## Altair® Powerlouvre™ Window

The Powerlourve Window motor is neatly concealed within the Easyscreen™ Frame.

### Automated Windows

Automated windows allow integration of passive ventilation into automated climate control systems and also offer an easy way to operate windows that are high up and out of reach.

### Durable Construction

Manufactured from 6060-T5 extruded aluminium for strength and long, low-maintenance life.

### Integrated Motor and Gearbox

The Breezway Altair Powerlouvre Window incorporates a motor and gearbox concealed within the Easyscreen Window Frame, resulting in an automated louvre window with no visible motors, rods or arms.

### Integrated System

Altair Louvres clip neatly and flush against the frame, with no visible gallery screws. Security bars can be integrated as an optional extra.

### Integrated Screen Housing

The Breezway Easyscreen Window System includes an integrated insect and security screen housing that allows easy fitting of screens to the frame. Screens can be installed from within the building and are positioned so that they will not interfere with the operation of the louvre blades. (Screens supplied by others).

## Powerlouvre™ Window Operating Condition

| Tests Passed | |
|---|---|
| Cyclical open / closed | 30,000 cycles |
| Salt mist | 1,000 hours |
| Extreme humidity | 90% humidity at 35 °C |
| Extreme heat | 60 °C |
| Extreme cold | 0 °C |
| Electromagnetic Compat-ibility | Complies with the requirements of EN61000-6-3 and AS/NZS 4251.1 |

## Powerlouvre™ Window Maintenance

Breezway Powerlouvre Windows should be operated at monthly intervals. Frames should be cleaned periodically as per Breezway care and maintenance recommendations.

## Powerlouvre™ Window Opening Configurations

Powerlouvre Windows that are 2-9 blades tall contain one motor per bay and are wired such that the entire window opens and closes simultaneously.

Powerlouvre Windows that are 10-18 blades tall contain 2 motors per bay, one motor drives the blades in the top half of the bay and the other motor drives the blades in the bottom half of the bay. Powerlouvre Windows with 10-18 blades are wired such that the top halves of all the bays open and close simultaneously and the bottom halves of all the bays open and close simultaneously.

Labelled wires emerge 1 metre from the top right hand side of the Easyscreen™ frame.

| Breezway Altair® Powerlouvre Window Opening Configurations | | |
|---|---|---|
| No. of Blades | Motors per bay | Banks of Blades Controlled from Head Downwards |
| 2 | 1 | 2 |
| 3 | 1 | 3 |
| 4 | 1 | 4 |
| 5 | 1 | 5 |
| 6 | 1 | 6 |
| 7 | 1 | 7 |
| 8 | 1 | 8 |
| 9 | 1 | 9 |
| 10 | 2 | 5 5 |
| 11 | 2 | 5 6 |
| 12 | 2 | 6 6 |
| 13 | 2 | 6 7 |
| 14 | 2 | 7 7 |
| 15 | 2 | 7 8 |
| 16 | 2 | 8 8 |
| 17 | 2 | 8 9 |
| 18 | 2 | 9 9 |

## Electrical Requirements

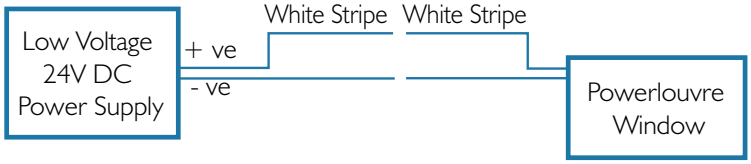
- Operating voltage: 24V DC
- Maximum constant current: 0.25A per motor
- Maximum startup current: 0.5A per motor
- Opening time: Approx 14 seconds
- Working temperature: -20 to +60 degrees Celsius

**Note:** In extreme cold conditions the windows will not operate if there is excessive ice build up or if the louvre blades are frozen together.

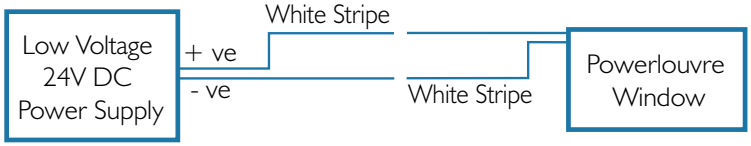
| Maximum Constant Current Requirements | | |
|---|---|---|
| **Powerlouvre Window Type** | **Motors per bay** | **Maximum Constant Current Required** |
| 2-9 Blades High Without Remote Control | 1 | 0.25 amps per bay |
| 10-18 Blades High Without Remote Control | 2 | 0.5 amps per bay |

The direction in which the Powerlouvre Window moves is determined by the polarity of the low voltage current supplied. Once the Powerlouvre Window has fully opened or fully closed, an electronic circuit stops power being delivered to the motors to prevent the motor being damaged should power be supplied continuously.

To **close** the Powerlouvre Window:




To **open** the Powerlouvre Window:




## Breezway Transformer

Breezway supplies transformers (as an optional extra) that have been specified to meet the particular requirements of Powerlouvre Windows.

- 240V AC current transformed to 1.5 amp, 24V DC constant current, suitable for powering up to 6 Powerlouvre Motors.
- Able to provide sufficient instantaneous startup current for up to 6 Powerlouvre Motors.
- Built-in overload protection to prevent accidental short circuits from damaging the transformer.

## Controlling Powerlouvre™ Windows

Control options include:

- Breezway Powerlouvre Apptivate® Control Units, which allow control via a touch sensitive wall plate, remote control via a smartphone application, or automatic operation in response to temperature or timer events.
- Building management systems, which allow control along with other automated building products and automatic operation in response to various sensors and inputs.

## Powerlouvre™ Apptivate® Control Unit

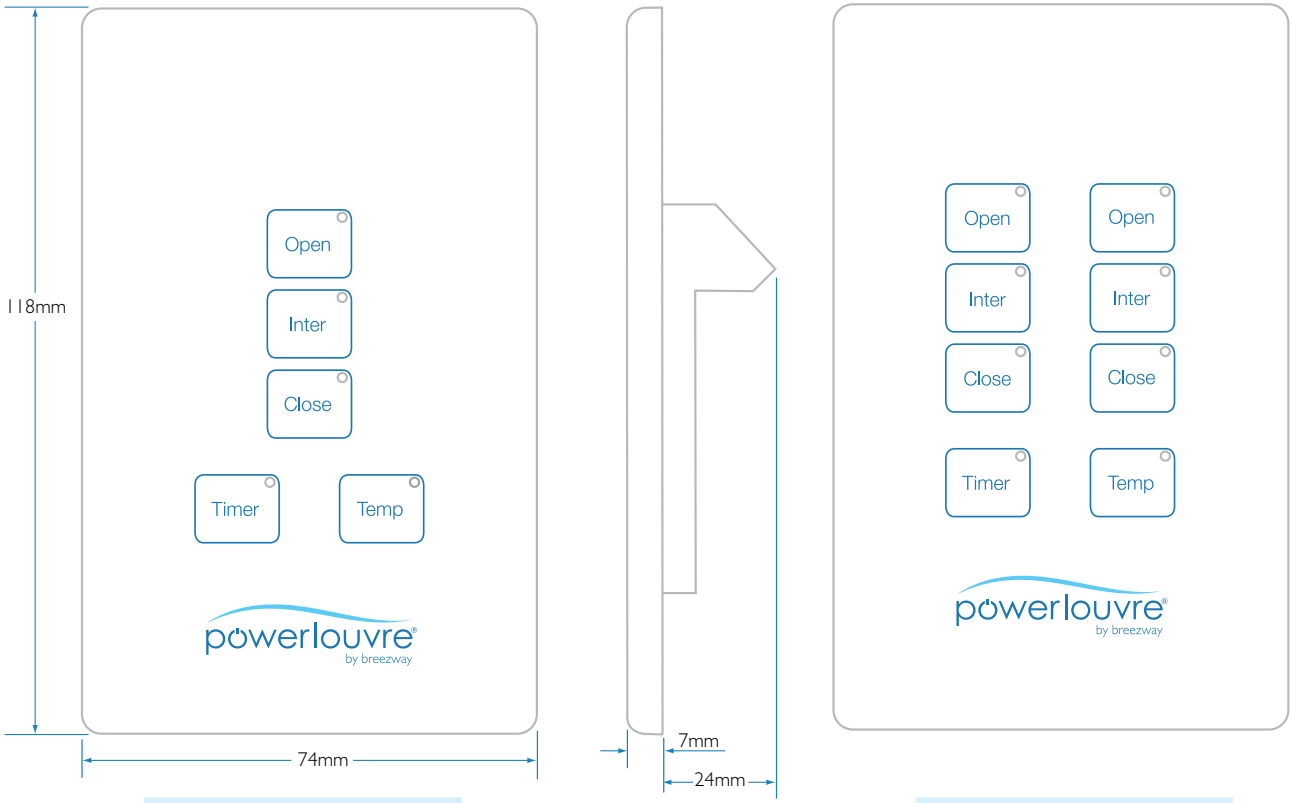
The Powerlouvre Apptivate Control Unit is a plastic, touch-sensitive wall switch.

**Features include:**

- White, standard sized wall switch.
- Single channel and dual channel models.
- Control of up to 6 Powerlouvre Motors per channel.
- Fully open, fully close or open to an intermediate (half-open) position at a single touch.
- Precise control of opening angle by touching and then releasing when the window is in the desired position, or by touching another button to stop the window in the desired position.
- Automatic operation in response to an in-built temperature sensor.
- Bluetooth® module to allow control by and communication with compatible smartphones and tablets.

**Additional features accessible through the Powerlouvre™ App:**

- Remote control.
- Automatic operation in response to an in-built temperature sensor.
- Automatic operation in response to pre-set timers.
- 'Night mode' which adjusts the brightness of LED lights overnight to minimise potential sleep disruptions.




**Apptivate® Control Unit Single Channel**

**Apptivate® Control Unit Dual Channel**

## Powerlouvre™ App

The Apptivate® Control Unit includes a Bluetooth® Smart™ modules which allows wireless communication between a compatible device running the Powerlouvre App and the Apptivate Control Unit.

### Remote control.

The Powerlouvre app enables:

- Remote opening and closing of each Apptivate Control Unit. The range of the Bluetooth signal is approximately 10m - 20m. (The range will be maximised by maintaining a clear line of sight between the device running the Powerlouvre App and the Apptivate Control Unit.)
- Naming of Apptivate Control Units, and channels of Apptivate Control Units for easy identification.
- An indication of the open/close position of the Powerlouvre Windows connected to each Apptivate Control Unit.

### Compatible devices.

Compatible devices will have Bluetooth® Smart™ modules installed and have an iOS or Android operating system. Devices include:
Apple products running iOS 7 or newer:

- iPhone 4s and newer
- iPad 3 and newer
- iPad Mini and newer
- iPod Touch 5

Devices running Android 4.3 and newer, including:

- Samsung Galaxy Range
- HTC One, MAX
- Sony Experia Range
- Droid RAZR, Ultra, Maxx, Mini
- Google Nexus 4, Nexus 5, Nexus 7 and Nexus 10

### Security.

Establishing associations between the Powerlouvre App and Apptivate Control Units requires:

- Close physical proximity between the Powerlouvre App and the Apptivate Control Unit, and
- An access code (defined by the first Powerlouvre App to be associated to the Apptivate Control Unit).

If the Access Code is forgotten, a factory reset button can be activated by snapping off the front cover plate of the Apptivate Control Unit and pushing a paperclip through a small hole to hold a button down for a brief period. Security will be maximised by positioning the Apptivate Control Unit in a location that restricts unauthorised access.

If restricting access to the Apptivate Control Unit is not practical then users can seal the hole to block access to the factory reset button from the front panel necessitating the unscrewing of the Apptivate Control Unit from the wall in order to carry out a factory reset.

### Automatic operation in response to temperature.

Temperatures can be set at which the Apptivate Control Unit will:

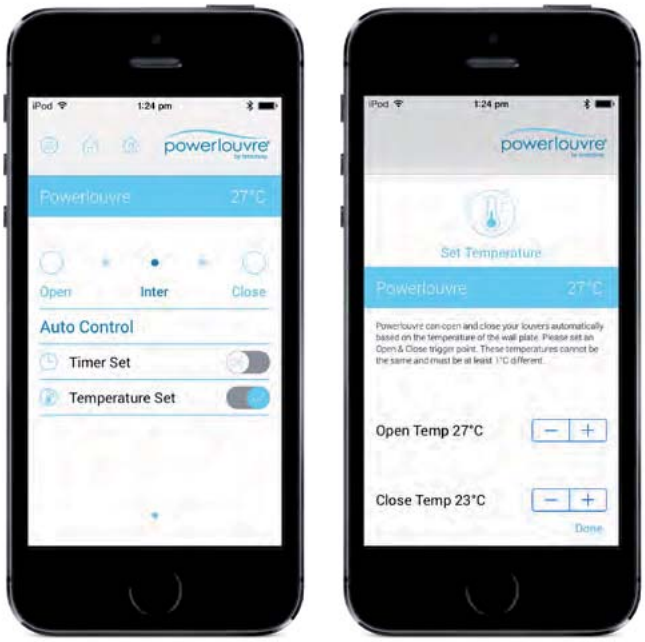
- Automatically open the windows to naturally cool the room, or
- Automatically close the windows to retain warmth within the room.

Automatic response to temperature can be enabled or disabled:

- Remotely from the Powerlouvre App, or
- Directly on the Apptivate Control Unit.

Notes:

- As the temperature sensor will be located within the wall cavity it may be susceptible to environmental conditions so the temperature readings will be indicative of the air temperature within the room, but will not exactly reflect the air temperature within the room.
- When responding to temperatures both channels of Dual Channel Apptivate Control Units will respond simultaneously to the temperature sensor.



### Automatic operation in response to timers.

Timer events (time of day and day of week) can be set to:

- Open the windows
- Move the window to an intermediate position
- Close the windows
- Begin responding automatically to temperatures.

This allows the windows to be set to operate in anticipation of the building occupant's daily routine. For example, opening before employees arrive to pre-cool the building, or responding to temperatures from when a homeowner goes to bed so that the windows close when the temperature drops in the early hours of the morning.

Timer events can be enabled or disabled:

- Remotely from the Powerlouvre™ App, or
- Directly on the Apptivate® Control Unit.

This allows timer events to easily be disabled as the homeowner leaves the house or enabled as they arrive home.

Note:

- When responding to timer events both channels of Dual Channel Apptivate Control Units will respond simultaneously.


### Control of multiple Apptivate® Control Units.

Up to 6 Apptivate Control Units can be associated to each Powerlouvre App allowing building occupants to control windows around their home from their Powerlouvre App.
For ease of identification:

- Each of the Apptivate Control Units can be given a customised name.
- Each of the channels of a Dual Channel Apptivate Control Unit can be given a customised name.
- The Powerlouvre App will indicate any Apptivate Control Units which are out of range, or with which a Bluetooth® Smart connection cannot be made.

For maximum control and ease of use, all the Apptivate Control Units associated to a Powerlouvre App can be operated simultaneously or independantly.


### Control by multiple Powerlouvre™ Apps.

Associations can be established between multiple Powerlouvre Apps and each Apptivate Control Unit, to allow all family members to control the windows from their smartphones.
Note:

- Only one Powerlouvre App will be able to maintain an active Bluetooth® Smart connection with an Apptivate Control Unit at any given time.

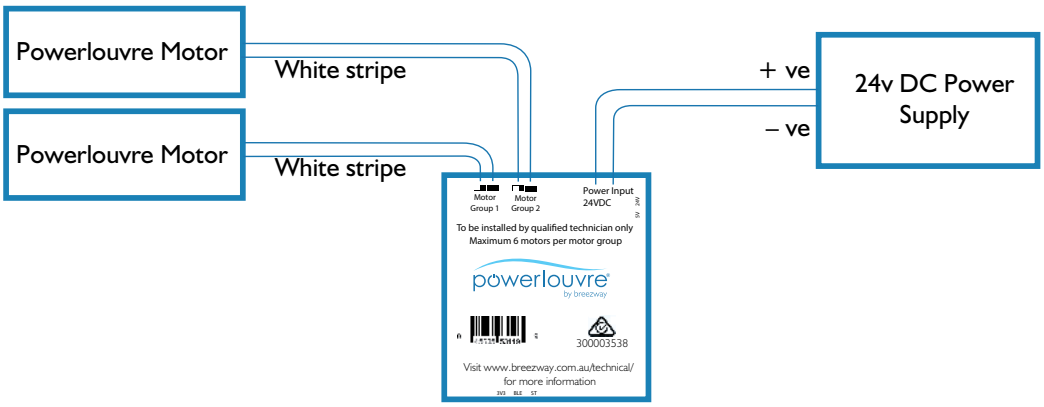
For example: Both John and Mary's Powerlouvre Apps are associated to the Apptivate Control Unit operating the Powerlouvre Windows in their living room. If John opens the windows using his Powerlouvre App, Mary will not be able to close the windows using her Powerlouvre App until John minimises the Powerlouvre App on his smartphone or his smartphone enters 'sleep' mode.

## Apptivate® Control Unit Standard Wiring

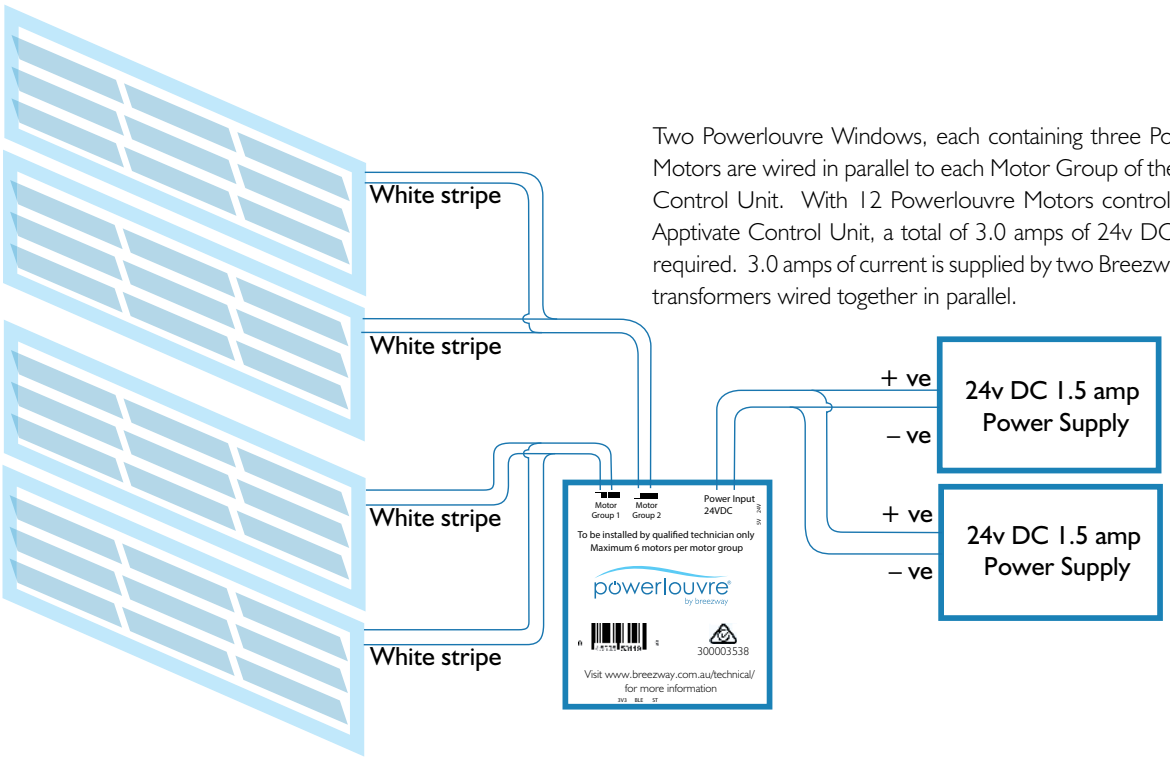
Powerlouvre™ Motors and Apptivate Control Units require 24v DC power. For ease of wiring the Apptivate Control Unit senses the polarity of the current provided from the transformer and automatically adjusts accordingly.

It is recommended that transformers are located in a position that enables easy power cycling.

Up to 6 Powerlouvre Motors can be wired in parallel to each Apptivate Control Unit motor group.




**Dual Channel Apptivate® Control Unit Wiring**




Two Powerlouvre Windows, each containing three Powerlouvre Motors are wired in parallel to each Motor Group of the Apptivate Control Unit. With 12 Powerlouvre Motors controlled by the Apptivate Control Unit, a total of 3.0 amps of 24v DC current is required. 3.0 amps of current is supplied by two Breezway 1.5 amp transformers wired together in parallel.

**Apptivate® Control Unit Wiring With Multiple Transformers**

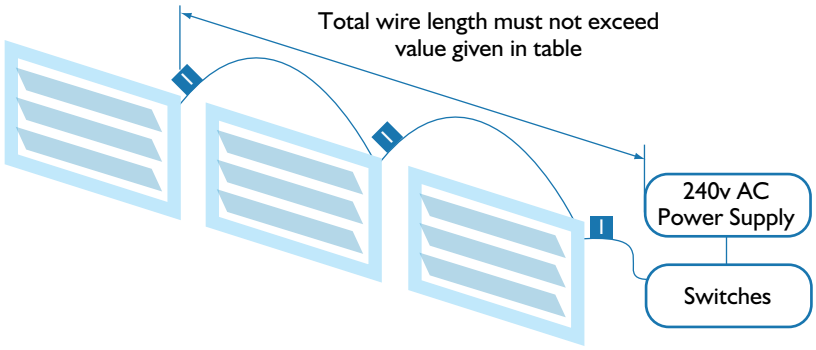
## Building Management System Compatibility

The Altair® Powerlouvre Window System has been reviewed for compatibility by the leading suppliers of building management systems. When considering integration into a building management system, the following should be considered:

- Breezway does not supply the various sensors which could be used to instigate opening or closing of the windows (eg temperature or rain sensors).
- Transformer requirements may differ from the requirements of Powerlouvre Windows controlled by Apptivate Control Units.
- The Powerlouvre Window System does not include an inbuilt electronic mechanism to inform the building management system of its current open or close position.
- Powerlouvre Motors include limit switches which prevent the motors from continuing to attempt to open or close the window once the window is fully open or fully closed, thereby preventing damage to the motors and electronics.

Apptivate Control Units are not compatible with building management systems.

## Cabling Requirements




**Multiple Windows in parallel**

**Note:** Max of 4 Motors per 1 amp transformer.
Max of 6 Motors per 1.5 amp transformer.

| Wire Size ⇩ | N° of Motors ⇨ | Max Distance from Power Supply to Motor | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 8 | 10 | 12 |
| 0.5mm² | 20AWG | 60m | 30m | 20m | 15m | 12m | 10m | - | - | - |
| 0.8mm² | 18AWG | 90m | 45m | 30m | 23m | 18m | 15m | - | - | - |
| 1.3mm² | 16AWG | 150m | 75m | 50m | 38m | 30m | 25m | 20m | 15m | 12m |
| 2mm² | 14AWG | 230m | 120m | 80m | 60m | 50m | 40m | 30m | 24m | 20m |
| 3.5mm² | 12AWG | 370m | 185m | 125m | 90m | 75m | 60m | 45m | 35m | 30m |
| 4mm² | 10AWG | 550m | 294m | 200m | 150m | 120m | 100m | 75m | 55m | 45m |
| 10mm² | 8AWG | 1000m | 500m | 330m | 250m | 200m | 150m | 120m | 100m | 80m |
| 17mm² | 6AWG | 1500m | 750m | 500m | 375m | 300m | 250m | 175m | 150m | 125m |
| 26mm² | 4AWG | 8000m | 4000m | 2500m | 2000m | 1500m | 1250m | 1000m | 800m | 650m |

Tables calculated using a window current of 0.25A and a voltage drop of 5% or 1V @ 24V.

### Battery Backup

The Powerlouvre Window has no integrated battery back up. If the power supply fails the window cannot be operated. If battery back up is required, systems are readily available and can be integrated by qualified suppliers.

## Easyscreen™ Powerlouvre™ Window Sizes

| | Easyscreen Powerlouvre Window System Standard Heights | |
|---|---|---|
| Blade Count | 152mm Gallery | 102mm Gallery |
| 2 | 371mm | NA |
| 3 | 511mm | 361mm |
| 4 | 651mm | 451mm |
| 5 | 791mm | 541mm |
| 6 | 931mm | 631mm |
| 7 | 1071mm | 721mm |
| 8 | 1211mm | 811mm |
| 9 | 1351mm | 901mm |
| 10 | 1491mm | 991mm |
| 11 | 1631mm | 1081mm |
| 12 | 1771mm | 1171mm |
| 13 | 1911mm | 1261mm |
| 14 | 2051mm | 1351mm |
| 15 | 2191mm | 1441mm |
| 16 | 2331mm | 1531mm |
| 17 | 2471mm | 1621mm |
| 18 | 2611mm | 1711mm |

- Maximum width = 4000mm (Frames over these dimensions will need to be coupled on site or at a window fabricator's factory).
- Minimum bay width (2-9 blade tall windows) = 400mm
- Minimum bay width (10-18 blade tall windows) = 500mm
- Standard heights only.
- Up to 6 galleries (bays) can be included in a single surround frame.
- Combination louvre and fixed light bays are available.

Ex. Australia Only

**Four Powerlouvre Window bays within a single Easyscreen Frame**