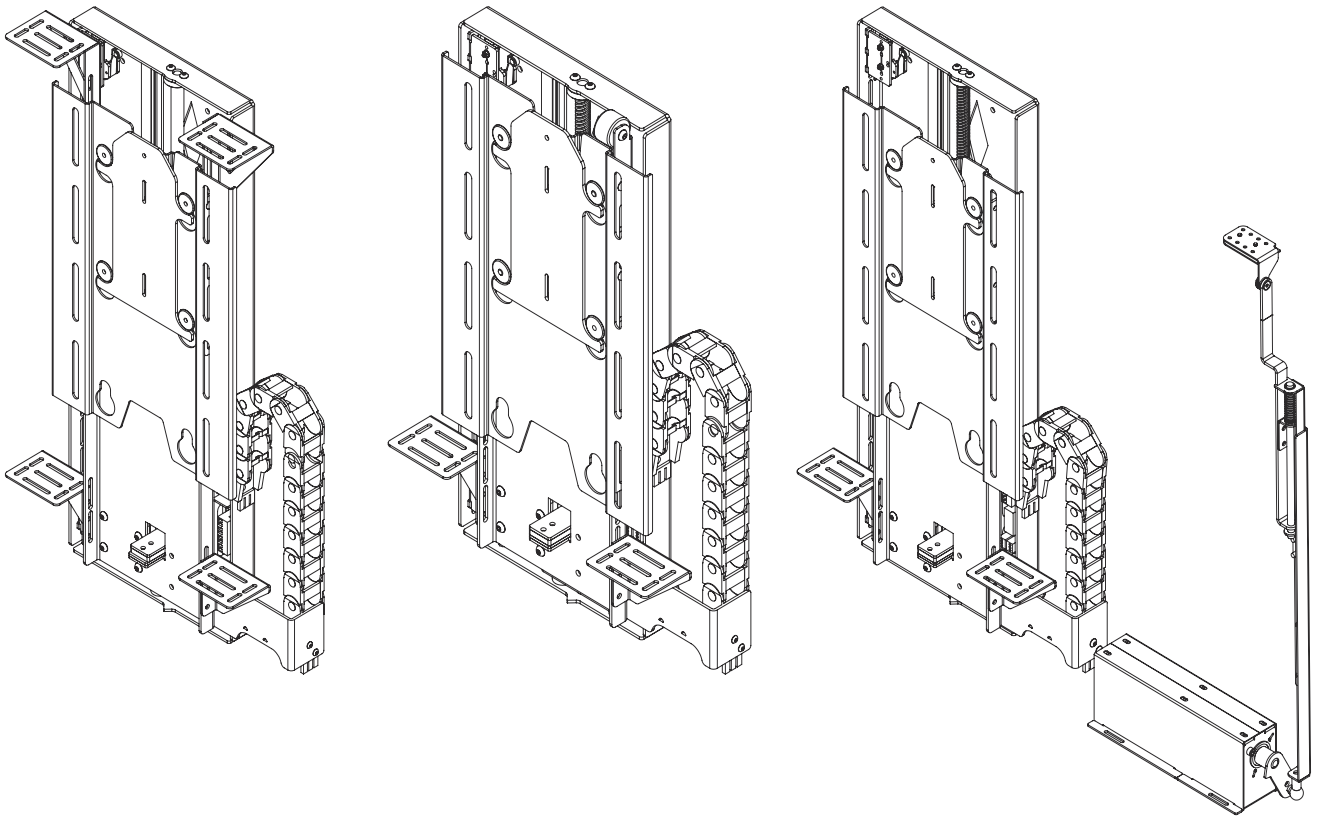
future automation

LSL

LSL-BE / LSL-PF / LSL-EFA
TV LIFT 29” - 40”



INSTALLATION
INSTRUCTIONS

ISSUE **003**

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 **55LBS (25KG) 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

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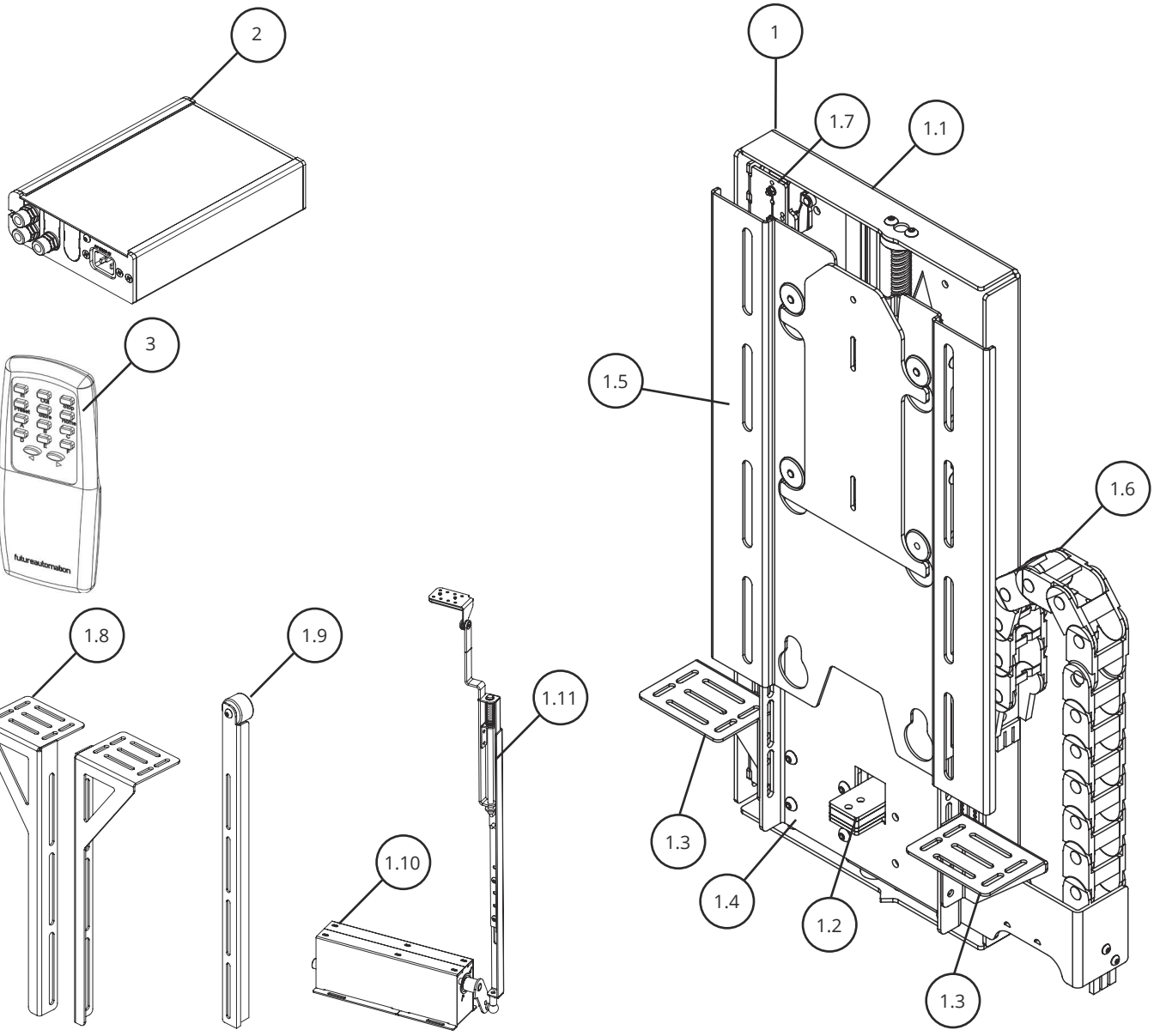
RS232 CONTROL 24

PACKAGE
CONTENTS

1 - LSL-BE / LSL-PF / LSL-EFA
- 1.1 - BACK PLATE
- 1.2 - LIFTING DRIVE
- 1.3 - BASE PANEL BRACKETS
- 1.4 - KH LIFTING PLATE
- 1.5 - SCREEN MOUNT
- 1.6 - CABLE MANAGEMENT
- 1.7 - ADJUSTABLE IN/OUT SWITCH
- 1.8 - LID MOUNT BRACKETS **(LSL-BE ONLY)**
- 1.9 - PUSH FLAP ROLLER **(LSL-PF ONLY)**
- 1.10 - EFA DRIVE UNIT **(LSL-EFA ONLY)**
- 1.11 - EFA PUSH ROD ADJUSTMENT **(LSL-EFA ONLY)**

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.

INITIAL
OPERATION

1

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

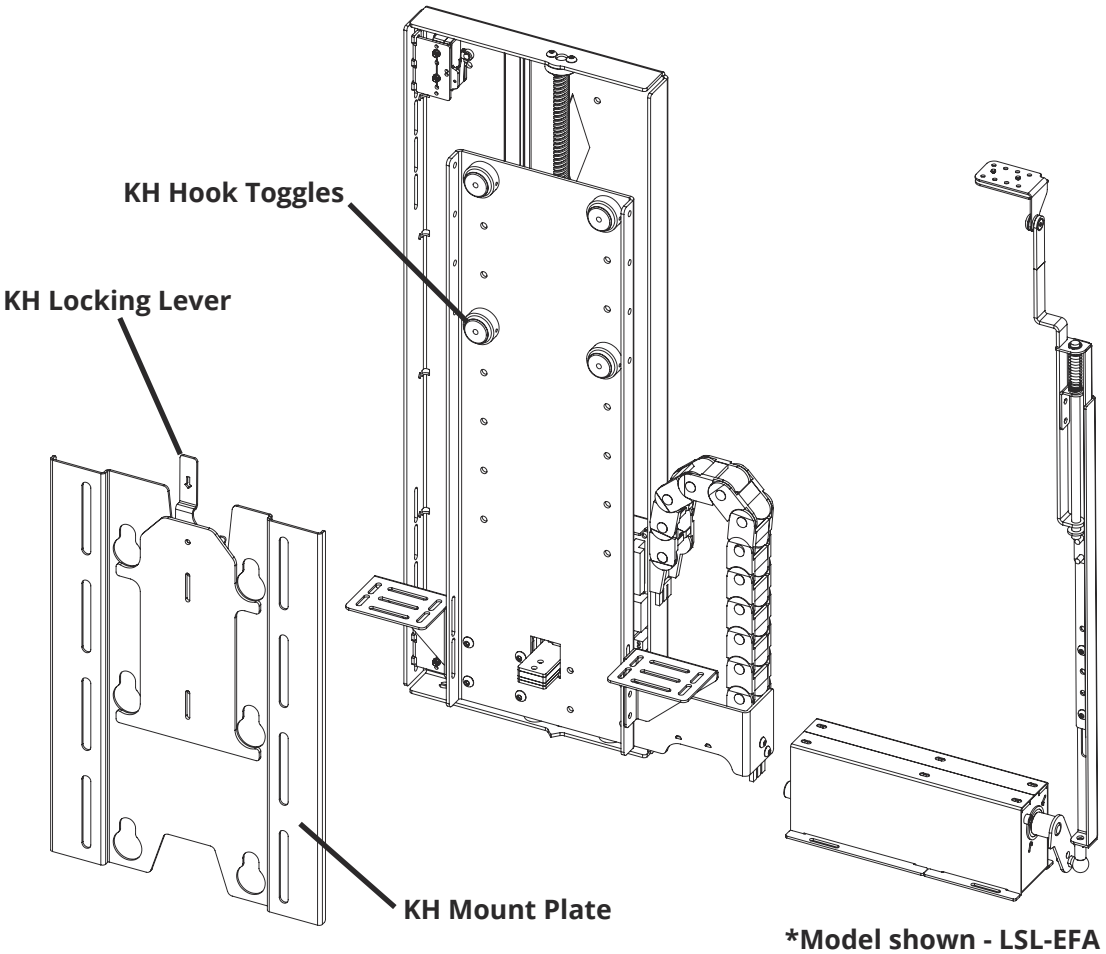
2

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

  NOTE: For LSL-EFA model lifts, the EFA unit will need to be plugged in to the control board for the lift to operate.

3

- Unlock and remove the KH mount plate by turning the locking lever 90° and lifting the KH mount up and off the lift.



***Model shown - LSL-EFA**

CABINET
MOUNTING

1

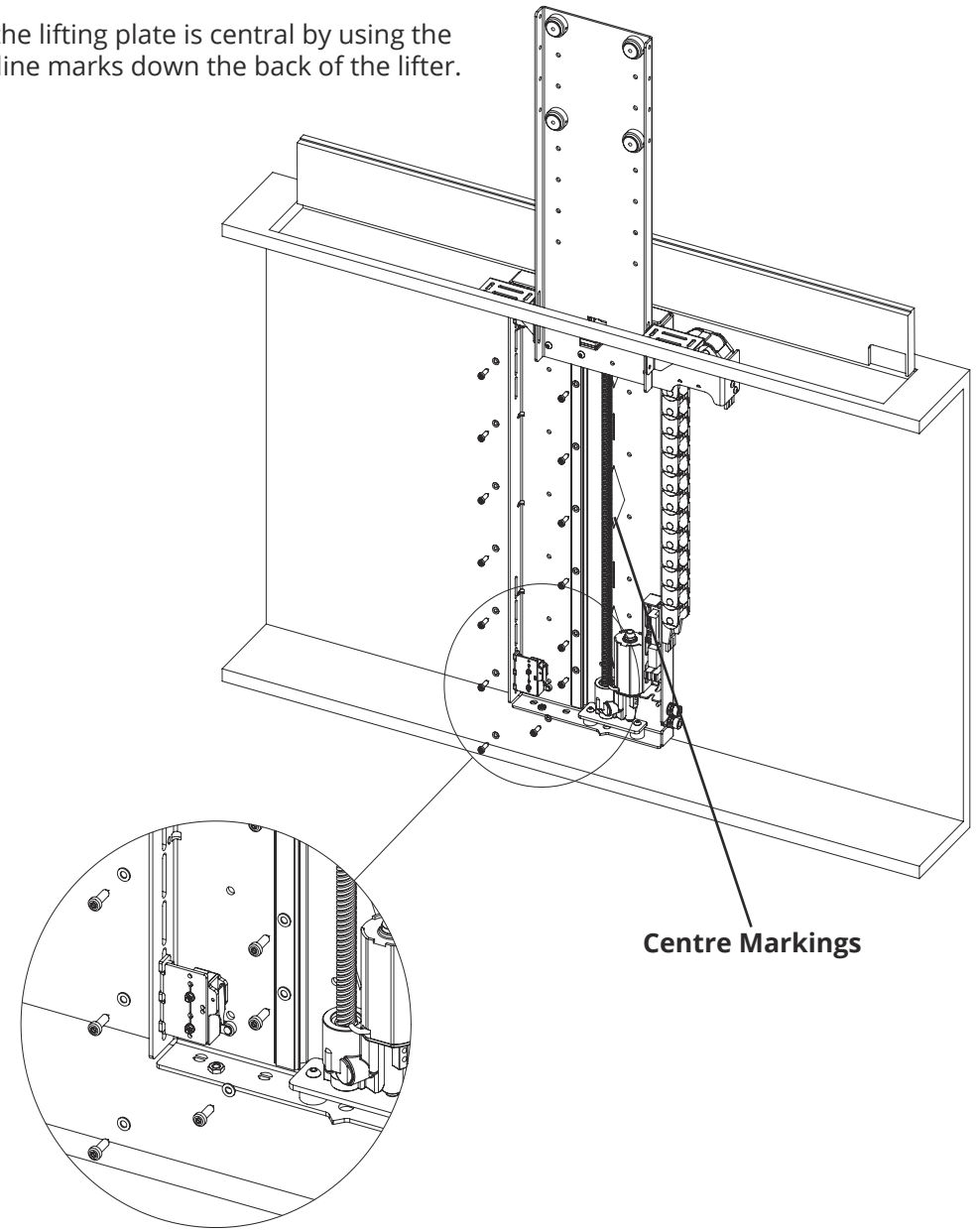
- Double check the cabinet measurement against the latest correct LSL model and size technical sheet.

2

- Raise the mechanism to its full OUT position, then place the LSL mechanism into the cabinet and fix in place through the rear fixing holes indicated below (fixings not supplied).

3

- Check the lifting plate is central by using the center line marks down the back of the lifter.

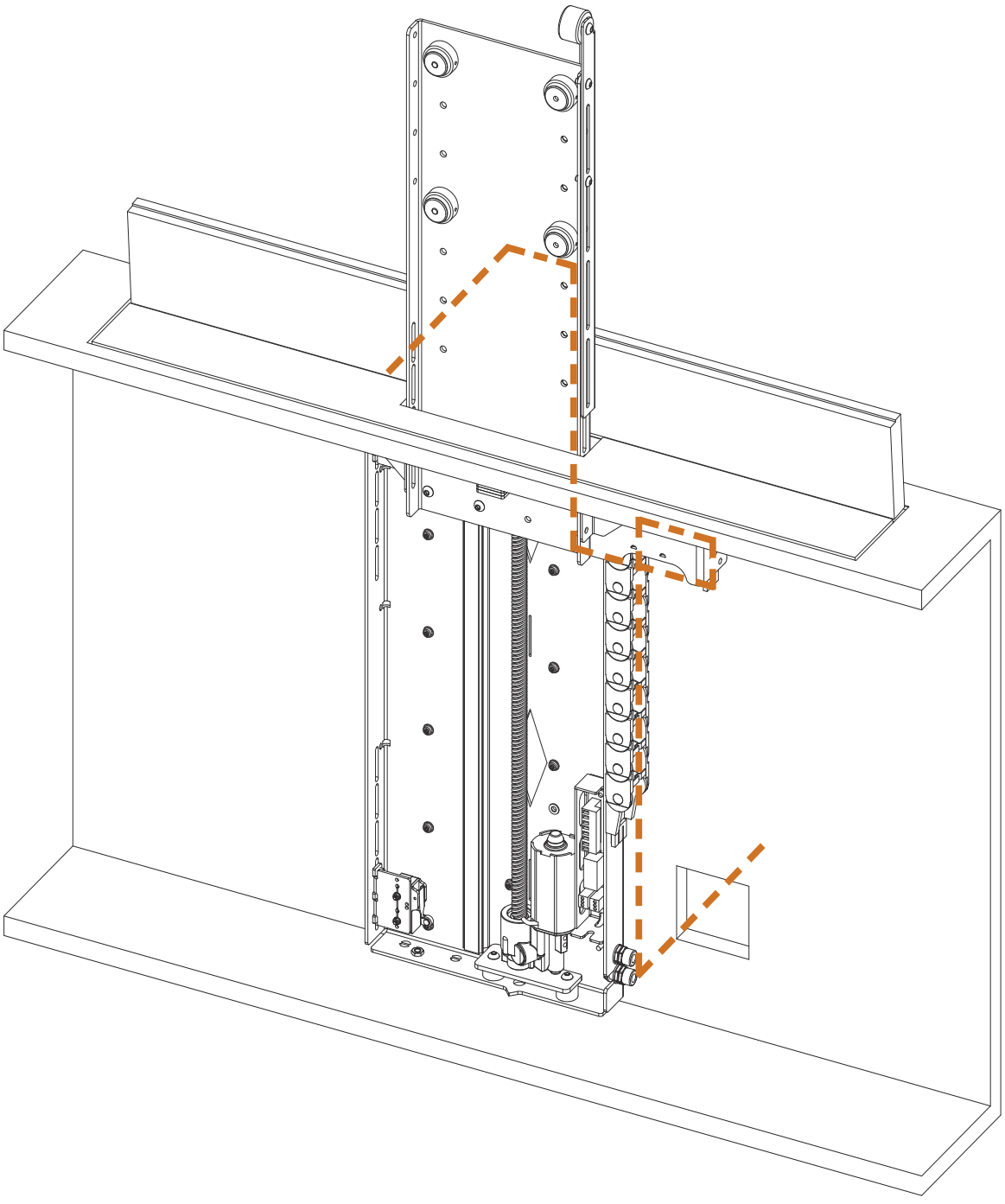


CABLE
ROUTING

1

- Run power and source cables through the cable management chain and then through the lifting beam, following the route shown by the dotted line below.

- The cable route is the same for the LSL-BE, LSL-PF and LSL-EFA.



***Model shown - LSL-PF**

LID BRACKET
FIXING (LSL-BE ONLY)

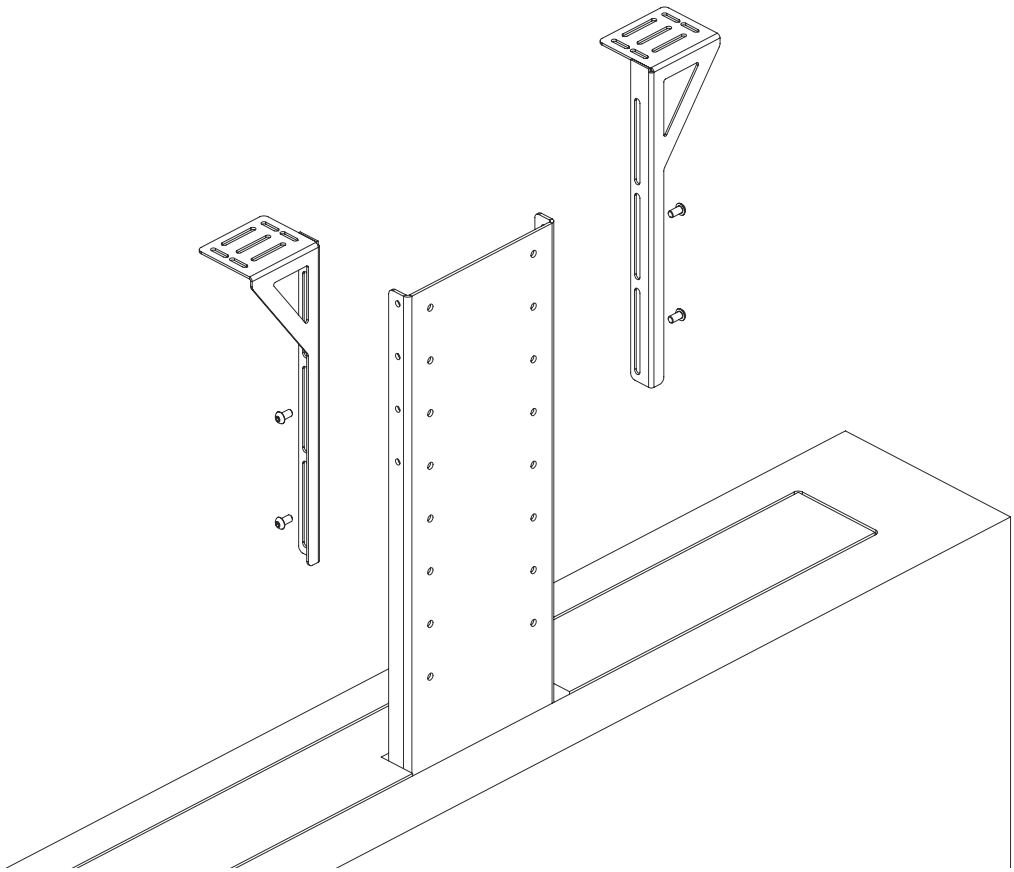
This section relates to LSL-BE series lifters only.
For LSL-PF Lifters go to page 13, for LSL-EFA Lifters go to page 16.

1

- The LSL-BE Lid Mount Brackets fix to the sides of the KH Lifting Plate using the provided fixings.

2

- The height of the Lid Mount Brackets can be adjust by loosening the 2 fixing bolts per bracket and sliding the brackets up or down. Tighten the 2 fixing bolts to secure the brackets in place.



BOX ENCLOSURE

FIXING (LSL-BE ONLY)

This section relates to LSL-BE series lifters only.
For LSL-PF Lifters go to page 13, for LSL-EFA Lifters go to page 16.

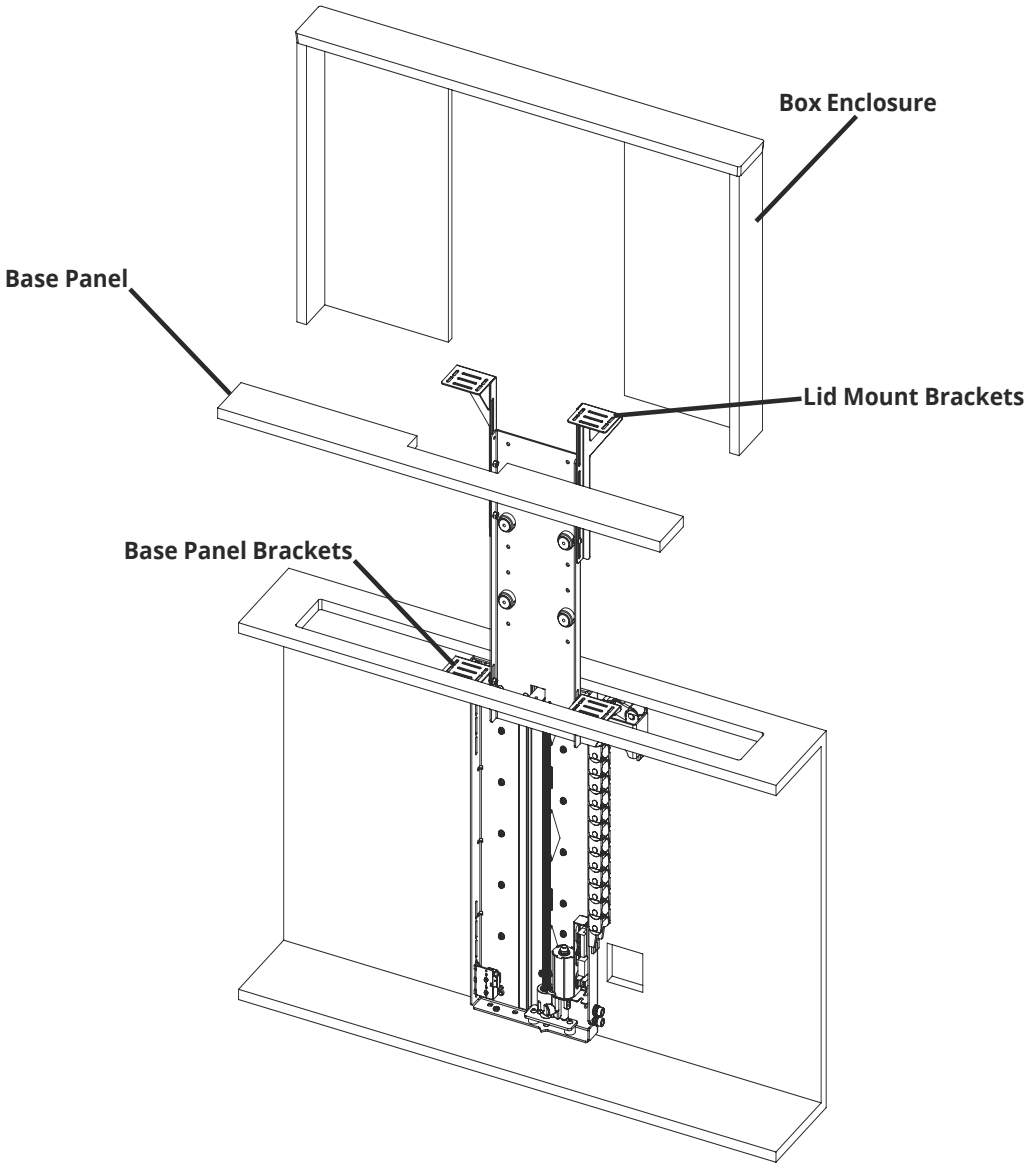
1

- Check the Box Enclosure Joinery sizes against the correct size LSL-BE technical sheet.

- With the mechanism in the OUT position, place the top portion of the LSL-BE joinery onto the Lid Mount Brackets and secure in place through the underside (fixings not provided).

2

- The Base Panel can also be placed onto the Base Panel Bracket and fixed into place through the underside (fixings not provided).



BOX ENCLOSURE
ADJUSTMENT (LSL-BE ONLY)

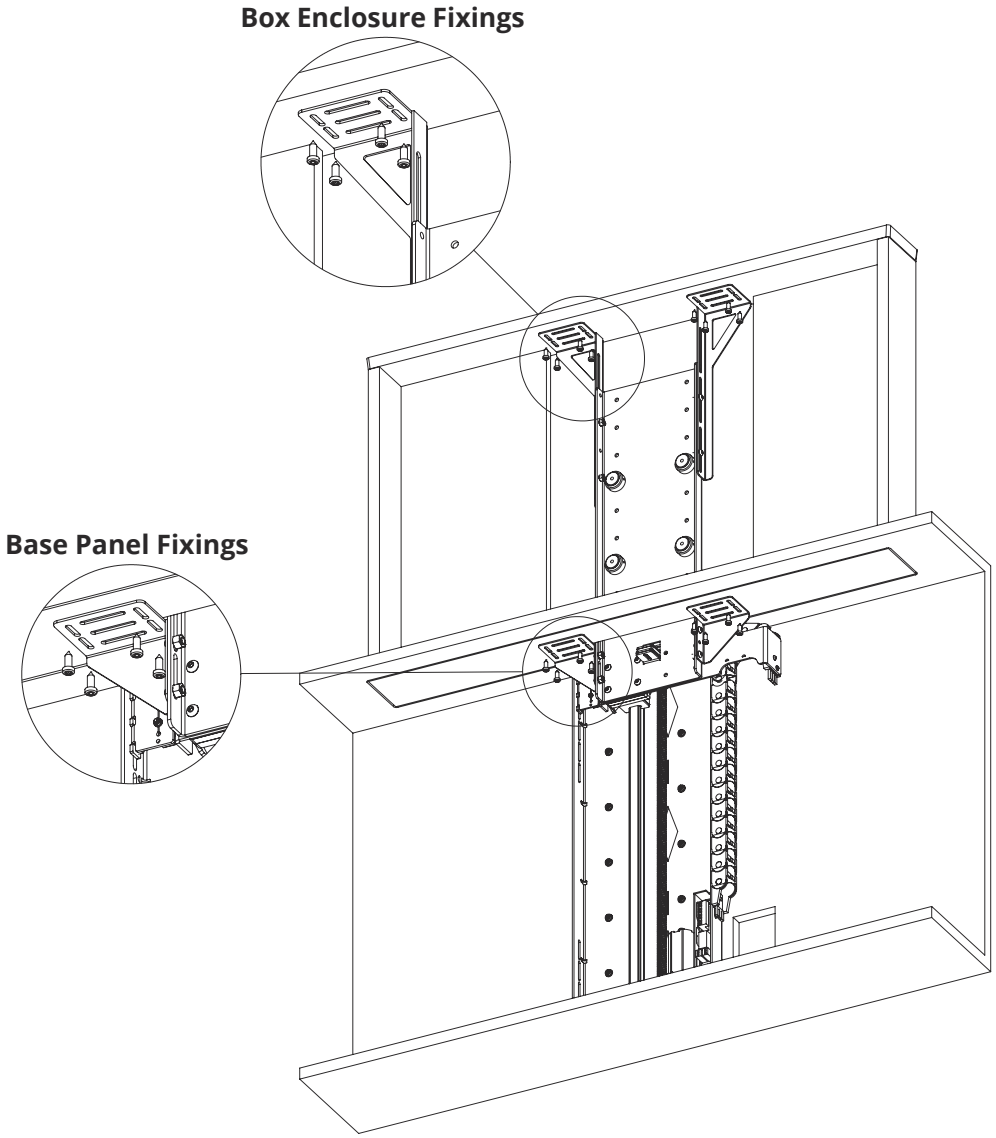
This section relates to LSL-BE series lifters only.
For LSL-PF Lifters go to page 13, for LSL-EFA Lifters go to page 16.

1

- With the mechanism still in the OUT position, adjust the height of the Lid Mount Brackets so that the Box Enclosure sits just above the Base Panel. See page 9 for details on adjusting the Box Enclosure brackets.

2

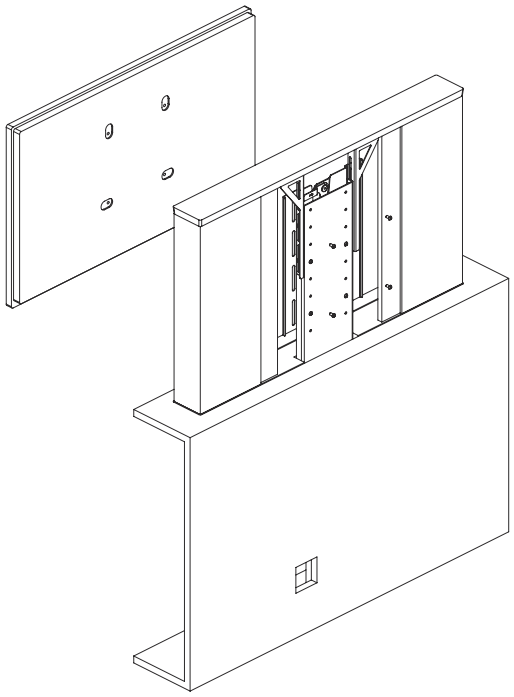
- Adjust the height of the Base Panel so it sits flush with the cabinet top. The base panel brackets can be adjusted by loosening the 2 bolts securing each bracket and sliding the brackets up or down. Secure in place by tightening the securing bolts again.



SCREEN MOUNTING (LSL-BE ONLY)

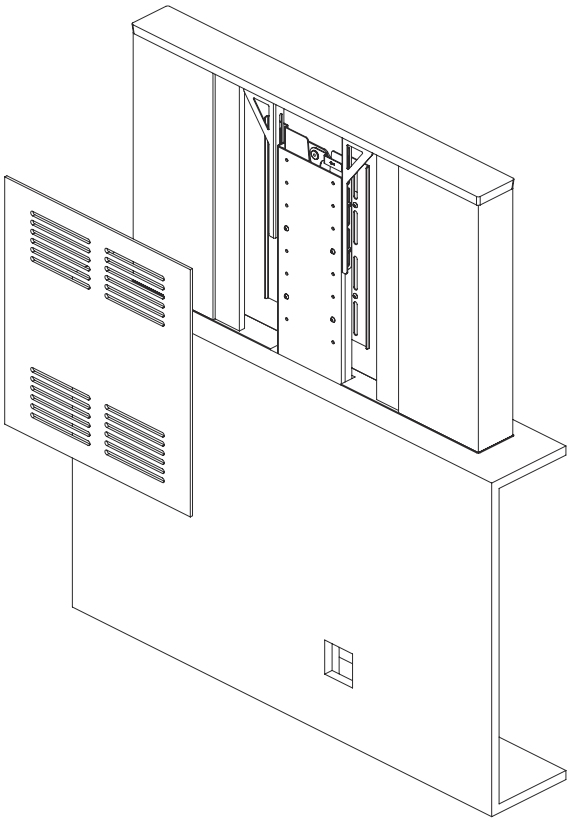
This section relates to LSL-BE series lifters only.
For LSL-PF Lifters go to page 13, for LSL-EFA Lifters go to page 16.

1



- Attach the screen and KH Mount Plate back on to the lifter by placing it on to the KH Hook Toggles inside the Box Enclosure.
- Secure the screen in place by turning the KH Locking Lever 90° counter clockwise.

2



- Place the rear of the Box Enclosure onto the lift and secure in place at the sides. This back panel needs to be removable for screen removable and maintenance.

Turn to page 19 to for switch adjustment and control information.

PUSH ROD
FIXING (LSL-PF ONLY)

This section relates to LSL-PF series lifters only.
For LSL-BE Lifters go to page 9, for LSL-EFA Lifters go to page 16.

1

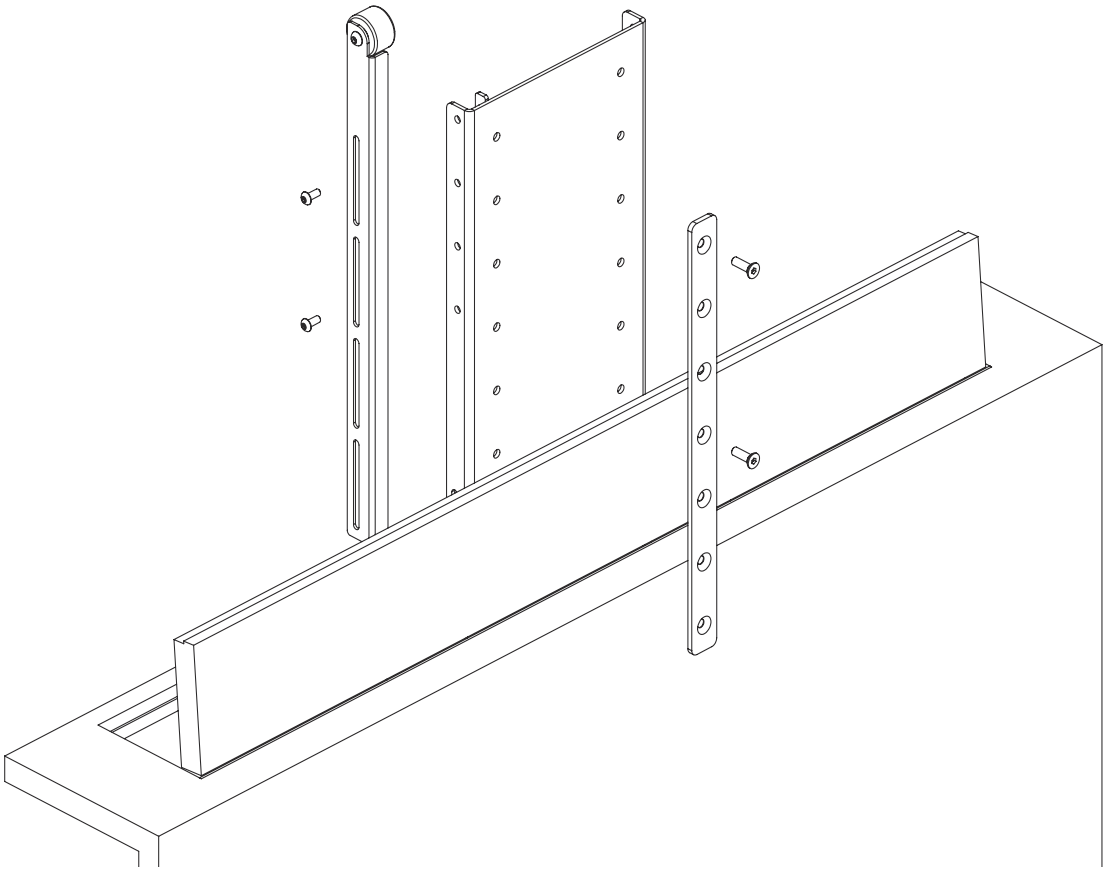
- The LSL-PF Push Roller fixes to the side of the KH Lifting Plate using the provided fixings.

2

- The height of the Push Roller can be adjust by loosening the 2 fixing bolts and sliding the Push Roller up or down. Tighten the 2 fixing bolts to secure the Push Roller in place.

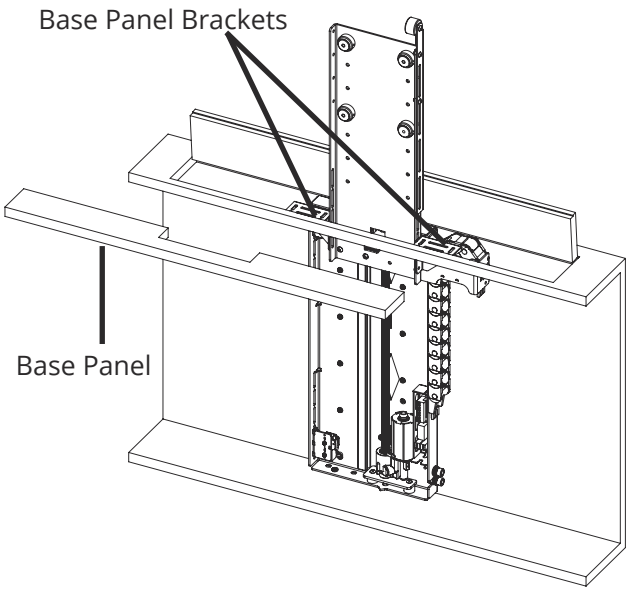
3

- The LSL-PF Push Flap Extension will also need to be fitted to the back of the KH Lifting Plate as shown.



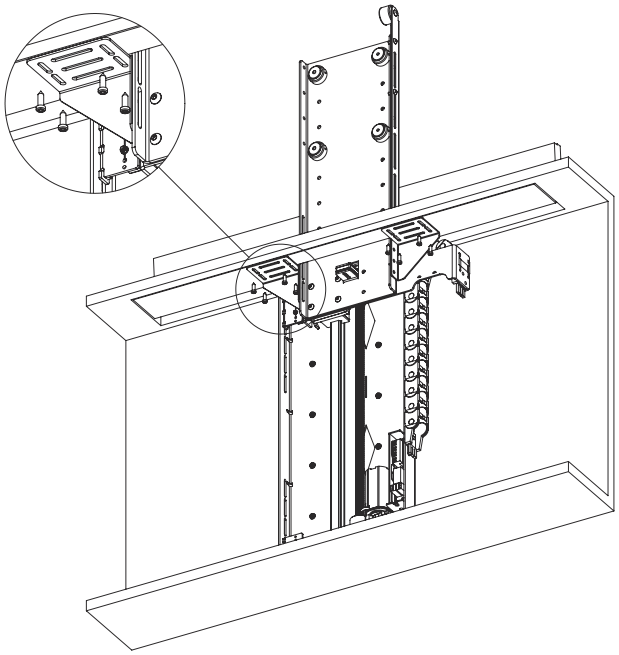
BASE PANEL
FITTING (LSL-PF ONLY)

This section relates to LSL-PF series lifters only.
For LSL-BE Lifters go to page 9, for LSL-EFA Lifters go to page 16.



1

- Check the size of the Base Panel against the latest LSL technical sheet.
- With the mechanism in the OUT position, place the Base Panel onto the Base Panel Brackets.



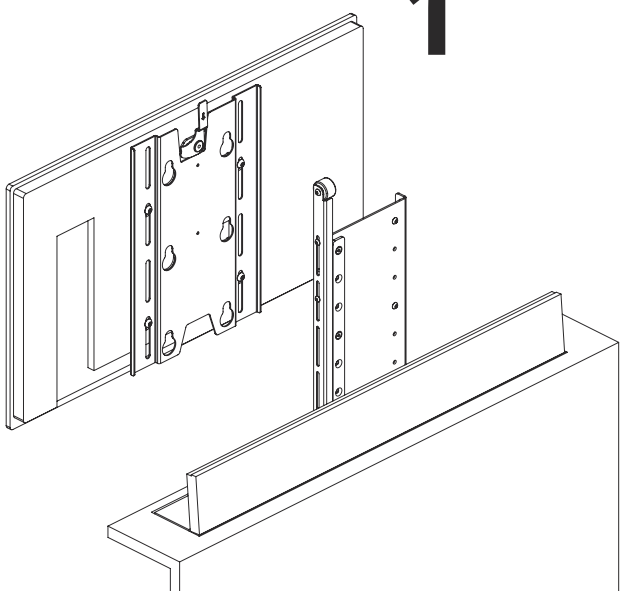
2

- Fix the Base Panel onto the Base Panel Brackets from underneath

SCREEN
MOUNTING (LSL-PF ONLY)

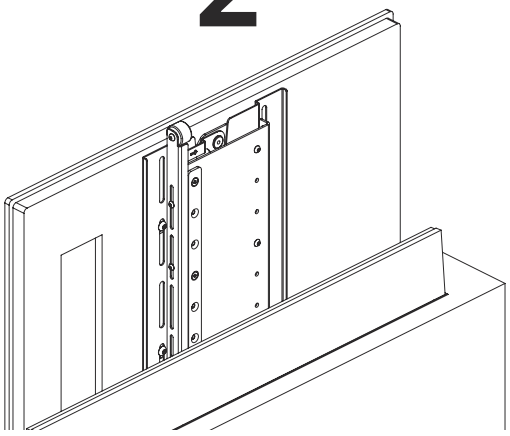
This section relates to LSL-PF series lifters only.
For LSL-BE Lifters go to page 9, for LSL-EFA Lifters go to page 16.

1



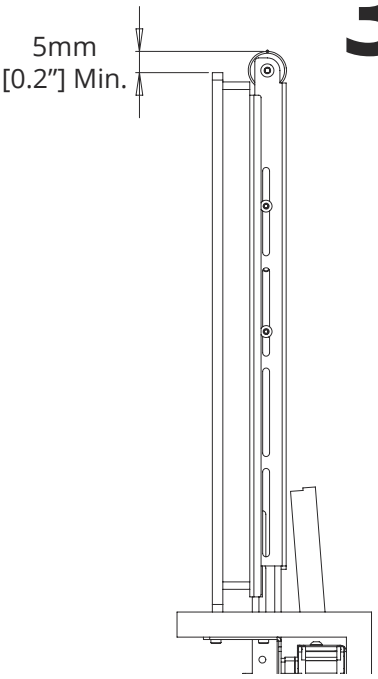
- Hook the screen and KH Mount Plate back on to the lift and lock in place by turning the Locking Level 90° counter clockwise.

2



- The height of the screen can be adjusted by removing the screen and changing the height of the four toggles that the KH Mount Plate hooks on to.

3



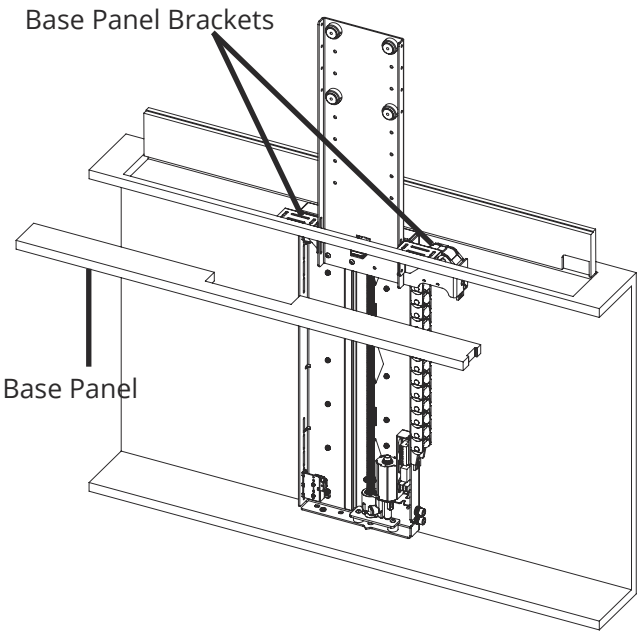
- Once the screen is at the desired height, adjust the Push Roller so that the top of it sits approximately 5mm [0.2”] above the top of the screen

Turn to page 19 to for switch adjustment and control information.

BASE PANEL
FITTING (LSL-EFA ONLY)

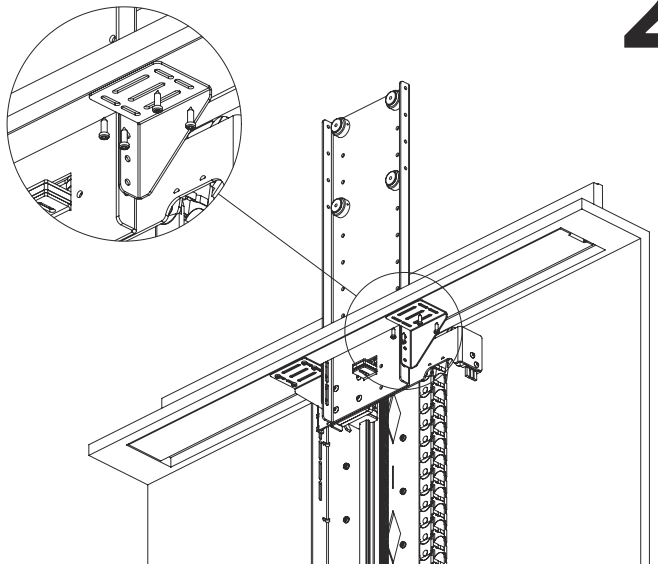
This section relates to LSL-EFA series lifters only.
For LSL-BE Lifters go to page 9, for LSL-PF Lifters go to page 13.

1



- Check the size of the Base Panel against the latest LSL technical sheet.
- With the mechanism in the OUT position, place the Base Panel onto the Base Panel Brackets.

2



- Fix the Base Panel onto the Base Panel Brackets from underneath

FLAP ACTUATOR
FITTING (LSL-EFA ONLY)

This section relates to LSL-EFA series lifters only.
For LSL-BE Lifters go to page 9, for LSL-PF Lifters go to page 13.

1

- Lower the mechanism with the IR Remote by pressing **IN** then **STOP** after approximately 100mm [4”].

2

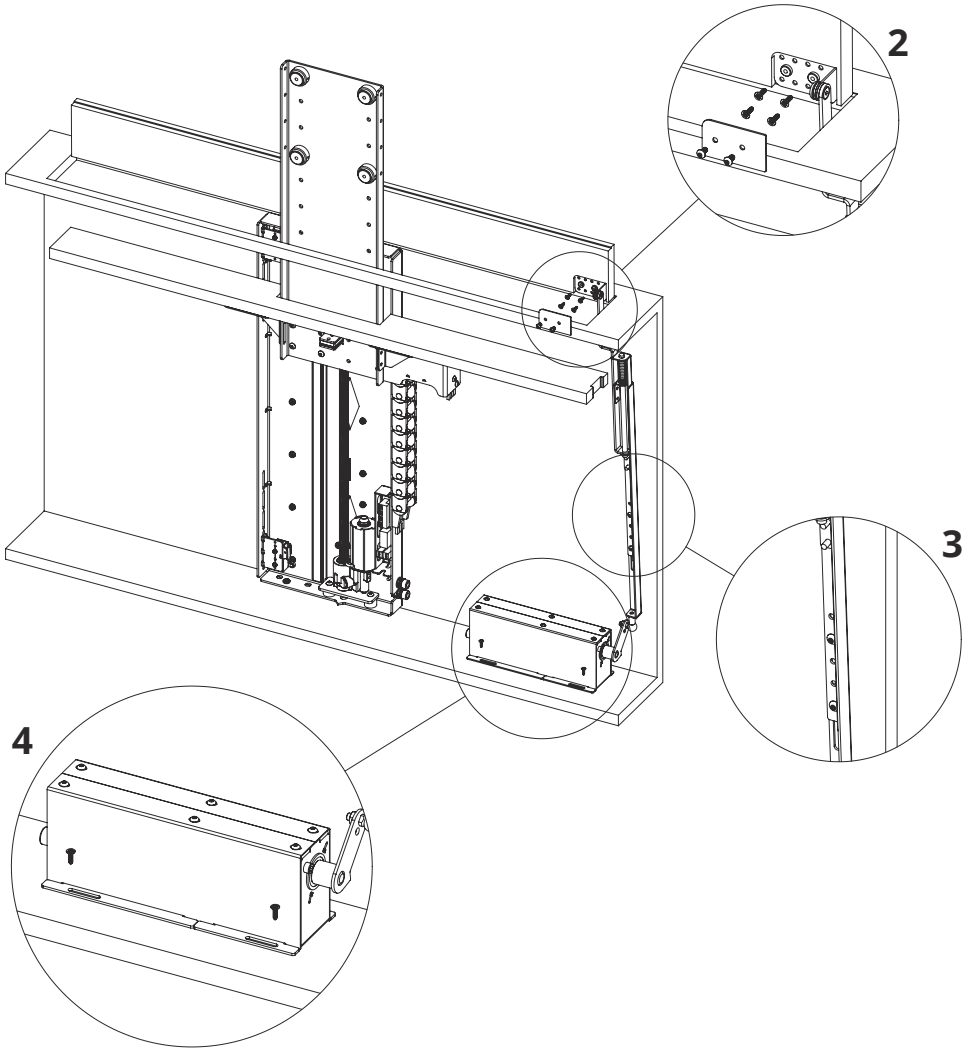
- Attach the EFA push rod to the underside of the flap as shown in detail 2.

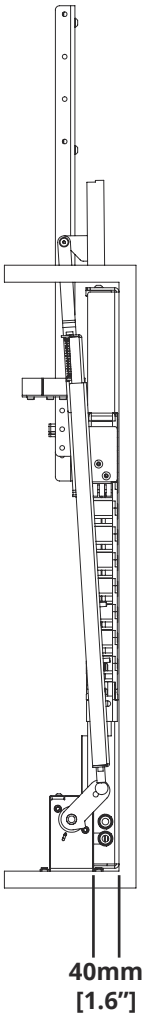
3

- Loosen the bolts on the push rod and slide the length to suit the cabinet height, make sure the flap and push rod stands up vertically as shown in detail 3.

4

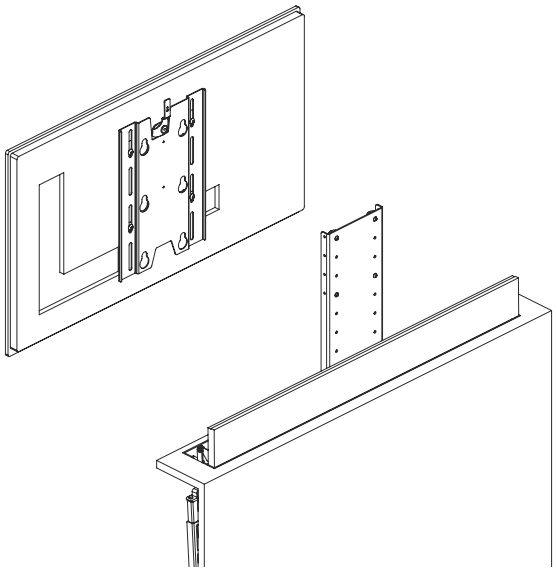
- Fix the EFA Drive Unit to the base of the cabinet and tighten the push rod bolts to secure the length of the push rod. The EFA Drive Unit should sit 40mm [1.6”] from the back of the cabinet.





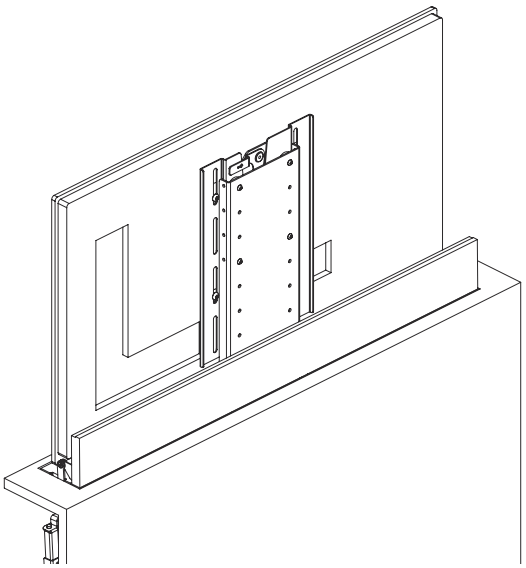
SCREEN
MOUNTING (LSL-EFA ONLY)

This section relates to LSL-EFA series lifters only.
For LSL-BE Lifters go to page 9, for LSL-PF Lifters go to page 13.



1

- Hook the screen and KH Mount Plate back on to the lift and lock in place by turning the Locking Level 90° counter clockwise.



2

- The height of the screen can be adjusted by removing the screen and changing the height of the four toggles that the KH Mount Plate hooks on to.

Turn to page 19 to for switch adjustment and control information.

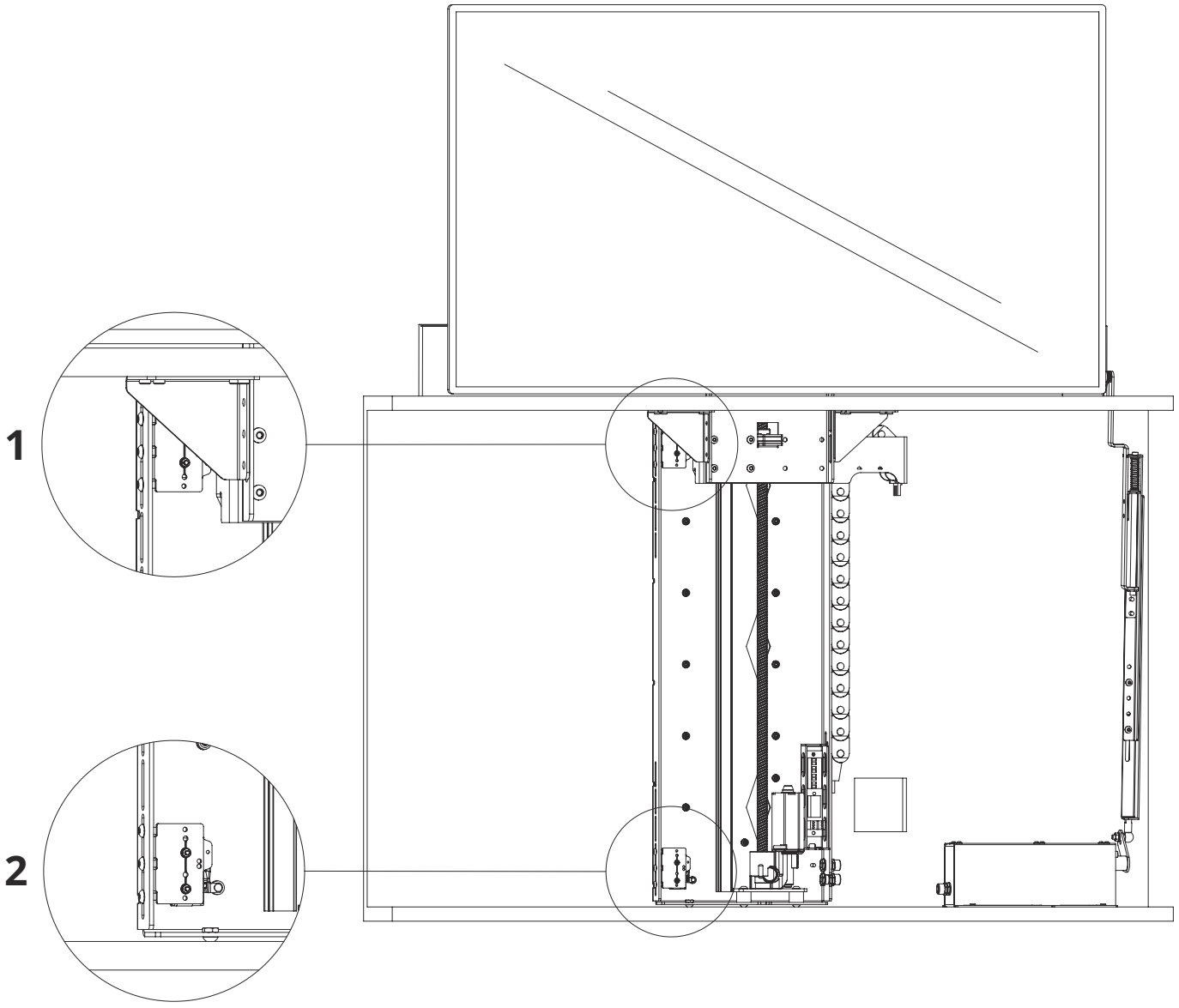
SWITCH
ADJUSTMENTS

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 and plate up or down.

2

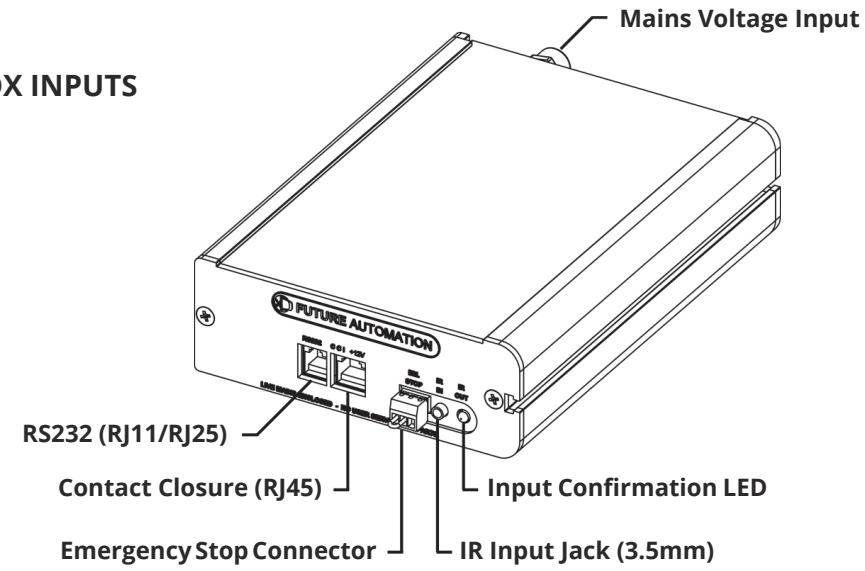
- The bottom switch can’t be adjusted when the mechanism is in the IN position, because the switch is active. Raise the mechanism and press STOP after about 100mm [4”]. Then adjust the IN switch plate by loosening the bolts and sliding the switch and plate up or down.



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

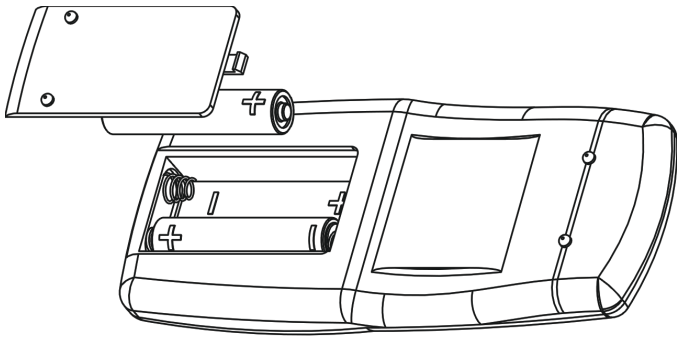
This mechanism features an Emergency Stop Connector, which MUST be plugged into the control box in the connector labelled above for the mechanism to operate. If this connector is not plugged in, the Input Confirmation LED will be permanently lit. As per the red plastic tag attached to the Emergency Stop 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. These batteries can be replaced as the per the image below.



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.

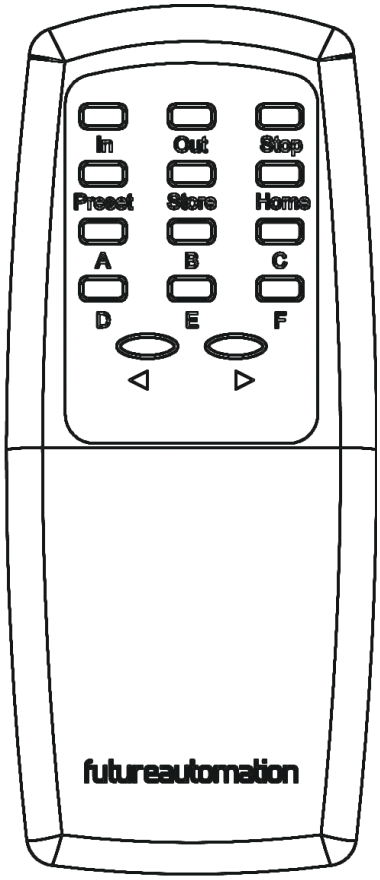
As Infrared (IR) control works over line of site, the Infrared (IR) sensor must be directly viewable from what ever location the remote control is being used from.

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.



IMPORTANT

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

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.

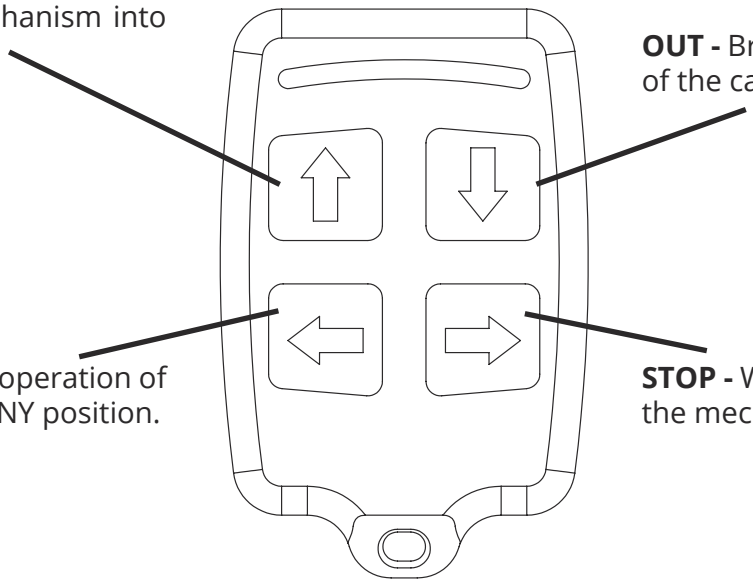
Confirmation of Radio Frequency (RF) input will be shown by a single flash of the large green LED located on the end of the control box.

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.

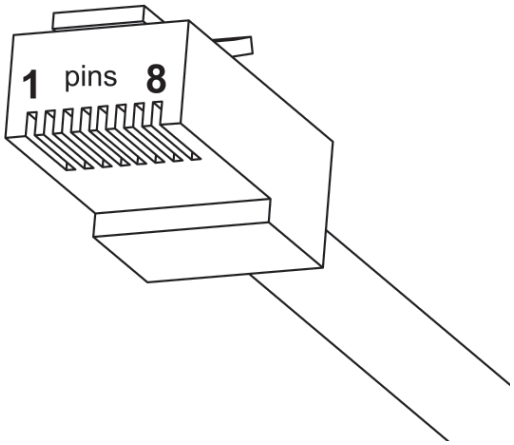
CONTACT CLOSURE

This Mechanism can be controlled via Contact Closure, utilising an 8 Pin RJ45 Connector attached to a length of CAT5 (Type 568A or 568B) cable.

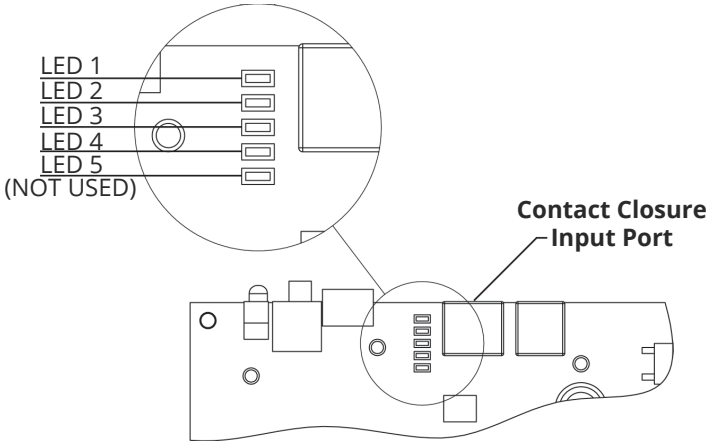
The mechanism's functions can be controlled by plugging this into the RJ45 port on the mechanism control board, then shorting pins 1-8 on this connector as shown in the Contact Closure Input Table below.

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, as well as illumination of the corresponding Contact Closure LED on the printed circuit board as shown below.

RJ45 PIN LAYOUT



CONTACT CLOSURE LED LAYOUT



CONTACT CLOSURE INPUT TABLE

PIN	DESCRIPTION	ACTION
1	12V SUPPLY	12V SUPPLY - CURRENT LIMITED
2	12V LATCH	WHEN 12V ATTACHED, DEVICE WILL GO OUT TO PRESET POSITION. WHEN 12V REMOVED, DEVICE WILL GO IN.
3	GROUND	GROUND
4		
5	DEVICE LATCH	SHORT TO GROUND (PIN 3), DEVICE WILL GO OUT TO PRESET POSITION, REMOVE SHORT DEVICE WILL GO IN.
6	DEVICE STOP	MOMENTARY SHORT TO GROUND (PIN 3), STOPS DEVICE IN CURRENT POSITION.
7	DEVICE OUT	MOMENTARY SHORT TO GROUND (PIN 3), MAKES DEVICE GO OUT.
8	DEVICE IN	MOMENTARY SHORT TO GROUND (PIN 3), MAKES DEVICE GO IN.

WIRE/CABLE TYPE		LED INDICATOR
568A	568B	
W G	W O	
G	O	
W O	W G	
B	B	
W B	W B	LED 4
O	G	LED 3
W BR	W BR	LED 2
BR	BR	LED 1

RS232
CONTROL

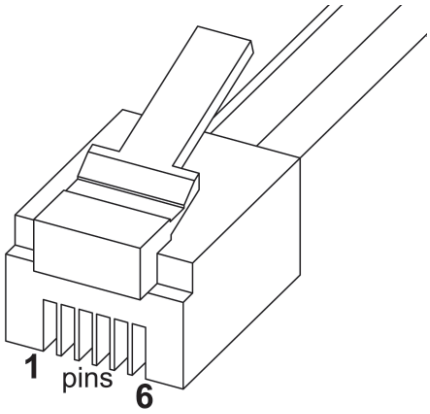
This Mechanism can be controlled via RS232, utilising a 6 Pin RJ11/RJ25 connector OR 9 Pin Serial connector attached to a length of 6 core cable.

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.

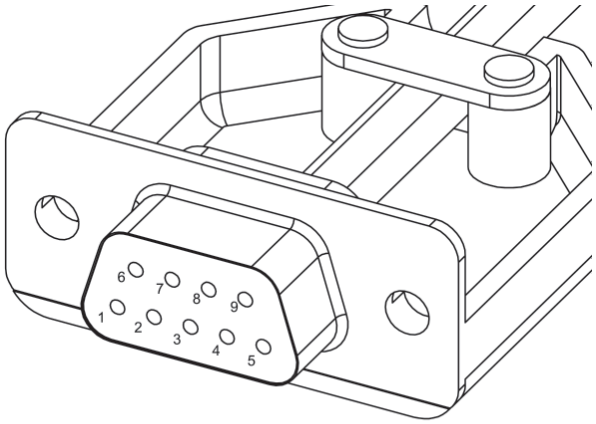
RJ11/RJ25 PIN LAYOUT

PIN 1: RX
PIN 6: TX
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-RX	PIN 2	Blue
PIN 3	GROUND	PIN 5	Green
PIN 4	GROUND	PIN 5	Red
PIN 6	RX-TX	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:



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