMPLIANCE**
- FAA

**FEATURES**
- Stabilised light output: 20,000cd day mode
- 2,000cd night mode
- Based on LED technology
- White flashing light
- Borosilicate glass tube protection
- IP66
- Patented optical lens fastened with metal clamps
- Standard circuits or TWIN®
- Anti-condensation Gore-Tex valve
- Anodised aluminium body
- Air-cooling system for +65% heat dissipation
- Patented chimney effect for optimum cooling of the beacon

**TYPICAL APPLICATION**
- Construction
- Highways
- Wind energy
- Marine

---

**TYPICAL APPLICATION**

**BASE**
- Calux®

**DOME**
- Borosilicate

**BASE TEMPERATURE**
- –30°C to +80°C

**IP66**
- Photometric Test
- up to 80°C

**DAY**
- 24000

**NIGHT**
- 2400

**OPTION**
- Tested at 240km/h (150mph)
- up to 80m/s

**EASY INSTALL**
- Photometric Test
- approved “op is” as per IEC 60079-28

**ANTI-CONDENSATION**
- Gore-Tex valve

**SPIRIT LEVEL**
- Patented optical lens fastened with metal clamps

**TESTED**
- Up to 80m/s

**STANDARD CIRCUITS**
- TWIN®

**ANODISED ALUMINIUM BODY**
- Anti-condensation Gore-Tex valve

**AIR-COOLED SYSTEM**
- For +65% heat dissipation
MEDIUM INTENSITY

MIOL-A Ex eb mb op is TECHNICAL SPECIFICATIONS

OPTICAL FEATURES
- Based on LED technology
- 20,000cd day mode, WHITE flashing
- 2,000cd night mode, WHITE flashing
- Horizontal beam radiation: 360°
- Vertical beam spread: 4°
- PMMA lens (PMMA)
- Light output alignment device
- ATEX execution Zone 1: II 2GD
  Ex eb mb op is IIIC T6 Gb
  Ex op is tb IIIIC T80° Db IP66
- ATEX execution Zone 2: II 3GD
  Ex eb mb IIIC T6 Gc
  Ex tb IIIIC T80° Dc IP66
- IECEx execution Zone 1: Ex eb mb op is IIIC T6 Gb
  Ex op is tb IIIIC T80°C Db IP66
- IECEx execution Zone 2: Ex eb mb IIIC T6 Gc
  Ex tb IIIIC T80° Dc IP66

GENERAL OPTIONS
- Power supply AC or DC
- Horizontal beam radiation: 180°
- GPS (Global Position System) Sincro
- Fault alarm

TWIN VERSION OPTIONS
- Twin version: two galvanically separated circuits in the same fixture
- Fault alarm
- Automatic changeover from normal to backup light

MECHANICAL FEATURES
- Borosilicate glass cover protection
- RAL 2004 painted aluminium body lamp
- Anti-Condensation Gore-Tex Valve
- Degree of protection: IP66
- Ambient temperature: -30°C to +50°C
- Storage temperature: -30°C to +50°C
- Lamp unit weight: 15kg

ELECTRICAL FEATURES
- Alarm/remote status control
- Electronic control parts installed outside the beacon
- Average power consumption (@20fpm):
  - day mode: 45W
  - night mode: 10W
- Average power consumption (@40fpm):
  - day mode: 110W
  - night mode: 13W
- Average power consumption (@60fpm):
  - day mode: 160W
  - night mode: 18W
- LED feeded at constant current
- Lightning protection
- No RF-radiations
- Range section of connectable conductors: da 0,5 a 2,5 mm²

APPLY TO
- Stack - Chimney - Tower crane
- Offshore Platform
- Chemical and petrochemical plant

CERTIFICATIONS
- ICAO Aerodromes -Annex 14 Volume 1, Chapter 6: Medium intensity, Type A flashing obstacle light MIOL-A type
- FAA AC150/5345-43F E.B. #67 Lamp type L-865
- ATEX certificate for Zone 1 nr EPT 18 ATEX 3019X
- ATEX certificate for Zone 2 nr EPTI 18 ATEX 0353X
- IECEx certificate for Zone 1 - in progress
- IECEx certificate for Zone 2 nr. IECEx EUT 18.0029X
- ENAC approval nr. 0135182/ENAC/CIA
- DGAC/STAC approval nr. 2013A037
- CE marking

ORDER CODE

L865-LXS-200-Ex-

1  2  3  4

Z1 = Zone 1
Z2 = Zone 2
8 = Power Supply from Control Panel

Single white flashing light = A
Twin white flashing light = AT
180° = 1
360° = 2

bs@luxsolar.com • www.luxsolar.com • Ph. +39.0341.260926 • C&E SRL
The contents of this catalogue are subject to change without prior notice due to any improvements and updates made.
### MEDIUM INTENSITY

**MIOL-A Ex eb mb op is**

**TECHNICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Vertical Angle</th>
<th>Emission - cd</th>
</tr>
</thead>
<tbody>
<tr>
<td>-10</td>
<td>2,000</td>
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</tr>
<tr>
<td>12</td>
<td>24,000</td>
</tr>
<tr>
<td>14</td>
<td>26,000</td>
</tr>
</tbody>
</table>

- **L865-LXS-200-Ex-A average emission level at 90°C ambient temp.**
- **ICAO ANNEX 14 medium intensity type A Min. Required Intensity**
- **ICAO ANNEX 14 medium intensity type A Max. Required Intensity**

---

**SINGLE VERSION**

- **SIDE VIEW**
- **LEVEL ADJUSTMENT SCREWS**
- **Ø 215**
- **220**

**TOP VIEW**

**TWIN VERSION**

- **SIDE VIEW**
- **Ø 215**
- **282**

**BOTTOM VIEW**

- **WITHOUT WIND COLLECTOR**
- **Ø 156**
- **60°**
- **78°**

---

C&E SRL - lxs@luxsolar.com - www.luxsolar.com - Ph. +39.0341.260926
Medium Intensity Obstruction Light is compliant to ICAO (Medium Intensity – Type A + Type B/C), FAA (Type L-865/L-866+L864). Our beacons are ATEX and IECEx certified.

Thanks to a lifetime >10 years and a low power consumption, this beacon is the ideal solution for an efficient, lightweight and compact obstacle signalling.

MIOL-AB Ex / MIOL-AC Ex emits white flashing light for day mode and red light for night mode (flashing for Type AB Ex or steady burning for Type AC Ex).

**FEATURES**

- Borosilicate glass tube protection
- Stabilised light output: 20,000cd day mode (white) 2,000cd night mode (red)
- Standard circuits or TWIN
- Anodised aluminium body
- Air-cooling system for +65% heat dissipation
- Patented optical lens fastened with metal clamps
- Patented chimney effect for optimum cooling of the beacon
- Spirit level
- Anti-condensation Gore-Tex valve
- Based on LED technology
- Red flashing light (MIOL-B)
- Red steady burning light (MIOL-C)
- Approved “op is” as per IEC 60079-28

**SEVERAL INTERNATIONAL PATENTS: GRANTED AND PENDING**

Medium Intensity Obstruction Light is compliant to ICAO (Medium Intensity – Type A + Type B/C), FAA (Type L-865/L-866+L864). Our beacons are ATEX and IECEx certified.

**CERTIFICATION**

- CE
- STAC
- ATEX
- ICAO
- IECEx

**COMPLIANCE**

- FAA

**FEATURES**

- Borosilicate glass tube protection
- Stabilised light output: 20,000cd day mode (white) 2,000cd night mode (red)
- Standard circuits or TWIN
- Anodised aluminium body
- Air-cooling system for +65% heat dissipation
- Patented optical lens fastened with metal clamps
- Patented chimney effect for optimum cooling of the beacon
- Spirit level
- Anti-condensation Gore-Tex valve
- Based on LED technology
- Red flashing light (MIOL-B)
- Red steady burning light (MIOL-C)
- Approved “op is” as per IEC 60079-28

**SEVERAL INTERNATIONAL PATENTS: GRANTED AND PENDING**

Medium Intensity Obstruction Light is compliant to ICAO (Medium Intensity – Type A + Type B/C), FAA (Type L-865/L-866+L864). Our beacons are ATEX and IECEx certified.

Thanks to a lifetime >10 years and a low power consumption, this beacon is the ideal solution for an efficient, lightweight and compact obstacle signalling.

MIOL-AB Ex / MIOL-AC Ex emits white flashing light for day mode and red light for night mode (flashing for Type AB Ex or steady burning for Type AC Ex).

**CERTIFICATION**

- CE
- STAC
- ATEX
- ICAO
- IECEx

**COMPLIANCE**

- FAA

**FEATURES**

- Borosilicate glass tube protection
- Stabilised light output: 20,000cd day mode (white) 2,000cd night mode (red)
- Standard circuits or TWIN
- Anodised aluminium body
- Air-cooling system for +65% heat dissipation
- Patented optical lens fastened with metal clamps
- Patented chimney effect for optimum cooling of the beacon
- Spirit level
- Anti-condensation Gore-Tex valve
- Based on LED technology
- Red flashing light (MIOL-B)
- Red steady burning light (MIOL-C)
- Approved “op is” as per IEC 60079-28

**SEVERAL INTERNATIONAL PATENTS: GRANTED AND PENDING**

Medium Intensity Obstruction Light is compliant to ICAO (Medium Intensity – Type A + Type B/C), FAA (Type L-865/L-866+L864). Our beacons are ATEX and IECEx certified.

Thanks to a lifetime >10 years and a low power consumption, this beacon is the ideal solution for an efficient, lightweight and compact obstacle signalling.

MIOL-AB Ex / MIOL-AC X emits white flashing light for day mode and red light for night mode (flashing for Type AB Ex or steady burning for Type AC Ex).

**CERTIFICATION**

- CE
- STAC
- ATEX
- ICAO
- IECEx

**COMPLIANCE**

- FAA

**FEATURES**

- Borosilicate glass tube protection
- Stabilised light output: 20,000cd day mode (white) 2,000cd night mode (red)
- Standard circuits or TWIN
- Anodised aluminium body
- Air-cooling system for +65% heat dissipation
- Patented optical lens fastened with metal clamps
- Patented chimney effect for optimum cooling of the beacon
- Spirit level
- Anti-condensation Gore-Tex valve
- Based on LED technology
- Red flashing light (MIOL-B)
- Red steady burning light (MIOL-C)
- Approved “op is” as per IEC 60079-28

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MIOL-AB Ex / MIOL-AC Ex emits white flashing light for day mode and red light for night mode (flashing for Type AB Ex or steady burning for Type AC Ex).
MIOL-AB Ex eb mb op is/MIOL-AC Ex eb mb op is

TECHNICAL SPECIFICATIONS

OPTICAL FEATURES

- Based on LED technology
- 20.000cd day mode, WHITE light
- 2.000cd night mode, RED light
- Horizontal beam radiation 360°
- Vertical beam spread 4°
- PMMA lens
- Light output alignment device
- ATEX execution Zone 1: Il 2GD Ex eb mb op is IIC T6 Gb T80° Db IP66
- ATEX execution Zone 2: Il 3GD Ex eb mb IIC T6 Gc Ex tb IIC T80° Dc IP66
- IECEx execution Zone 1: Ex eb mb op is IIC T6 Gb Ex op is tb IIC T80°C Db IP66
- IECEx execution Zone 2: Ex eb mb IIC T6 Gc Ex tb IIC T80° Dc IP66

GENERAL OPTION

- Dual AB: white flash on day, red flash on night
- Dual AC: white flash on day, red steady burning on night
- Horizontal beam radiation: 180°
- Power supply AC or DC
- GPS (Global Position System) Sincro

MECHANICAL FEATURES

- Barosilicate glass tube protection
- RAL 2004 painted aluminium body lamp
- Silicon gasket
- Degree of protection: IP66
- Anti-Condensation Gore-Tex Valve
- Ambient temp.: -30°C to +50°C
- Storage temperature: -30°C to +50°C
- Lamp unit weight: 6kg

ELECTRICAL FEATURES

- Alarm/remote status control
- Electronic Control parts installed outside the beacon
- Average power consumption:
  - @20fpm day mode: 45W (Miol-AB/Miol-AC)
  - @20fpm night mode: 10W (Miol-AB)
  - @40fpm day mode: 110W (Miol-AB/Miol-AC)
  - @40fpm night mode: 12W (Miol-AB)
  - @60fpm day mode: 160W (Miol-AB/Miol-AC)
  - @60fpm night mode: 16W (Miol-AB)
  - night mode (luce fissa) Miol-AC: 50W
- LED feeded at constant current
- Lightning protection
- No RF-radiations
- Range section of connectable conductors: da 0,5 a 2,5 mm²

CERTIFICATIONS

- ATEX certificate for Zone 1 nr EPT 18 ATEX 3019X
- ATEX certificate for Zone 2 nr EPTI 18 ATEX 0353X
- IECEx certificate for Zone 1 - in progress
- IECEx certificate for Zone 2 nr. IECEx EUT 18.0029X
- ENAC approval nr. 0135182/ENAC/CIA
- DGAC/STAC approval nr. 2013A037
- CE marking

COMPLIANCE

- ICAO Aerodromes - Annex 14 Vol.1, Ch. 6: Medium intensity, Type B flashing obstacle light MIOL-AB type, Type AC flashing/steady burning obstacle light MIOL-AC Type
- FAA AC150/5345-43F E.B. #67 Lamp type Dual L-864/L-865

ORDER CODE

L864/L865-LXS-200-Ex-

1 2 3 4

Dual: white/red flashing light = AB
Dual: white flashing light/red steady burning = AC

180° = 1
360° = 2

Z1 = Zone 1
Z2 = Zone 2
8 = Power -supply from Control Panel
MIOL-AB Ex eb mb op is/MIOL-AC Ex eb mb op is
TECHNICAL SPECIFICATIONS

Emission - cd

Vertical Angle

26.000
24.000
22.000
20.000
18.000
16.000
14.000
12.000
10.000
8.000
6.000
4.000
2.000
0.000
-2.000
-4.000
-6.000
-8.000
-10.000

L865-LXS-200-Ex-A average emission level at 90°C ambient temp.
ICAO ANNEX 14 medium intensity type A Min. Required Intensity
ICAO ANNEX 14 medium intensity type A Max. Required Intensity

Emission - cd

Vertical Angle

2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
-400
-600
-800
-1000

L864-LXS-200-Ex-B average emission level at 90°C ambient temp.
ICAO ANNEX 14 medium intensity type B/C Min. Required Intensity
ICAO ANNEX 14 medium intensity type B/C Max. Required Intensity

SIDE VIEW

TOP VIEW

BOTTOM VIEW

HORIZONTAL/VERTICAL LEVEL ADJUSTMENT SCREWS

BOTTOM VIEW WITHOUT WIND COLLECTOR
AWL SYSTEM CONTROL PANEL FOR CLASSIFIED AREAS (IIB OR IIB+H2)

- Main isolating switch for power supply 110/230VAC 50/60Hz;
- AUTO/MAN switch to override photocell (if any);
- Module for simultaneous flashing (if any);
- Beacon fault contacts available on terminals;
- Local LED indicator for Power On;
- Power electronics to feed the beacons;
- Overvoltage protection (lightning protection);
- Twilight sensor;
- Enclosure material: RAL 7035, painted aluminum or natural finish AISI316L

The installation of multiple devices on the same obstacle is defined “System” and a control panel that contains all the necessary elements for the proper operation of the system is necessary.

The control panel helps to simplify both core management tasks (start up, check anomalies, etc.) and the maintenance of the system. Beacons can be managed by one or several panels, according to installation requirements or project specifications.

Luxsolar control panels for classified areas are available with: ATEX, IECEx, Tr Cu, INMETRO, CNEX and PESO certificates.

OPTIONAL ITEMS

- GPS sync for wireless sync of panels controlling flashing beacons;
- Fault alarm available on the front window/door;
- Heat controller;
- Radio system;
- GSM system;
- UPS system.

DESIGN

Our Team of experts can assist designers and installers with professional support according to regulations and project specification.

For any additional information please contact: lxs@luxsolar.com
In 2014, following a long technical and qualitative process, Luxsolar has obtained ENAC certification for Aircraft Warning Lights. Luxsolar is today the only company that has obtained this kind of acknowledgement from ENAC (the Italian Body for Civil Aviation).

**ICAO CERTIFICATION**

To: Combustion & Energy s.r.l.
Via Per Dolzago 21
23848 Oggiono – Lecco (LC)

SUBJECT: Luxsolar Obstacle Warning Led Lights – STATEMENT OF CONFORMITY

- Having regard to following reference regulation:
  1. ICAO - Annex14 - § 6.2 “Marking and/or lighting of objects” - Sixth Edition 2013 (Reference to Table 6.3 different from Table Q-2 of Chapter Q - EASA ADR Rules);
  2. ICAO - Doc. 9187 - Part 4 – Visual Aids - Fourth Edition 2004 (for applicable paragraph);
  3. ENAC – Aerodromes Regulation – Chapter 4 (for applicable paragraph);
  4. ENAC – Circular APT 28 “Aerodrome devices acceptance criteria”;
  5. EN0068-2-1 (2007/04) & EN0068-2-2 (2007/09) for temperature range (-20°C+50°C);
  6. EN60529 & EN60598 (only applicable §) for IPE1 compliance;
  7. EN0068-2-G:2008 for vibration compliance (150Hz, 30mm peak to peak, 80m/s² accel);

- Having regard to the following manufacturer’s documents received on 18-06-2014:
  1. Technical description of the concerned lights;
  2. Assembling schemes, showing construction schemes and relative data sheets;

- Whereas Luxsolar Obstacle Warning Led Lights fulfill previous regulatory references as certified by the technical available data by laboratory test. [6] by Prima s.r.l. (Como) [7] by Prima s.r.l. (Como) and Nemiko SpA (Monza Brianza); [8] by Qualilab S.r.l. (Brescia);

- Whereas laboratory tests about a photometric and colorimetric performances issued a compliance;

- ENAC hereby states that the following devices:

<table>
<thead>
<tr>
<th>Article</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LB10-LXS</td>
<td>Low Intensity Led Red Obstruction Aircraft Warning Light</td>
</tr>
<tr>
<td>LB65-LXS-A</td>
<td>Medium Intensity White Flashing Led Obstruction Aircraft Warning Light</td>
</tr>
<tr>
<td>LB64-LXS-B</td>
<td>Medium Intensity Red Flashing Led Obstruction Aircraft Warning Light</td>
</tr>
<tr>
<td>LB64-LXS-C</td>
<td>Medium Intensity Red Steady Burning Led Obstruction Aircraft Warning Light</td>
</tr>
</tbody>
</table>

* comply with the above reference regulation (from point 1 to point 7).
SYSTEMS CONFIGURATION<3km FROM AIRFIELD

YES MARKED

NO

≤45

≤105

≤150

>150

opt.1

MEDIUM INTENSITY
Flashing red
L864-LXS-Ex

OR

MEDIUM INTENSITY
Steady burning red
L864-LXS-Ex

opt.2

MEDIUM INTENSITY - TOP
Flashing red
L864-LXS-Ex

LOW INTENSITY - MID
Steady burning red
L810-LXS-Ex

MEDIUM INTENSITY - TOP + MID
Flashing white + Flashing red
L864/L865-LXS-Ex

LOW INTENSITY - BTM + BMG
Steady burning red
L810-LXS-Ex

DUAL MEDIUM INTENSITY - TOP + MID
Flashing white + Flashing red
L864/L865-LXS-Ex

MEDIUM INTENSITY - BTM + BMG
Steady burning red
L864-LXS-Ex

MEDIUM INTENSITY - TOP
Flashing red
L864-LXS-Ex

MEDIUM INTENSITY - MID
Steady burning red
L864-LXS-Ex

DUAL MEDIUM INTENSITY - TOP + MID
Flashing white + Flashing red
L864/L865-LXS-Ex

MEDIUM INTENSITY - BTM + BMG
Steady burning red
L864-LXS-Ex

TOP = At the top of the obstacle
MID = At h/2 of the obstacle
BTM = Between top and mid (h ¾)
BMG = Between mid and ground (h ¼)
SYSTEMS CONFIGURATION

<3km FROM AIRFIELD

≤45

NO

YES

opt.1

MEDIUM INTENSITY
Flashing red
L864-LXS-Ex

OR

opt.2

MEDIUM INTENSITY
Steady burning red
L864-LXS-Ex

≤105

NO

YES

opt.1

DUAL MEDIUM INTENSITY - TOP + MID
Flashing white + Flashing red
L864/L865-LXS-Ex

LOW INTENSITY - BTM + BMG
Steady burning red
L810-LXS-Ex

OR

opt.2

DUAL MEDIUM INTENSITY - TOP + MID
Flashing white + Steady burning red
L864/L865-LXS-Ex

MEDIUM INTENSITY - BTM + BMG
Steady burning red
L864-LXS-Ex

≤150

NO

YES

opt.1

DUAL MEDIUM INTENSITY - TOP + MID
Flashing white + Flashing red
L864/L865-LXS-Ex

LOW INTENSITY - MID
Steady burning red
L810-LXS-Ex

OR

opt.1

DUAL MEDIUM INTENSITY - TOP + MID
Flashing white + Flashing white
L864/L865-LXS-Ex

LOW INTENSITY - BTM + BMG
Steady burning red
L810-LXS-Ex

>150

YES

opt.1

DUAL MEDIUM INTENSITY - TOP + MID
Flashing white + Steady burning red
L864/L865-LXS-Ex

MEDIUM INTENSITY - MID
Steady burning red
L864-LXS-Ex

OR

opt.1

DUAL MEDIUM INTENSITY - TOP + MID
Flashing white + Steady burning red
L864/L865-LXS-Ex

MEDIUM INTENSITY - BTM + BMG
Steady burning red
L864-LXS-Ex

OR

opt.2

DUAL MEDIUM INTENSITY - TOP
Flashing white + Steady burning red
L864/L865-LXS-Ex

MEDIUM INTENSITY - MID
Steady burning red
L864-LXS-Ex
SYSTEMS CONFIGURATION

DA 3km A 10km FROM AIRFIELD

YES MARKED

NO

≤45

NO

YES

≤105

NO

≤150

NO

>150

YES

LOW INTENSITY
Steady burning red
L810-LXS-Ex

MEDIUM INTENSITY - TOP + MID
Flashing red
L864-LXS-Ex

LOW INTENSITY - BTM + BMG
Steady burning red
L810-LXS-Ex

OR

MEDIUM INTENSITY - TOP + MID
Steady burning red
L864-LXS-Ex

MEDIUM INTENSITY - BTM + BMG
Steady burning red
L864-LXS-Ex

DUAL MEDIUM INTENSITY - TOP + MID
Flashing white + Flashing red
L864/L865-LXS-Ex

LOW INTENSITY - BTM + BMG
Steady burning red
L810-LXS-Ex

OR

MEDIUM INTENSITY - TOP
Steady burning red
L864-LXS-Ex

MEDIUM INTENSITY - MID
Steady burning red
L864-LXS-Ex

DUAL MEDIUM INTENSITY - TOP + MID
Flashing white + Steady burning red
L864/L865-LXS-Ex

MEDIUM INTENSITY - BTM + BMG
Steady burning red
L864-LXS-Ex

MEDIUM INTENSITY - TOP
Flashing red
L864-LXS-Ex

LOW INTENSITY - MID
Steady burning red
L810-LXS-Ex

MEDIUM INTENSITY - TOP + MID
Steady burning red
L864-LXS-Ex

MEDIUM INTENSITY - BTM + BMG
Steady burning red
L864-LXS-Ex

TOP = At the top of the obstacle
MID = At h/2 of the obstacle
BTM = Between top and mid (h ¾)
BMG = Between mid and ground (h ¼)
**SYSTEMS CONFIGURATION**

**DA 3km A 10km FROM AIRFIELD**

- **≤45** NO
  - **YES**
    - **LOW INTENSITY**
      - Steady burning red
      - L810-LXS-Ex

- **≤105** NO
  - **YES**
    - **LOW INTENSITY**
      - Steady burning red
      - L810-LXS-Ex
  - **≥105** NO
    - **YES**
      - **DUAL MEDIUM INTENSITY - TOP**
        - Flashing red + Flashing white
        - L864/L865-LXS-Ex
      - **LOW INTENSITY - BTM + BMG**
        - Steady burning red
        - L810-LXS-Ex

- **≤150** NO
  - **YES**
    - **DUAL MEDIUM INTENSITY - TOP**
      - Flashing red + Flashing white
      - L864/L865-LXS-Ex
    - **LOW INTENSITY - BTM + BMG**
      - Steady burning red
      - L810-LXS-Ex

- **>150** YES
  - **DUAL MEDIUM INTENSITY - TOP**
    - Flashing white + Steady burning red
    - L864/L865-LXS-Ex
  - **MEDIUM INTENSITY - MID**
    - Steady burning red
    - L864-LXS-Ex

- **≤45** OR
  - **YES**
    - **LOW INTENSITY**
      - Steady burning red
      - L810-LXS-Ex
    - **DUAL MEDIUM INTENSITY - TOP**
      - Flashing white + Steady burning red
      - L864/L865-LXS-Ex
    - **LOW INTENSITY - MID**
      - Steady burning red
      - L810-LXS-Ex

- **≤105** OR
  - **YES**
    - **DUAL MEDIUM INTENSITY - TOP**
      - Flashing white + Steady burning red
      - L864/L865-LXS-Ex
    - **LOW INTENSITY - MID**
      - Steady burning red
      - L864-LXS-Ex

- **>105** OR
  - **YES**
    - **DUAL MEDIUM INTENSITY TOP + MID**
      - Flashing white + Steady burning red
      - L864/L865-LXS-Ex
    - **LOW INTENSITY - BTM + BMG**
      - Steady burning red
      - L810-LXS-Ex

- **>150** OR
  - **YES**
    - **DUAL MEDIUM INTENSITY TOP + MID**
      - Flashing white + Steady burning red
      - L864/L865-LXS-Ex
    - **LOW INTENSITY - BTM + BMG**
      - Steady burning red
      - L810-LXS-Ex
SYSTEMS CONFIGURATION

>10km FROM AIRFIELD

YES

MARKED

NO

≤45

NO

≤105

NO

≤150

NO

≥150

YES

opt. 1

LOW INTENSITY
Steady burning red
L810-LXS-Ex

MEDIUM INTENSITY - TOP + MID
Flashing red
L864-LXS-Ex

LOW INTENSITY - BMT + BMG
Steady burning red
L810-LXS-Ex

OR

opt. 2

MEDIUM INTENSITY - TOP + MID
Steady burning red
L864-LXS-Ex

MEDIUM INTENSITY - BTM + BMG
Steady burning red
L864-LXS-Ex

opt. 1

MEDIUM INTENSITY - TOP
Flashing red
L864-LXS-Ex

LOW INTENSITY - MID
Steady burning red
L810-LXS-Ex

OR

opt. 2

MEDIUM INTENSITY - TOP
Steady burning red
L864-LXS-Ex

MEDIUM INTENSITY - MID
Steady burning red
L864-LXS-Ex

DUAL MEDIUM INTENSITY - TOP + MID
Flashing white + Flashing red
L864-L865-LXS-Ex

LOW INTENSITY - BTM + BMG
Steady burning red
L810-LXS-Ex

OR

opt. 3

MEDIUM INTENSITY - TOP + MID
Flashing white
L865-LXS-Ex

TOP = At the top of the obstacle
MID = At h/2 of the obstacle
BTM = Between top and mid (h ¾)
BMG = Between mid and ground (h ¼)
SYSTEMS CONFIGURATION

>10km FROM AIRFIELD

- **≤45** NO
  - **YES**
    - LOW INTENSITY
      - Steady burning red
      - L810-LXS-Ex

- **≤105** NO
  - **YES**
    - **DUAL MEDIUM INTENSITY - TOP**
      - Flashing white + Flashing red
      - LB64/LB65-LXS-Ex
    - **LOW INTENSITY - MID**
      - Steady burning red
      - L810-LXS-Ex

- **≤150** NO
  - **YES**
    - **DUAL MEDIUM INTENSITY - TOP**
      - Flashing white + Steady burning red
      - LB64/LB65-LXS-Ex
    - **MEDIUM INTENSITY - MID**
      - Steady burning red
      - L864-LXS-Ex

- **>150** YES
  - **YES**
    - **MEDIUM INTENSITY - TOP**
      - Flashing white
      - L865-LXS-Ex
  - **OR**
    - **DUAL MEDIUM INTENSITY TOP + MID**
      - Flashing white + Steady burning red
      - LB64/LB65-LXS-Ex
    - **LOW INTENSITY - BTM + BMG**
      - Steady burning red
      - L810-LXS-Ex
  - **OR**
    - **DUAL MEDIUM INTENSITY TOP + MID**
      - Flashing white + Steady burning red
      - LB64/LB65-LXS-Ex
    - **MEDIUM INTENSITY - BTM + BMG**
      - Steady burning red
      - L864-LXS-Ex
  - **OR**
    - **MEDIUM INTENSITY - TOP**
      - Flashing white
      - L865-LXS-Ex
ICAO regulation Annex 14, Vol. 1 and Annex 6, specifies that – on the basis of their height and kind of marking, obstacles may require beacons installed on several levels (top, middle, etc.). The number of beacons required for each level depends on the external diameter of the structure and is suggested in the following chart:

<table>
<thead>
<tr>
<th>Diameter</th>
<th>No of lights for level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 6 m</td>
<td>3</td>
</tr>
<tr>
<td>from 6m to 30m</td>
<td>4</td>
</tr>
<tr>
<td>da 30m a 60m</td>
<td>6</td>
</tr>
<tr>
<td>beyond 60m</td>
<td>8</td>
</tr>
</tbody>
</table>

### ELEVATED STRUCTURES <45m

**LOW INTENSITY**  
Red steady burning (Night)

- LIOL-B Ex
- LIOL-B Ex

- >3km from airfield

**MEDIUM INTENSITY**  
Red flashing or steady burning (Night)

- MIOL-B Ex or MIOL-C Ex
- MIOL-B Ex or MIOL-C Ex

- <3km from airfield
SYSTEMS CONFIGURATION

ELEVATED STRUCTURES
FROM 45m TO 105m

MEDIUM INTENSITY
White flashing (Day and Night)

DUAL MEDIUM INTENSITY
White flashing (Day)
Red flashing (Night)

DUAL MEDIUM INTENSITY
White flashing (Day)
Red steady burning (Night)

MIOL-A Ex
L865-LXS-Ex

MIOL-AB Ex
L864/L865-LXS-Ex

MIOL-AC Ex
L864/L865-LXS-Ex

MIOL-B Ex
L864-LXS-Ex

MIOL-C Ex
L864-LXS-Ex

LIOL-B-Ex
L810-LXS-Ex

H/2 MAX 52m

H/2 MAX 52m

>10km from airfield

MEDIUM INTENSITY
Red flashing (Night)
Rosso steady burning (Night)

MEDIUM INTENSITY
Red steady burning (Night)

MIOL-B Ex
L864-LXS-Ex

MIOL-B Ex
L864-LXS-Ex

MIOL-C Ex
L864-LXS-Ex

MIOL-C Ex
L864-LXS-Ex

LIOL-B-Ex
L810-LXS-Ex

LIOL-B-Ex
L810-LXS-Ex

LIOL-B-Ex
L810-LXS-Ex

LIOL-B-Ex
L810-LXS-Ex

H/2 MAX 52m

H/2 MAX 52m

MARKED

NOT MARKED

The contents of this catalogue are subject to change without prior notice due to any improvements and updates made.
SYSTEMS CONFIGURATION

ELEVATED STRUCTURES
FROM 105m TO 150m

MEDIUM INTENSITY
White flashing (Day and Night)

DUAL
White flashing (Day)  
Red steady burning (Night)

DUAL MEDIUM INTENSITY
White flashing (Day)  
Red steady burning (Night)

MIOL-A Ex  
L865-LXS-Ex

MIOL-B Ex  
L864-LXS

LIOL-B Ex  
L810-LXS-Ex

H/2n  
MAX 52m  
MIN 25m

H/2  
MAX 105m

>10km from airfield

H/2

MAX 105m

MARKED

NOT MARKED

MEDIUM INTENSITY  
Red flashing (Night)  
Red steady burning (Night)
Offshore Platform

Offshore Platform

Offshore Platform
Combustion and Energy S.r.l.

- **Registered office:** Via per Dolzago, 21 - 23848 Oggiono (LC) - Italy
- **Legal office:** Via dei Piatti, 3 - 20123 Milan (MI) - Italy

- **Phone:** +39 0341-260926
- **Fax:** +39 0341-577747

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- **Facebook:** Luxsolar
- **YouTube:** Luxsolar

- **Luxsolar App:**
  - Android Luxsolar
  - Apple Luxsolar