

Powerlouvre® Window Electrical Requirements & Installation

- Operating voltage: 24V DC
- Maximum constant current: 0.25A 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 - Easyscreen Window System*		
Powerlouvre Window Type	Motors per bay	Maximum Constant Current Required
2-9 Blades High Without Remote Control	1	0.25 amps per bay
2-9 Blades High With Remote Control	1	0.25 amps per bay
10-18 Blades High Without Remote Control	2	0.5 amps per bay
10-18 Blades High With Remote Control	2	0.25 amps per bay**

*The Breezway Remote Receiver Unit is used to provide remote control of Component Powerlouvre Windows. Each Remote Receiver Unit will require a single 1.5 amp transformer.

**Powerlouvre Windows that are 10-18 blades high and have remote control capabilities cannot operate both motors in each bay simultaneously so only 0.25 amps are required per bay.

Breezway® Transformers

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

- 240V AC current transformed to 24V DC current.
- 1 amp version suitable for powering up to 4 Powerlouvre motors simultaneously.
- 1.5 amp version suitable for powering up to 6 Powerlouvre motors simultaneously.
- Built-in overload protection to prevent accidental short circuits from damaging the transformer.



Powerlouvre Window Wiring & Control

Altair Powerlouvre Windows are compatible with industry standard wiring and automation approaches and can be controlled via a pair of simple bell type wall switches (open and close) through to remote control systems through to complete building automation systems. Various switching configurations are possible to allow multiple windows to be controlled together or individually. When specifying a switching and transformer configuration the following factors should be taken into consideration:

1. The level of control desired by the user
2. The maximum number of motors that can be controlled by a single AC to DC transformer
3. Site issues such as window positions, distance to switches, access within walls etc.

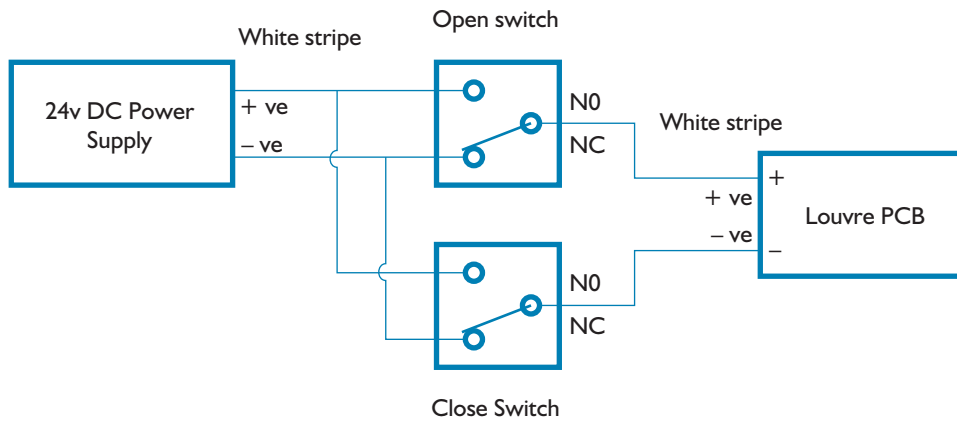
Powerlouvre® Window Wiring And Control Details - Control Via Wall Switches

The most basic way to control Powerlouvre Windows is via a pair of simple bell type wall switches (open and close).

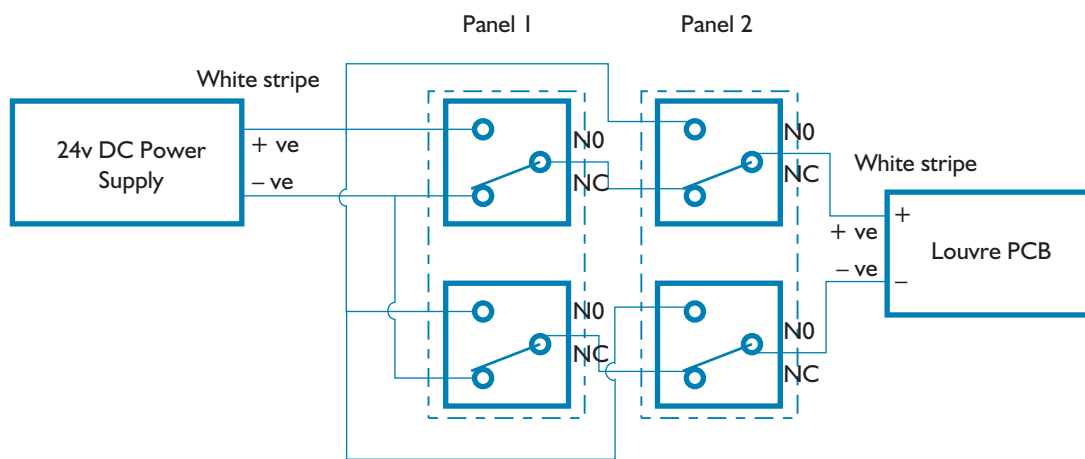
Switches are suggested below but not supplied. It is recommended that non-latching, normally open, bell press switches be used. See your electrical wholesaler for switch options.

Switch Specification:	
HPM	Part # 770XM
PDL	Part # 68 I M20P
Clipsal	Part # 30M BPR

240V AC to 24V DC transformers supplying 1.0 amps or 1.5 amps are available from Breezway as an optional accessory. See your electrical wholesaler for more transformer options.



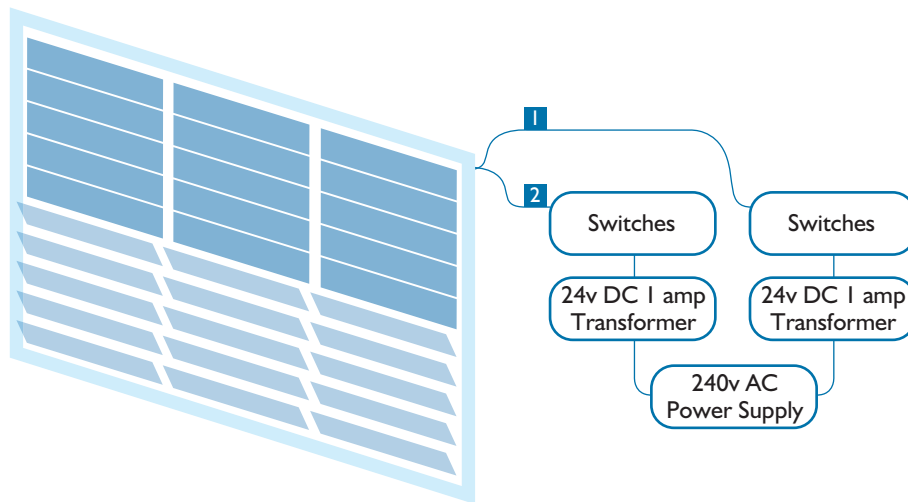
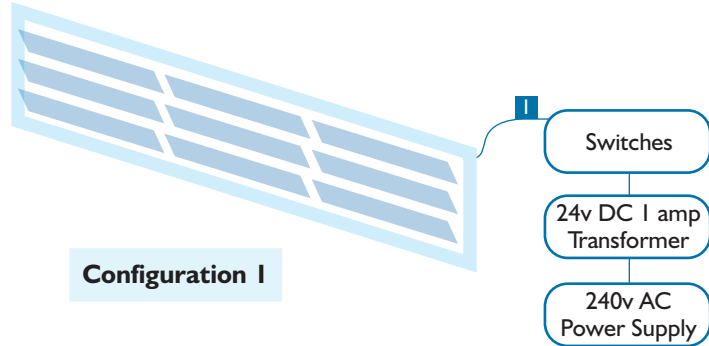
Single Switch Panel Wiring



Twin Switch Panel Wiring

Switching Configuration Examples

All bays of the window are operated simultaneously by a single pair of switches.

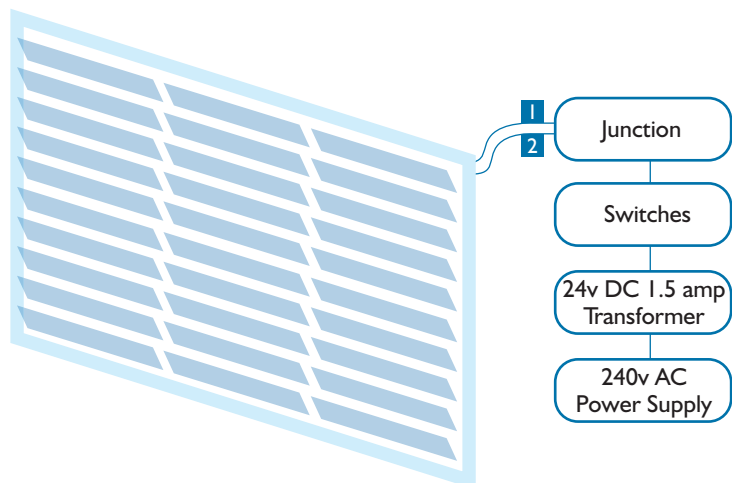


Configuration 2

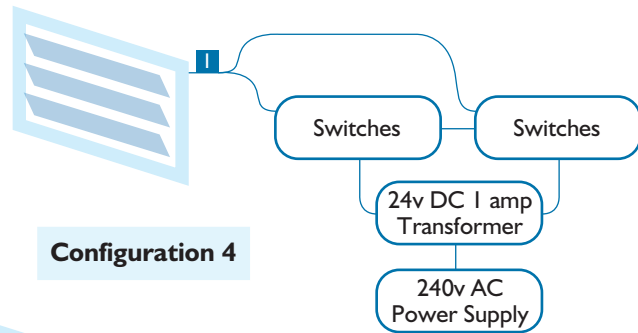
All blades in the top bank of the window are operated simultaneously by a single pair of switches. All the blades in the bottom bank are operated simultaneously by a single pair of switches. The top bank and the bottom bank of the window are operated independently.

The entire window is operated simultaneously by a single pair of switches.

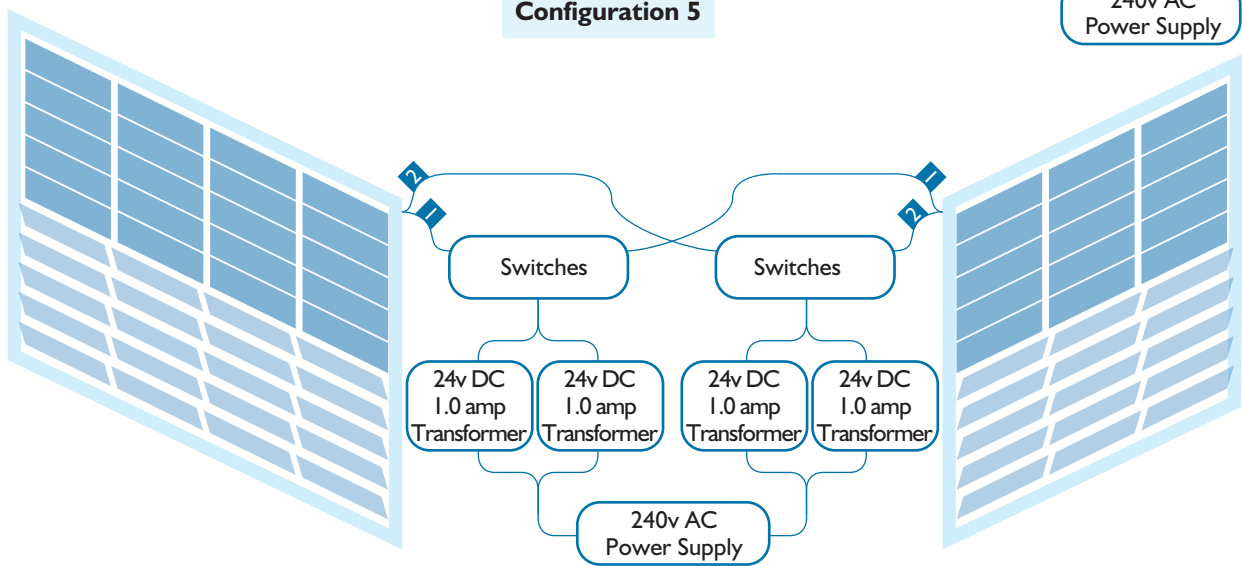
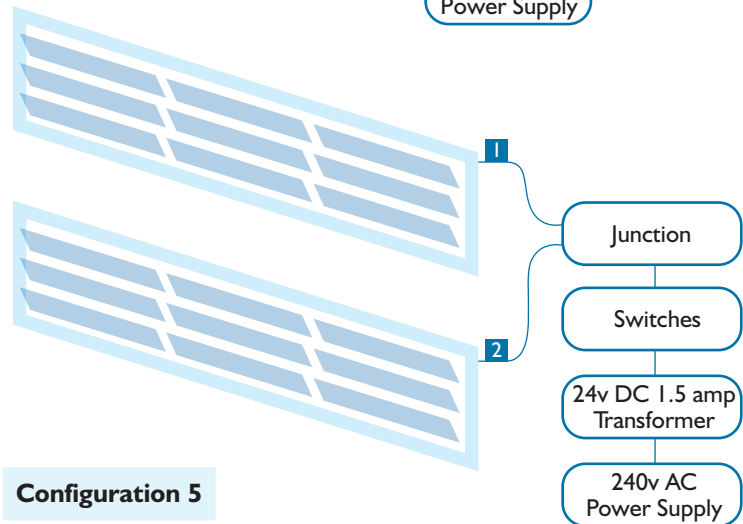
Configuration 3



The Powerlouvre® can be operated by either set of switches (see twin switch panel wiring diagram).



All bays of both windows are operated simultaneously by a single pair of switches.



Multiple Breezway Transformers wired in parallel.

Multiple Powerlouvre® Windows operated by single switches.

All the blades in the top halves of the windows are operated simultaneously by a single pair of switches. All the blades in the bottom halves of the windows are operated simultaneously by a single pair of switches. The top halves of the windows and the bottom halves of the windows are operated independently.

As each switch is distributing power to 7 motors, each of which requires 0.25 amps, a total of 1.75 amps must be supplied to each switch. As the largest single Breezway® Transformer (1.5 amps) will be insufficient for this task, the outputs of two 1.0amp Breezway Transformers will be wired together in parallel to supply a total of 2.0 amps to each switch.

Powerlouvre® Wiring And Control Details - Control Via Breezway® Remote Controls

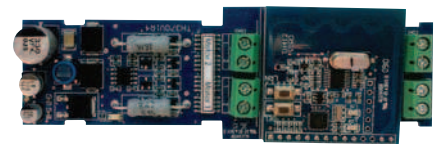
Breezway Powerlouvre Window Remote Control Capabilities

- Windows can be opened and closed by hand held Remote Controls.
- Multiple windows can be operated simultaneously or independently by hand held Remote Controls.

Powerlouvre® Window Remote Control System Components

Powerlouvre Remote Receivers

Concealed within the head of the Easyscreen® Window System, the Remote Receivers receive radio signals from hand held Remote Controls. The Remote Receiver acts as a switch, directing power to up to 2 different banks of Powerlouvre motors within each Powerlouvre Window. One Remote Receiver is required per Powerlouvre Window. Each Remote Receiver can have multiple Remote Controls associated with it.



Remote Receivers

Powerlouvre Remote Receiver Units

When Component Powerlouvres are used, Remote Receivers are housed in a protective plastic casing external to the window instead of within the head weatherstrip. The plastic casing protects the Remote Receiver from damage due to electrostatic discharge. Either one or two groupings of up to 6 Powerlouvre Motors per grouping can be controlled by each Remote Receiver Unit. (Note: if 2 groupings of Powerlouvre Motors are connected they can only be operated sequentially, not simultaneously). 24V DC Power must be supplied continuously to the Remote Receiver Unit.



Remote Receivers Unit

157mm x 67mm x 45mm

Powerlouvre Remote Controls

Hand held remote controls emit radio signals that are received by the Remote Receiver. Their effective range can be reduced by interference from metal and tinted glass or increased by fitting an additional antenna to the Remote Receiver, but in most circumstances will be 10-20m. Remote Controls are powered by commonly available 23AE 12V Alkaline batteries and are shipped with convenient wall holders.



Advanced and Standard Remote Controls

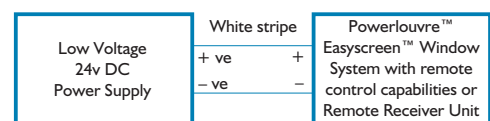
125mm x 48mm x 20mm

Banks of louvres can be opened or closed with a single click or stopped in an intermediate position. Standard Remote Controls can operate a single window or multiple windows simultaneously, Advanced Remote Controls can operate up to 7 groupings of multiple windows independently.

Each Remote Control can control an infinite number of windows simultaneously provided the windows are installed within range of the Remote Control.

Standard Wiring

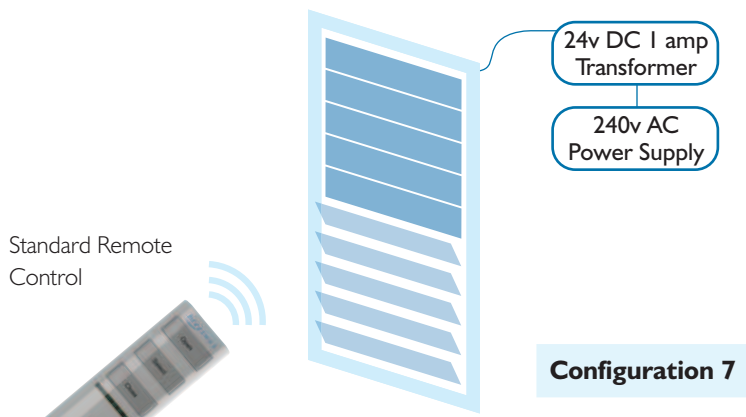
As the Remote Receiver replaces the functionality of wall switches, 24v DC power is supplied directly to Powerlouvre Windows with remote control capabilities or Remote Receiver Units. Transformers should be matched to the quantity of motors in the larger of the two groupings of motors connected to the Remote Receiver Unit. 0.25 amps should be supplied per motor in the larger group of each Remote Receiver Unit.



Standard Wiring

Alternately simply supplying 1.5 amps per Remote Receiver Unit will cover all possible configurations.

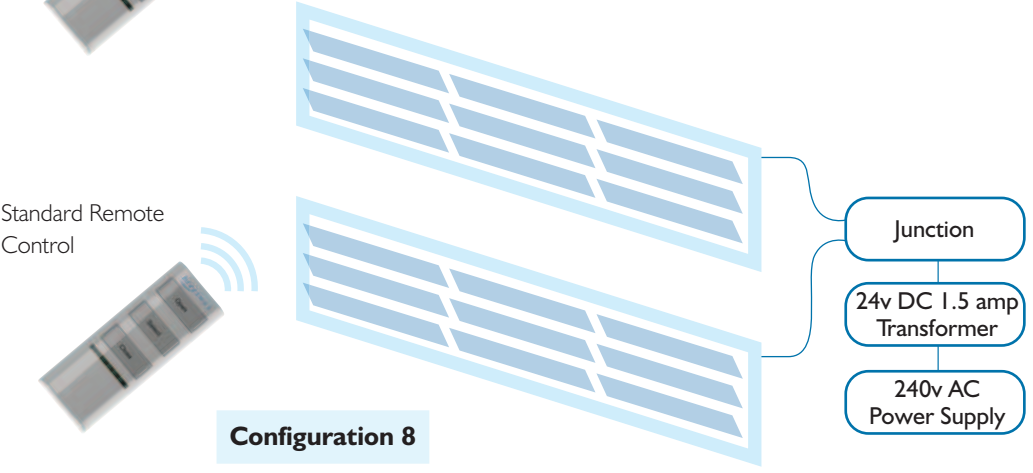
Remote Control Configuration Examples - Easyscreen® Powerlouvre® Window Systems



A single window operated by a single Standard Remote Control.

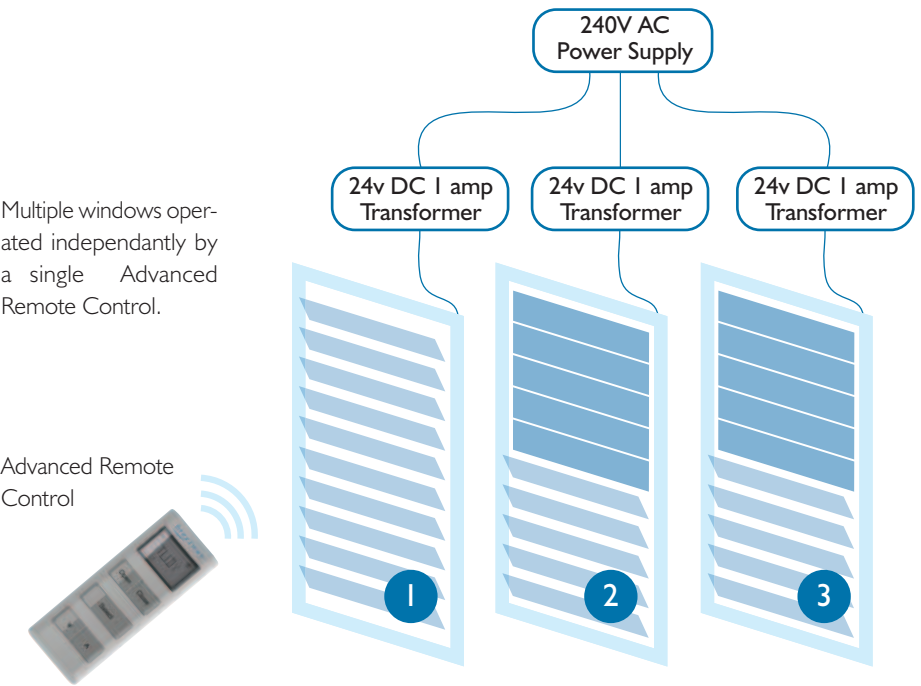
The upper and lower banks of blades can be operated independently.

The Remote Receiver will never distribute power to all 4 motors simultaneously, it will only operate the window one bank at a time. The transformer is therefore specified as 1 amp as it will need to supply a minimum of 0.25 amps per bay. (2 bays x 0.25 amps = 0.5 amps)



Multiple windows operated simultaneously by a single Standard Remote Control.

As these windows are only 3 blades high, all blades form a single bank with all blades operating simultaneously.



Multiple windows operated independently by a single Advanced Remote Control.

Window 1 is operated independently of the other 2 windows by channel 1 and 2 of the Advanced Remote Control.

Window 2 is operated independently of the other 2 windows by channel 3 and 4 of the Advanced Remote Control.

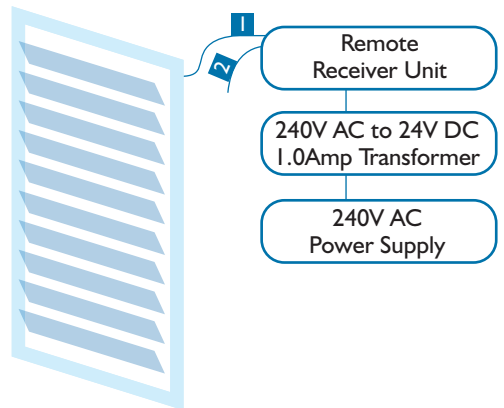
Window 3 is operated independently of the other 2 windows by channel 5 and 6 of the Advanced Remote Control.

Channel 15 and 16 of the Advanced Remote Control simultaneously controls all 3 windows.

Associations between windows and remote controls should be specified when the order is placed, but can also be modified by the user after installation if power can be selectively removed from or applied to each window.

Remote Control Configuration Examples - Component Powerlouvre® Windows

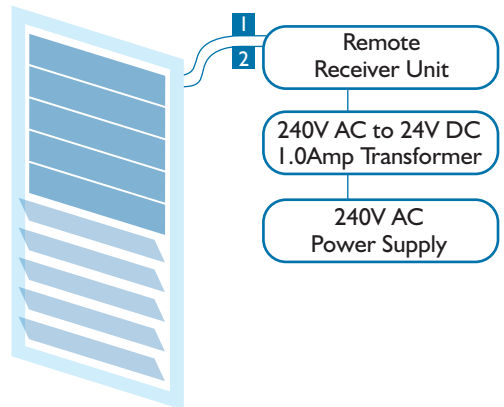
Configuration 10



Both motors in a single Powerlouvre Bay are wired together in parallel. All 10 blades operate simultaneously.

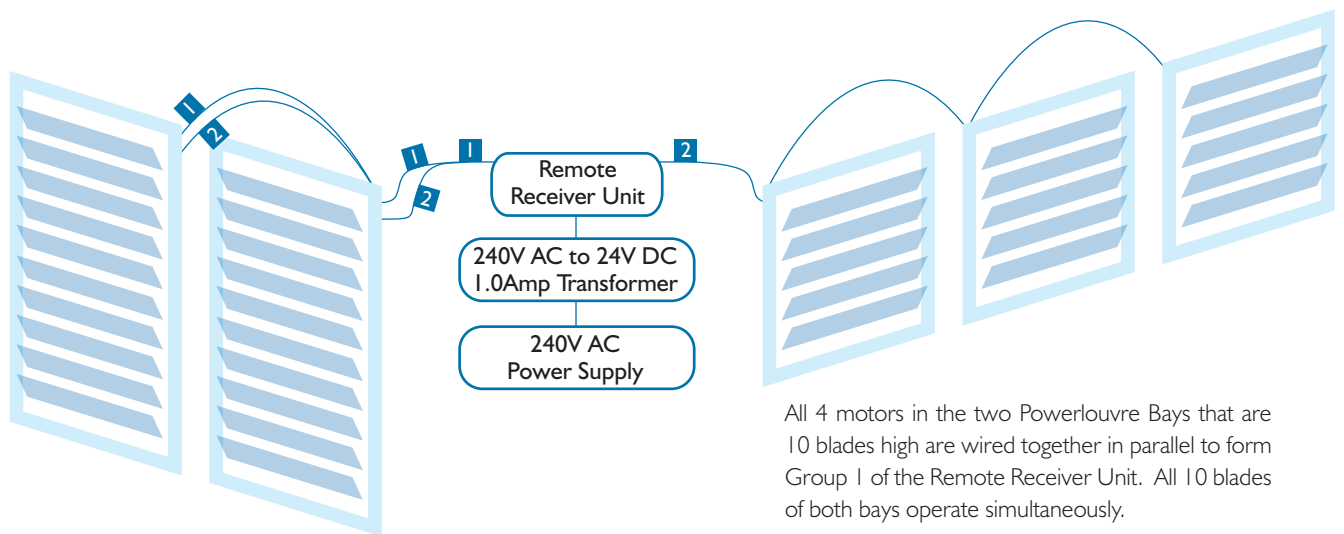
Group 2 is not used.

Configuration 11



The motor controlling the top blades in the Powerlouvre Bay is the solitary motor wired to Group 1 of the Remote Receiver Unit. The motor controlling the lower blades in the Powerlouvre Bay is similarly the solitary motor wired to Group 2 of the Remote Receiver Unit. The upper and lower groups of blades are operated independantly of each other.

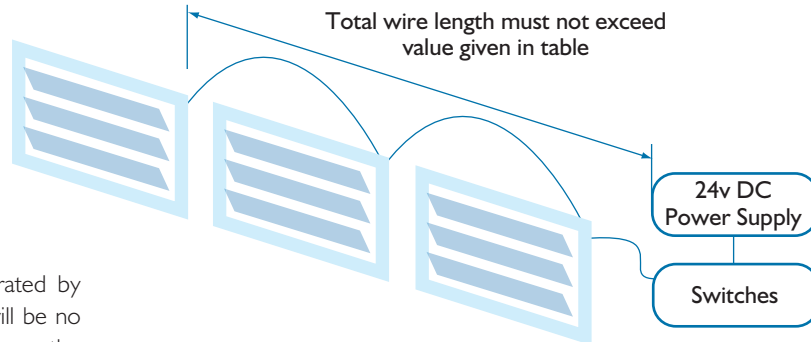
Configuration 12



All 4 motors in the two Powerlouvre Bays that are 10 blades high are wired together in parallel to form Group 1 of the Remote Receiver Unit. All 10 blades of both bays operate simultaneously.

The single motors in each of the three bays that are 5 blades high are wired together in parallel and form Group 2 of the Remote Receiver Unit. All bays in Group 2 operate simultaneously.

Powerlouvre® Window Cabling Requirements



If the windows are operated by remote controls, there will be no switches positioned between the transformers and the windows.

Total wire length does not include the internal wiring of each Powerlouvre Window.

Multiple Windows in parallel

Wire Size ↓	Motors ↗	Max Distance from Power Supply to Motor								
		1	2	3	4	5	6	8	10	12
0.5mm ²	20AWG	60m	30m	20m	15m	12m	10m	-	-	-
0.8mm ²	18AWG	90m	45m	30m	23m	18m	15m	-	-	-
1.3mm ²	16AWG	150m	75m	50m	38m	30m	25m	20m	15m	12m
2mm ²	14AWG	230m	120m	80m	60m	50m	40m	30m	24m	20m
3.5mm ²	12AWG	370m	185m	125m	90m	75m	60m	45m	35m	30m
4mm ²	10AWG	550m	294m	200m	150m	120m	100m	75m	55m	45m
10mm ²	8AWG	1000m	500m	330m	250m	200m	150m	120m	100m	80m
17mm ²	6AWG	1500m	750m	500m	375m	300m	250m	175m	150m	125m
26mm ²	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 1 V @ 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.