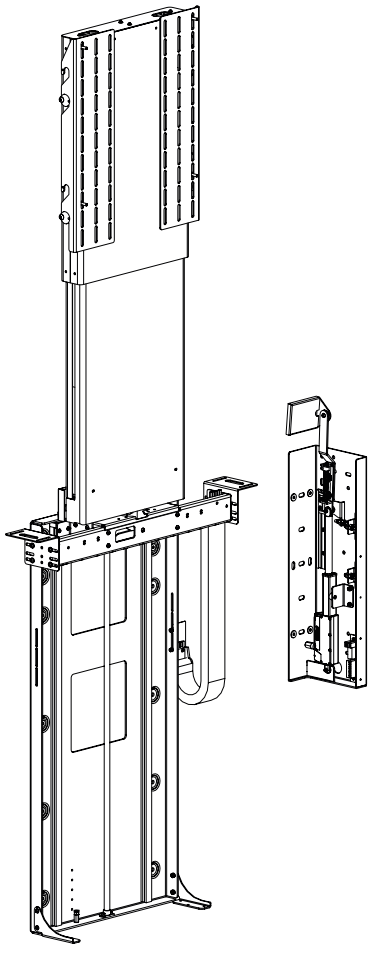
future automation

LSM-TU



INSTALLATION
INSTRUCTIONS

ISSUE **002**

SAFETY
DISCLAIMER

IMPORTANT SAFETY INSTRUCTIONS BELOW

WARNING: Failure to provide adequate structural strengthening, prior to installation can result in serious personal injury or damage to the equipment. It is the installer's responsibility to ensure the structure to which the component is affixed can support four times the weight of the component and any additional apparatus mounted to the component.

WARNING: Do not exceed the weight capacity for this product as listed below. This can result in serious personal injury or damage to the equipment. It is the installer's responsibility to ensure that the total combined weight of all attached components does not exceed that of the maximum figure stated.

WARNING: Risk of death or serious injury may occur when children climb on audio and/or video equipment or furniture. A remote control or toys placed on the furnishing may encourage a child to climb on the furnishing and as a result the furnishing may tip over on to the child.

WARNING: Risk of death or serious injury may occur. Relocating audio and/or video equipment to furniture not specifically designed to support audio and/or video equipment may result in death or serious injury due to the furnishing collapsing or over turning onto a child or adult.

WARNING – RISK OF INJURY!

Only for use with equipment weighing **66LBS (30KG) OR LESS**.

Use with heavier projectors/equipment may lead to instability causing tip over or failure resulting in death or serious injury.

Bracket Suitable for Residential and Commercial Use.

ADDITIONAL WARNINGS:

1. Keep all documentation/instructions after fitting.
2. Read all technical instructions fully before installation and use. It is the installer's responsibility to ensure that all documentation is passed on to the end user and read fully before operation.
3. Do not use near water or outdoors unless the product has been specifically designed to do so.
4. Protect any cables or cords being used near this bracket from being walked on or pinched to prevent damage and risk of injury.
5. Use this product only for its intended purpose as described in the product instructions and only use attachments/ accessories specified by the manufacturer.
6. Do not operate the product if it is damaged in any way, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped. Contact the original installer/manufacturer to arrange repair or return.

WARNING - To reduce the risk of burns, fire, electric shock, or injury to persons:

1. Clean only with a dry cloth and always unplug any electrical items being used in conjunction with this product before cleaning.

Future Sound & Vision trading as Future Automation intend to make this and all documentation as accurate as possible. However, Future Automation makes no claim that the information contained herein covers all details, conditions or variations, nor does it provide for every possible contingency in connection with the installation or use of this product. The information contained in this document is subject to change without prior notice or obligation of any kind. Future Automation makes no representation of warranty, expressed or implied, regarding the information contained herein. Future Automation assumes no responsibility for accuracy, completeness or sufficiency of the information contained in this document.

PRODUCT WARRANTY
& RISK ASSESSMENT

WARRANTY INFORMATION

WARNING - The warranty offered for this product shall be annulled if the product is used improperly or in a way that is in breach of our Terms of Service.

Future Automation provides warranty for the mechanism you purchased for the period of **24 months** from the date of purchase, provided that it isn't used for unintended purposes.

Under the warranty, Future Automation aims to either solve the issue remotely (via telephone or email support) or if the mechanism requires a part, arrange a visit to your premises by a Future Automation approved engineer or send replacement items where appropriate.

Warranty repairs will be carried out as quickly as possible, but subject to parts availability. This warranty period is respectively extended for the period of a repair.

A malfunctioning product must be cleaned and placed into suitable packaging to protect against transit damage before organising delivery to a repair workshop.

All the complaints about defects must be submitted to the vendor/installer that sold this product, rather than directly to the manufacturer.

Any part of your system that needs to be replaced during a warranty repair becomes the property of Future Automation.

The warranty does not cover the following:

- Damages resulting from improper product use or maintenance.
- Repairs carried out by unauthorized persons.
- Natural wear and tear during operation.
- Damages caused by the buyer.
- Accidental damages caused by a customer or damages caused as a result of careless attitude or usage, or damages caused by natural disasters (natural phenomena).
- Any electrical, or other environmental work external to your Future Automation mechanism including power cuts, surges etc.
- Additional items not supplied by Future Automation although they may have been supplied together by the retailer
- Any 3rd party software products controlling your mechanism
- Any transfer of ownership. Warranty is provided only to the initial purchaser.
- Compensation for loss of use of the product, and consequential loss of any kind.

A separate Safety and Servicing Information document is provided with these instructions (additional copies can be found at www.futureautomation.co.uk/safety), and this document **MUST** be filled out by the approved Future Automation Dealer who is installing the product. This Warranty Sheet must be held by the end user for the duration of the products life and will be referred to during servicing or warranty queries.

The Safety and Servicing Information document also contains two Service History Forms that must be filled in by the approved Future Automation dealer who is performing the first required yearly service of this product.

One copy of the Service History Form must be held by the customer (along with the Warranty Sheet) and a duplicate copy must be held by the approved Future Automation dealer that performed the service. Missing and/or mismatching documents may delay or invalidate warranty claims.

Additional Service History Forms can be found on the Future Automation website for further yearly services.

RISK ASSESSMENT INFORMATION

It is the installer's responsibility to perform a risk assessment of installed products. Future Automation can provide guidelines to installers/dealer about what should be included in a risk assessment, but due to the individual nuances of each location/site, Future Automation cannot provide a full list of areas to risk assess.

For full risk assessment and safety information please view our Safety and Servicing guide available at www.futureautomation.net/safety

GUIDE
CONTENTS

PACKAGE
CONTENTS

1 - LSM-TU-HF

- 1.1 - BACK PLATE
- 1.2 - BASE PANEL BRACKETS
- 1.3 - SCREEN MOUNTS
- 1.4 - CABLE MANAGEMENT
- 1.5 - HEAVY FLAP ACTUATOR

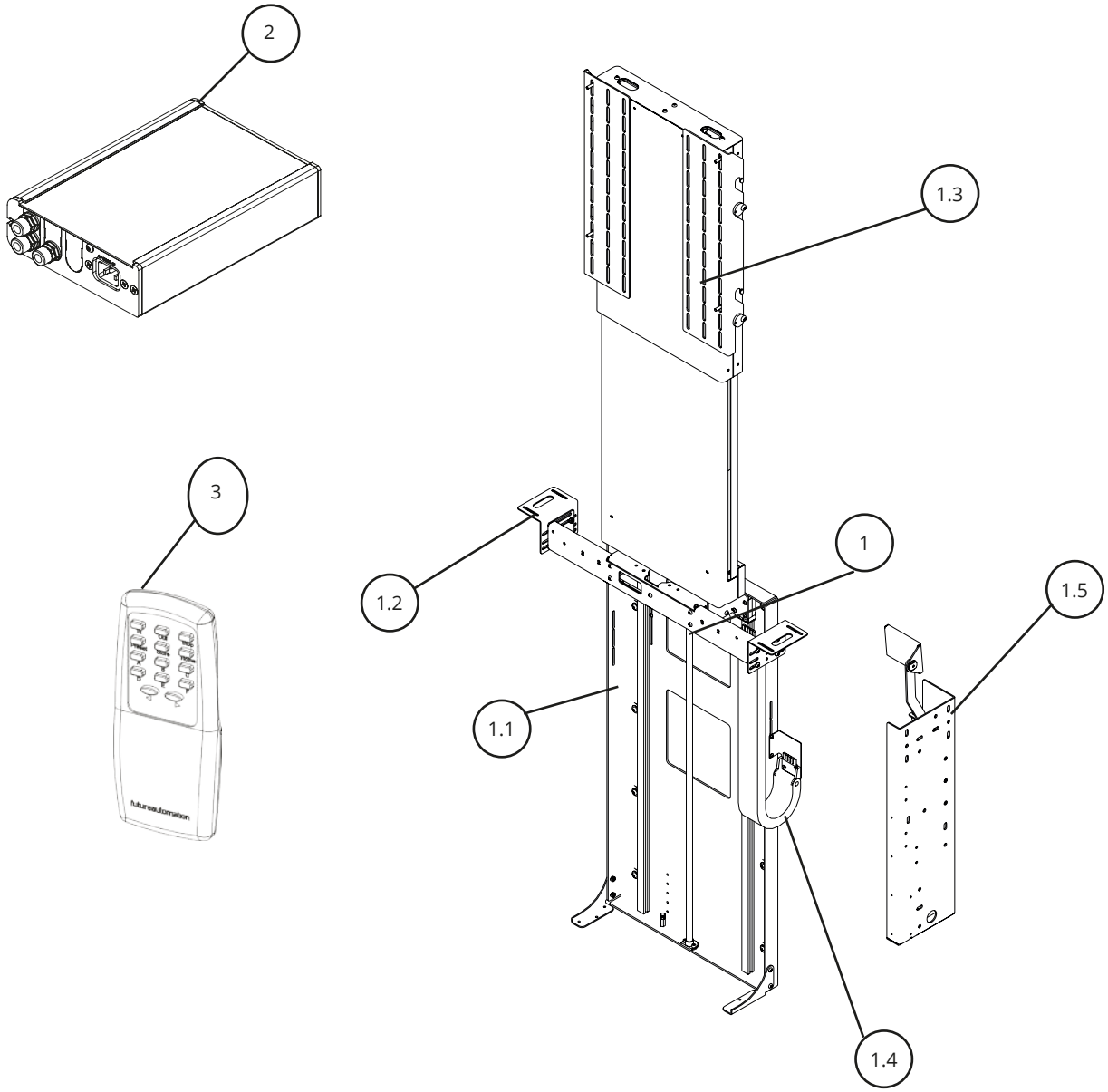
2 - CONTROL BOX

3 - IR REMOTE

ITEMS NOT SHOWN ON PAGE

AL965 ACCESSORY PACK:

- X2 AAA BATTERIES
- MULTI-PACK OF NUTS, BOLTS AND WASHERS
- MAINS POWER, IR AND CONTACT CLOSURE LEADS



MECHANISM
QUICK-START GUIDE

Some Future Automation mechanisms may ship with the control box disconnected to prevent damage during transit. In order to operate the mechanism, the control box will need to reconnected, then have mains power applied along with the desired control method.

RECONNECTING THE CONTROL BOX

To reconnect the mechanism control box, follow the below steps:

1. Make sure the power is disconnected from the control box.
2. Remove the retaining screw and washer from the end of the control box to allow removal of the control box lid. (Image 1 Below).
3. Slide off the control box lid to reveal the control board inside.
4. Locate the green connector on the end of the loom leading from the lift mechanism. This plug will have a small tag attached stating the correct connecting socket on the control board (e.g. “AC1”, “DC2”...) (Image 2 Below).
5. Plug the green connector into the corresponding socket on the control board. This plug is handed and will only connect correctly one way. Do NOT force the connector into the socket, this can cause serious damage to the control board and mechanism.
6. Route the wiring loom out of the end of the control box by inserting the black plastic inserts into the slots provided. (Image 3 Below).
7. Slide the control box cover back over the control board and replace the fixing screw and washer.

Image 1.

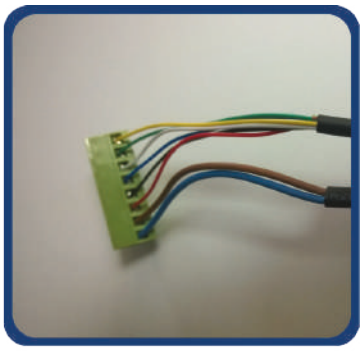


Image 2.

Image 3.

Image 4.

IMPORTANT

For the mechanism to operate, the green three way safety connector with the loop of wire attached, must also be plugged into the end of the control box. (Image 4 above). If this connector is not plugged in, a bright red LED will be visible inside control board and the Input Confirmation Input LED will be permanently illuminated.

CABINET
MOUNTING

1

- Unpack and check the mechanism fully for any damage or obvious visual faults before operation.
- Remove all red cable ties on the mechanism before operation.

2

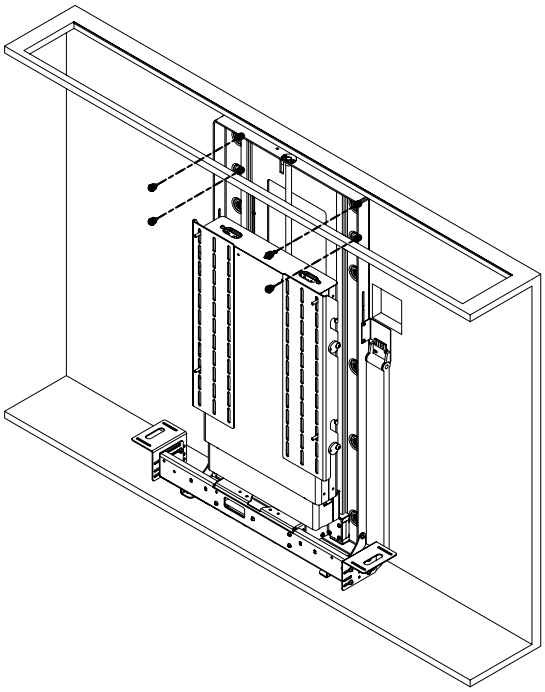
- Test the mechanism by running it fully up and down once (refer to the mechanism control section of the instructions for more details).

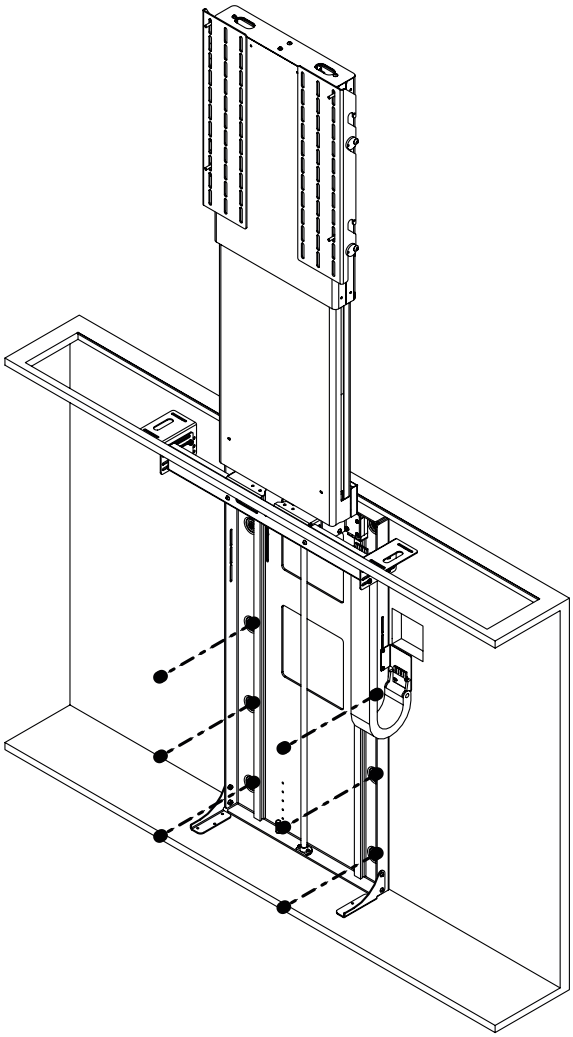
  NOTE: The heavy flap actuator will need to be plugged in to the control board for the lift to operate.

3

- Double check the cabinet measurements against the technical sheet.
- Lower the mechanism to its full in position, then place the LSM mechanism into the cabinet. Once it is central fix in place through the rear fixing holes indicated below (fixings not supplied).

- Fix through the top first, then send the mechanism out of the aperture and fix through the bottom.

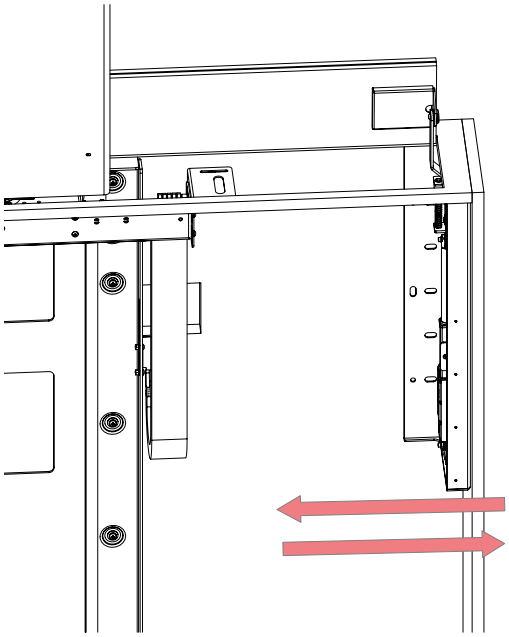




HF
MOUNTING

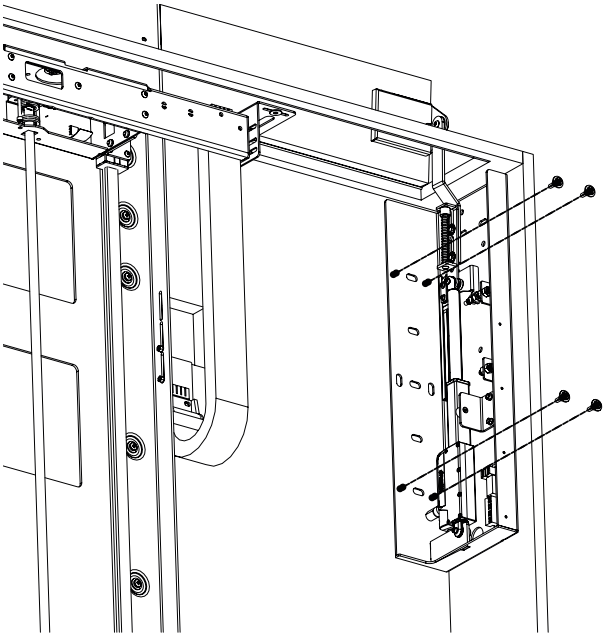
1

- Butt the back face of the HF against the back of the cabinet.
- Put the mechanism in the OUT position and make sure the HF arm does not clash with the side of the cabinet.



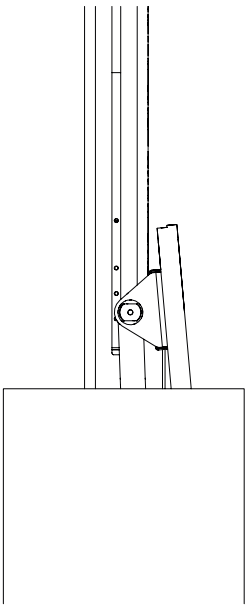
2

- Space the top of the HF 5mm from the underside of the cabinet.
- Once happy with the position fix through the HF into the cabinet.



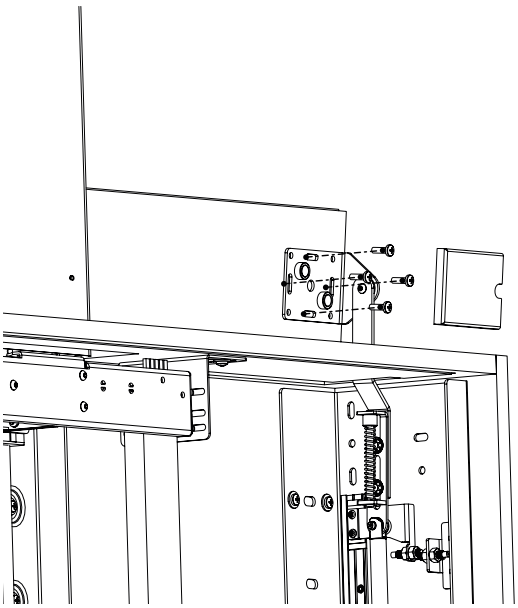
3

- With the mechanism still in the out position, make sure the HF can open the lid panel wide enough for the mechanism to clear it.



4

- Remove the magnetic cover panel, fix through the HF into the lid and replace the cover panel.



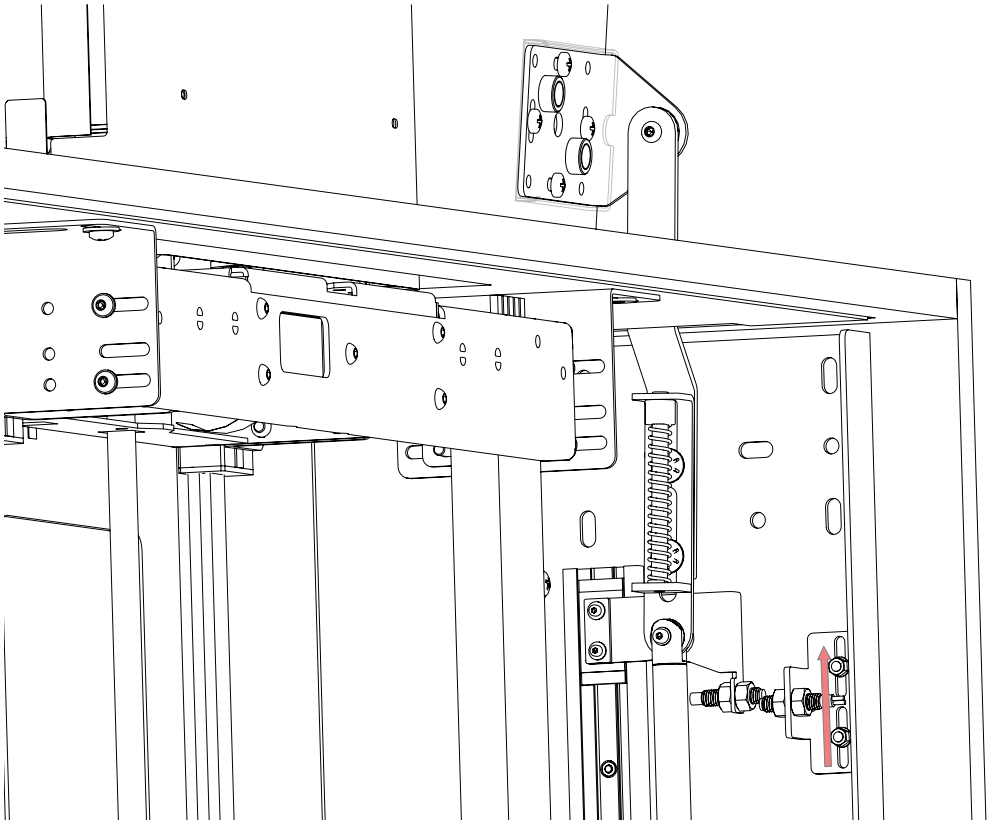
INITIAL
MECHANISM TESTING

1

It is important to ensure the LSM unit and the flap actuator are set up properly to avoid any crashes in the cabinet.

- Press the out button whilst covering the stop button and make sure that the flap opens wide enough that the telescope unit wont make contact as it comes out through the aperture. There is a short pause between the opening of the flap and the movement of the lift mechanism programmed into the software.

- If the flap has not opened wide enough the 'OUT' position of the flap can be increased by loosening the nuts on the out switch and raising it as shown below. An approximate open angle of 90º is recommended.



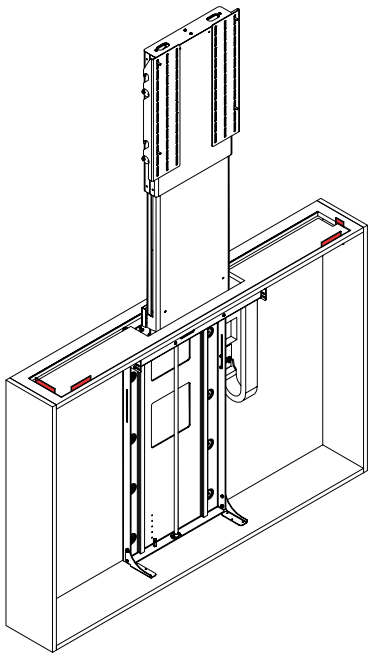
2

- Adjusting the in switch of the HF works in the same way. There is a spring fitted to the HF mechanism to allow the flap to close and the arm to over-run slightly.
- There is some margin built into the in switch position but it should compress the spring as little as possible whilst reliably shutting each time.

BASE PANEL
MOUNTING

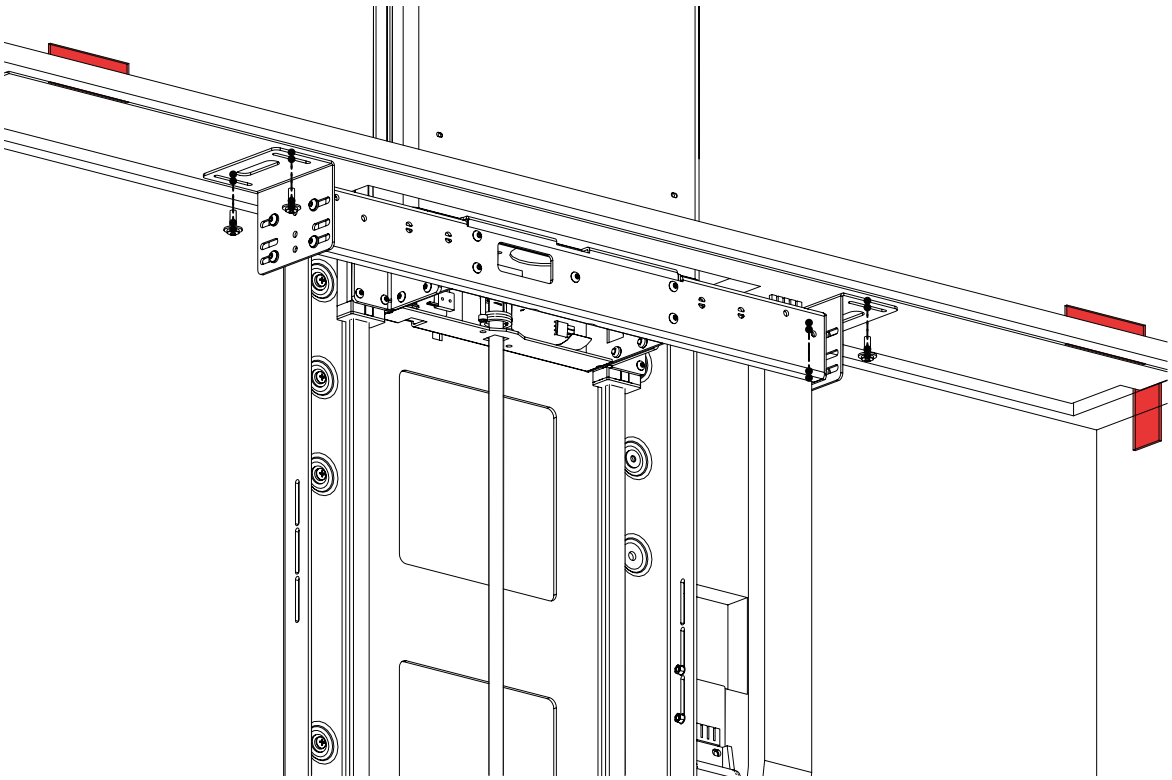
1

- Space the base panel with packers to ensure an even aperture.
- Check the fitment around the HF.



2

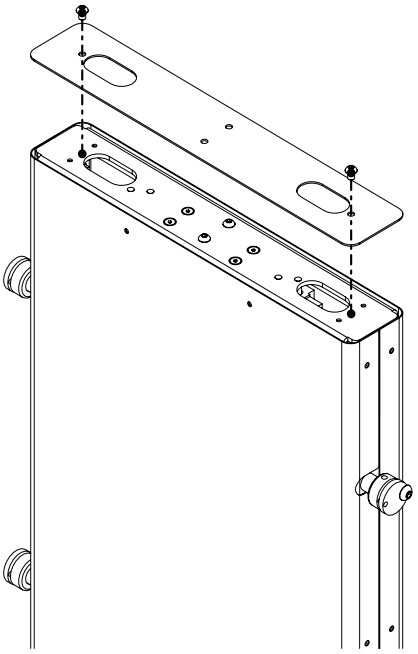
- With the packers still in place, fix the panel to the brackets.

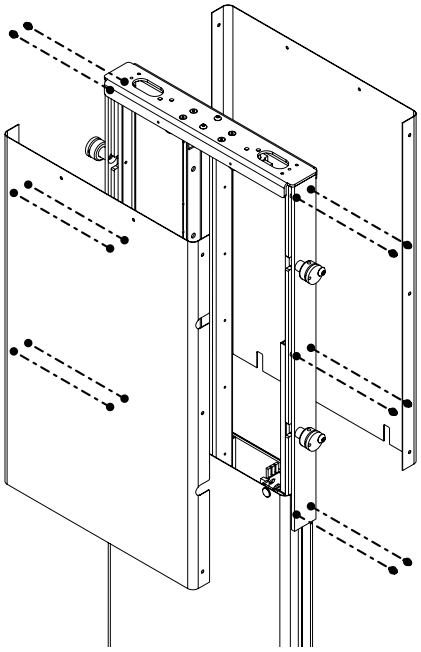


CABLE
MANAGEMENT

1

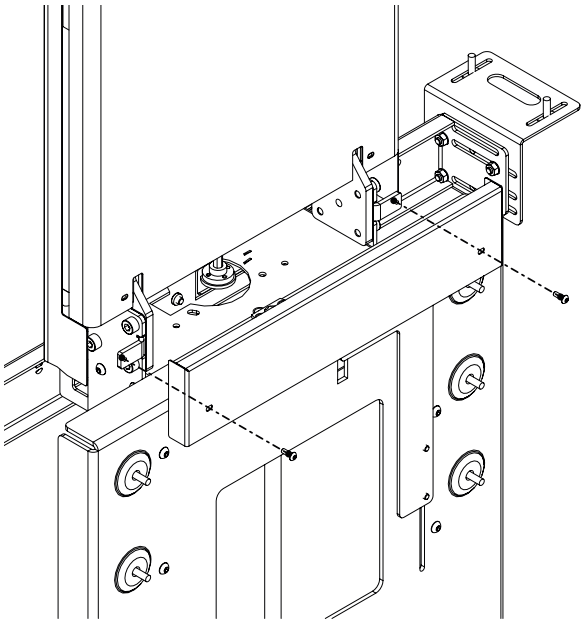
- To run the cables through the telescope unit to the screen, first the cover panels must be removed.
- Send the telescope unit all the way out, then remove the top cover panel followed by the two upper cover panels.

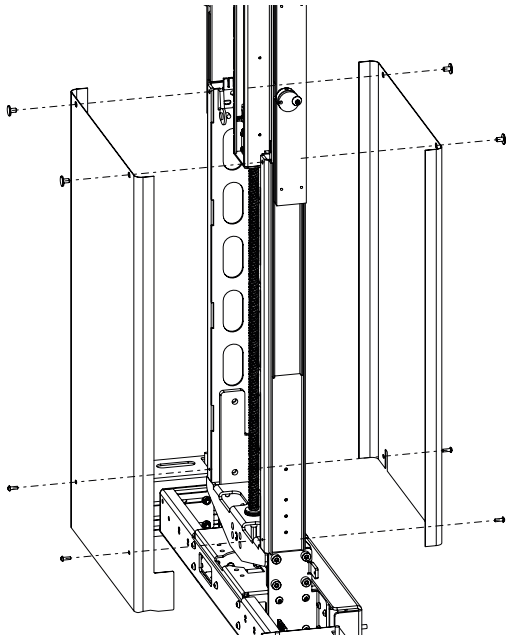




2

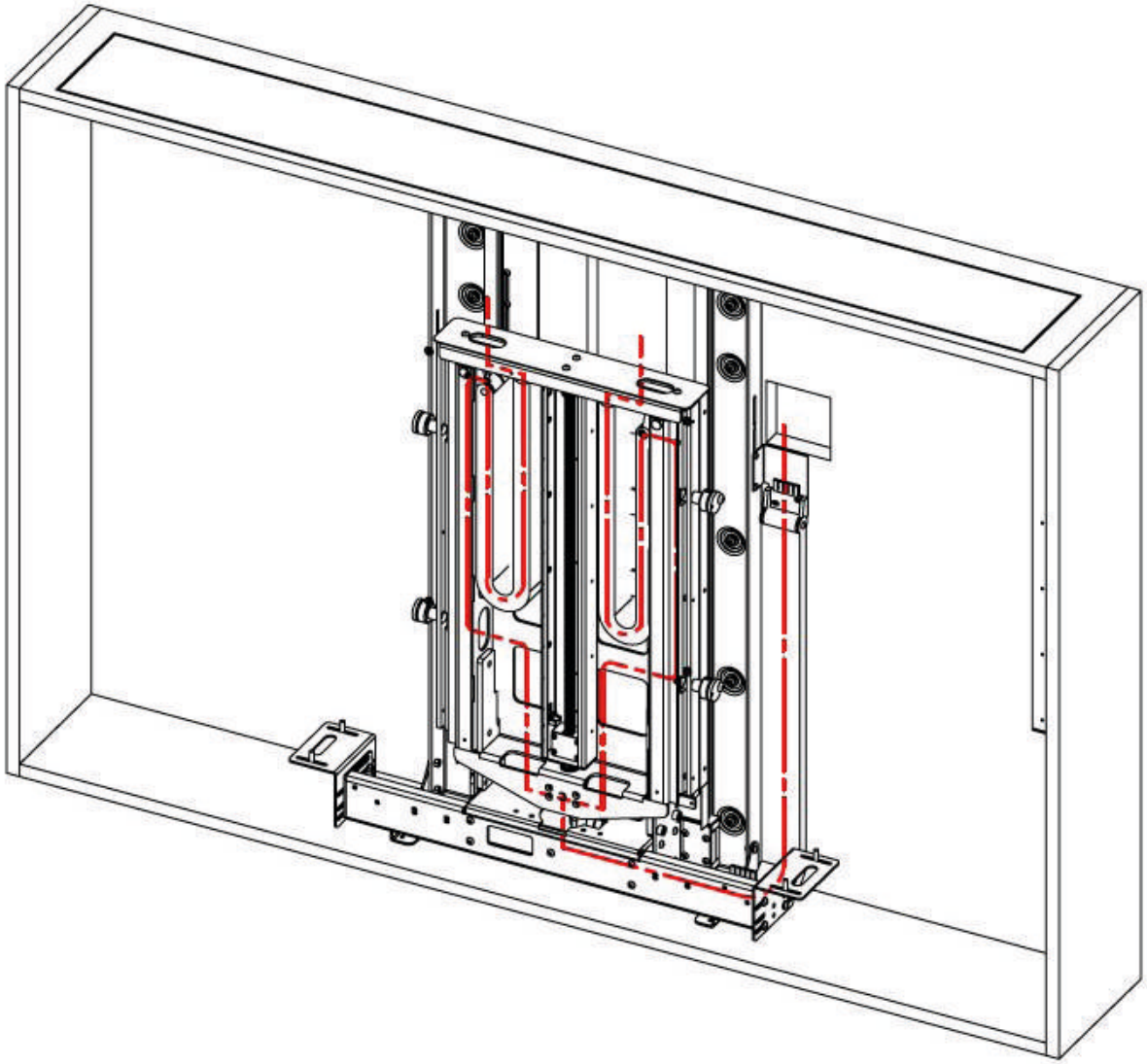
- Remove the lower motor cover panel at the base of the telescope unit.
- There are two plastic plugs at the top of the lower cover panels that may require a screwdriver to pop out and two bolts at the bottom.





3

- The cables can then be routed through the LSM out the top of the telescope unit as shown below.

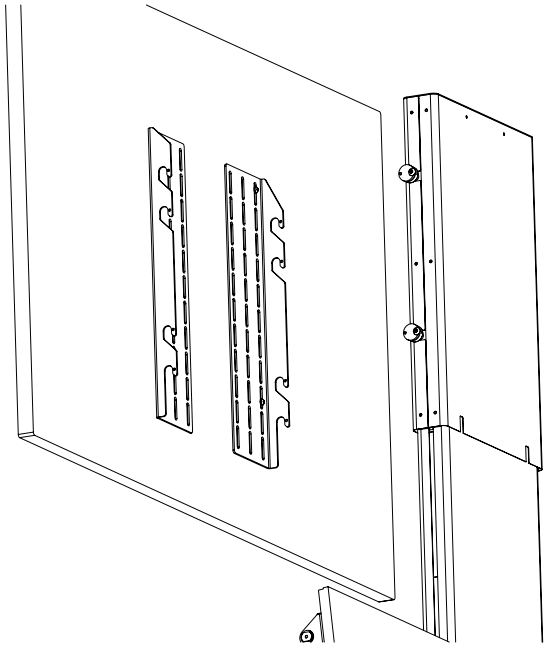


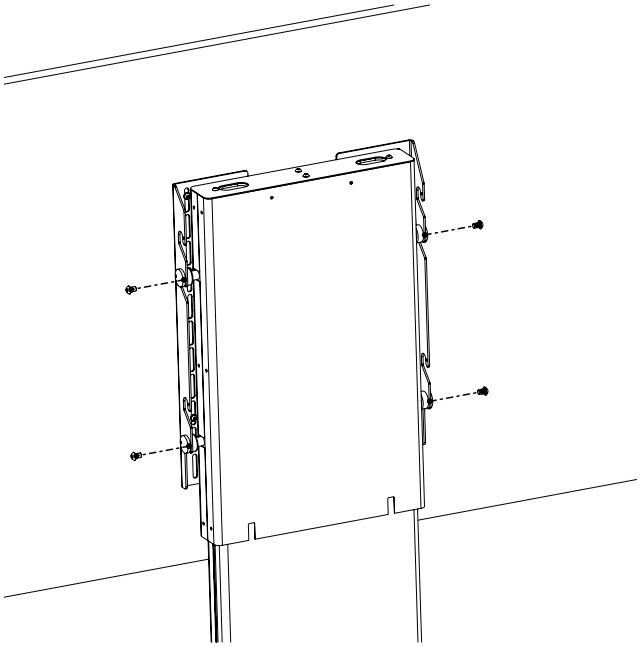
- Screen cables enter the top of the telescopic unit and are fed down through the cable track within. The cables then pass through the LSM beam and into the LSM cable track. Cables must be routed carefully to prevent any interference with the LSM beam as it operates.
- Screen and Mechanism cables should be routed to a control box outside of the cabinet via an opening in the back of the cabinet or a conduit leading to the bottom.

SCREEN
MOUNTING

1

- Bolt through the screen plates into the back of the screen.
- Hook screen onto telescope unit
- Lock the screen plates in place by installing the locking bolts.





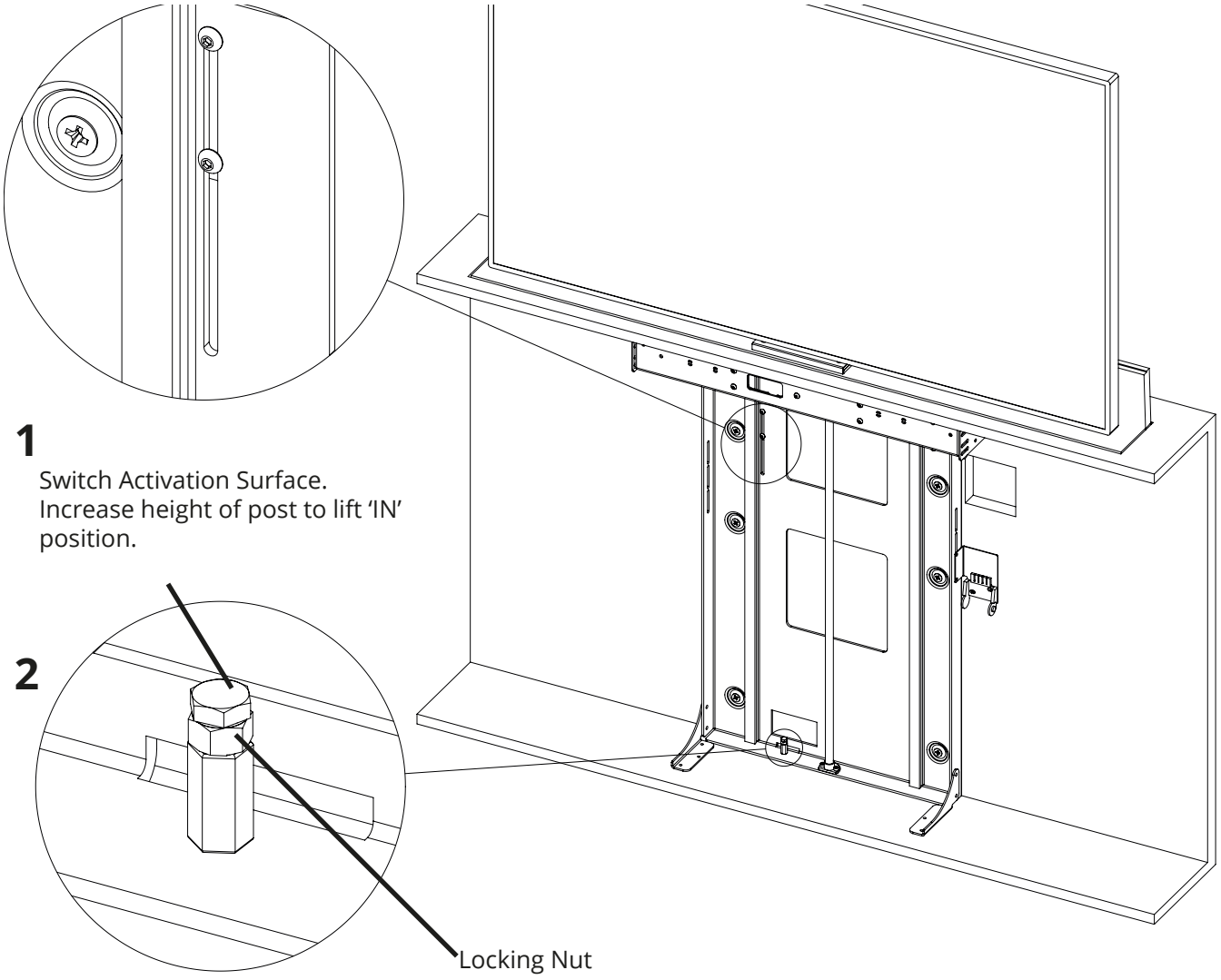
SWITCH
ADJUSTMENTS

1

- The top switch can’t be adjusted when the mechanism is in the OUT position, because the switch is active. Lower the mechanism and press STOP after about 100mm [4”]. Then adjust the OUT switch plate by loosening the bolts and sliding the switch plate up or down.

2

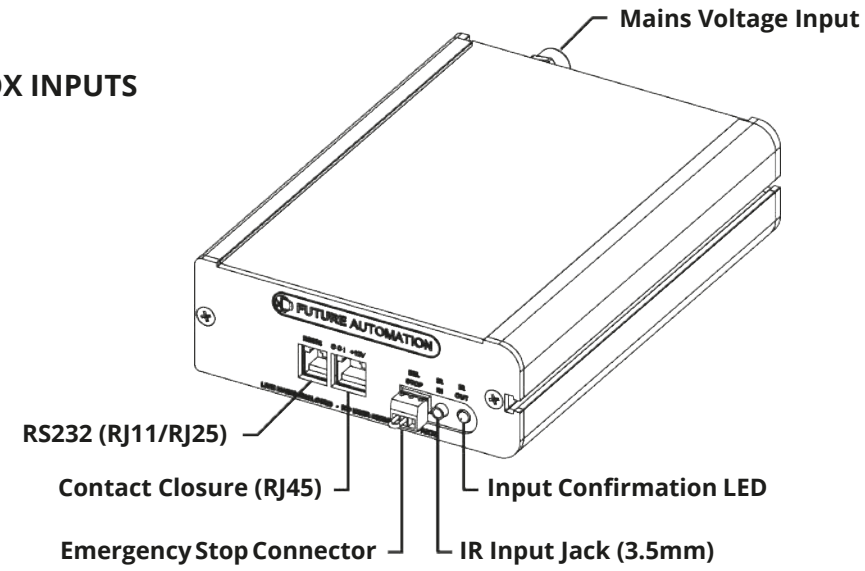
- The bottom switch can’t be adjusted when the mechanism is in the IN position, because the switch is active. Raise the mechanism and press STOP after about 100mm [4”]. The height of the lower post determines the IN position.



GENERAL
CONTROL

This mechanism has multiple standard control methods, each of which requires a different input method to the control box. For ease, the input sockets on the control board are labelled below.
(Control box size and style may vary to image shown)

CONTROL BOX INPUTS

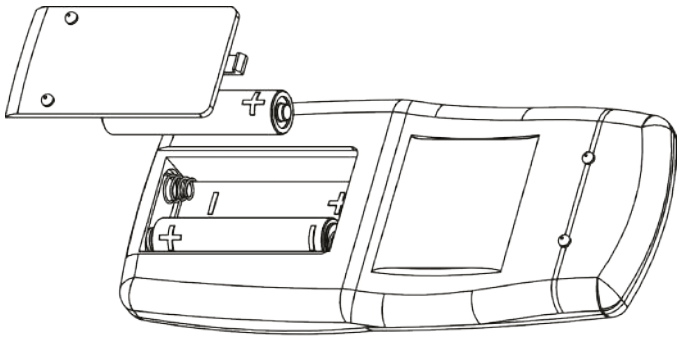


MECHANISM EMERGENCY STOP CONNECTOR

This mechanism features an Emergency Stop Connector, which MUST be plugged into the control box in the connector labelled above for the mechanism to operate. If this connector is not plugged in, the Input Confirmation LED will be permanently lit. As per the red plastic tag attached to the Emergency Stop Connector (and shown below), the small loop of wire in this connector is designed to be replaced by a third party safety mechanism.

REPLACING MECHANISM BATTERIES

The standard Future Automation Infrared (IR) remote control required x2 AAA batteries to operate. These are provided with the mechanism in the Accessories Pack.



INFRARED
(IR)

This mechanism can be controlled via the supplied 14 button Infrared (IR) Remote Control, paired with the supplied Infrared (IR) lead and sensor.

The mechanism's functions can be controlled by plugging the Infrared (IR) lead and sensor into the 3.5mm IR Input Jack shown on the General Mechanism Control page.

Confirmation of Infrared (IR) input will be shown by a single flash of the large green LED located on the end of the control box.

As Infrared (IR) control works over line of site, the Infrared (IR) sensor must be directly viewable from what ever location the remote control is being used from.

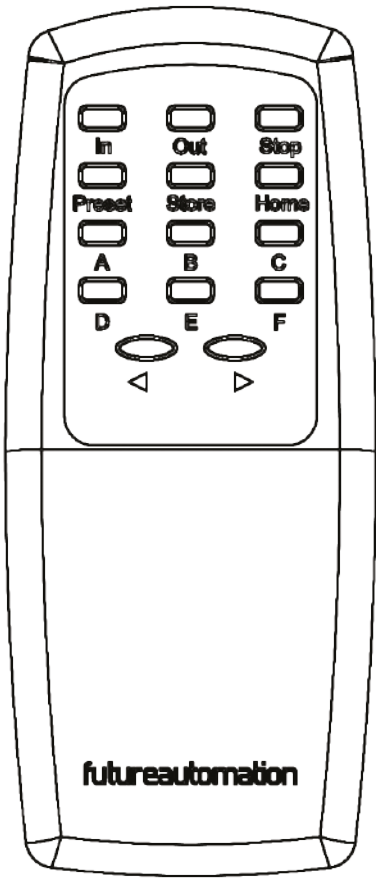
Infrared (IR) Remote Control Button Layout

IN - Brings the mechanism into the cabinet.

OUT - Brings the mechanism out of the cabinet.

STOP - Will stop the operation of the mechanism at ANY position.

STORE - Can be used to programme commands



A - Can be used to set an intermediate travel position

B - Can be used to set an intermediate travel position

C - Can be used to set an intermediate travel position

PRESET - Can be used to programme commands

IMPORTANT

Only buttons indicated above are functional with the product. Any other button press will STOP the mechanism.

CONFIGURING PROGRAMMABLE POSITIONS

Use the FA remote for the whole of the setup procedure, for all commands beginning with [STORE], press each button sequentially with no more than 2 seconds between each press.

In order to store programmable heights you must first enter programming mode. In programming mode the lift then the telescope will move sequentially.

With the mechanism in any position press [STORE] [STORE] [PRESET] to enter programming mode,
the lift will move fully out, followed by the telescope. Once this has happened the [IN] and [OUT] commands will only control the telescope.

To program the Maximum OUT position (max telescope extension) get the telescope to the desired position using [IN] , [OUT] and [STOP]

Then press [STORE] [OUT] to store the current height as the maximum extension.

If you need to clear maximum extension press [STORE] [STOP] [OUT] . IMPORTANT - The telescope shall revert to a maximum extension located at the physical OUT switch.

The MAXIMUM HEIGHT can be verified in programming mode at any time by pressing [OUT]

Program intermediate telescope positions

There are 3 intermediate positions available, accessed by the [A], [B] and [C] commands

Position the telescope at the required intermediate position using [IN] , [OUT] and [STOP]

Press [STORE] [A] to set the current position as position A.

Press [STORE] [B] to set the current position as position B.

Press [STORE] [C] to set the current position as position C.

The programmed position can be verified in programming mode at any time by pressing [A], [B] or [C] respectively

IMPORTANT: To exit programming mode, press [STORE] [STOP] [PRESET]. The telescope and lift shall now return to running together when commanded.

RADIO FREQUENCY
(RF)

If purchased with the Radio Frequency (RF) control option, this mechanism can be controlled via the supplied 4 button Radio Frequency (RF) Remote Control, paired with the in-built Radio Frequency (RF) sensor.

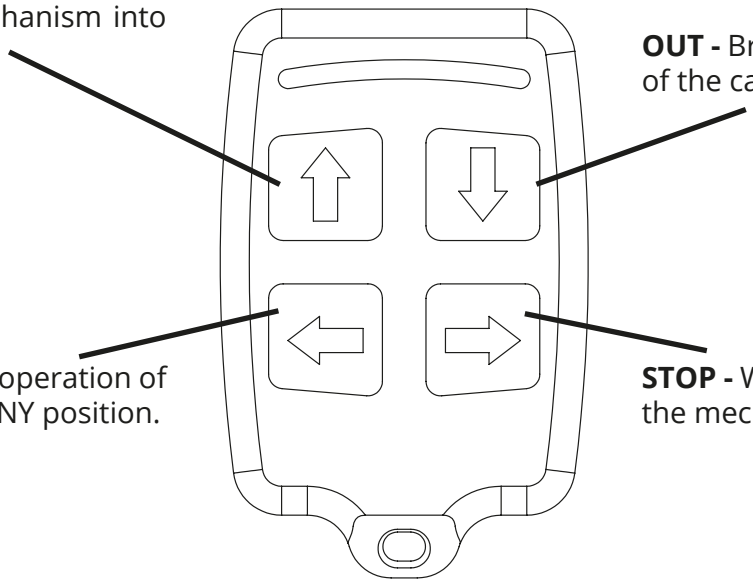
Confirmation of Radio Frequency (RF) input will be shown by a single flash of the large green LED located on the end of the control box.

Radio Frequency (RF) control does not require line of site, but signal can affected cabinet thickness, cabinet material or other electronic signals (i.e. strong WIFI signals).

Radio Frequency (RF) Remote Control Button Layout

IN - Brings the mechanism into the cabinet.

OUT - Brings the mechanism out of the cabinet.



STOP - Will stop the operation of the mechanism at ANY position.

STOP - Will stop the operation of the mechanism at ANY position.

The Radio Frequency (RF) Remote Control can only be used to recall the above functions.

The mechanism limits and preset positions must be programmed using the supplied Infrared (IR) Remote Control.

IMPORTANT

Pressing any button while the mechanism is moving will STOP the mechanism.

IR	RS232	CC Pin (see note below)	Action	Comments
IN	fa_in	Pin 8 or Pin 5 short removed	Mechanism fully in	
OUT	fa_out	Pin 7 or Pin 5 shorted	Raise to full extension	Raises to out switch if no maximum extension is configured
HOME	fa_home		Lift raised with the telescope retracted	
A	fa_a		Lift raised with the telescope at intermediate position A	
B	fa_b		Lift raised with the telescope at intermediate position B	
C	fa_c		Lift raised with the telescope at intermediate position C	
STOP	fa_stop	Pin 6	Stop mechanism	

IR	RS232	CC Pin (see note below)	Action	Comments
STORE STORE PRESET			Enter programming mode	
STORE STOP PRESET			Exit programming mode	
STORE OUT			Set maximum extension	
STORE STOP OUT			Clear maximum extension	
STORE A			Set intermediate extension A	
STORE B			Set intermediate extension B	
STORE C			Set intermediate extension C	

RS232
CONTROL

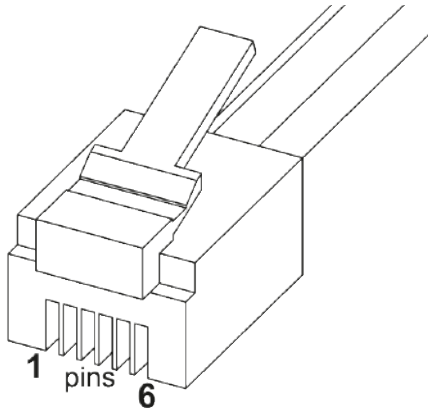
This Mechanism can be controlled via RS232, utilising a 6 Pin RJ11/RJ25 connector OR 9 Pin Serial connector attached to a length of 6 core cable.

The mechanism's functions can be controlled by plugging this into the RJ11/RJ25 port on the mechanism control box, then inputting the RS232 commands shown in the RS232 Input Table below.

Confirmation of Contact Closure input will be shown by a single flash of the large green LED located on the end of the control box.

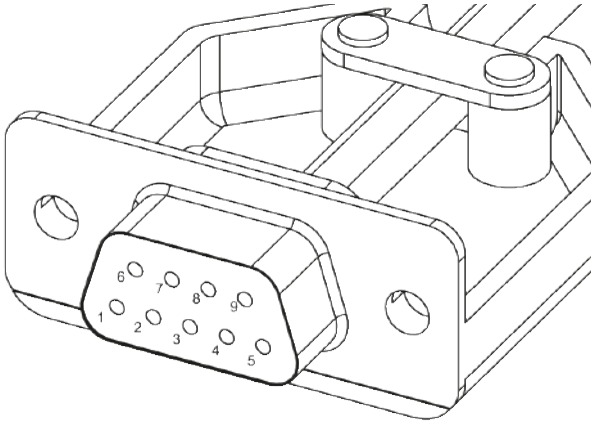
RJ11/RJ25 PIN LAYOUT

PIN 1: TX
PIN 6: RX
PIN 3 & 4: GROUND



SERIAL PIN LAYOUT

PIN 2: RX
PIN 3: TX
PIN 5: GROUND



RS232 PROGRAMMING DETAILS

Baud Rate: 9600

Stop Bit: 1

Parity: None

Databits: 8

RJ11/RJ25	Func.	9 PIN Serial	Colour
PIN 1	TX	PIN 2	Blue
PIN 3	GROUND	PIN 5	Green
PIN 4	GROUND	PIN 5	Red
PIN 6	RX	PIN 3	White

RS232 INPUT TABLE

IMPORTANT - Ensure all protocols are entered exactly as written below, including Carriage Return (ENTER / ASCII 13)

Protocol	Action
fa_in Carriage Return (Enter / ASCII 13)	Device IN
fa_out Carriage Return (Enter / ASCII 13)	Device OUT
fa_stop Carriage Return (Enter / ASCII 13)	Device STOP (At any position)

NOTES:

EUROPEAN OFFICE

Address:
Unit 6-8
Brunel Road
Bedford
Bedfordshire
MK41 9TG

Phone: +44 (0) 1438 833577
Email: info@futureautomation.co.uk

Office Hours:
Mon - Fri 8:00 to 17:30 GMT
Saturday & Sunday - Closed

NORTH AMERICAN OFFICE

Address:
Enterprise Park
127 Venture Drive
Dover
NH
03820

Phone: +1 (603) 742 9181
Email: info@futureautomation.net

Office Hours:
Mon - Fri 7:00 to 17:00 EST
Saturday & Sunday - Closed