Solar Bollard Lighting

SBL Series

2015 Model Range


Vandal Resistant


No Electricity Bills


Easy & Low Cost to Install


Environmentally Friendly


Low Maintenance

Do It Yourself

SOLAR BOLLARD *Standard Model*

Solar Bollard Lighting presents our second generation heavy duty and vandal resistant SBL Series SOLAR BOLLARDS with a proven 8 years in the field tested electronic design for use in any civil, military and commercial applications globally.

Main Body: Polycarbonate (special made design polymer to order)
257mm (10') Diameter
IP66 when installed to pole (*T.B.T*)
Net Weight 3kg (6.6lbs)

LED Chips: 6 x Nichia LED Chips initial lm/w 150lm
- Standard 5200K (White) / Amber for Turtle Friendly

System Voltage 3.2V (ELV intrinsically safe no UL certification required for USA)

Operating Temp: -30°C ~ +60°C (ambient)

Solar Module: 4.4w High Efficiency Mono-Crystalline
- with anti-reflective tempered glass
- High grade construction materials
- 10 Years minimum performance life

Power Cell: 3.2V LiFeP04 Cell - 5,500 cycles (15 years expected)

Power Control: No microprocessors used as failures will occur due to overheating in any air sealed non-ventilated enclosure

PCB (Printed Circuit Board)
- 8 years operationally proven in the field
- Controls on/off function

PCM (Power Control Module)
- Controls LiFePo4 Recharge

Design Life: 10 years (expected minimum operational design life of light head)

Autonomy: Autonomy for each power model based upon
- No solar input daily recharging LiFePo4 Cell
- 15 hour nightly runtimes

15 Hours Per Day			
Bollard Model	Battery Autonomy Hours	Battery Autonomy Days	Depth Of Discharge
EXSB075W-S	109	7.3	10.70%
EXSB120W-S	68	4.5	18.90%
EXSB150W-S	55	3.6	24.40%
EXSB210W-S	39	2.6	35.40%

Maintenance: Polish top dome with Vuplex annually for peak performance to extend operational life >10 years

Warranty: 5 years (using SBL approved pole only and correct installation)

Pole Material: 6106 T6 Aluminium

Pole Diameter: 115mm (4.5')

Installed Height: 290mm (11.4'), 840mm (33'), 1140mm (44.9')

Pole Finish: Anodised or Powder Coated

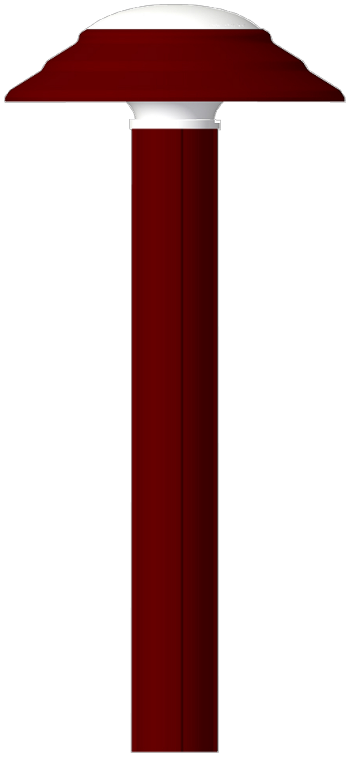
Security Bolts: Torx Pin Button Head supplied with every pole

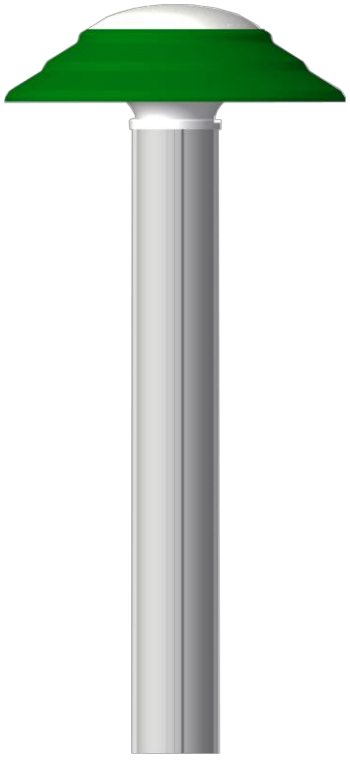
Assembly: Simple installation

AS/NZS 1158.3.1:2005: Examples of P4 on 1.2m wide pathway @ 1m
- 120mA model = 6.1m centres
- 150mA model = 6.5m centres
- 210mA model = 7.2m centres

SOLAR BOLLARD *SR Model*

Solar Bollard Lighting presents our second generation heavy duty and vandal resistant SBL SR Series SOLAR BOLLARDS with a proven 8 years in the field tested electronic design for use in civil, military and commercial applications globally.





Main Body: Polycarbonate (special made design polymer to order)
257mm (10') Diameter
IP66 when installed to pole (*T.B.T*)
Net Weight 3kg (6.6lbs)

Reflector: 304 Stainless 454mm (17.9') Powder Coat finish
No luminous output above 90 degrees

LED Chips: 6 x Nichia LED Chips initial lm/w 150lm
- Standard 5200K (White) / Amber for Turtle Friendly

System Voltage 3.2V (ELV intrinsically safe no UL certification required for USA)

Operating Temp: -30°C ~ +60°C (ambient)

Solar Module: 4.4w High Efficiency Mono-Crystalline
- with anti-reflective tempered glass
- High grade construction materials
- 10 Years minimum performance life

Power Cell: 3.2V LiFeP04 Cell - 5,500 cycles (15 years expected)

Power Control: No microprocessors used as failures will occur due to overheating in any air sealed non-ventilated enclosure

PCB (Printed Circuit Board)
- 8 years operationally proven in the field
- Controls on/off function

PCM (Power Control Module)
- Controls LiFePo4 Recharge

Design Life: 10 years (expected minimum operational design life of light head)

Autonomy: Autonomy for each power model based upon
- No solar input daily recharging LiFePo4 Cell
- 15 hour nightly runtimes

15 Hours Per Day			
Bollard Model	Battery Autonomy Hours	Battery Autonomy Days	Depth Of Discharge
EXSB075W-S	109	7.3	10.70%
EXSB120W-S	68	4.5	18.90%
EXSB150W-S	55	3.6	24.40%
EXSB210W-S	39	2.6	35.40%

Maintenance: Polish top dome with Vuplex annually for peak performance to extend operational life >10 years

Warranty: 5 years (using SBL approved pole only and correct installation)

Pole Material: 6106 T6 Aluminium

Pole Diameter: 115mm (4.5')

Installed Height: 1000mm (40') from ground with SBL light head

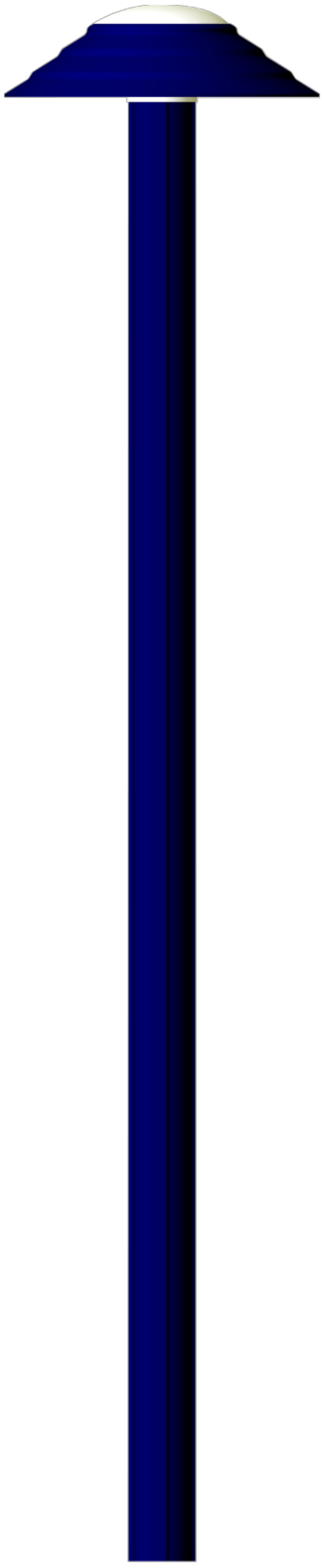
Pole Finish: Anodised or Powder Coated to match reflector

Security Bolts: Torx Pin Button Head supplied with every pole

Assembly: Simple installation

SOLAR BOLLARD *HR Model*

Solar Bollard Lighting presents our second generation heavy duty and vandal resistant SBL HR Series SOLAR BOLLARDS with a proven 8 years in the field tested electronic design for use in civil, military and commercial applications globally.



Main Body: Polycarbonate (special made design polymer to order)
257mm (10') Diameter
IP66 when installed to pole (*T.B.T*)
Net Weight 3kg (6.6lbs)

Reflector: 304 Stainless 544mm (21.5') Powder Coat finish
No luminous output above 90 degrees

LED Chips: 6 x Nichia LED Chips initial lm/w 150lm
- Standard 5200K (White) / Amber for Turtle Friendly

System Voltage 3.2V (ELV intrinsically safe no UL certification required for USA)

Operating Temp: -30°C ~ +60°C (ambient)

Solar Module: 4.4w High Efficiency Mono-Crystalline
- with anti-reflective tempered glass
- High grade construction materials
- 10 Years minimum performance life

Power Cell: 3.2V LiFeP04 Cell - 5,500 cycles (15 years expected)

Power Control: No microprocessors used as failures will occur due to overheating in any air sealed non-ventilated enclosure

PCB (Printed Circuit Board)
- 8 years operationally proven in the field
- Controls on/off function

PCM (Power Control Module)
- Controls LiFePo4 Recharge

Design Life: 10 years (expected minimum operational design life of light head)

Autonomy: Autonomy for each power model based upon
- No solar input daily recharging LiFePo4 Cell
- 15 hour nightly runtimes

15 Hours Per Day			
Bollard Model	Battery Autonomy Hours	Battery Autonomy Days	Depth Of Discharge
EXSB075W-S	109	7.3	10.70%
EXSB120W-S	68	4.5	18.90%
EXSB150W-S	55	3.6	24.40%
EXSB210W-S	39	2.6	35.40%

Maintenance: Polish top dome with Vuplex annually for peak performance to extend operational life >10 years

Warranty: 5 years (using SBL approved pole only and correct installation)

Pole Material: 6106 T6 Aluminium

Pole Diameter: 115mm (4.5')

Installed Height: 2500mm (98.5') or 3000m (118') from ground with SBL light head

Pole Finish: Anodised or Powder Coated to match reflector

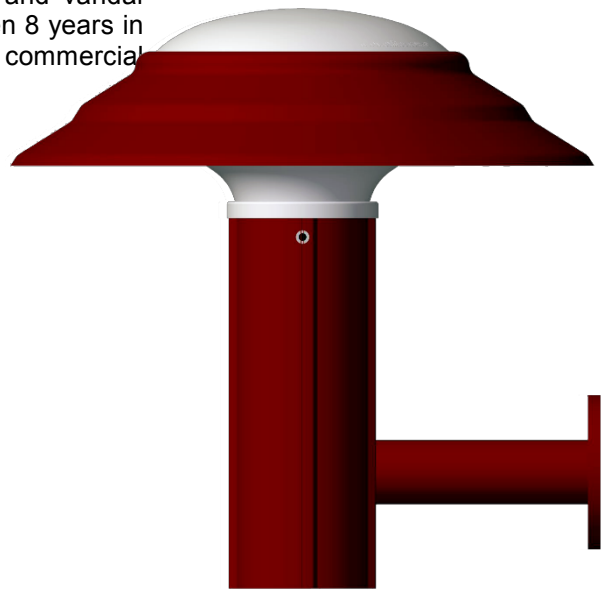
Security Bolts: Torx Pin Button Head supplied with every pole

Assembly: Simple installation

SOLAR BOLLARD *WALL Mount*

Solar Bollard Lighting presents our second generation heavy duty and vandal resistant SBL WALL MOUNT Series SOLAR BOLLARDS with a proven 8 years in the field tested electronic design for use in civil, military and commercial applications globally.

SR Wall Mount



Main Body: Polycarbonate (special made design polymer to order)
257mm (10') Diameter
IP66 when installed to pole *(T.B.T)*
Net Weight 3kg (6.6lbs)

Reflector: SR - 304 Stainless 454mm (17.9') Powder Coat finish
No luminous output above 90 degrees

LED Chips: 6 x Nichia LED Chips initial lm/w 150lm
- Standard 5200K (White) / Amber for Turtle Friendly

System Voltage 3.2V (ELV intrinsically safe no UL certification required for USA)

Operating Temp: -30°C ~ +60°C (ambient)

Solar Module: 4.4w High Efficiency Mono-Crystalline
- with anti-reflective tempered glass
- High grade construction materials
- 10 Years minimum performance life

Power Cell: 3.2V LiFeP04 Cell - 5,500 cycles (15 years expected)

Power Control: No microprocessors used as failures will occur due to overheating in any air sealed non-ventilated enclosure

PCB (Printed Circuit Board)
- 8 years operationally proven in the field
- Controls on/off function

PCM (Power Control Module)
- Controls LiFePo4 Recharge

Standard Wall Mount

Design Life: 10 years (expected minimum operational design life of light head)

Autonomy: Autonomy for each power model based upon
- No solar input daily recharging LiFePo4 Cell
- 15 hour nightly runtimes

15 Hours Per Day			
Bollard Model	Battery Autonomy Hours	Battery Autonomy Days	Depth Of Discharge
EXSB075W-S	109	7.3	10.70%
EXSB120W-S	68	4.5	18.90%
EXSB150W-S	55	3.6	24.40%
EXSB210W-S	39	2.6	35.40%

Maintenance: Polish top dome with Vuplex annually for peak performance to extend operational life >10 years

Warranty: 5 years (using SBL approved pole only and correct installation)

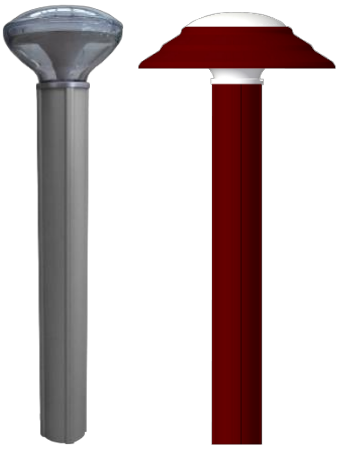
Bracket Material: 6106 T6 Aluminium

Bracket Finish: Anodised or Powder Coated to match reflector

Security Bolts: Torx Pin Button Head supplied with every pole

Assembly: Simple installation

12VDC BOLLARD LIGHT



STD & SR MODELS

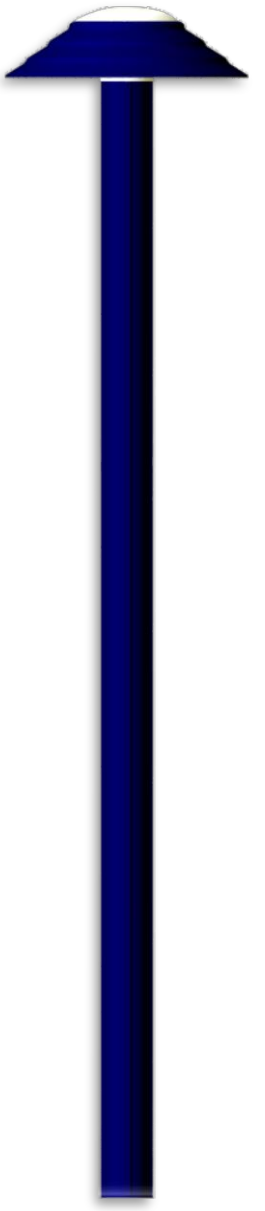
Solar Bollard Lighting presents our second generation heavy duty and vandal resistant SBL Series Series SBL300SLVSW 12VDC BOLLARD LIGHT design for use in civil, military and commercial applications globally.

The SBL300SLVSW offers both on grid connection using a quality approved LED Driver (not supplied) or running off an external 12VDC solar system as a slave powered unit.

The SBL300SLVSW offers our highest lumen output of our range at double the intensity of our standard mid range 150mA Solar Series.

The SBL300SLVSW can be used as a standard model, wall mount model or retro fitted to include both SR and HR reflectors offering a cost saving on a current conventional spill style lighting.

At expected end of life of the LED Chips (approx 10 years) the basecap PCB can be removed and replaced offering a further 10 year expected end of life cycle.

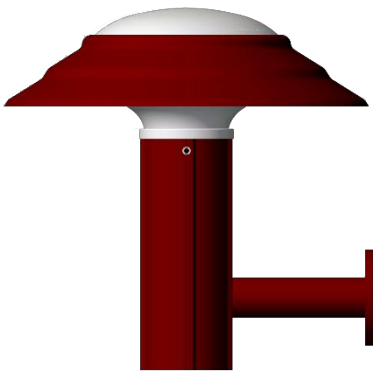


HERITAGE MODEL

Main Body:	Polycarbonate (special made design polymer to order) 257mm (10') Diameter IP66 when installed to pole *(T.B.T)* Net Weight 2.5kg (5.5lbs)
Reflector Option:	SR - 304 Stainless 454mm (17.9') Powder coat finish HR - 304 Stainless 544mm (21.5') Powder Coat finish No luminous output above 90 degrees
LED Chips:	6 x Nichia LED Chips initial lm/w 150lm • Standard 5200K (White) / Amber for Turtle Friendly
System Power:	12VDC @ 3.6Watts
Power Options:	LED Driver or Solar Powered off centralised battery bank
Cable Distance:	Multiple 50m runs from centralised battery bank
Operating Temp:	-30°C ~ +60°C (ambient)
Design Life:	10 years (expected minimum operational design life of light head)
Maintenance:	Polish top dome with Vuplex annually for peak performance to extend operational life >10 years
Warranty:	5 years (using SBL approved pole only and correct installation)
Mounting Material:	6106 T6 Aluminium
Mounting Options:	1000mm (40') Pole height overall 2500mm (98.5') Pole height overall 3000m (118') Pole height overall Wall Bracket Mount
Mounting Finish:	Anodised or Powder Coated to match reflector
Security Bolts:	Torx Pin Button Head supplied with every pole
Assembly:	Simple installation

Standard Wall Mount

SR Wall Mount



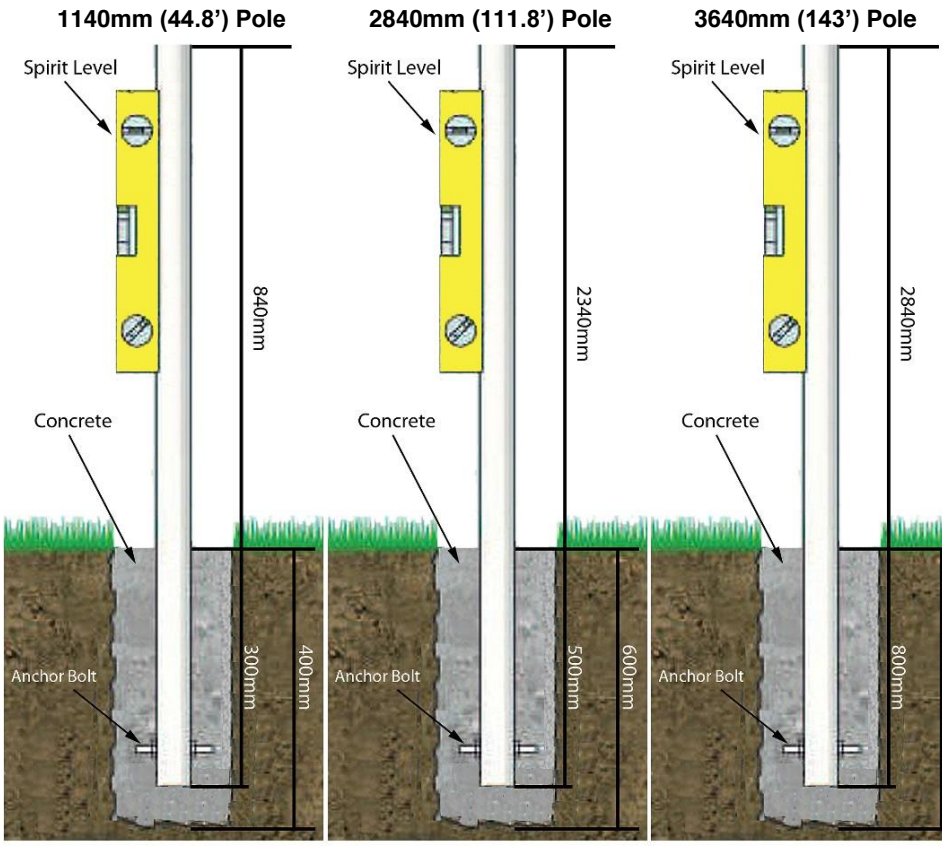
BURIED IN GROUND INSTALLATION

BEFORE YOU INSTALL: Standard concrete is recommended over Quick Set. If using Quick Set then 100 Micron PVC / PE membrane to be used to separate post from concrete or alkaline soil. Alternatively paint on 2 coats of Dulux Durabuild @ 125 micron thickness.

STEP 1 - Using a 300 (12') - 350mm (14') auger dig hole to depth specified below for pole length being used. Remove debris from area around the hole.

STEP 2 – Install Anchor Bolt through pole base. Pour concrete into the hole then insert pole into concrete ensuring the internal of the pole is also filled with concrete.

Pole and Hole Depths for various lengths



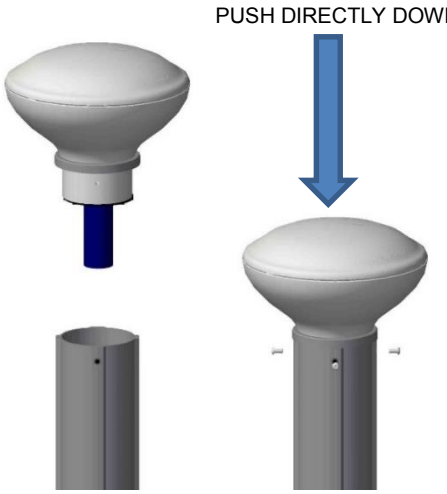
STEP 3 - Cover the top of the pole with plastic or something similar to ensure pole does not fill with water while concrete sets. Make sure that the pole is plumb with a Spirit Level. Wait for the concrete to cure before installing the bollard head.

STEP 3 – Remove SBL Light head from packaging or pole then connect the Power Cell weather proof connectors together exactly as shown below.

Disconnected

Connected

STEP 4 – Attached the SBL Series Light Head by push down on light head top dome until threaded holes line up. Then install 4 x M6 bolts supplied with pole kit by hand initially to ensure water tight seal between O-Ring and Collar. Then tighten with Driver tool supplied.



4 x M6
Security Bolts
Supplied

GROUND MOUNT BLOCK INSTALLATION

BEFORE YOU INSTALL: ***(not included in pole kit)***

ChemSet, Dyna Bolts, M24 (15/16) Washer, 2 x M24 (15/16) Nuts and Threaded Rod/Bar are not included in pole kit due to varying lengths required.

STEP 1 – Drilling Hole

1. Drill or core hole to take an M24 (15/16) thread and also to required depth of concrete.

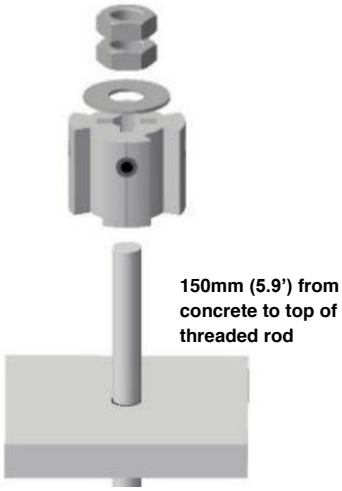
2. Remove dust and debris by brushing and blowing 3 times each (If hole is wet or flooded remove water with wet/dry vacuum)

STEP 2 – Installing Threaded Rod or DynaBolts

PLEASE NOTE: ensure 150mm (5.9') of actual thread is protruding above concrete for both applications ChemSet and DynaBolts and follow supplier instructions.

STEP 3 – Installing Mounting Block and Pole

1. Attached the mounting block over the threaded rod and then tighten down with washer, and first M24 (15/16) nut unit firm. Add second M24 (15/16) nut as locking nut.



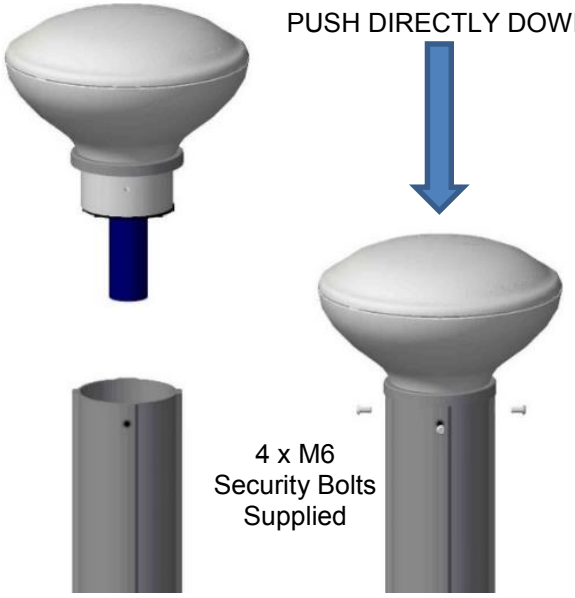
2. Slide bollard pole over mounting block and use 4 x M10 Security Bolts to secure pole into position using Driver tool supplied.

STEP 4 – Remove SBL Light head from packaging or pole then connect the Power Cell weather proof connectors together exactly as shown below.

Disconnected

Connected

STEP 5 – Attached the SBL Series Light Head by push down on light head top dome until threaded holes line up. Then install 4 x M6 bolts supplied with pole kit by hand initially to ensure water tight seal between O-Ring and Collar. Then tighten with Driver tool supplied.



GROUND MOUNT PLATE INSTALLATION

BEFORE YOU INSTALL: ***(not included in pole kit)***

ChemSet, Dyna Bolts, M12 (7/16) Washer, 4 x M12 (7/16) Nuts and Threaded Rod/Bar are not included in pole kit due to varying lengths required.

STEP 1 – Drilling Hole

1. Drill or core hole to take an M12 (7/16) thread or other securing device and also to required depth of concrete.

2. Remove dust and debris by brushing and blowing 3 times each (If hole is wet or flooded remove water with wet/dry vacuum)

STEP 2 – Installing Threaded Rod or DynaBolts

PLEASE NOTE: ensure 30mm (1.2') of actual thread is protruding above concrete for both applications ChemSet and DynaBolts. Base plate thickness of pole is 12mm (0.47').

FOR CHEMSET: Refer to supplier instructions

1. Cut Threaded Rod/Bar to length required ensuring 30mm (1.2') is protruding above concrete.

FOR DYNA BOLTS:

1. Follow suppliers instructions

STEP 3 – Installing Pole

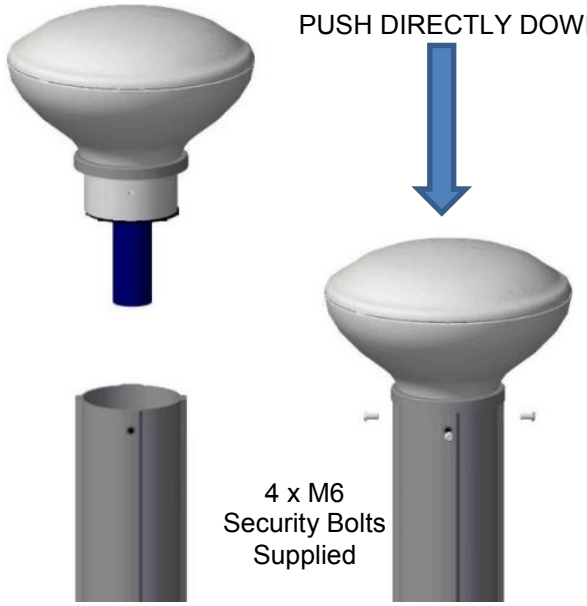
1. Place the pole base plate over the threaded rod or Dynabolts and then tighten down preferably using a M12 Hex Nut-Flanged Serrated.

STEP 4 – Remove SBL Light head from packaging or pole then connect the Power Cell weather proof connectors together exactly as shown below.

Disconnected

Connected

STEP 5 – Attached the SBL Series Light Head by push down on light head top dome until threaded holes line up. Then install 4 x M6 bolts supplied with pole kit by hand initially to ensure water tight seal between O-Ring and Collar. Then tighten with Driver tool supplied.



SBL SERIES COMPETITIVE ANALYSIS

BIRD AND WILDLIFE FRIENDLY:

OTHER COMPETITORS: have flat solar modules mounted on top of the bollard with exposed edge section. Having birds rest or nest on top of a solar bollard reduces the amount of irradiation into the solar module thus reducing recharge capabilities and imminent failure especially around coastal communities.

SBL SERIES SOLAR BOLLARDS: top dome design ensures that no birds can utilise the solar bollard as a resting point like all other competitor products as there is no flat surface or edge for them to grip on to. This also eliminates the need for bird spikes and any harm to wildlife.

DAILY EXPECTED RUNTIME:

OTHER COMPETITORS: in general state runtimes of 6-10 hours daily with 3-4 “rainy days autonomy with a fully recharged battery. A battery cannot fully recharge when it has been discharging through heavy monsoonal rain periods.

SBL SERIES SOLAR BOLLARDS: are designed to run for up to 18 hours per night with our mid-range versions design to run consistently for 15 hours per night with between 43 hours up to 120 hours autonomy based upon our 4 model variants.

EXPECTED OPERATIONAL LIFE:

OTHER COMPETITORS: 5 plus years possibly expected

SBL SERIES SOLAR BOLLARDS: minimum 10 years up to a possible 15 years.

SOLAR MODULE PROTECTION:

OTHER COMPETITORS: modules exposed to hair line fractures via encapsulating their solar modules. Direct impact on the solar module will fracture the cell making it fail or shatter. Yellowing will quickly reducing ability to recharge. Impact videos of competitors show them hitting the solar module and the LED’s still working. This is false marketing as they should be showing the solar module voltage and current output after impact as the LED’s run off the battery which is separate to the solar module which only charges the battery.

SBL SERIES SOLAR BOLLARDS: was designed that no direct impact is possible directly on the module due to distance between the specially formulated PC dome and a shock absorbing adhesive attaching the module to the internal reflector.

BATTERY MAINTENANCE:

OTHER COMPETITORS: every 2 - 3 years change over. AGM/GEL batteries will fail rapidly over +30^{o}C

SBL SERIES SOLAR BOLLARDS: never as Power Cell will outlast other components.

UV EFFECTS AND STRENGTH:

OTHER COMPETITORS: standard off the shelf polycarbonates or acrylics with yellowing effects rapidly decreasing irradiation input causing unit recharge failure within 3-5 years and causing it to become brittle and much easier to break.

SBL SERIES SOLAR BOLLARDS: uses our own specially manufactured polycarbonate withstanding serious UV effects with only minimal yellowing starting at approximately 8-10 year on the dome and a temperature range capability of -30^{o}C to +60^{o}C. Life can be increased by polishing the top dome with Vuplex annually.

WARRANTY OFFERED:

OTHER COMPETITORS: in general 1-3 years if they honor it.

SBL SERIES SOLAR BOLLARDS: 5 years 100% replacement warranty due to workmanship.

EXAMPLE CLIENT LIST

Please Note: This list does not include clients that have purchased through Electrical Wholesalers, or Other Resellers as many are unknown to us due to this factor.

AUSTRALIA - Only Direct Clients

- Alpine Shire Council
- Armadale Hospital
- Australian Dept of Defence - ACT / NSW / NT
- Baw Baw Shire Council
- Bellingham Australia Pty Ltd
- BHP Billiton Nickel West - Mount Keith Operation
- BIG4 Walkabout Palms Townsville
- Bovis Lend Lease
- Cairns Regional Council
- City of Bayswater
- City of Busselton
- City of Darwin
- City of Onkaparinga
- District Council of Mt Barker
- Downer EDI Mining Pty Ltd
- ECH Inc Retirement Living
- FMG Mining
- Ford Motor Company Proving Grounds
- Gold Coast City Council
- Great Lakes Shire Council
- Kempsey Shire Council
- Lane Cove Municipal Council
- Logan City Council
- Masonic Retirement Villages
- Mater Christi College
- Metro Rail - Victoria
- Mornington Shire Council
- Neumann Contractors Pty Ltd
- Normanton Caravan Park
- Oberon Council
- Pacific Marine Group
- Paluma Environmental Education Centre
- Pilbara Iron Ore Company (RIO TINTO) Pty Ltd
- Port Melbourne
- Queensland Transport
- Queensland Rail
- RailCorp - NSW
- RSL Care
- Salvation Army Retirement Villages
- Scenic Rim Shire Council
- Shire Of Ashburton
- Shoalhaven City Council
- Singleton Council
- South Australian Water Corporation
- South Burnett Regional Council
- Sunshine Coast Regional Council
- St Patrick's College
- Strathalbyn Caravan Park
- Toowoomba Regional Council
- Town of Port Headland
- Willunga Waldorf School

INTERNATIONAL - Examples

- Abu Dhabi Ministry of Education - UAE
- City of Calgary
- Four Seasons Resort Maldives
- Google YouTube Campus USA
- Landmark Group - Canada
- IKON Developments Cyprus
- Hallandale Beach Florida
- Hong Kong Island
- Honda Malaysia
- New York City
- US Defense Base in Djibouti
- US Naval Base Forest City Hawaii
- US Embassy Baghdad Iraq via FEDBID

COUNTRIES EXPORTED TO

- BAHAMAS
- CANADA
- CHILE
- CYPRUS
- GERMANY
- HAWAII
- HONG KONG
- ITALY
- JAPAN
- MALAYSIA
- MALDIVES
- MARUITIUS
- MEXICO
- NEW CALEDONIA
- NEW ZEALAND
- OMAN
- PHILLIPINNES
- PNG
- QATAR
- SAUDI ARABIA
- SEYCHELLS
- SINGAPORE
- SOUTH AFRICA
- TAIWAN
- TURKEY
- UAE
- USA and UNITED KINGDOM

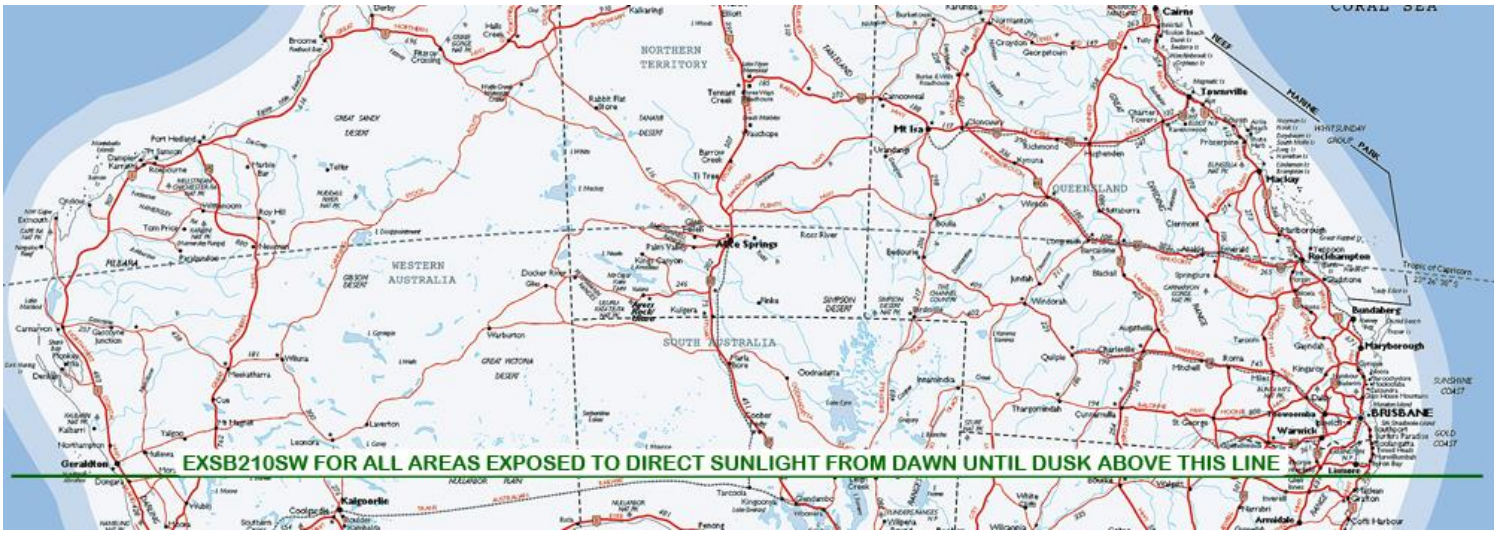
MODEL SELECTION - AUSTRALIAN LOCATIONS

Please ensure you ask your potential client about any shading that may be expected at the installation location.

It is **"VERY"** important to take into consideration the sun trajectory within Winter months which are lower from Summer months and shading from buildings and trees do re-align to these changing trajectories.

Model Installation Location Explanation To Achieve 365 Day Dusk Until Dawn Operation:

1. **The 75mA version** is for any locations within Australia and all coloured LED models are 75mA powered and require a minimum of 1.5 direct sunshine hours between 10am and 2pm or most of the morning or afternoon direct sunshine.
2. **The 120mA version** is for "Snow Regions" fully exposed to sunshine from dawn until dusk except for:
    a. 75mA where there is part shading throughout the day and **"PARTIALLY"** between 10am and 2pm
3. **The 150mA version** is for all fully exposed locations to sunshine from dawn until dusk anywhere in Australia except for Snow Field regions or:
    a. 120mA is to be used where you have 25%-30% of the bollard shaded, be it in the morning or late afternoon. **Not between 10am and 2pm**
    b. 75mA where there is part shading throughout the day and **"PARTIALLY"** between 10am and 2pm
4. **The 210mA version** is for all fully exposed locations to sunshine from dawn until dusk **"Any Location Listed on the Map"** below or:
    a. 150mA is to be used where you have 25%-30% of the bollard shaded be it in the morning or late afternoon. Not between **10am and 2pm**
    b. 120mA where there is part shading throughout the day and partially between 10am and 2pm



ORDERING CODES EXPLANATION EXAMPLES

5. When ordering Powder Coating please ensure you have the colour requirement on your Purchase Order
6. Heritage Reflector Models are now an "Accessory" add on which has helped reduce the price point of this model
7. **Model Code example:** Standard 150mA with 1140mm Anodised in ground pole
    a. SBL150SW-1140IA (000 is replaced with 150)
8. **Model Code example:** 150mA Heritage unit with 3640mm Powder Coated Pole
    a. SBL150SW-HR-3640IAPC (000 is replaced with 150 with –HR added in then pole length 3640 and finish PC)
9. **Model Code example colour LED:** using Amber LED with 840mm Anodised Pole
    a. SBL75SA-1140GA (S= Static, then colours are A is used for Amber colour, G = Green, B = Blue, R = Red)

Solar Bollard Lighting

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LIGHTING SOLUTIONS