

# Lockwood Elevation

## Elevation simplified

Elevation is flexible solution that caters for many types of applications. This document highlights simplified colour wire connections as well as advanced functions for special tailored solutions. These drawings are the same as provided on the web and that comes with the product but more simplified and broken down by application.

Elevation can be connected to a “home automation” system also referred to as Cbus. Other names include BMS (Building Management System) Etc. Elevation can be connected to Fire alarms panels that automatically close or open in the event of fire. Elevation can be connected to 24v Backup systems, and be controlled in the event of a power failure or fire

Other sensors i.e. Temperature, wind and air-conditioners can also be connected to Elevation. Please see the relevant section in the contents for detailed explanation and how Elevation can be configured to your building.

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# Specification Guide - Standalone

1) Specify actuators for single windows

Example

Specify 1 actuator per window that's less than 900mm wide			
LW-EWAC-300-BLK	LW-EWAC-300-WH	LW-EWAC-300-PPC	LW-EWAC-300-BLK
22	0	0	22

2) Specify actuators for double windows

Specify 2 actuators per window that's wider than 900mm			
LW-EWAC-300-BLK	LW-EWAC-300-WH	LW-EWAC-300-PPC	LW-EWAC-300-BLK
0	0	0	0

3) Add 1 Sync Loom for each pair of actuators that's synqed

EWAC-SSL	EWAC-SSL
0	0

4) Specify a power supply for actuators

Enough to operate 1 actuator	Enough to operate 2 actuators	EWAC-SPS1000
EWAC-SPS1000	EWAC-SPS1500	EWAC-SPS1000
22	0	22

*Note :22 x Power supplies will operate 22 windows*

5) Specify how many wall Switches

EWAC-SNA	EWAC-SNA
6	6

*Note : 1 Network adaptor required per wall switch*

6) Specify how many rain sensors (4 Maximum)

EWAC-SRS	EWAC-SRS
0	0

7) Specify a power supply for Network Adaptor

Enough Operate: 10 Network adaptors	EWAC-SPS1000
EWAC-SPS1000	EWAC-SPS1000
1	1

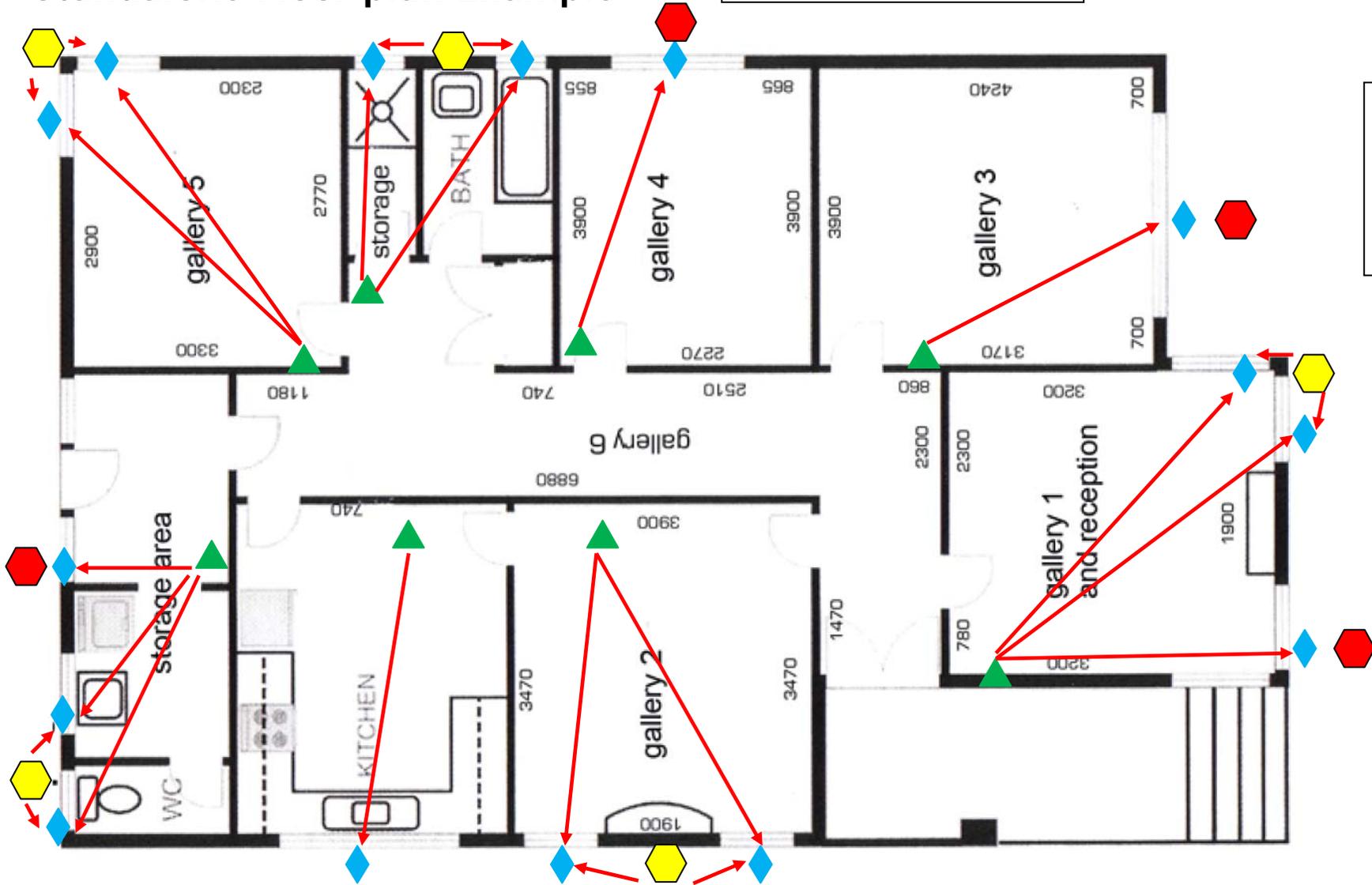
*Note :1 x Power supply will operate up to 10 Network Adaptors*

Total Requirement

Part#	Qty
LW-EWAC-300-BLK	22
EWAC-SSL	0
EWAC-SPS1000	23
EWAC-SNA	6
EWAC-SRS	0

# Standalone Floor plan Example

Note: Not related to the above



Note: Depending on the user requirements wall users may require several wall switches or 1 or all windows 1 Network adaptor is required per wall switch

◆ Elevation Window	⬡ 1000mA Power Supply (operate 1 Unit)
▲ Wall Switch (network adaptor)	⬡ 1500mA Power Supply (operate 2 units)

# Specification Guide – Keypad

1) Specify actuators for single windows

Example

Specify 1 actuator per window that's less than 900mm wide			
LW-EWAC-300-BLK	LW-EWAC-300-WH	LW-EWAC-300-PPC	LW-EWAC-300-BLK
10	0	0	10

2) Specify actuators for double windows

Specify 2 actuators per window that's wider than 900mm			
LW-EWAC-300-BLK	LW-EWAC-300-WH	LW-EWAC-300-PPC	LW-EWAC-300-BLK
6	0	0	6

3) Add 1 Sync Loom for each pair of actuators that's synqed

EWAC-SSL	EWAC-SSL
3	3

4) Specify a power supply for actuators

Enough to operate 1 actuator	Enough to operate 2 actuators	
EWAC-SPS1000	EWAC-SPS1500	EWAC-SPS1500
0	8	8

*Note: 8 x Power supplies will operate 16 windows*

5) Specify how many keypads (2 Maximum)

LW-TSD-35-WHT	LW-TSD-35-WHT
2	2

6) Specify how many rain sensors (4 Maximum)

EWAC-SRS	EWAC-SRS
4	4

7) Specify a power supply for rain sensors and Keypad

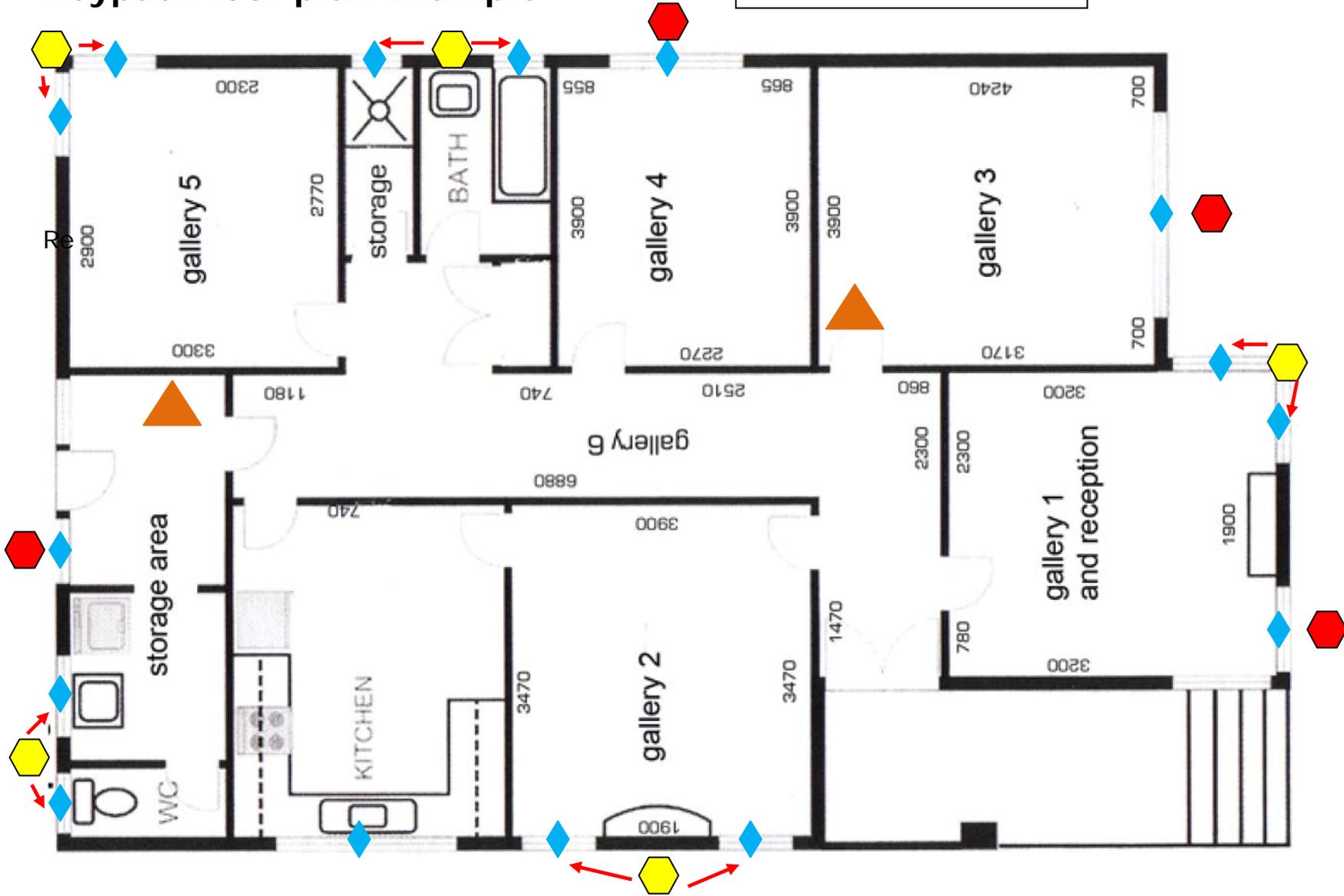
Enough to operate: 4 rain sensors and 2 keypads	
EWAC-SPS1500	EWAC-SPS1500
1	1

Total Requirement

Part#	Qty
LW-EWAC-300-BLK	16
EWAC-SSL	3
EWAC-SPS1500	9
LW-TSD-35-WHT	2
EWAC-SRS	4
EWAC-SPS1000	0

# Keypad Floor plan Example

Note: Not related to the above



-  Elevation Window
-  Touch screen Keypad
-  1000mA Power Supply (operate 1 Unit)
-  1500mA Power Supply (operate 2 units)

## Power Supply options

Elevation is powered by a 24vDC power supply. Power supplies need to be ordered separately. The electrician normally decides what type of power supply they want to use, there are three options;

### Option 1

Elevation consumes 750mA at peak draw. The electrician can choose to use 1 x 1000mA power supply per Elevation actuator and connected as per Fig1.

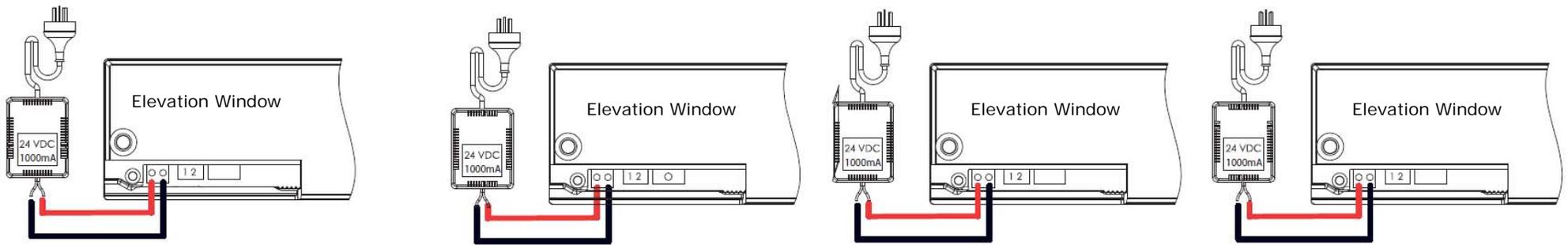


Fig 1

### Option 2

The electrician can choose to use 1 x 1500mA power supply, for every 2 Elevation actuators and loop the connection. This can be connected as per Fig2.

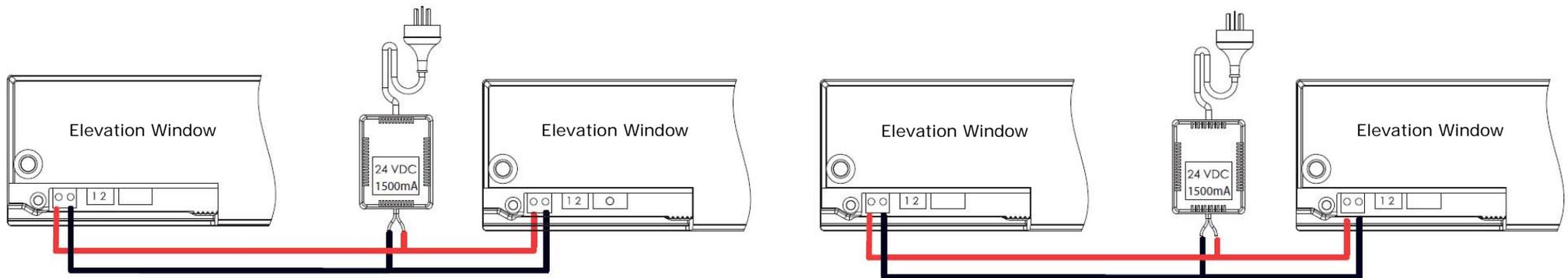
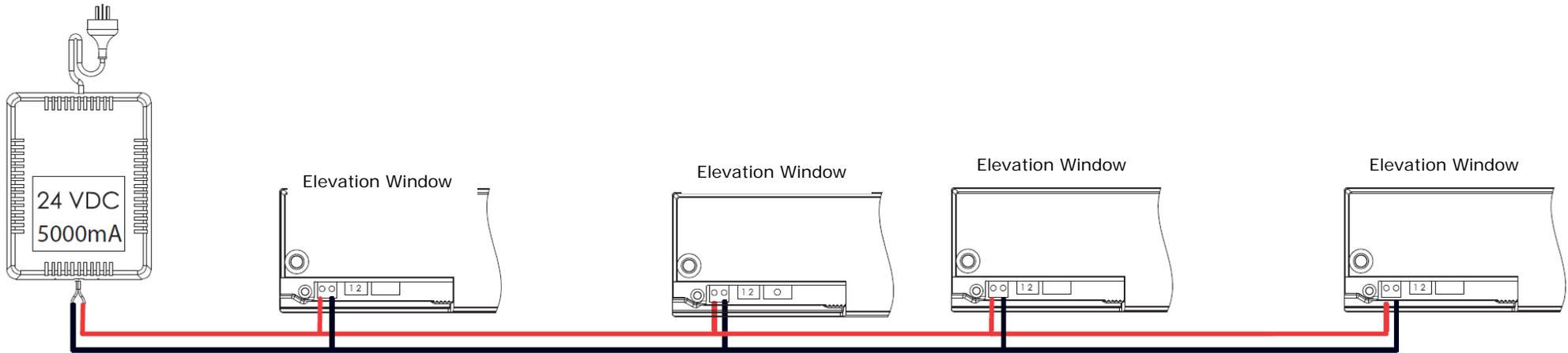


Fig 2

### Option 3

The electrician can choose to use a 3<sup>rd</sup> party Power supply to power multiple Elevation actuators. Each actuator uses 750mA and this needs to be taken in account. 5000mA will be enough to loop to 6 Elevation actuators.

Connection using this supply below



One large power supply can be used for multiple actuators.  
Each actuator draws 750mA

Consider voltage drop for large cable runs  
Refer to below table

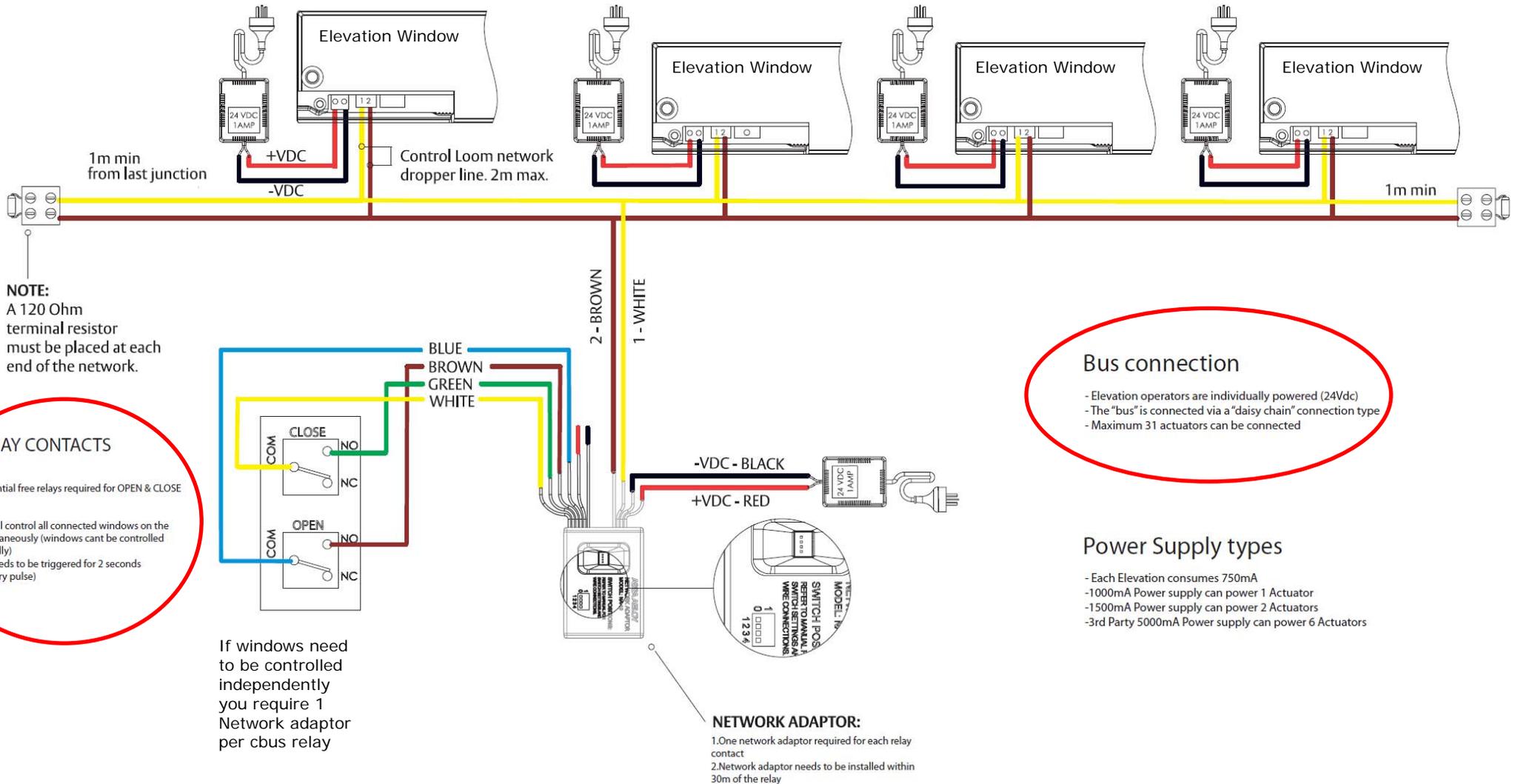
LENGTH (m)	WIRE Ø MIN	AWG
12	0.7mm	22
19	0.8mm	20
29	1.0mm	18
47	1.3mm	16
74	1.6mm	14
119	2.0mm	12

INPUT VOLTAGE	24V DC
MAXIMUM CURRENT	750mA Per Actuator
OPENING TIME	Approx 40sec
OVERALL DIMENSIONS	308mm x 44mm x 32mm
OPERATING TEMPERATURE	0° - 50°C
HUMIDITY	0% - 95%
NETWORK CABLE LENGTH	300m MAX

Fig 3

# Cbus connection

Elevation can be controlled with any home automation controller (cBus) a Network adaptor is required to interface with your Cbus system. If windows need to be controlled independently you require 1 Network adaptor per cbus output. 1 relay will trigger open and 1 the close.



If connected to fire panels the above connection is required.

**Fig 4**

## **3<sup>rd</sup> Party sensors**

### **Wind Sensors**

Wind sensors can be programmed to trigger when the wind reaches a certain speed. Example; if a medium to high winds are in effect, the wind sensor can trigger and open/close the windows automatically.

These output connections from the wind sensor can be connected to the network Adaptor and connected as per the Fig 4

### **Temperature Sensors**

Temperature sensors can be programmed to trigger when temp reaches a certain threshold. Example would be if too cold temperature is reached, the sensor can trigger and open/close the windows automatically.

These output connections from the temperature sensor can be connected to the network Adaptor and connected as per the Fig 4

### **Air conditioners**

Some air conditioners can be programmed to trigger when the air-conditioner switches on or off. Example would be the air conditioner could trigger a relay when switched off and automatically open the windows. It can be taken a step further and temperature sensors can monitor the outside temperature and allow the air-conditioner to switch off and allow cold air to flow in.

### **O<sup>2</sup> Sensors**

Modern buildings may be equipped with O<sup>2</sup> Sensors these sensors can be programmed to trigger when O<sup>2</sup> levels are low and these triggers can control Elevation to open. These can work in conjunction with above sensors creating the ultimate 6 star energy efficient building

Possibilities are endless and Elevation offer the ideal solution to reach a "greener" rated building. Connections as per Fig 4 will allow this function.

These sensors are typically used with a Cbus system and can also be used as a standalone, when used in conjunction to Standalone connection (not Keypad network)

# Standalone or Switch connection

Elevation can be connected to a wall switch. A 2 button bell press (Open & Close) is required. Connections below

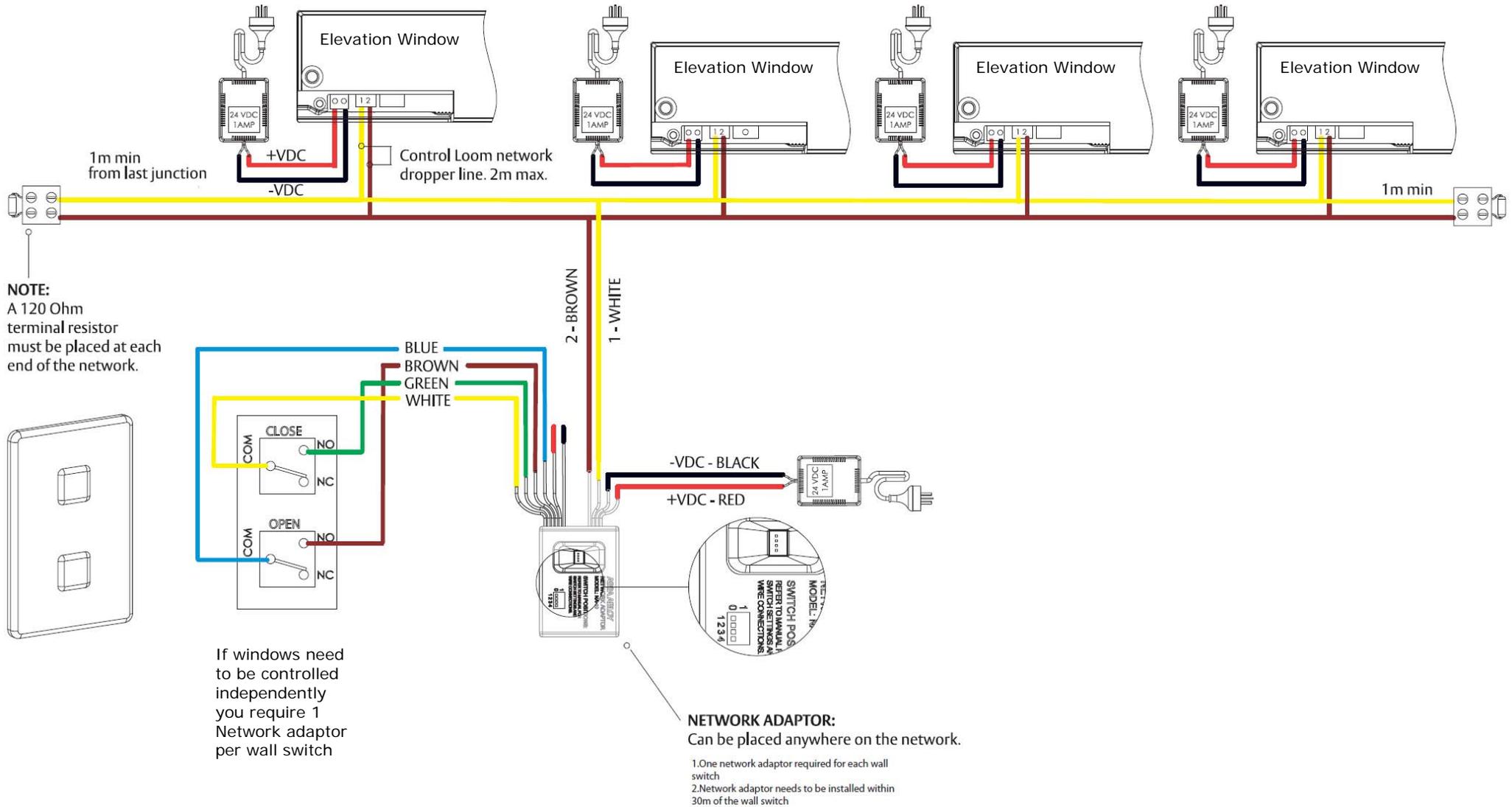
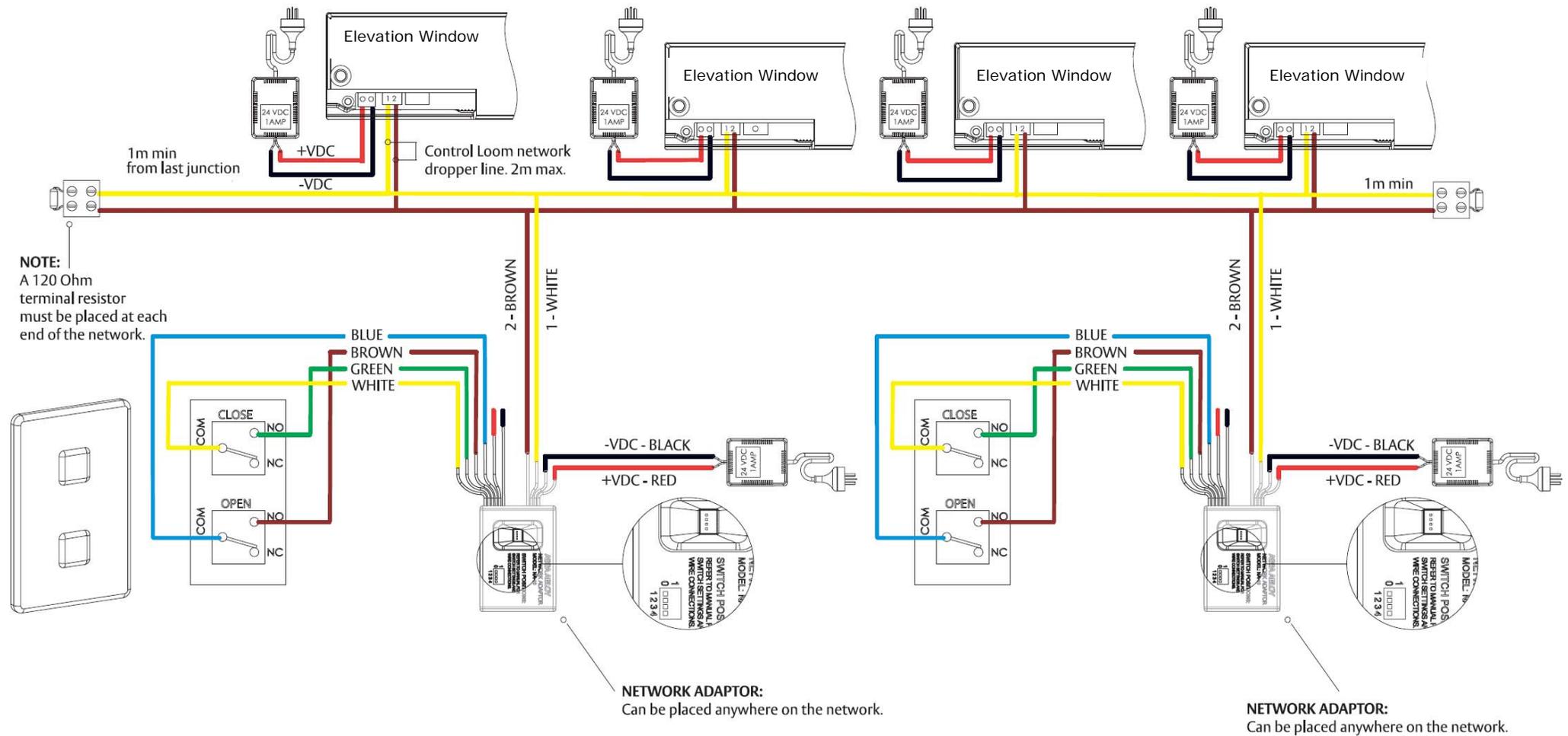


Fig 5

# Standalone or Switch connection (Multiple)

It's possible to connect multiple wall switches to the Elevation network so that windows can be opened from multiple locations in the building. Each switch will control all windows on that network.



Note: If individual windows need to be controlled they need to be setup on their own network

Fig 6

# Sync Connection

For large windows (900mm and wider) an Elevation unit can be synchronized. A Sync loom is required and connection as per Fig 7

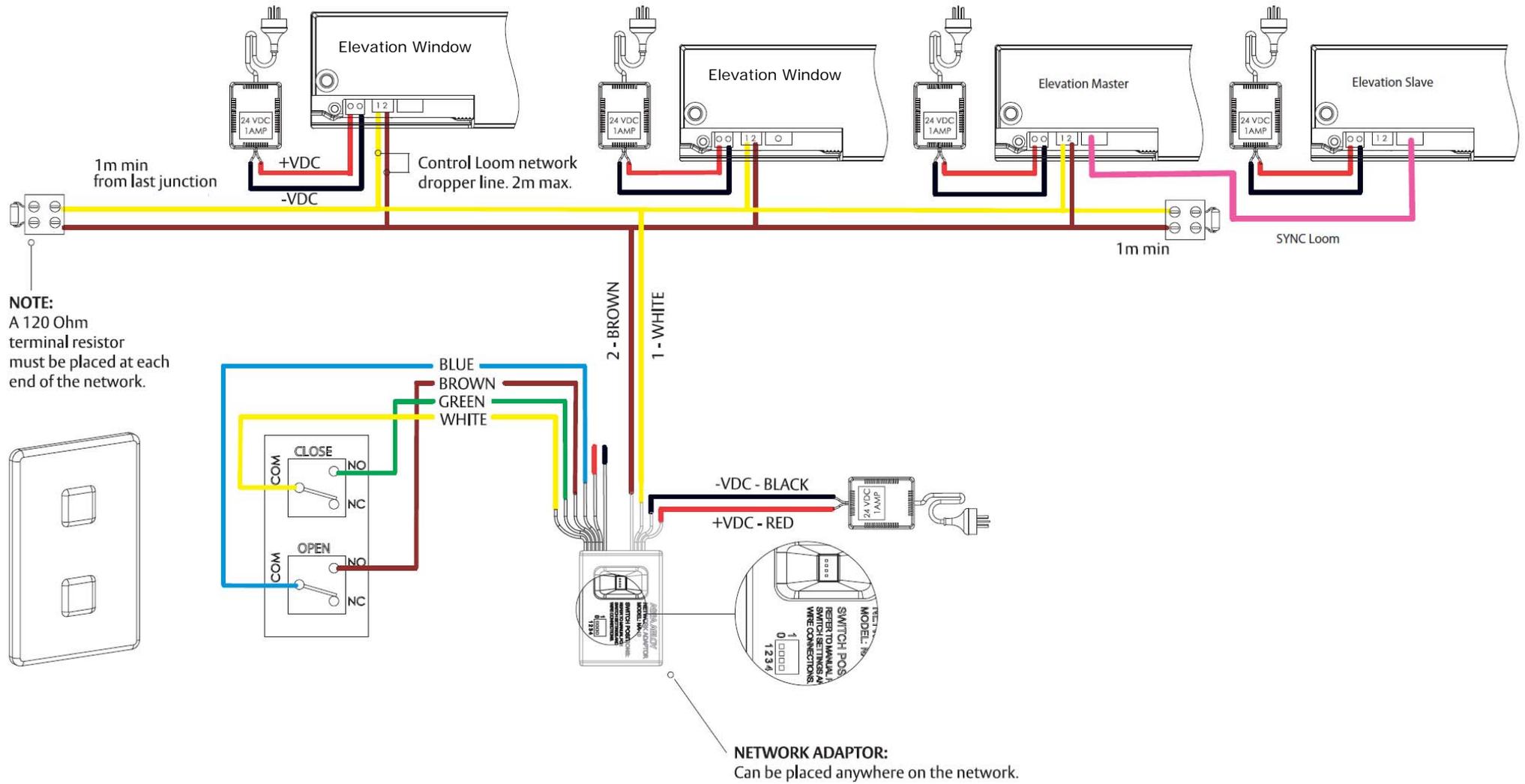


Fig 7

# Rain sensor used with wall switch connection

A rain sensor can be connected to a wall switch network. If connected as below the windows will automatically close in the event of rain. Up to 4 rain sensors can be connected to the network.

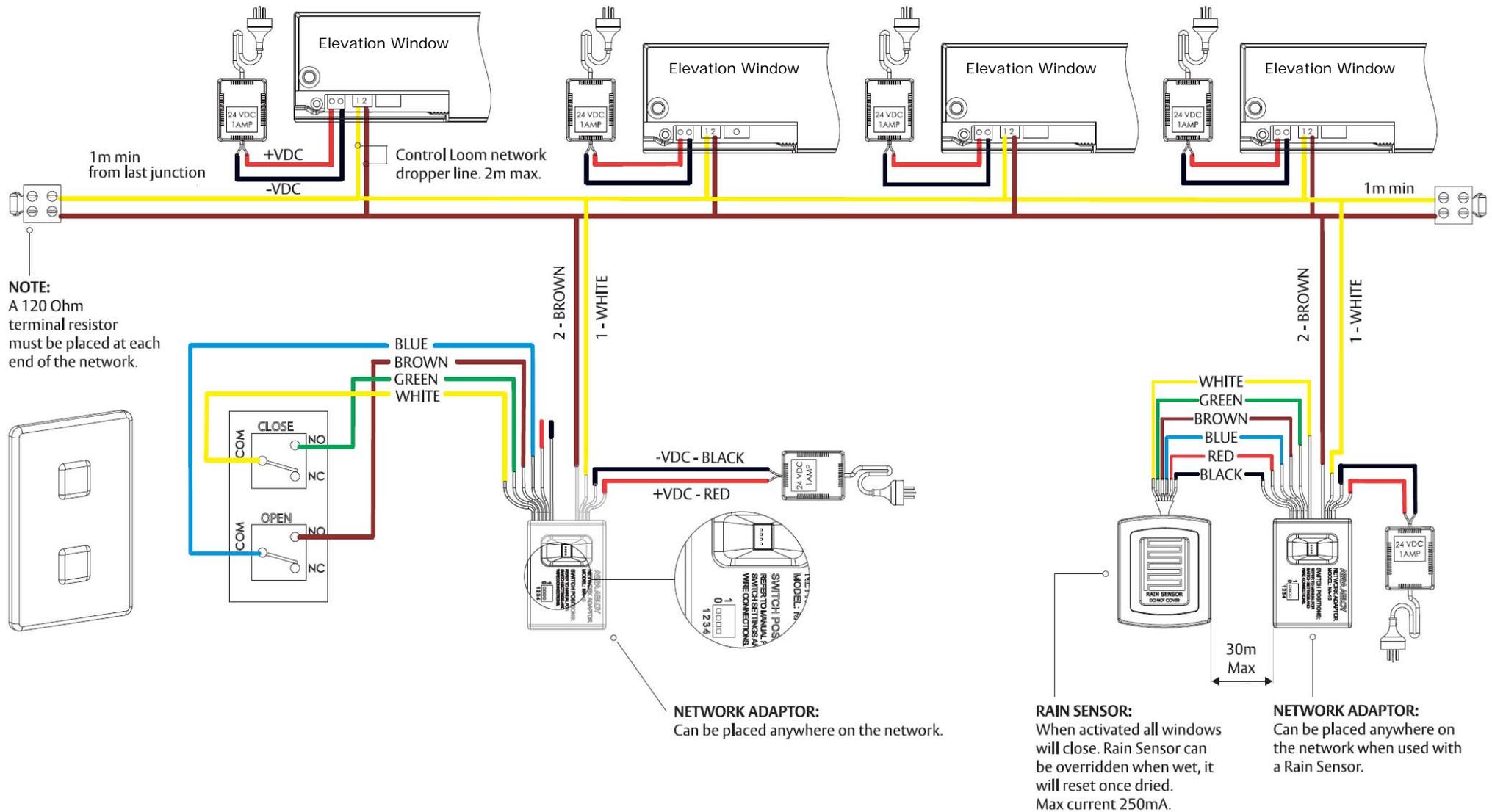


Fig 8

# Multiple Rain sensor connection

Multiple rain sensors can be connected to a keypad or wall switch network. If connected as below the windows will automatically close in the event of rain. Up to 4 rain sensors can be connected to the network.

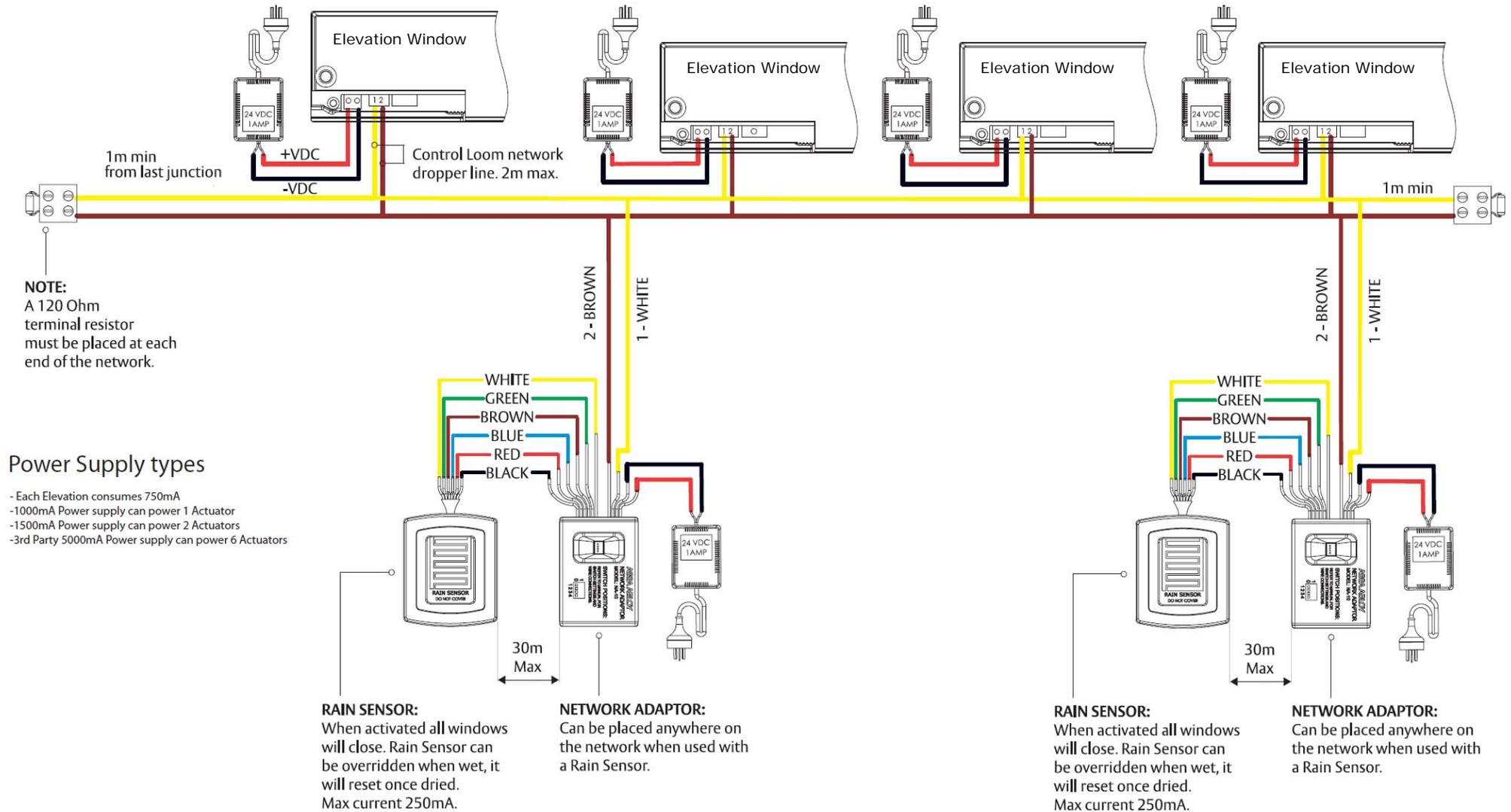
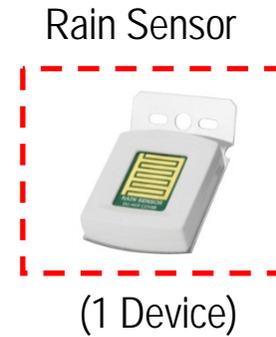
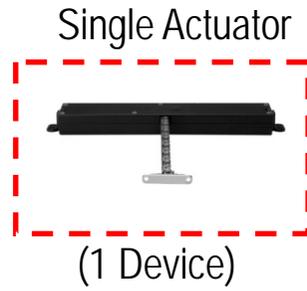
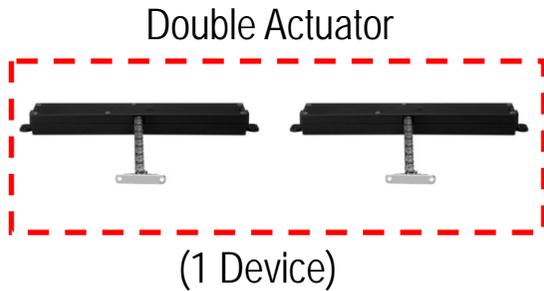


Fig 9



# Keypad Network Limitations



Network capacity is 32 devices, each of the above counts as 1 device

**Example 1**  
 31 x Single Actuators  
 0 x Double Actuators  
 1 x Keypad (2 Max)  
 0 x Rain Sensor

**Example 2**  
 0 x Single Actuators  
 31 x Double Actuators  
 1 x Keypad  
 0 x Rain Sensor

**Example 3**  
 10 x Single Actuators  
 20 x Double Actuators  
 1 x Keypad (2 Max)  
 0 x Rain Sensor

**Example 4**  
 28 x Single Actuators  
 0 x Double Actuators  
 2 x Keypad (2 Max)  
 2 x Rain Sensor (4 Max)

**Example 5**  
 27 x Single Actuators  
 0 x Double Actuators  
 1 x Keypad (2 Max)  
 4 x Rain Sensor (4 Max)

**Example 6**  
 14 x Single Actuators  
 12 x Double Actuators  
 2 x Keypad (2 Max)  
 4 x Rain Sensor (4 Max)

# Standalone Network Limitations

Double Actuator



(1)

Single Actuator



(1)

Rain Sensor



(1)

Network Adaptor / Switch



(1)

Network capacity is 32 devices, each of the above counts as 1 device

## Example 1

- 31 x Single Actuators
- 0 x Double Actuators
- 1 x Network Adaptor/ Switch
- 0 x Rain Sensor

## Example 2

- 0 x Single Actuators
- 31 x Double Actuators
- 1 x Network Adaptor / Switch
- 0 x Rain Sensor

## Example 3

- 10 x Single Actuators
- 21 x Double Actuators
- 1 x Network Adaptor / Switch
- 0 x Rain Sensor

## Example 4

- 28 x Single Actuators
- 0 x Double Actuators
- 2 x Network Adaptor / Switch
- 2 x Rain Sensor

## Example 5

- 27 x Single Actuators
- 0 x Double Actuators
- 1 x Network Adaptor / Switch
- 4 x Rain Sensor

## Example 6

- 10 x Single Actuators
- 0 x Double Actuators
- 1 x Network Adaptor / Switch
- 0 x Rain Sensor

## Cable types

The power and network cables required are different

### Power cables

Depending on the distance of the power cables the following cable gauge needs to be adhered to;

LENGTH (m)	WIRE Ø MIN	AWG
12	0.7mm	22
19	0.8mm	20
29	1.0mm	18
47	1.3mm	16
74	1.6mm	14
119	2.0mm	12

### Network cable

Ensure Standard CAT5 Shielded Cable is used for 2 wire network bus. (Limit to 300m)  
(All non-power connections)

# Frequently asked questions

## Question Topics

1. What products to order
2. System Limitations
3. Technical help
4. Fault find Checklist

## What products to order

1. Question: The customer needs a standalone unit, what part number do they need to order?

1. Answer: With regards to the elevation system, both the keypad and standalone units are the same. If the customer needs a standalone unit, they will need to order a Network adaptor separately as well. Any of the Elevation Actuator part numbers can be ordered (finish dependent)

2. Question: What switches will work with a standalone unit and do we sell them?

2. Answer: We don't supply switches but they are "standard non-latching bell press switches". You need two switches one for opening and one for closing. HPM or Clipsal offer a range of these switches

3. Question: If the customer needs to connect the Elevation to a Cbus system, what does he need to buy?

3. Answer: All that's required is 1 network adaptor per dual relay output and one dual relay output can control up to 31 actuators

4. Question: The customer needs a keypad unit, what part number do they need to order?

4. Answer: With regards to the elevation system both the keypad and standalone units are the same. Any of the Elevation Actuator part numbers can be ordered (finish dependent)

5. Question: What power supply should the customer order considering it does not come with one.

5. Answer: Power supplies are now supplied separately; often the electrician will supply his own transformers. But if they want to buy them from us they can buy two types:

1000 mA = enough to power 1 actuator (EWAC-SPS1000)

1500 mA = enough to power 2 actuators (EWAC-SPS1500)

6. Question: Do we sell a battery backup system

6. Answer: No but any 3rd party battery backup system can be used as long as it's 24v DC

## System limitations

7. Question: How many actuators can be controlled with one switch unit? (standalone)

7. Answer: One switch unit can control up to 31 Actuators, so 1-31 actuators

8. Question: How many actuators can be controlled with a keypad?

8. Answer: One keypad can control 31 devices so if no rain sensors are connected they can control 31 actuators. If for example there is 1 rain sensor connected, it counts as an device and they can only connect 30 actuators.

9. Question: If I have a unit synchronized on a large window, does this count as 1 or 2?

9. Answer: Any synchronized units count as 1 unit

10. Question: Can a second or third keypad be connected to the network

10. Answer: You can add a second keypad to the network but not a 3rd, 2 keypads are the maximum limit.

11. Question: How many rain sensors can be added to the system?

11. Answer: You can connect up to 4 rain sensors to the network

## Technical Help

12. Question: What network cable should be used?

12. Answer: Standard figure 8 Network cable is recommended (0.7mm AWG22)

13. Question: How far can I run the network cable before I get voltage drop?

13. Answer: If standard figure 8 network cable is used, it can be run to 300m

14. Question: How far can I run the power supply cable to the actuator?

14. Answer: Voltage drop occurs if long power cables are used we recommend the following gauge cable chart, depending on the distance.

Power Cable Requirements

LENGTH(m)	WIRE Ø MIN	AWG
12	0.7mm	22
19	0.8mm	20
29	1.0mm	18
47	1.3mm	16
74	1.6mm	14
119	2.0mm	12

15. Question: What is the maximum weight of the window the Elevation actuator can handle?

15. Answer: Window weight does not affect the performance but rather window height and width. Refer to Elevation window matrix

16. Question: What is the preferable wiring method?

16. Answer: Daisy chain connection

### **Fault find checklist**

Check in the following order;

#### **Mechanical Checklist**

- Check window size matrix
- Check if non friction stays are used
- Check if window can be opened manually by hand
- Is pivot bracket installed (if required by the matrix)

#### **Electrical Checklist**

- Ensure cables are plugged in connections are correct
- Check if correct cable type and gauge is used
- Check if the 2 x resistors are connected on each end of the network
- Standalone: Make sure maximum 31 actuators per switch