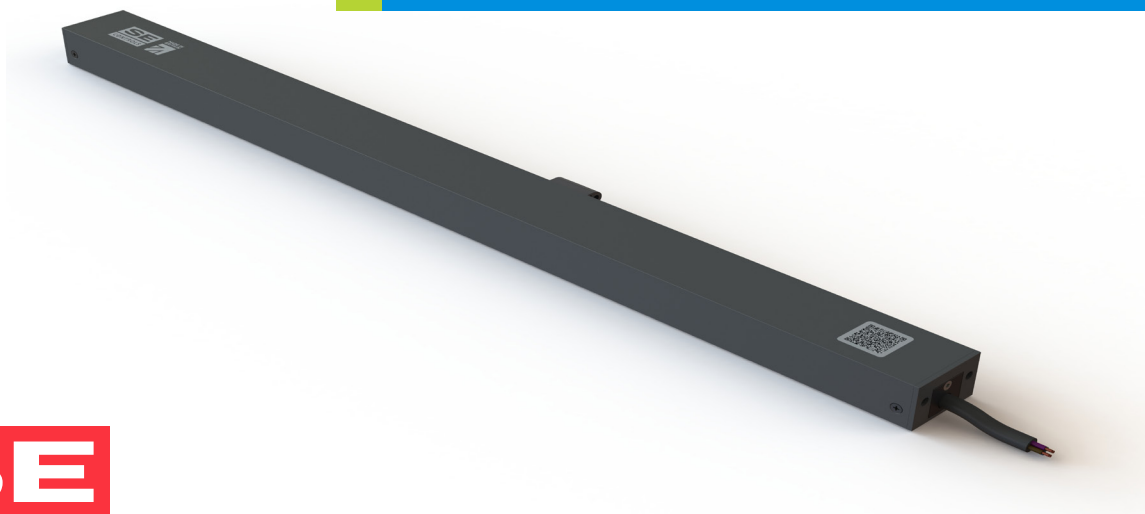


AT12 - Standard

Chain Actuator

Technical information and operating instructions



AT12 Standard Chain Actuator / 24 V / 0.5 A dc / 250 N

The AT12 Standard Chain Actuator has been designed to provide precise and reliable operation for environmental window automation ventilation and smoke ventilation applications.

Designed with decades of experience within the façade industry the AT12 can seamlessly integrate into a BMS or be operated via independent control panels, switches and sensors.

SE Controls manufacture this high-quality 'Made in Britain' actuator with the following features:

- Seamless two way communication with Building Management Systems via Modbus protocol
- Simple 2 wire open/close 24 V operation for non BMS applications
- Slimline design with left hand/right hand connector (either end) for simple site cabling and connection
- Synchronised operation for up to four actuators, 2 Multi Point Locks (AT31) via the AT12 Enhanced actuator
- Precise opening control with true status and position feedback (via Modbus)
- Programmable functionality: opening and closing speed, seal relief, stroke
- Inbuilt cycle counting to provide operational frequency to protect warranty
- Product Warranty, 15,000 operational cycles or 12 months¹
- 425 mm maximum opening stroke for greater free area performance
- 2,000 N closed clamping force for increased security
- Operation via analogue 0-10 V input and permanent 24 V (short side only)

¹Commercial terms for each project will supersede this warranty information.

Contents

1. General Information

1.1	General Safety Information	3
1.2	Health and Safety	3
1.2	Environmental	3
1.4	Application and Use	4
1.5	Installation	4
1.6	Maintenance	4

2. Specification 5

3. Installation Guide - Window

3.1	Top hung/slope window installation	7
3.2	Bottom hung/slope window installation	7
3.3	Side hung window installation	8
3.4	Pivot Brackets	8

4. Technical Drawing 8

5. Connectivity and Wiring

5.1	AT12 - Standard Actuator Connectivity	9
5.2	AT12 - Wiring	10

1. General Information

1.1 General Safety Information

SE Controls reserves the right to introduce any modifications and improvements to the contents of this publication without the obligation of giving prior notice.

Read and observe the information contained in these safety instructions and respect the order of procedure stated therein.

Product reliability and risk prevention can only be achieved through careful assembly and proper settings following the operating instructions of this actuator..

Please observe the exact terminal assignment, the minimum and maximum power ratings (see technical data) and the installation instructions.

Please observe the following warning symbols:



Danger!
General danger or precautionary warning with numerous implications.



Danger!
Danger that could cause personal injury. Danger of hands been crushed!



Warning!
Carefully read these warnings



Warning!
Draws attention to instructions that must be followed in order to prevent damage to the actuator.



Warning!
Danger of electric shock.



Notice
Indicates important notices to which attention must be paid.

1.2 Health and Safety



Electrical Safety; warning 230 V ac Dangerous voltage. Can cause death, serious injury or considerable material damage. Disconnect the equipment from the power supply at all poles before opening, assembling or carrying out any structural alterations.

Warning! Never connect the drives to 230 V! They are built for 24 V, risk of death!



Personal Protective Equipment; it is recommended that suitable PPE is worn at all times during the installation and connection of actuator products in accordance with a recommended safe system of work.

Handling and storage; care must be taken in transportation to the installation location and during fitting. Actuator products must not be dropped, impacted, allowed to get wet or abused in any other way. Mishandling can result in serious damage.

Competence; installation and connection must only be carried out by authorised, competent and safety conscious persons.

1.3 Environmental



All actuator products contain metallic, plastic and electronic parts. Redundant electronic products are classified as hazardous waste under the WEEE regulations (Waste Electrical and Electronic Equipment). Electronic parts must be disposed of by an authorised and licensed recycler.

They must not be disposed of in 'general waste' skips.

Consult SE Controls for assistance.

1.4 Application and Use



When using the actuator, follow these safety instructions described herein. This equipment is designed for the automatic opening and closing of the stated types of windows.

For further applications, please contact SE Controls.

The actuator complies with current safety directives.

Operating safety can be guaranteed only if installers comply with the safety regulations in force in the country where the actuator is used.



Do not install two or more actuators on the same window without using a synchronisation accessory.



Any other application of the actuator must be approved after technical testing of the application. Use only original accessories or accessories approved by SE Controls to install the actuator.

The actuator is not a structural member of the window. Always mount the safety arms in bottom-hung applications. The position of the three-way switch button must be outside the field of action of the moving part of the window.

Do not allow children to play with the fixed or remote controls.



When opening or closing the window, make sure other people are far away from the moving part, even when a fire detection system is closing an open window.

It would be beyond the scope of these safety instructions to list all the valid regulations and guidelines.



Always make sure that your system corresponds to the valid regulations. Pay particular attention to: the aperture cross-section of the window, the opening time and opening speed, the temperature resistance of the cables and equipment, cross-sections of the cables in relation to the cable lengths and power consumption.



Care must be taken to ensure that actuator products are controlled with compatible products; refer to SE Controls. No liability will be accepted and no guarantee nor service is granted if actuator controls are used without such compatibility being confirmed.

1.5 Installation



Warning! Incorrect installation may render the actuator dangerous! Follow all the instructions set out below and all technical advice provided by SE Controls.

Installation of this equipment must only be carried out by authorised, competent and safety conscious persons.



The actuator must be assembled and connected only by specialised staff who have been properly trained and who are familiar with the problems associated with automatic window opening and closing systems, technical reference standards and safety standards.



The window closes automatically. When opening and closing, the actuator is operated via a control system.



Take care - the open/close force is high enough to cause injury!



During assembly and operation do not obstruct the window opening!

Routing of cables and electrical connections only to be done by a qualified electrician.



Power supply leads 230 V ac to be fused separately by the customer. Keep power supply leads sheathed until the mains terminal.



All low voltage cables (24 V dc) to be installed separately from high voltage cables. Flexible cables should not be plastered in. Provide strain relief for freely suspended cables.

The cables must be installed in such a way that they cannot be damaged.

Junction boxes must be accessible for maintenance work.



Adhere to the type of cables, cable lengths and cross-sections as stated in the technical information.

After installation and any changes to the system check all functions by a trial run.

1.6 Maintenance

Always disconnect the actuator's supply voltage and batteries, (if applicable) during cleaning or maintenance operations, especially if the actuator is equipped with an



The system must be protected against unintentional re-starting.

All smoke ventilation systems must be periodically (annually) checked, serviced, maintained and, if necessary, repaired and re-tested by an authorised, trained and competent, safety conscious person.

Maintenance shall be carried out in accordance with the requirements of;



- Health and Safety at Work Act 1974
- I.E.E Regulations
- Regulatory Reform (Fire Safety) Order 2005
- Building Safety Act 2022
- Building Regulations etc. (Amendment) (England) Regulations 2023

In order to keep the equipment in optimum operating condition it is recommended that ventilation systems are similarly maintained.

There are no user repairable parts in this equipment.

Basic checks that can be carried out include;



- At least once a year, check that the power cable and connection has not been damaged and that it shows no sign of wear
- Check that no object obstructs the window movement.
- If faults arise, never work on the actuator and never attempt to disassemble it.
- If the actuator fails to function or is damaged, contact SE Controls.
- Do not use the actuator until it has been repaired or replaced.

A suitable service contract with SE Controls is recommended for this purpose.

The gear system is greased for life and is maintenance free.



Defective equipment must only be repaired by SE Controls. Only original spare parts are to be used.

After maintenance, repair or any changes to the system check all functions by a trial run.

2. Specification

Actuator Designation	AT12 Standard
Actuator Type	Chain Actuator
Voltage (all $\pm 5\%$)	24 V dc (Power open/power close or permanent power with Modbus)
Current Draw	0.5 A max at 250 N
Stroke	20 - 425 mm max
Operating Speed (Nominal)	1- 5 mm/s
Ambient Operating Temp	-5°C to +60°C
IP Rating	IP30
Open Force	250 N max
Close Force	250 N max
Clamping Force	2,000 N
Soft Close	Yes
Switching	Electronic
Seal Relief	0 - 20 mm
Synchronisation	Up to 4 actuators + 2 MPL via AT12 Enhanced
Standard Finish Powder Coated	RAL 7016 (Anthracite Grey) RAL 9005 (Jet Black) RAL 9006 (White Aluminium) RAL 9010 (Pure White)
Colour Option	Other colours available on request
Flex Length	Various lengths, sold seperately ¹
Flex Type	4 core silicone
Flex Colour	Grey or White ²
Duty Cycle	40% (max 3 minute continous run time)
Product Warranty	15,000 operational cycles or 12 months ³
Application	Environmental Ventilation

¹ Note: cable must be ordered seperately, see product code information.

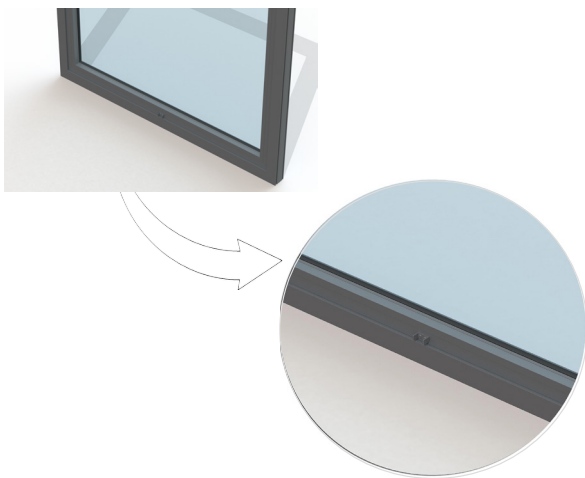
² This information is provided as guidance as raw materials and manufacturing processes differ therefore we cannot guarantee a precise match with the actuator body colour.

³ Commercial terms for each project will supersede this warranty information.

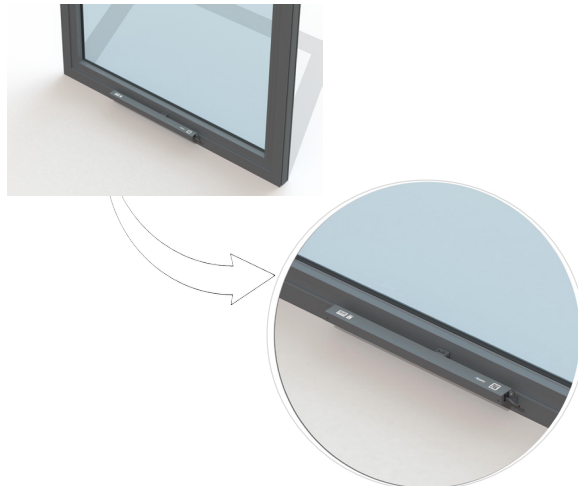
3. Installation Guide - Window

3.1 Top hung/slope window installation

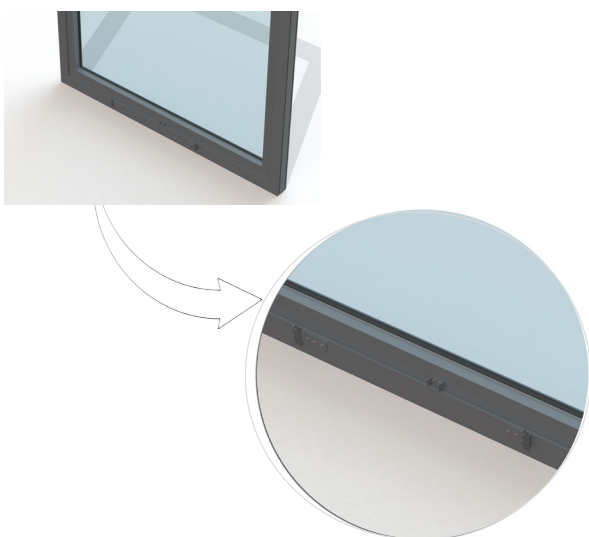
i. Trunnion Fix



ii. Bracket Fitting



iii. Stroke Check



iv. Actuator Alignment



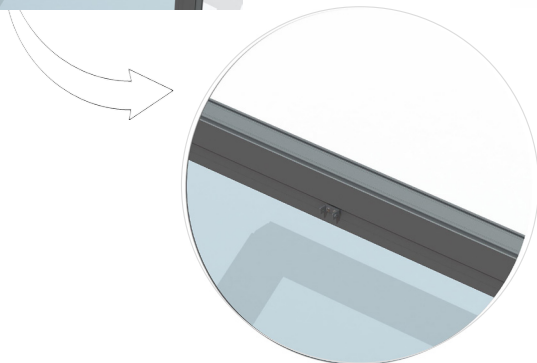
- i. Fix the trunnion set in the mid position on the moving part of the window.
- ii. Close the window, then fix the chain actuator body with the pivot bracket set provided. It should be aligned with the trunnion set on the moving part of the window. Caution: misalignment will cause improper opening and closing of the window.
- iii. Fix all screws in the trunnion set and pivot bracket firmly. (make sure sufficient space is allowed for the actuator body to rotate)
- iv. Fix the pin to connect the trunnion set to the top part of the chain.
- v. Switch on the power supply to test run the actuator for a few cycles, make sure the opening and closing of the window is smooth and free from obstruction

*Images for illustration purposes only

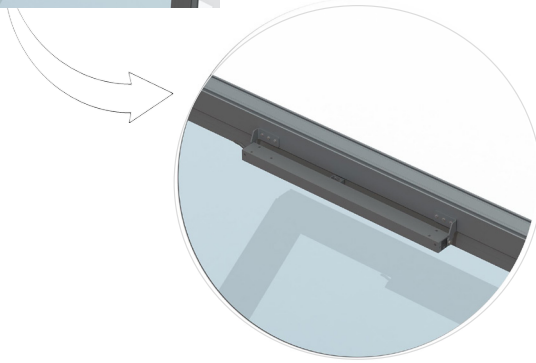
3. Installation Guide - Window

3.2 Bottom hung/slope window installation

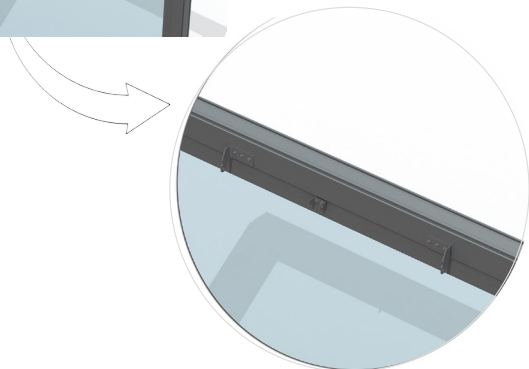
i. Trunnion Fix



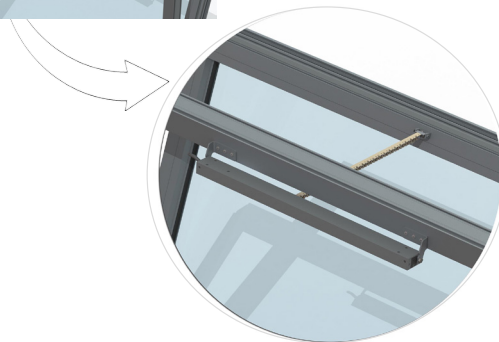
ii. Bracket Fitting



iii. Stroke Check



iv. Actuator Alignment



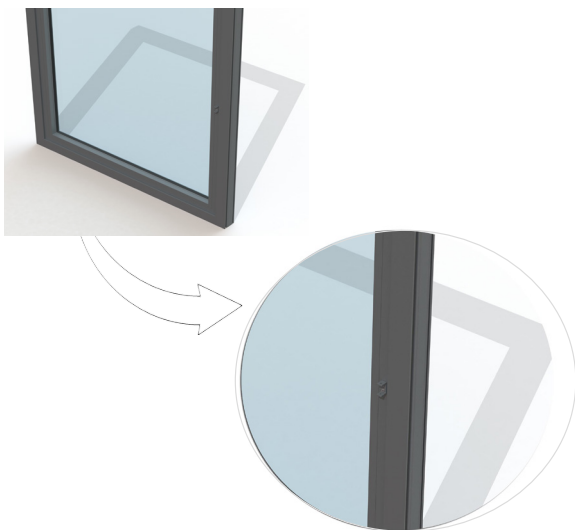
- i. Fix the trunnion set in the mid position on the moving part of the window.
- ii. Close the window, then fix the chain actuator body with the pivot bracket set provided. It should be aligned with the trunnion set on the moving part of the window. Caution: misalignment will cause improper opening and closing of the window.
- iii. Fix all screws in the trunnion set and pivot bracket firmly. (make sure sufficient space is allowed for the actuator body to rotate)
- iv. Fix the pin to connect the trunnion set to the top part of the chain.
- v. Switch on the power supply to test run the actuator for a few cycles, make sure the opening and closing of the window is smooth and free from obstruction

*Images for illustration purposes only

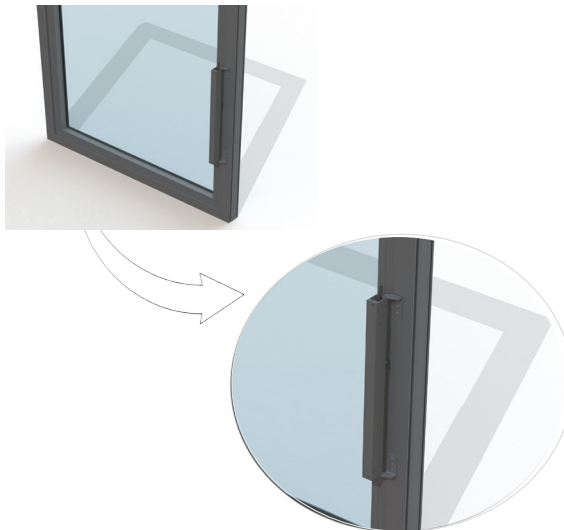
3. Installation Guide - Window

3.3 Side hung window installation

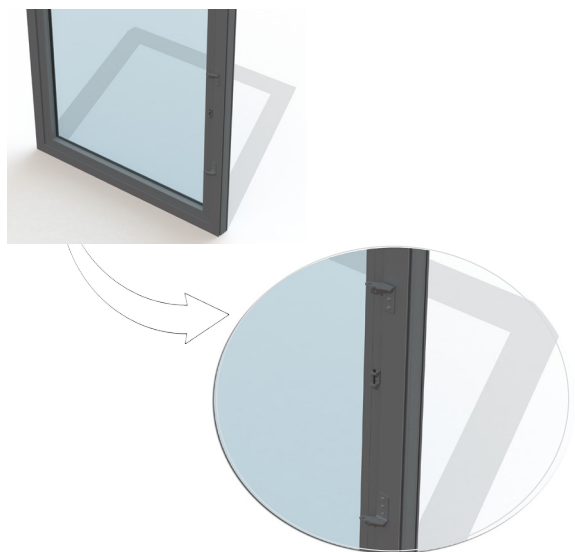
i. Trunnion Fix



ii. Bracket Fitting



iii. Stroke Check



iv. Actuator Alignment



- i. Fix the trunnion set in the mid position on the moving part of the window.
- ii. Close the window, then fix the chain actuator body with the pivot bracket set provided. It should be aligned with the trunnion set on the moving part of the window. Caution: misalignment will cause improper opening and closing of the window.
- iii. Fix all screws in the trunnion set and pivot bracket firmly. (make sure sufficient space is allowed for the actuator body to rotate)
- iv. Fix the pin to connect the trunnion set to the top part of the chain.
- v. Switch on the power supply to test run the actuator for a few cycles, make sure the opening and closing of the window is smooth and free from obstruction

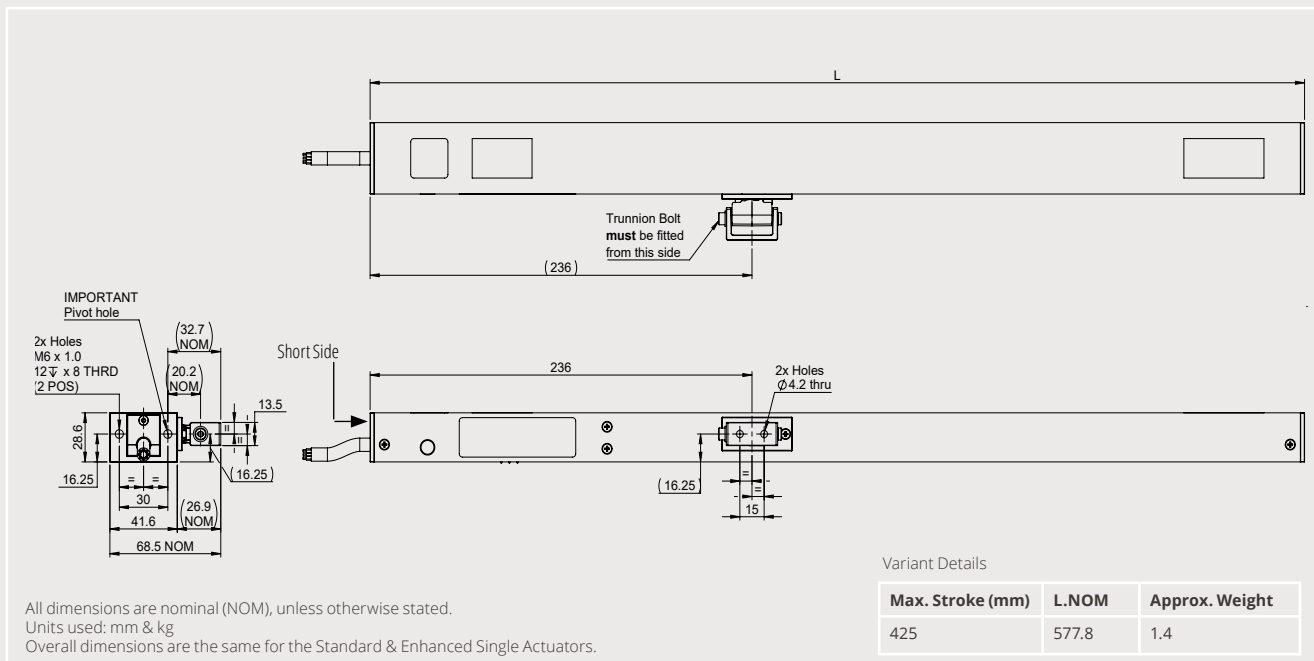
*Images for illustration purposes only

Installation Guide - Window...Cont.

3.4 Pivot Brackets

For the AT12 Standard Chain Actuator, there are several bracket options to choose from, which include [face fix](#) and [sill fix](#). If you require brackets for specific application needs, please get in touch with the SE Controls team at: info@secontrols.com

4. Technical Drawing



5. Connectivity and Wiring

5.1 AT12 - Standard Actuator Connectivity

Through Connection End

Suitable connections for the following Actuators

Standard AT1X

Control Connections

Any (PWR / Modbus / 0-10V)

Enhanced AT1X

Control Connections

Downstream connections only**

MPL Connection

Allowed*

MPL Connection

Allowed



Control End

Suitable connections for the following Actuators

Standard AT1X

Control Connection

Any (PWR / Modbus / 0-10V)

Enhanced AT1X

Control Connection

Any (PWR / Modbus / 0-10V)

MPL Connection

Not permitted

MPL Connection

Not permitted



*MPLs can only be used as long as there is 1x Enhanced AT1X in the control system
** Enhanced controls groups via Modbus



To assist in installation and maintenance a cable removal tool is supplied as part of the general fittings kit.



5. Connectivity and Wiring

5.2 AT12 - Wiring

Permanent 24 V dc + Mode

	Modbus	Modbus + VFC	0-10 V	0-10 V + VFC
Blue	0 V	0 V	0 V	0 V
Brown	24 V	24 V	24 V	24 V
Green	RS485 A	RS485 A	RS485 A	0-10 V
Purple	RS485 B	RS485 B	RS485 B	0 V (GND)

Default Power Mode Priority

Polarity to open/close the AT1X in default power mode

Open

+24 V to blue / 0 V to brown

Close

+24 V to brown / 0 V to blue



Creating a healthier & safer environment

Lancaster House
Wellington Crescent
Fradley Park, Lichfield
Staffordshire WS13 8RZ

+44 (0)1543 443060
sales@secontrols.com
www.secontrols.com



Name & registered office: Loanguard Limited, Lancaster House, Wellington Crescent, Fradley Park, Lichfield, Staffordshire WS13 8RZ Company No.01468061 Vat No.377 5600 30 - SE Controls is a Registered Trademark