# BRAUMS

Smarter Safer Greener Living

# PX

P Category LED Street Lighting

GOOD
DESIGN
AWARD®
GOLD WINNER

# Table of Contents

# About BRAUMS

At BRAUMS, we pride ourselves on design, innovation and quality.

Delivering world class Intelligent Transportation Systems (ITS) and connected traffic management products, we have been Australia's leading LED traffic light manufacturer for many years. But we do more than manufacture traffic lights, we deliver holistic ITS and Smart City solutions, offering everything from Variable Message Signs and Parking Guidance Systems to IoT Data collectors, Real-Time V2X Traffic Management Software and now Intelligent Roadway Lighting - offering custom system integration and after sales support across our product portfolio.

With decades of industry experience – BRAUMS delivers technologically advanced, reliable and efficient products that are backed by exceptional service and support from our team of experienced engineers and technology partners.

As millions of people use our products everyday, we consider the broader community to be our customers, hence we aim to develop products that offer improved user experience and benefits to the broader community.

# The BRAUMS Experience

### Designed & Developed Locally

All products are designed and developed locally by the BRAUMS engineering team in Sydney, Australia.

### National Distribution

With distribution warehouses in a number of states, we offer fast delivery throughout Australia and New Zealand.

### Tailored Lighting Solutions

Our sales and engineering team will develop custom lighting solutions specifically to suit your needs, including recommended luminaire positioning and system integration.

### Technical Support

In addition to our 24-7 online Helpdesk, we also offer comprehensive after sales technical support, either remotely or on-site of installation.

### Quality Management System

To ensure consistency, our production processes are standardised to comply with Quality ISO 9001, OHS ISO 45001, and Environment ISO 14001.

Certified System ™ — Quality ISO 9001
Certified System ™ — OHS ISO 45001
Certified System ™ — Environment ISO 14001

# Roadway Lighting

## Smarter, Safer, Greener Roadway Lighting

Effective public and roadway lighting solutions should not only enhance public safety and enjoyment through improved night time visibility, but also offer reduced power consumption and increased connectivity across the expanding Smart City network.

At BRAUMS, we've developed a smarter, safer, greener lighting solution with intelligent IoT capability that delivers improved energy efficiency and connectivity for reduced operational costs and more effective asset management. BRAUMS Roadway Lighting provides a reliable, environmentally conscious lighting solution that has been designed and developed in Australia. Sleek, yet robust, our lighting products are built to withstand Australia's harsh climatic conditions, meeting all requirements of AS/NZS 1158.
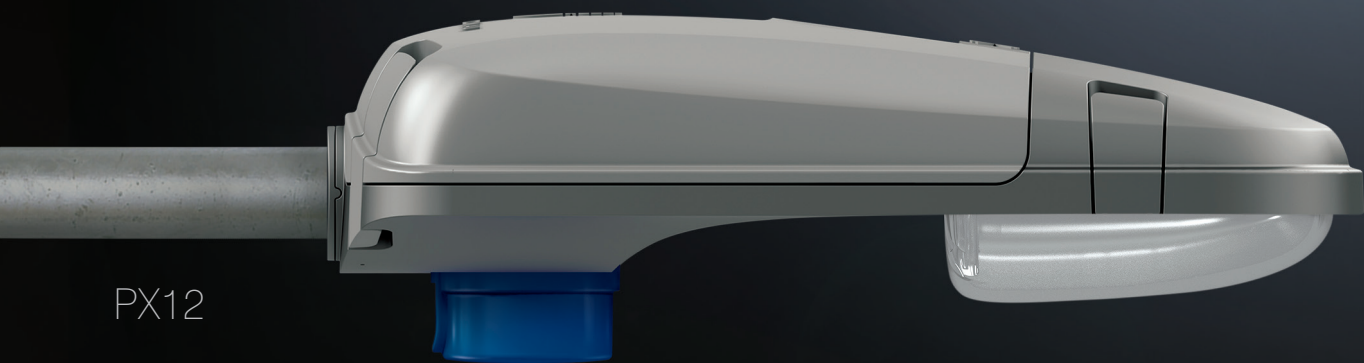
PX12
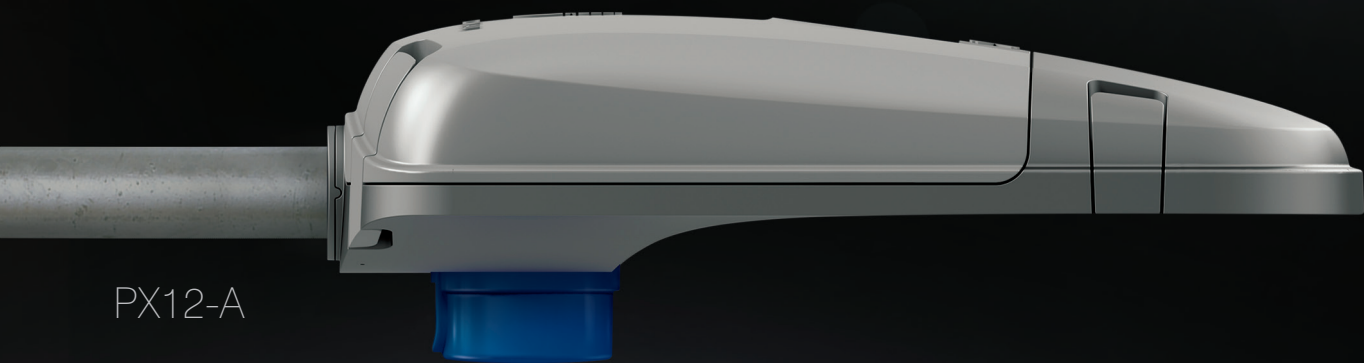
PX12-A

PX12-A-B

## Colour Options

The PX Luminaire is available in RAL9006 Silver Grey, Black, or your choice of custom colour upon request.

# PX Luminaire Series

## Specifications

| | |
|---|---|
| Application | Designed for AS1158 Category P Lighting |
| Lamp Type | CREE – XPG3 LED |
| System Wattages | **12W** (Standard)  **21W** (High Output) |
| Lumen Maintenance | L95 @ 100,000 hours |
| Body | Polyester powder-coated, pressure diecast aluminium housing & shell |
| Visor | Clear toughened acrylic in Semi Cut-Off or Aeroscreen |
| Input Voltage | 220-240V AC |
| Frequency | 50/60Hz |
| Operating Temp. | -15$^o$C to +70$^o$C |
| Power Factor | 0.93 |
| SPD | Surge Protection Device - 10kV Standard |
| EMC Compliant | AS/NZS CISPR15, EN/IEC 61000-3-2, EN/IEC 61000-3-3 Immunity EN61547 Standard |
| NEMA | NEMA 7 Pin Photoelectric (PE) Socket |
| IoT Smart Controls | Compatible with NBIoT, SigFox, 6LoWPAN, Zigbee, LoRaWAN, DALI, Zhaga and all proprietary lighting control systems. Tailored system  configurations can be provided. |
| | |
| Colour Temperature | 4000K |
| Colour Rendering Index | ≥70 |
| Mounting Type | Horizontal |
| IK Protection | IK06 |
| Optical IP Rating | IP66 |
| Gear Chamber IP Rating | IP24 |
| Spigot Entry (OD) | 27-34mm |
| Weight | <6Kg |
| Available Options | Adjustable Upcast Spigot (-5$^o$ / 0$^o$ / + 5$^o$ /+10$^o$)<br>180$^o$ Rotatable Upcast Spigot<br>Front or Rear Glare Shields<br>Double Insulated Internal Wiring<br>Fused Terminal Block<br>Alternate Colours Upon Request<br>Top mount PE cell (region specific) |

# PX Luminaire Series

## Product Options

| Core Product | Description |
| --- | --- |
| PX12 | 12W Luminaire Semi Cut-Off Bottom Mount PE Cell |
| PX21 | 21W High Output Luminaire Semi Cut-Off Bottom Mount PE Cell |

| Product Variant | |
| --- | --- |
| Add -A | 12W Luminaire Aeroscreen Bottom Mount PE Cell |

| Available Options | |
| --- | --- |
| Add -B | Black Powder Coated Luminaire |
| Add -FTB | Fused Terminal Block |
| Add -DI | Double Insulated Internal Wiring |
| Add -T | Top Mount PE Cell |
| Add -U | Adjustable Upcast Spigot |
| Add -R | 180º Rotatable Upcast Spigot |

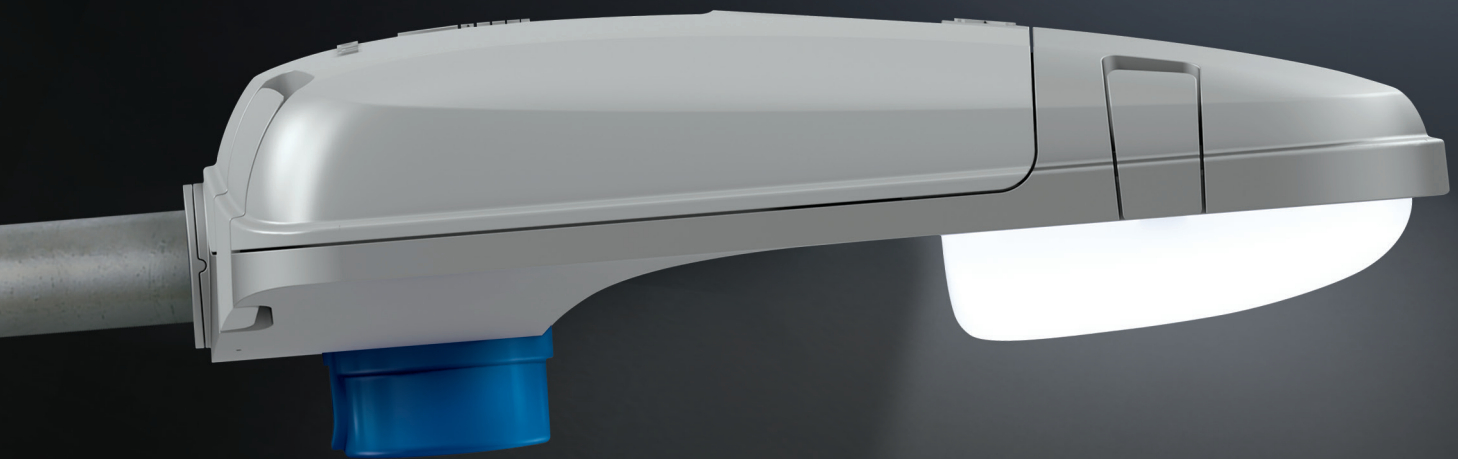| Accessories | |
| --- | --- |
| GSF | Semi Cut-Off Glare Shield Front |
| GSR | Semi Cut-Off Glare Shield Rear |
| PX-SC | Shorting Cap (Replaces PE Cell) |

## Example Ordering Code

**PX12  -A  -B  -U**

PX12 Series    Aeroscreen    Black    Adjustable Upcast Spigot
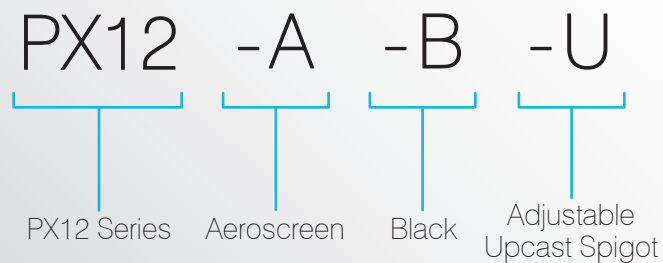
PX12-A-B-U

PX12-T

PX12 + GSR

PX12 + GSF

NB-IoT

sigfox

6 lowpan

LoRa

zigbee

DALI

Zhaga

Compatible IoT Smart Controls

## Smart City Ready

With NEMA Plug'n'Play capability, the PX Luminaire is Smart City ready. Compatible with a wide range of IoT lighting control products, the PX can be connected to the cloud for a range for advanced control options, including on-board analytics and self-reporting. The energy analytics gained through the use of Smart City Lighting can enable network operators to optimise usage, lower CO2 emissions, and reduce operational costs overall.
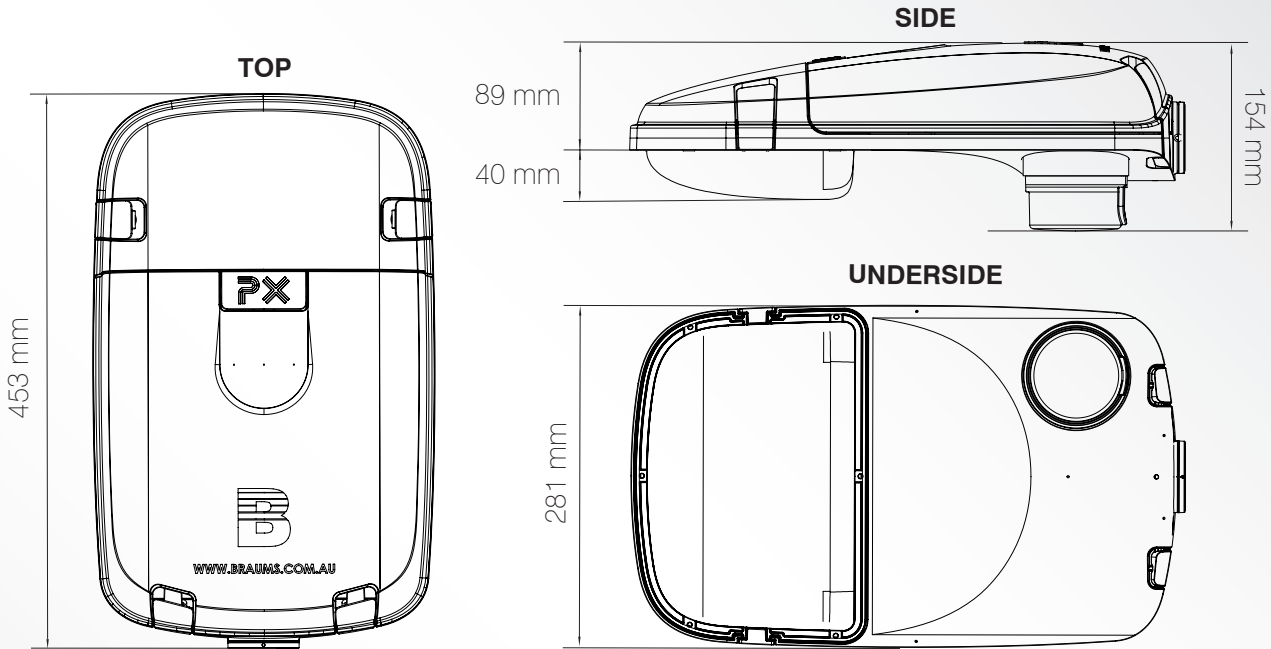
Smart City Lighting also offers improved traceability and status reporting giving operators better visibility for improved asset management. Smart Lighting products can be integrated into vehicle and pedestrian detection systems, and even act as relay nodes for other IoT devices.

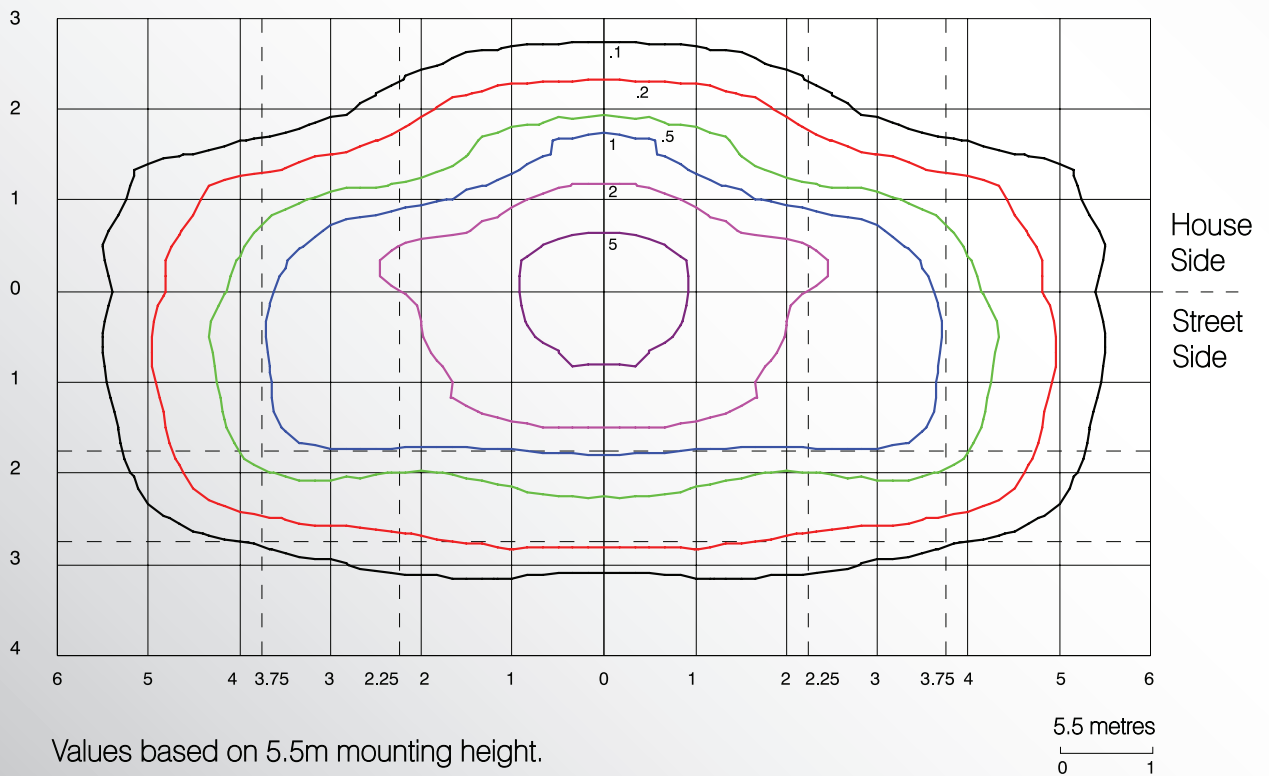The applications and benefits of IoT Smart City Lighting are limitless.

# PX Luminaire Series

## Product Dimensions

**TOP**

453 mm

**SIDE**

89 mm

40 mm

154 mm

**UNDERSIDE**

281 mm

## PX 12W Luminaire Horizontal Illuminance



.1
.2
.5
1
2
5

House
Side

Street
Side

6   5   4   3.75   3   2.25   2   1   0   1   2   2.25   3   3.75   4   5   6

5.5 metres

0      1

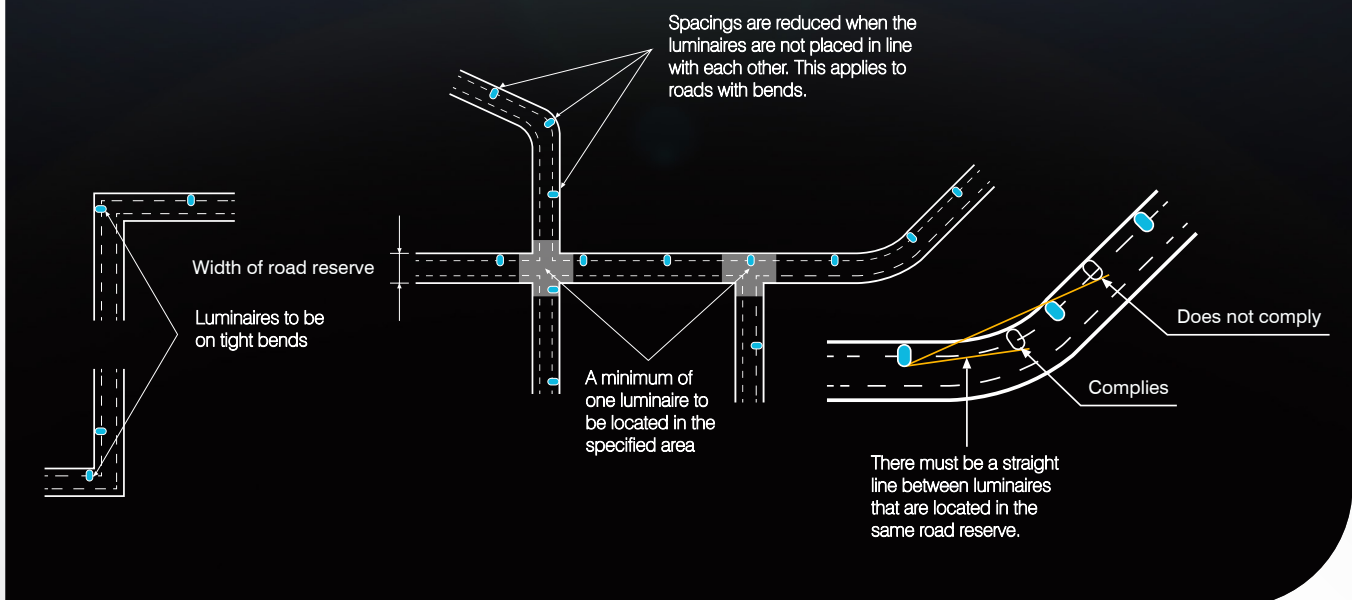Values based on 5.5m mounting height.

# Recommended Locations

## Positioning your PX correctly

When considering luminaire placement, it is important to consider existing structural and landscape features. For example, consideration must be given for integrating luminaires into an environment with trees, such as along a pathway or steps. It is important to ensure there is an appropriate level of clearance between the tree or shrub and the light pole to provide the correct illuminance along the pathway or steps and to the opposite footpath.

Luminaire placement also varies depending on road conditions. The following outlines requirements for locations of luminaires on curves and sharp bends and intersections as per AS/NZS 1158.3.1.



Spacings are reduced when the luminaires are not placed in line with each other. This applies to roads with bends.

Width of road reserve

Luminaires to be on tight bends

A minimum of one luminaire to be located in the specified area

There must be a straight line between luminaires that are located in the same road reserve.

Does not comply

Complies

# P Category Overview

## Identifying the Correct P Category

When incorporating the PX Luminaire, the appropriate lighting subcategory must first be confirmed. The following describes all P Categories and their applications. To ascertain which specific classification applies to the area, the following questions must be addressed:

What is the Pedestrian and Cyclists activity?

What is the Risk of Crime in the area?

Is there a particular area within the scheme that requires further lighting enhancement?

What are the night-time occupancy rates? (for car parks only)

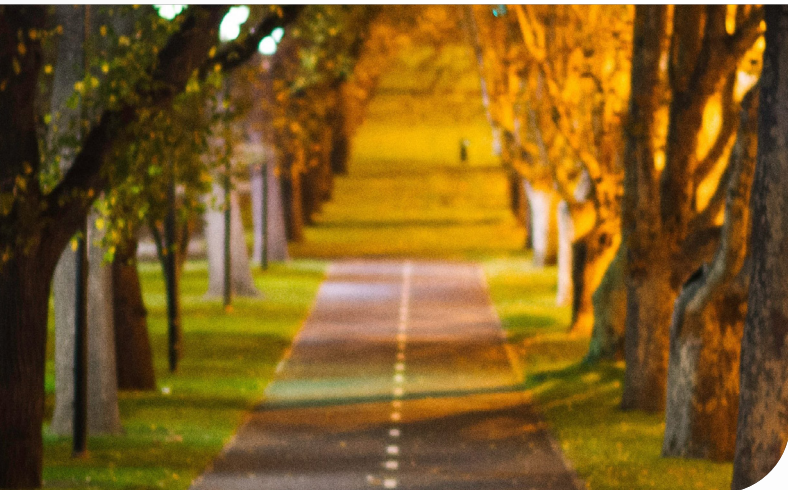## Road Reserves
## In Local Areas (PR1-6)

Collector roads or non-arterial roads that collate and move traffic in an area, also acknowledging adjacent properties

Local roads or streets mainly used to access adjacent properties, including residential properties

Forecourts of residential housing

**Mixed Vehicle types and Pedestrian traffic.**

**Note:** Additional information from classification questions will help to determine if PR1, PR2, PR3, PR4 or PR5. However, PR6 is normally applied in the replacement of luminaires that are already installed on existing distribution poles.

## Public Activity Areas
## - Excluding Car Parks (PA1-3)

Areas mainly used for Pedestrian use.
This can be in the city, a town or a suburban centre.

Outdoor shopping areas, including malls, open arcades, town squares and civic centres

Transport service areas such terminals and interchanges.

**Pedestrian use only.** (In the area of Transport services allowance is given to Pedestrian and vehicle use)

**Note:** Additional information from classification questions will help to determine if PA1, PA2 or PA3.

## Pathways - Including Cycleways (PP1-5)

Pathways designed for Pedestrian and Cyclists use

Footpaths along local roads and arterial roads walkways, lanes, park paths, cycleways

**Pedestrian and Cyclists use only.**

**Note:** Additional information from classification questions will help to determine if PP1, PP2, PP3, PP4 or PP5.

## Lighting for Outdoor Car Parks -
## Including Roof Top Car Parks
## (PC1-3, PCD, PCX)

PC1-3: Parking spaces, aisles and circulation roadways

PCD: Parking spaces designed for the disabled

PCX: Areas for pedestrians to cross

**Vehicle and Pedestrian use.**

**Note:** Additional information from classification questions will help to determine if PC1, PC2, PC3 or PCD, respectively. The PCX category is to light areas for pedestrians to cross in outdoor car parks.

## Lighting for
## Connecting Elements (PE1-3)

Lighting steps, stairways, ramps, footbridges, pedestrian ways (excluding subways)

**Pedestrian use only.**

**Note:** A separate category is given to subways including associated ramps or stairways due to the evaluation of a High Risk of crime. Additional information from classification questions will help to determine if PE1, PE2 or PE3.

# Glossary of Terms

### Aeroscreen Luminaire

A luminaire type that restricts the intensity of light at or near the horizon. This luminaire does not emit light above the horizontal plane.

### Arrangement

The layout, in a plan, of the luminaires in a lighting scheme, e.g. single sided, staggered, opposite or central along roadways.

### Australian Standards

Published documents setting out the specifications and procedures designed to ensure products, services and systems are safe, reliable and consistently performed the way they are intended to be.

### Australian Standard AS/NZS 1158.3.1: Part 3.1: Lighting for roads and public spaces

Standard for Pedestrian area (Category P) lighting – Performance and design requirements. Lighting required for roads and outdoor public areas in which pedestrians are taken into account.  Areas such as local roads, pathways, outdoor shopping areas, outdoor carparks.

### Australian Standard SA/SNZTS 1158.6: Part 6: Luminaires – Performance

Standard for Lighting for Roads and public spaces.

### Back of Kerb

Describes the edge of a kerb and channel furthest from the road it adjoins.

### Carriageway width

The measurement of the carriageway from kerb to kerb.

### Colour Rendering Index (CRI)

The ability of a light source to reproduce surface colours as faithfully as possible compared to a reference light source.

### Colour Temperature

The colour characteristics of light, usually either warm (yellowish) or cool (bluish). Measured in degrees of Kelvin (°K).

### Double Insulated Luminaire

A luminaire that has been designed to operate without the need for an earth wire. Two layers of insulation are provided within the internal wiring / live parts of the luminaire.

### Efficacy

Describes how effectively a lighting fixture can convert electric power into lighting, measured in lumens per watt.

(Unit: lm/W)

### Glare

Unpleasant visual circumstances which reduce the ability to see details. Normally divided into discomfort glare and disability glare.

### IK Rating

Indicates the protection against mechanical impact.

### Illuminance

A term that describes the measurement of the amount of light falling onto (illuminating) and spreading over a given surface area.

### IP Rating

Ingress Protection rating is a two-digit code that indicates the resistance of a lighting fixture to solid particles and liquids, where higher digits indicate enhanced protection. The first digit indicates protection against solids, and the second indicates the protection against liquids.

### kVA

A kilo-volt-ampere is a unit of power (electrical power). For example 1 kilo-volt-ampere is equal to 1000 volt-ampere.

1kVA = 1000VA

### LED

Stands for light emitting diode. It is known as a semiconductor device that emits light when current is passed through it.

### Lumens

Is a measure of luminous flux, the total amount of light emitted in all directions.

### Luminaire

Also known as a light fixture consists of one or more lamp source(s) that contains all the necessary components (parts) and its wiring to operate when the appropriate electrical current is applied.  Also known as a self-contained luminaire.

### Luminance

The measurement of the product of the incident light and the surface – anything that is reflected. Luminance is also considered the human perception of brightness, or how bright we perceive the reflected light to be.

### Lux

A measure of illuminance - the total amount of light that falls on a surface area.

### Maintenance Factor

Used in lighting calculations to account for the depreciation of lamps or reflective surfaces.

### Mounting Height

The height a luminaire is mounted on either a pole or a given structure.

### Overhang

The distance at which a luminaire is positioned over a carriageway.

### Photoelectric (PE) Cell

A light sensing device used to control luminaires and dimmers in response to detected light levels.

### Road reserve

All the land between property/title boundaries, including footpaths and nature strips.

### Semiconductor

A solid substance that has conductivity between that of an insulator and that of most materials.

### Semi Cut-Off

A luminaires light distribution is advised as Semi Cut-off when the candlepower per 1000 lamp lumens does not exceed 50 (5.0%) at an angle of $90^o$ above the nadir (horizontal) and 200 (20%) at the vertical angle of $80^o$ above nadir.

### Solar Luminaire

A lighting system comprising an LED lamp source, control system, batteries, solar panel. The LED light source operates on electricity provided by the batteries which are charged from the solar panel via the control system.

### Surge Protection Device

Also known as a "surge protector" - it is placed within the luminaire, wired in line with the alternating current (AC) to protect and prevent damage to electronic equipment from voltage spikes.

### Systems Watts

Watt (W) a unit of power. It is used to advise the rate of consumption of energy that is absorbed and dissipated.

### Uniformity

Eveness of light distribution over a defined area.

### Upcast angle/Tilt

The angle by which the axis of the fixing spigot entry is tilted above horizontal when the luminaire is installed.

# BRAUMS Product Overview

### BIO - BRAUMS Intelligent Outstation

The BIO is an intelligent data collector with a range of smart city applications in V2X and C-ITS. With WiFi, Bluetooth and MAC Address capture, the BIO is used for travel time calculations and overall transport network management.

### AddInsight Traffic Intelligence System

AddInsight software uses real-time data analyses to provide road authorities with an unprecedented insight into road network performance. With the AddInsight smartphone app, drivers can also benefit through spoken traffic alerts while driving.

### Mr. Fill Smart Waste Bin

Mr. Fill waste bins are the ideal solution for smart cities that want to reduce litter volume, collection costs, and $CO_2$ emissions. The solar-powered waste containers communicate their status 24 times per day through the Smart Waste Manager app.

### Variable Message Signs (VMS)

Manufactured by Swarco Futurit, the BRAUMS VMS range offers superior, world-class colorimetric and photometric performance. Achieved through Swarco's state-of-the-art lensing technology, our VMS deliver a sharp display, regardless of weather conditions, with no loss of luminosity over time.

### Illuminated Regulatory Signage (IRS)

IRS are available in No Left Turn, No Right Turn, No Entry, Roundabout Operating, and custom options. They are best suited to intersections where a regulatory sign is in operation conditionally.

## Parking Guidance Systems

BRAUMS have partnered with Swarco and Nedap to deliver custom Parking Guidance Systems, offering car park occupancy, traffic congestion, and vehicle access control systems to suit any scale or application.

## Pedestrian Detection

We offer the full range of Pedestrian Push Buttons and Audio Tactile Drivers, including the new Touch-Less Pedestrian Push Button System that offers pedestrians a more hygienic, contactless method of calling for a crossing phase.

## LED Traffic Signals

Our central light source, high power surface mount Traffic Signals deliver high quality optical performance with minimal power consumption. Available in 100mm, 200mm, or 300mm aspect sizes, our range includes standard 230V, 42V Dim-by-Wire, both standard and Countdown Timer style Pedestrian Lanterns and much more.

## Advanced Warning Flasher Systems (AWFS)

AWFS are designed to alert road users that they are approaching a potential safety risk. BRAUMS AWFS are fully customisable with a range of power options, vehicle detection hardware and sign symbols available.

## Traffic Signalling Hardware & Static Signage

We offer the full range of Australian Standard mounting hardware and static signage.
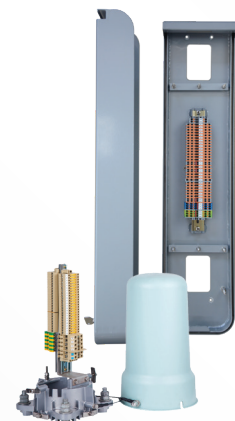
## Terminal Assemblies

Our weatherproof terminal assemblies come in a range of build and mounting options to suit different locations.

# Smart City Living

## Smart City & Regional Control Applications

- Open System Low Cost RF LoraWan and SigFox
- Closed private networks in Fibre & Telco Backbones
- Secure Cloud hosted big data applications
- Public User
- WiFi
- Mobile Apps

## Intermodal

- Smart Traffic Management
- Smart C-ITS Intelligence
- Vehicle-to-Infrastructure
- Autonomous Vehicle
- DSRC (Dedicated Short Range Communication)
- C-V2X (Cellular Vehicle to Everything)

## Security

- Smart Parking Solutions for on or off road detection
- Smart CCTV & Video Analysis
- Smart RFID for retail and agricultural security
- Smart Waste Collection
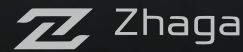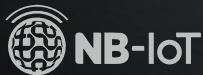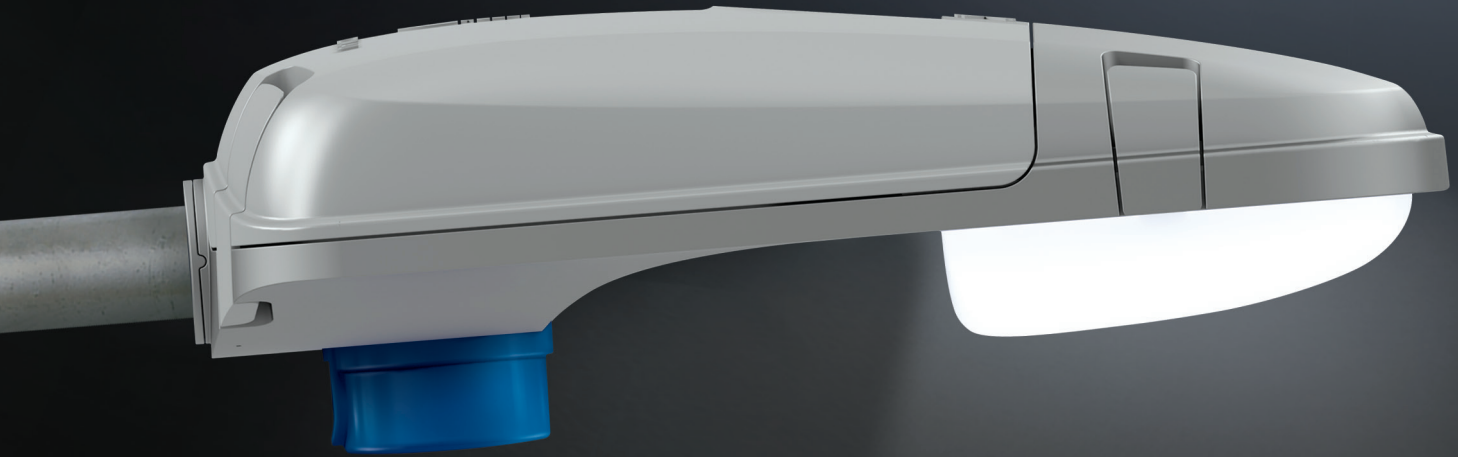- MOOV Smart Access Control

# BRAUMS

Smarter Safer Greener Living

NB-IoT    sigfox    6 lowpan    LoRa

zigbee    DALI    Zhaga

Compatible IoT Smart Controls

# Contact Us

**Sydney (AU)**

Sales Team
P: +61 2 9684 3300
E: sales@braums.com.au
Unit M, 10-16 South St,
Rydalmere, NSW, 2116

**Victoria & Tasmania (AU)**

**Rodney Woodhead**
P: +61 447 400 343
E: rwoodhead@braums.com.au

**Peter Cartwright**
P: +61 437 447 622
E: pcartwright@braums.com.au
Unit 2, 104 Proximity Dr,
Sunshine West, VIC, 3020

**Western Australia (AU)**

**Anthony Longfield**
P: +61 436 488 311
E: alongfield@braums.com.au
Unit 1, 28 Horus Bend,
Bibra Lake, WA, 6163

**Queensland &
Northern Territory (AU)**

**Robert Walsh**
P: +61 7 5493 7088
E: rwalsh@braums.com.au
Unit 3, 16 Technology Dr,
Warana, QLD, 4575

**South Australia (AU)**

**Brendan McIntosh**
P: +61 401 124 174
E: bmcintosh@braums.com.au
9 Clare St, Port Adelaide,
SA, 5015

**New Zealand**

Sales Team
P: +64 9829 2680
E: info@tslgroup.co.nz
681E Rosebank Road,
Avondale, Auckland 1026,
New Zealand

ABN 31 150 551 732
**www.braums.com.au**