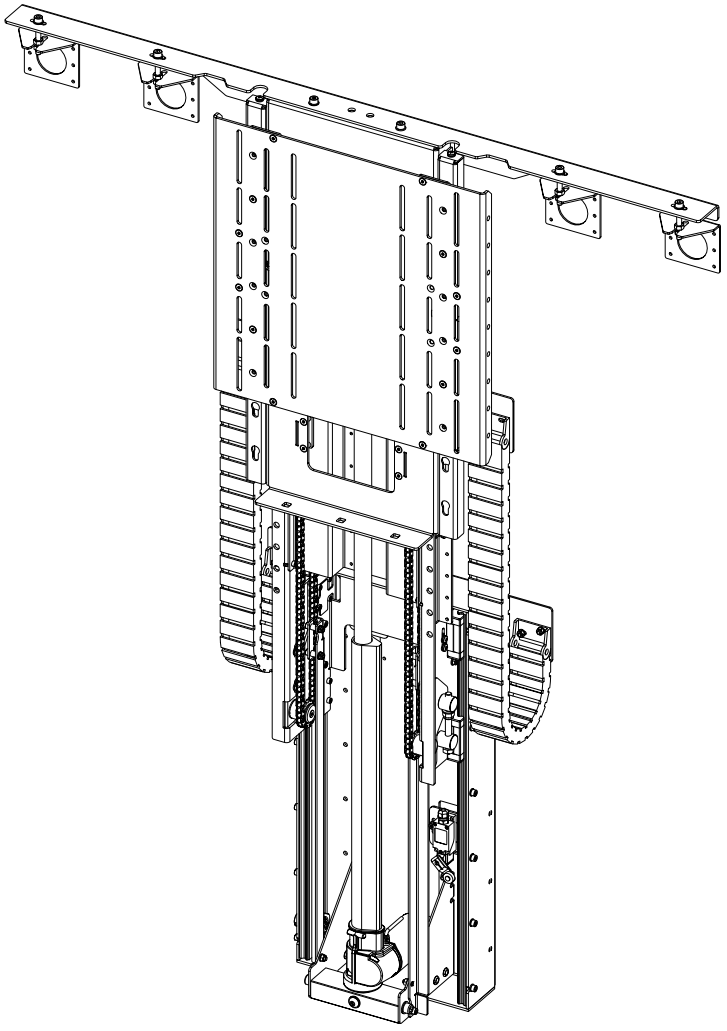
future automation

TSLM

TELESCOPIC SCREEN LIFT MEDIUM



INSTALLATION
INSTRUCTIONS

ISSUE **001**

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 **75KG (165LBS) OR LESS**.

Use with heavier 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
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CONTACT CLOSURE 22

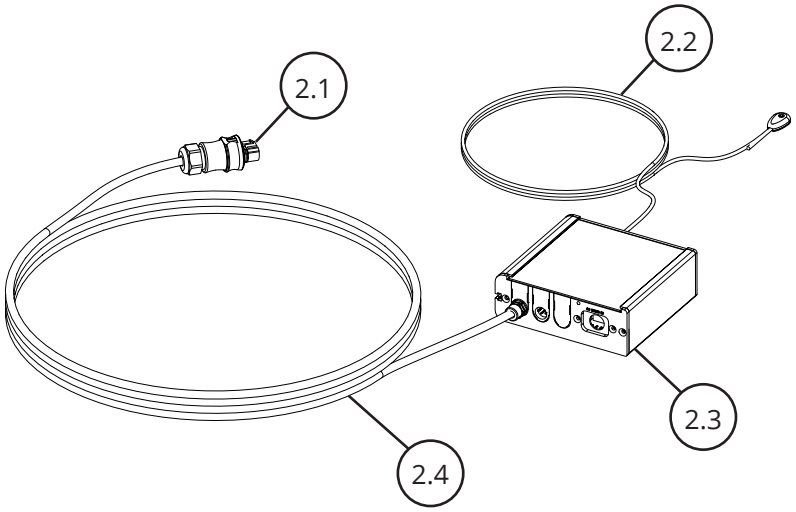
RS232 CONTROL 23

PACKAGE
CONTENTS

1 - TSLM MECHANISM
- 1.1 - SCREEN MOUNT
- 1.2 - BACK PLATE
- 1.3 - BOX BRACKETS (X4)
- 1.4 - TOP BRACE

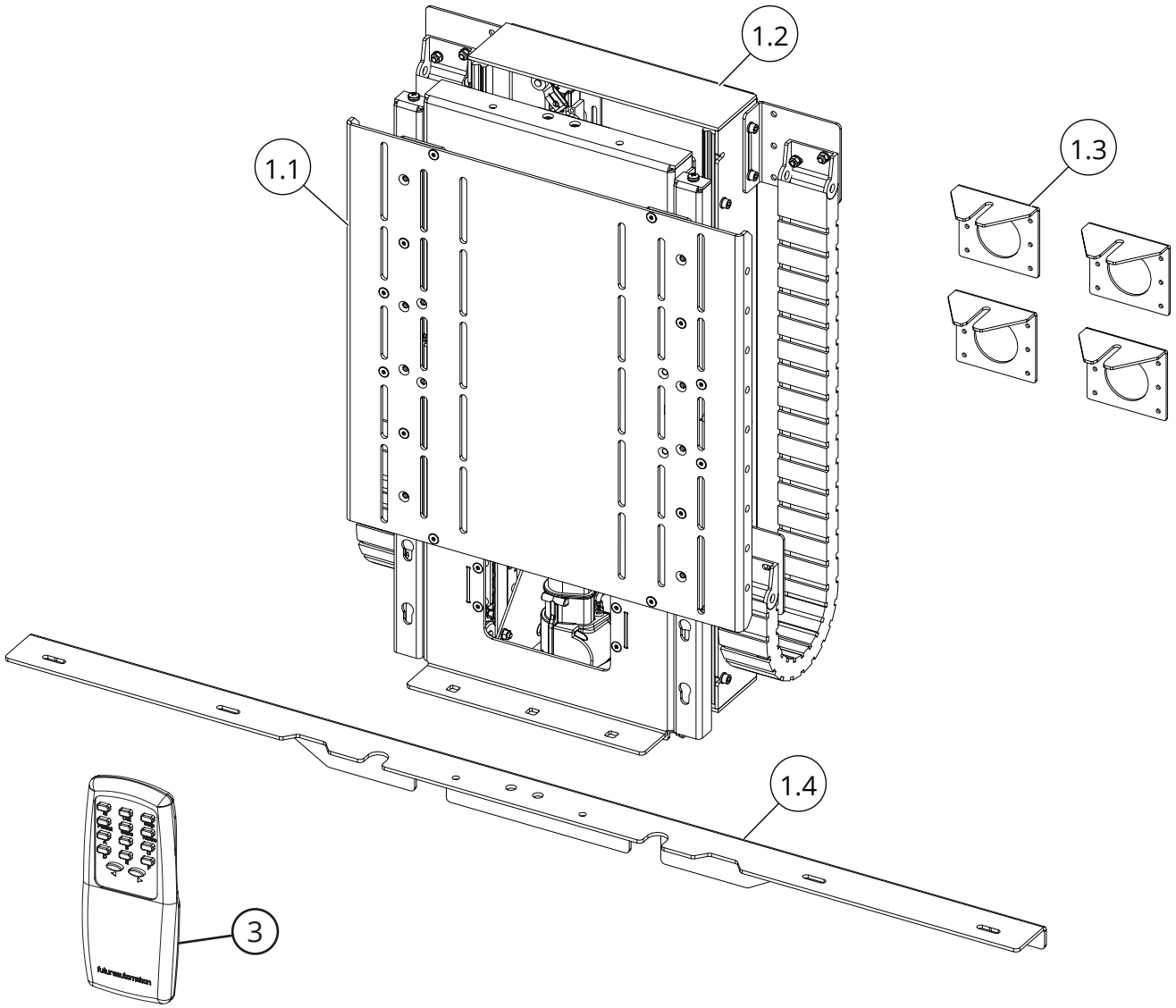
2 - CONTROL BOX
- 2.1 - CABLE CONNECTOR
- 2.2 - IR LEAD
- 2.3 - CONTROL BOX
- 2.4 - 3M LONG CABLE LOOM

3 - INFRARED (IR) REMOTE CONTROL



ITEMS NOT SHOWN ON PAGE

TSLM ACCESSORY PACK:
- X2 AAA BATTERIES
- MAINS POWER LEAD
- INFRA-REF CONTROL LEAD
- CAT5 LEAD WITH RJ45 CONNECTOR
- MULTI-PACK OF NUTS, BOLTS AND WASHERS
- STOP KEY



INITIAL
TESTING

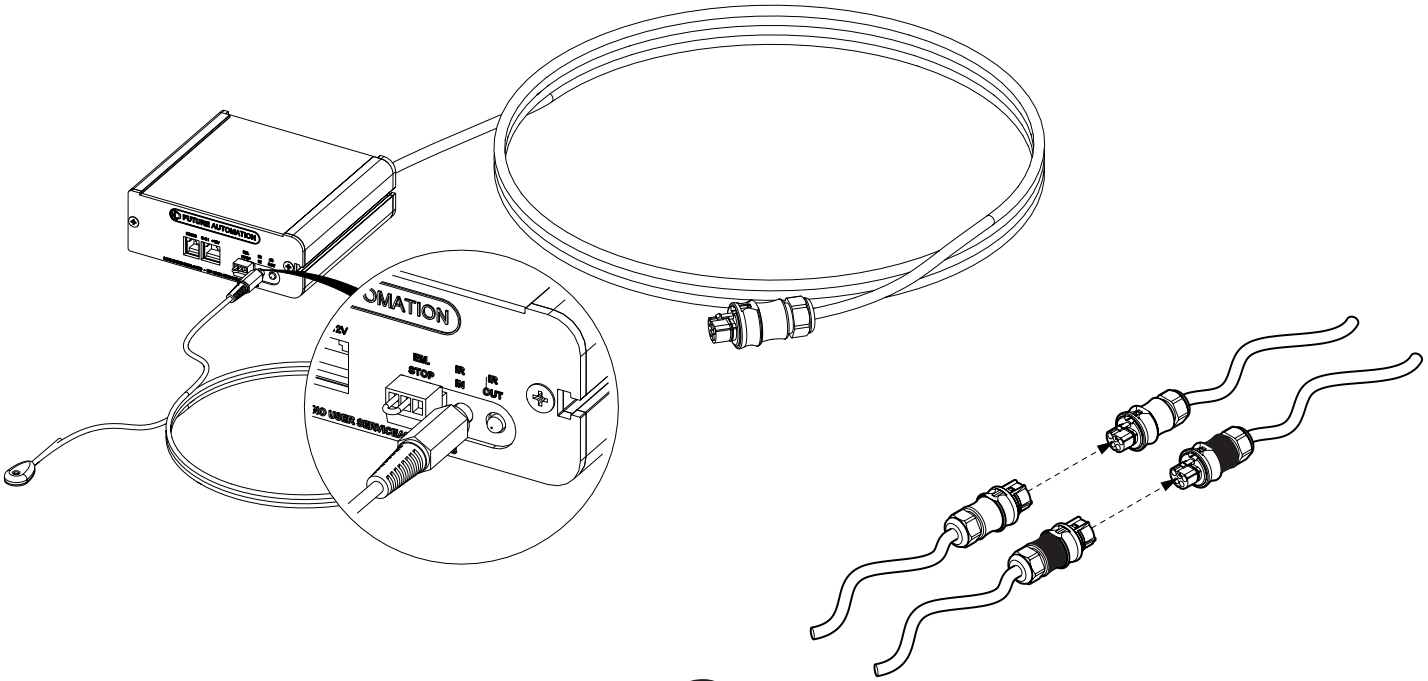
Before installing the TSLM mechanism:

- Check there is no damage to any part of the TSLM mechanism, control board, or wiring.
- Check all internal and external mechanism wiring is secure.

WARNING: THE TSLM MECHANISM **DOES NOT** HAVE AN ANTI-JAM CAPABILITY.
THE MOTOR DRIVE SYSTEM WILL CONTINUE TO MOVE UNTIL A LIMIT SWITCH IS CONTACTED.
KEEP HANDS AND ANY OBJECTS CLEAR OF THE MECHANISM DURING OPERATION TO REDUCE RISK OF DAMAGE OR INJURY.

1

Connect the control board to the TSLM using the mechanism cable connector at the end of the cable loom. Connect the IR lead into the control box and ensure that the emergency stop is secure.



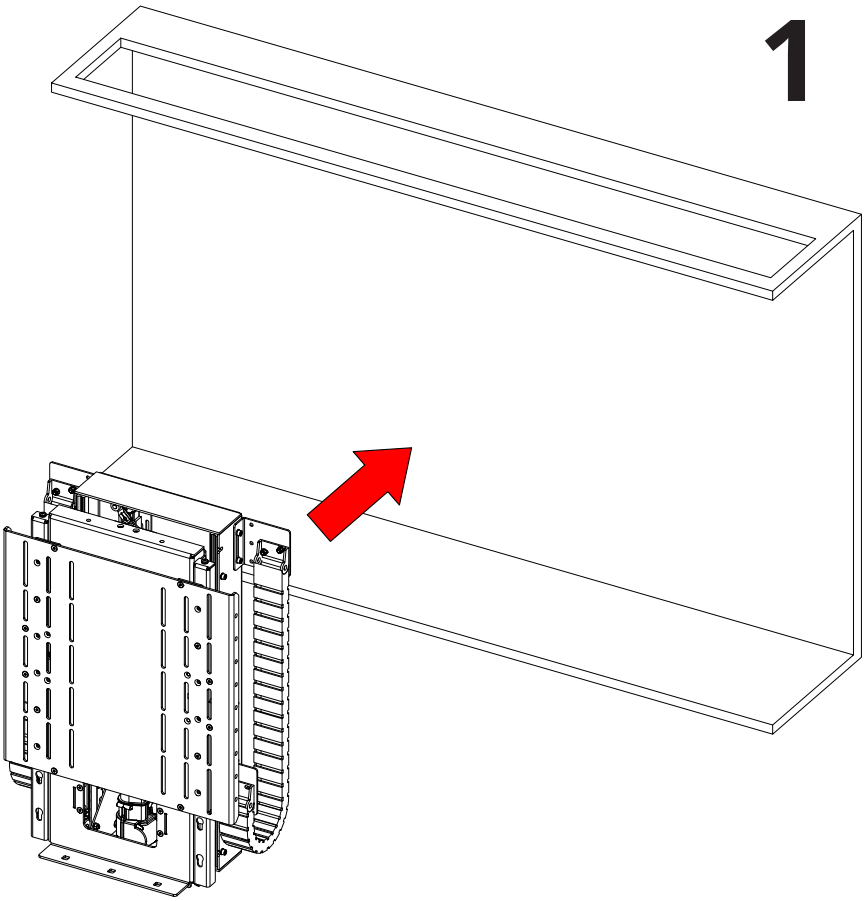
2

Familiarise yourself with the mechanism.

Pressing **'OUT'** on the IR remote raise the TSLM.

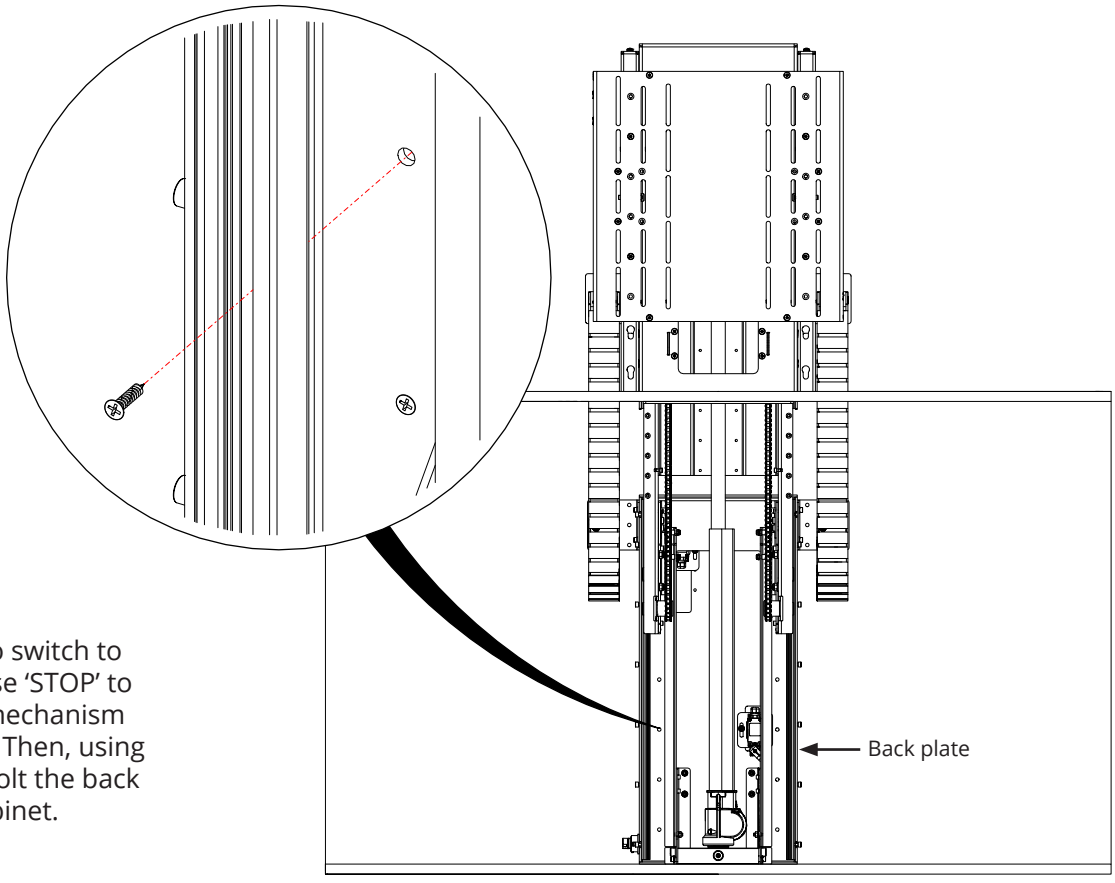
Pressing **'IN'** will lower the TSLM.

TSLM
FITTING



1

Place the TSLM centrally in the cabinet. Please see the TSLM tech sheets for cabinet dimensions.

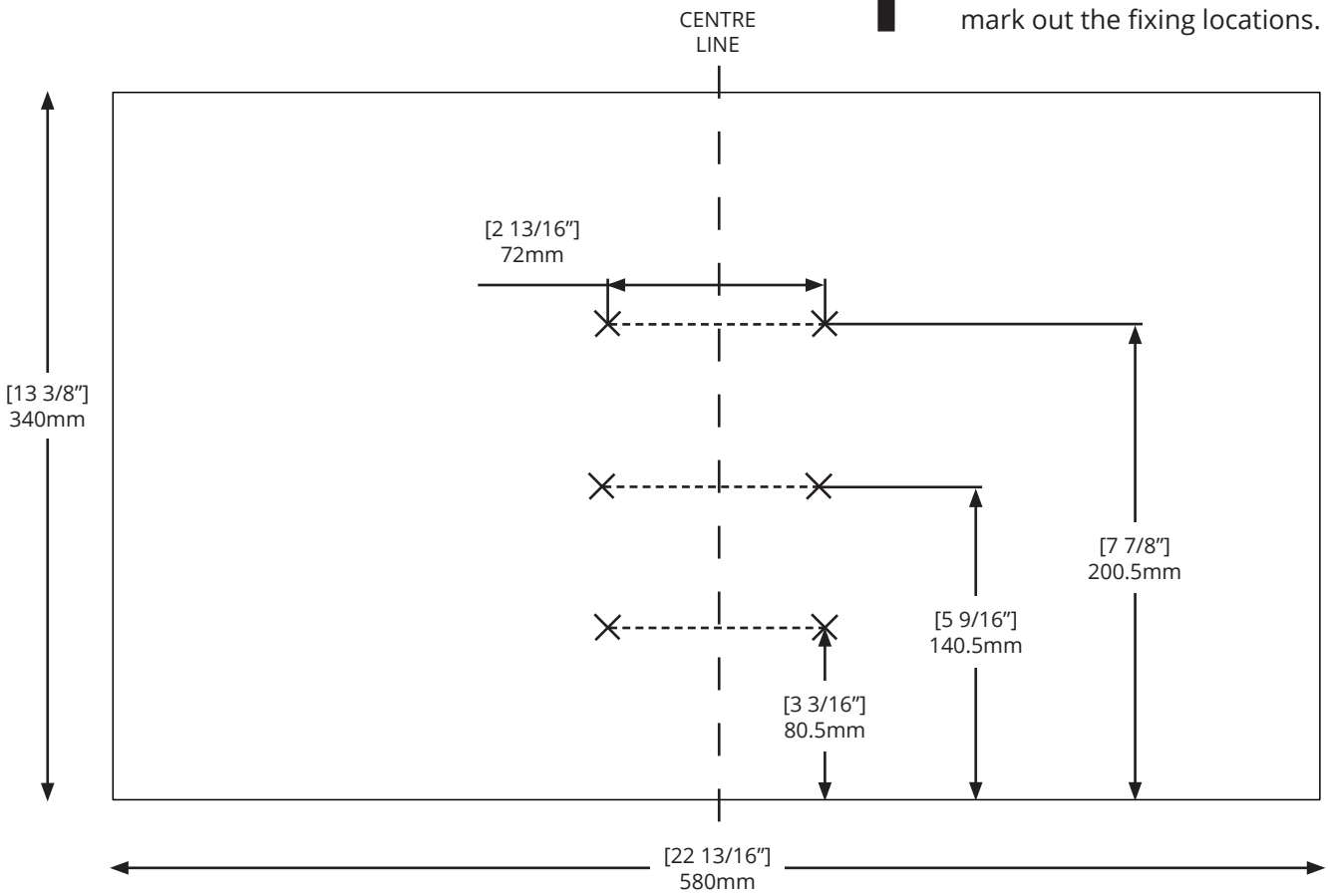


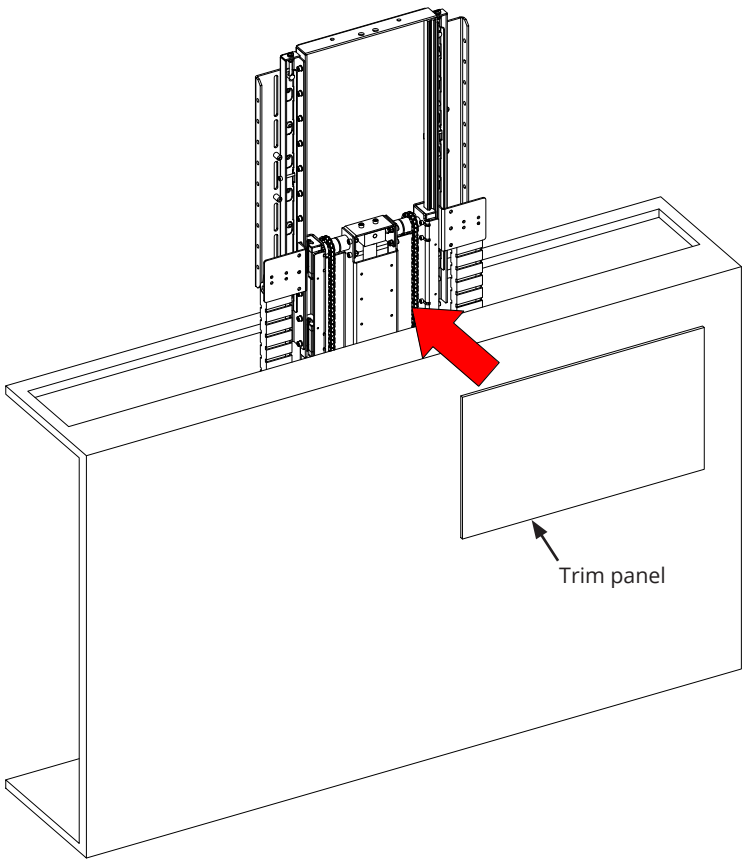
2

Use the IR remote to switch to the ‘OUT’ position. Use ‘STOP’ to carefully guide the mechanism through the aperture. Then, using appropriate fixings, bolt the back plate to the cabinet.

TRIM PANEL
FITTING

1 Cut a 7mm [1/4"] thick panel to the dimensions shown below and mark out the fixing locations.

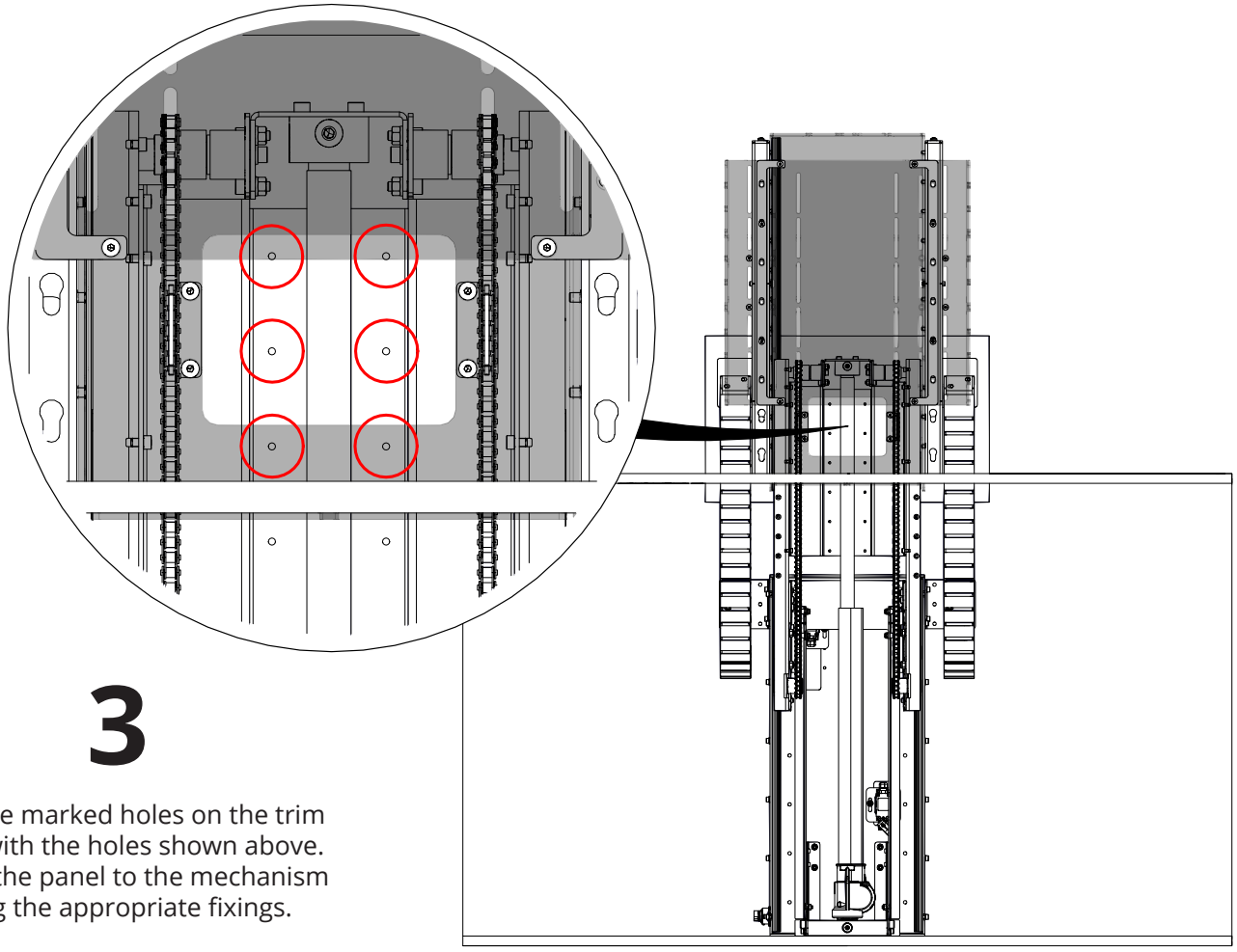




2

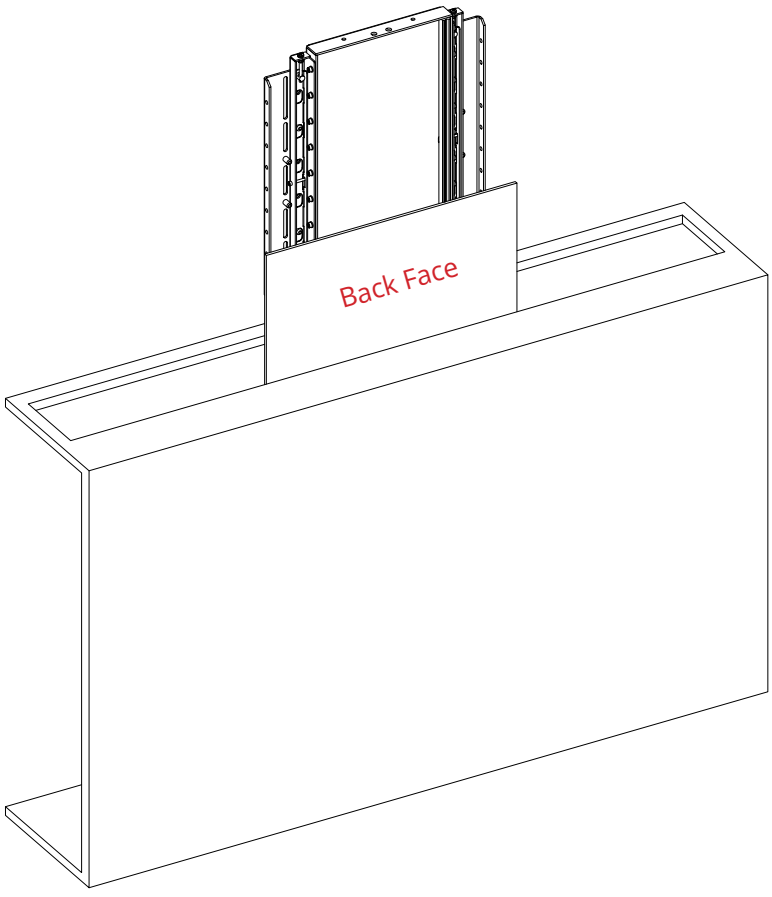
Place the trim panel on the back of the mechanism.

TRIM PANEL
FITTING CONT.



3

Align the marked holes on the trim panel with the holes shown above. Secure the panel to the mechanism using the appropriate fixings.

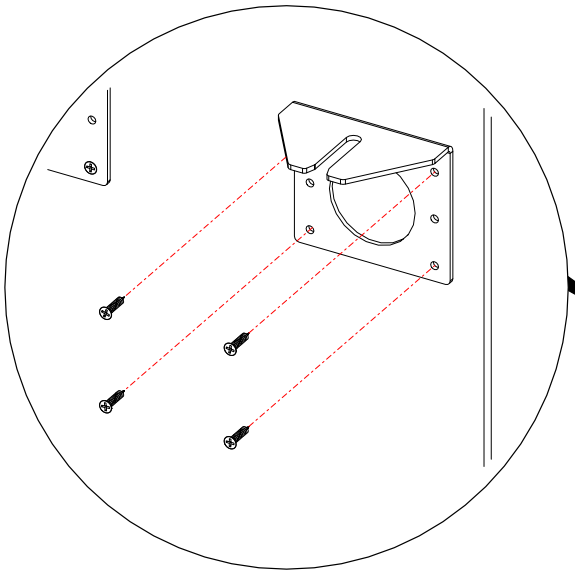


4

Ensure no fixings protrude the back face of the trim panel.

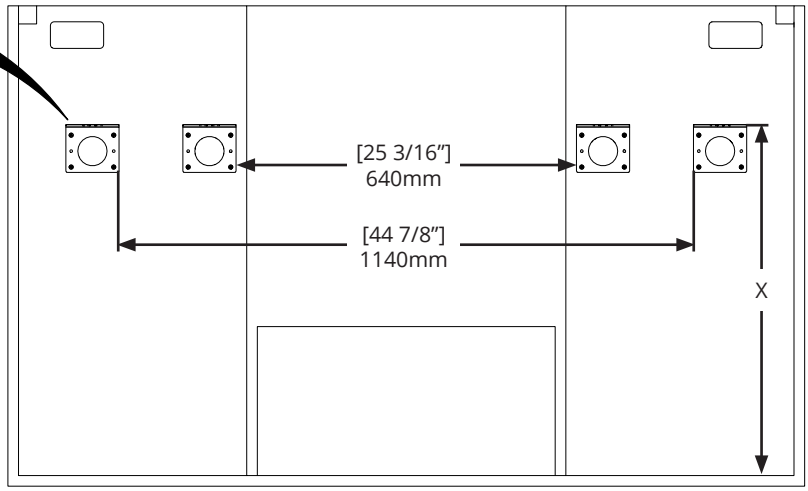
Use the ‘IN’ and ‘STOP’ buttons to carefully guide the mechanism into the cabinet to check the trim panel fits correctly.

BOX ENCLOSURE
FITTING

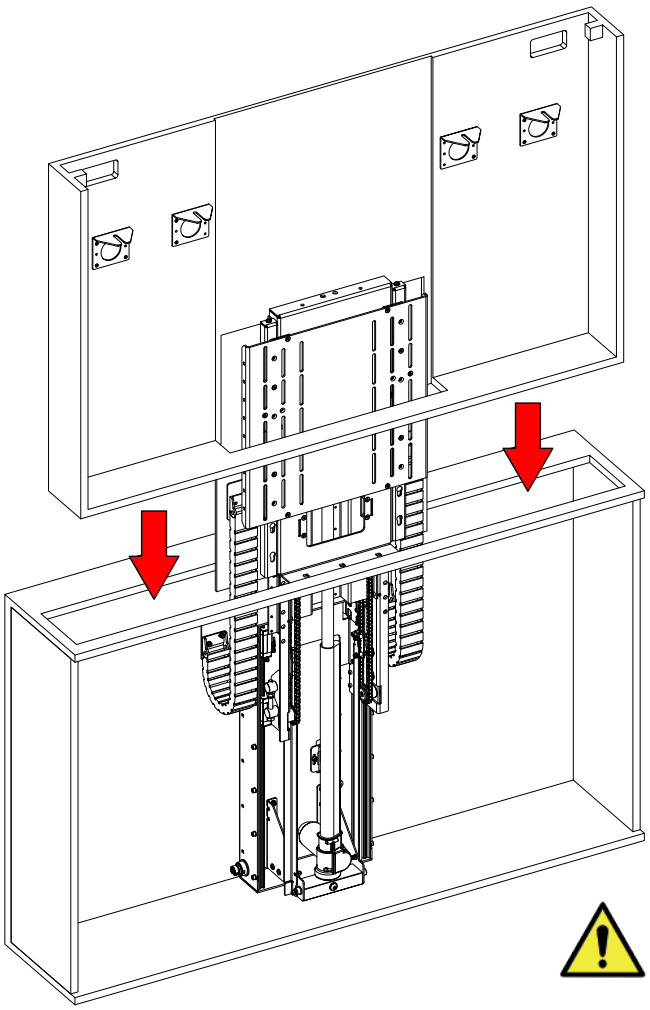


1

Using appropriate fixings, position and secure the box brackets to the box enclosure to the dimensions below. For enclosure dimensions, please see the TSLM tech sheets.



Mech. Size	Dimension X (mm)
TSLM-2	[26"] 660
TSLM-3	[31 7/8"] 810

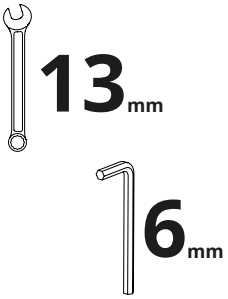


2

Slide on the box enclosure over the mechanism and trim panel. Add blocks over the cabinet aperture to ensure the enclosure does not fall through.

Take caution not to damage the trim panel as the box enclosure is fitted.

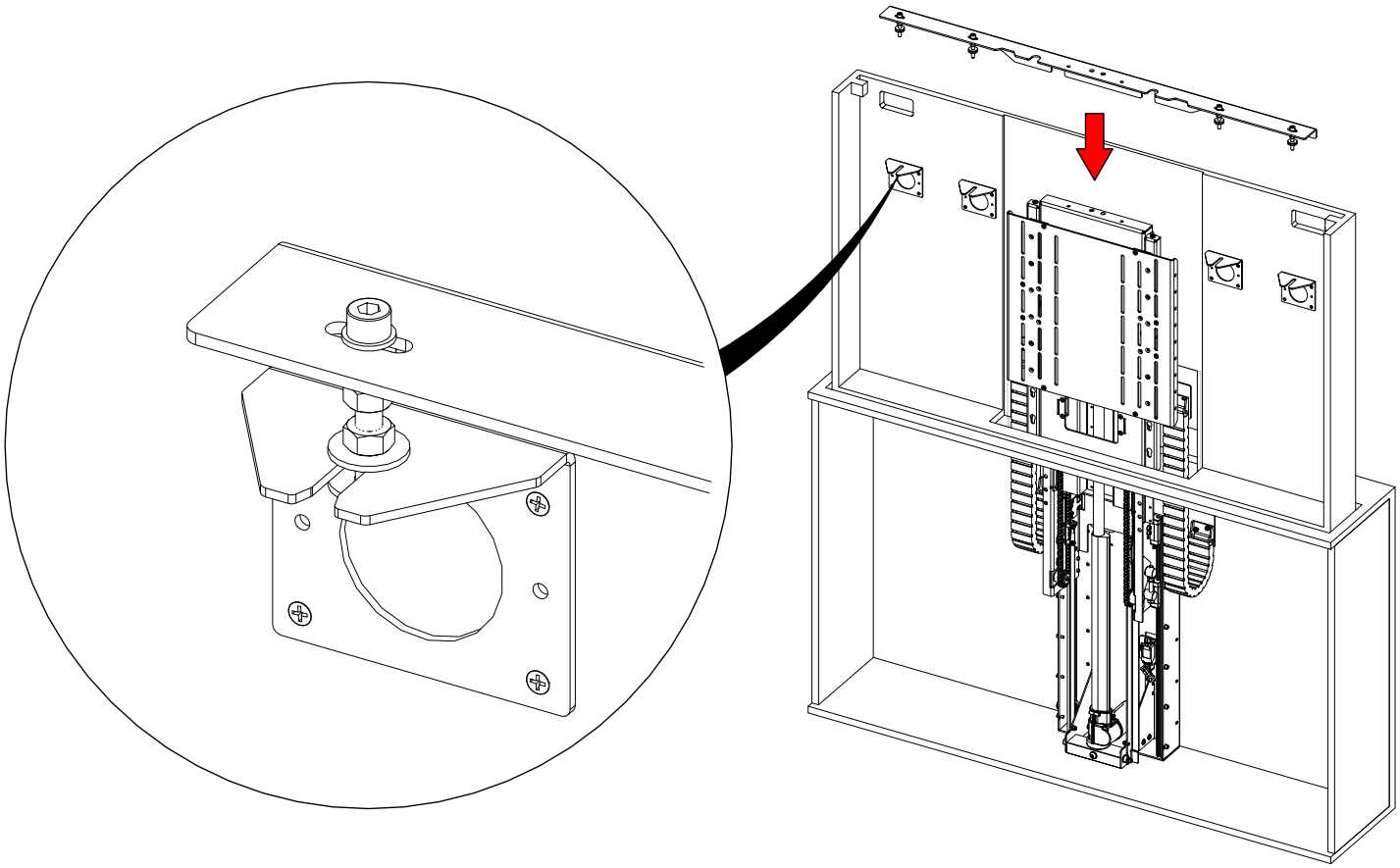
BOX ENCLOSURE
FITTING CONT.



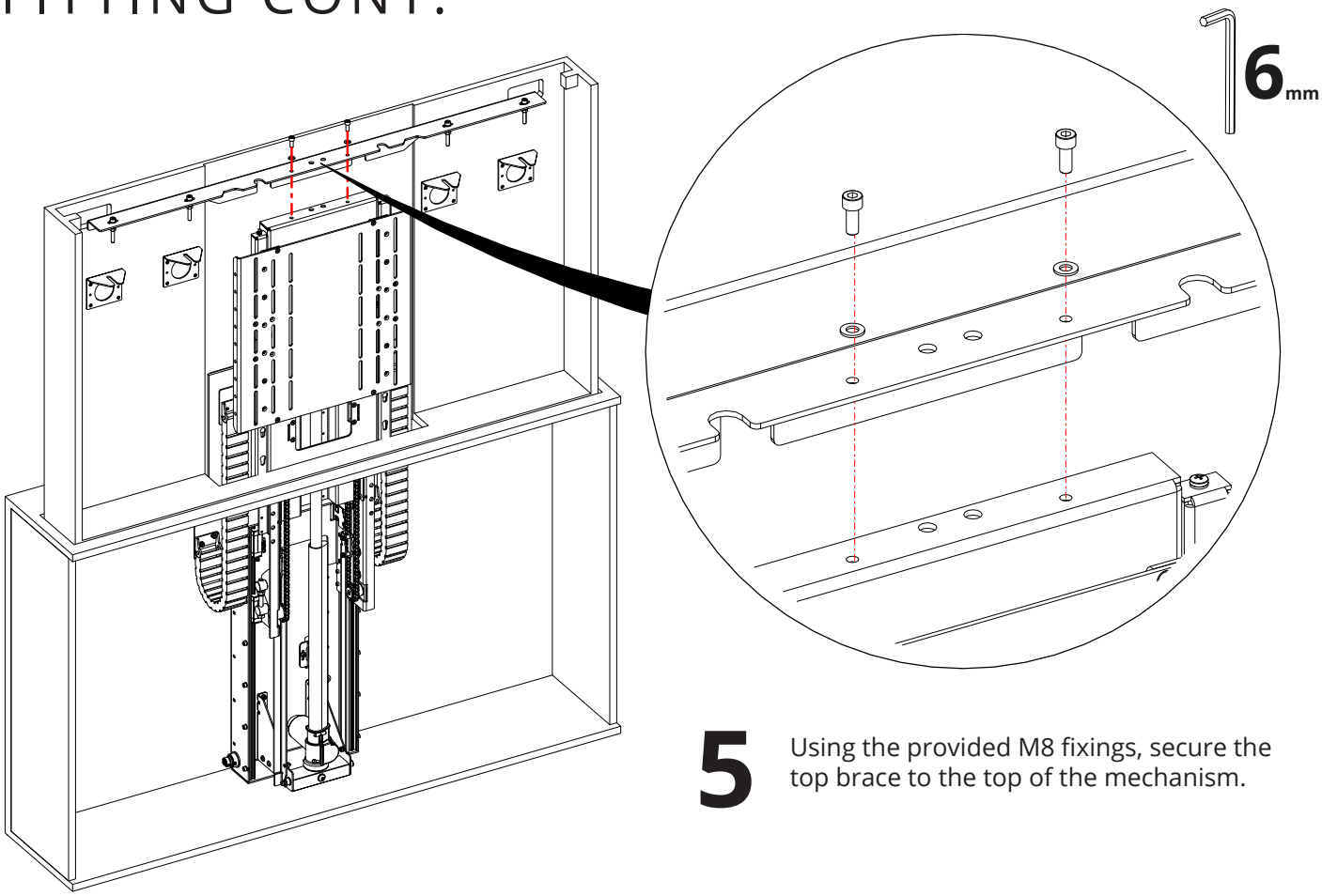
3 Fix on the fasteners shown below onto the top brace.

Leave a gap between the final two nuts.

4 Place the top brace on top of the mechanism and ensure that the M8 fixings pass through the slots in the box brackets. Remove the final nut on the M8 fixings on the top brace if necessary. Ensure to reattach them if removed.

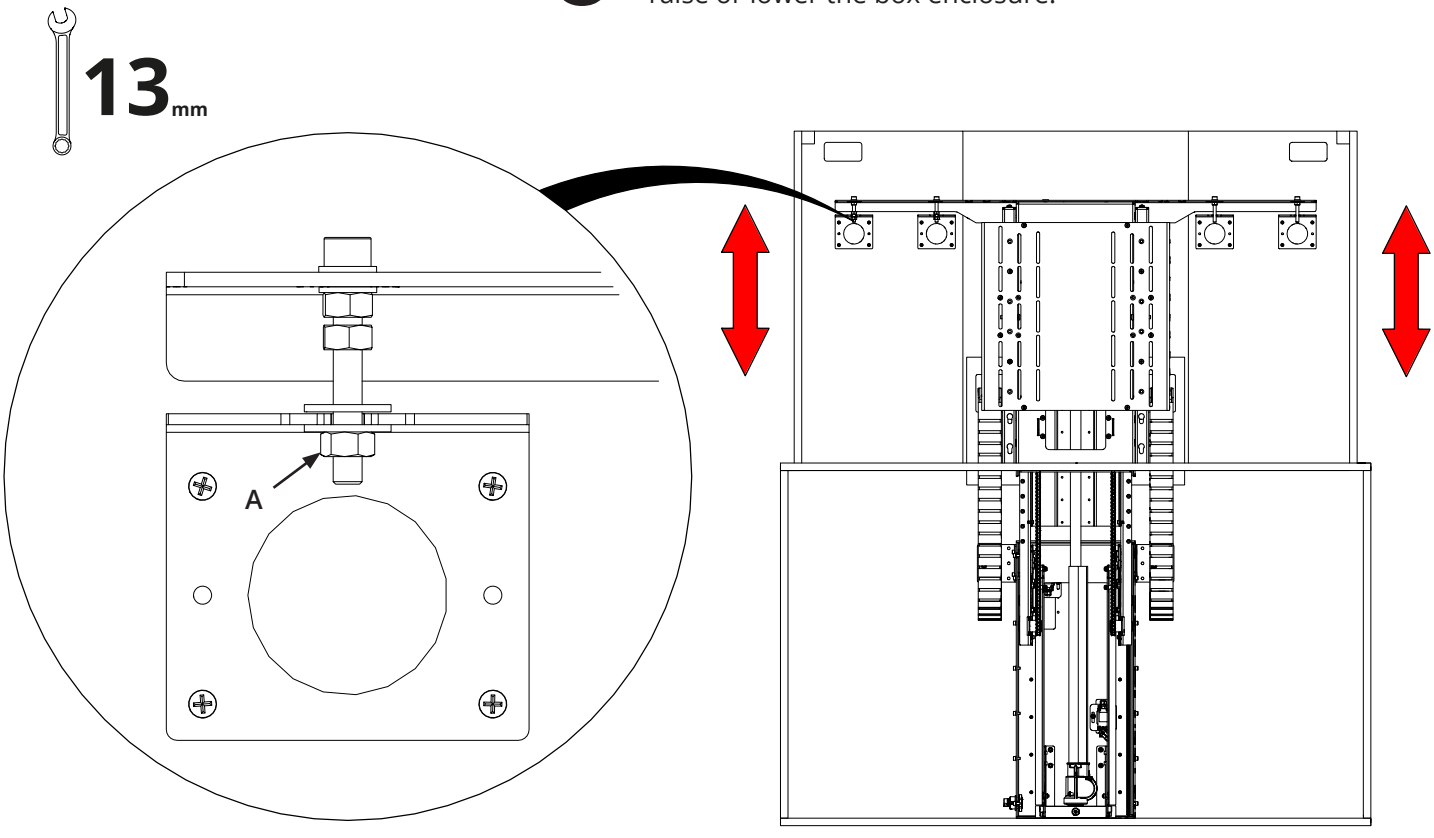


BOX ENCLOSURE
FITTING CONT.

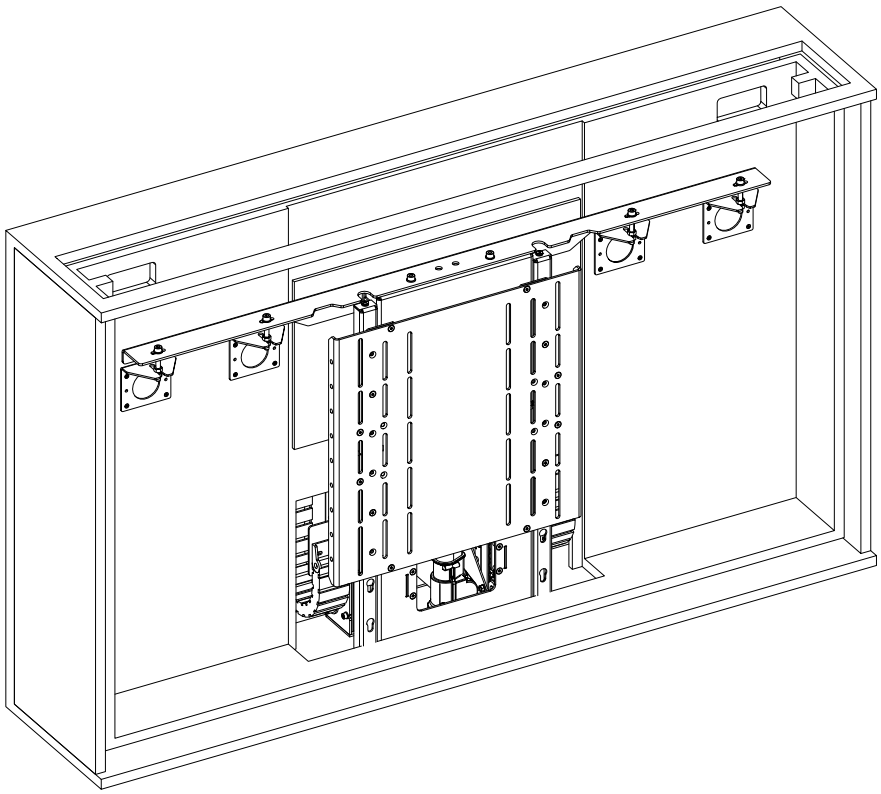


5 Using the provided M8 fixings, secure the top brace to the top of the mechanism.

6 Remove any blocks holding up the box enclosure. Adjust nut A on all the M8 bolts on the top brace to raise or lower the box enclosure.



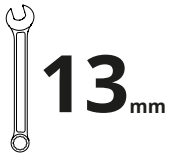
BOX ENCLOSURE
FITTING CONT.

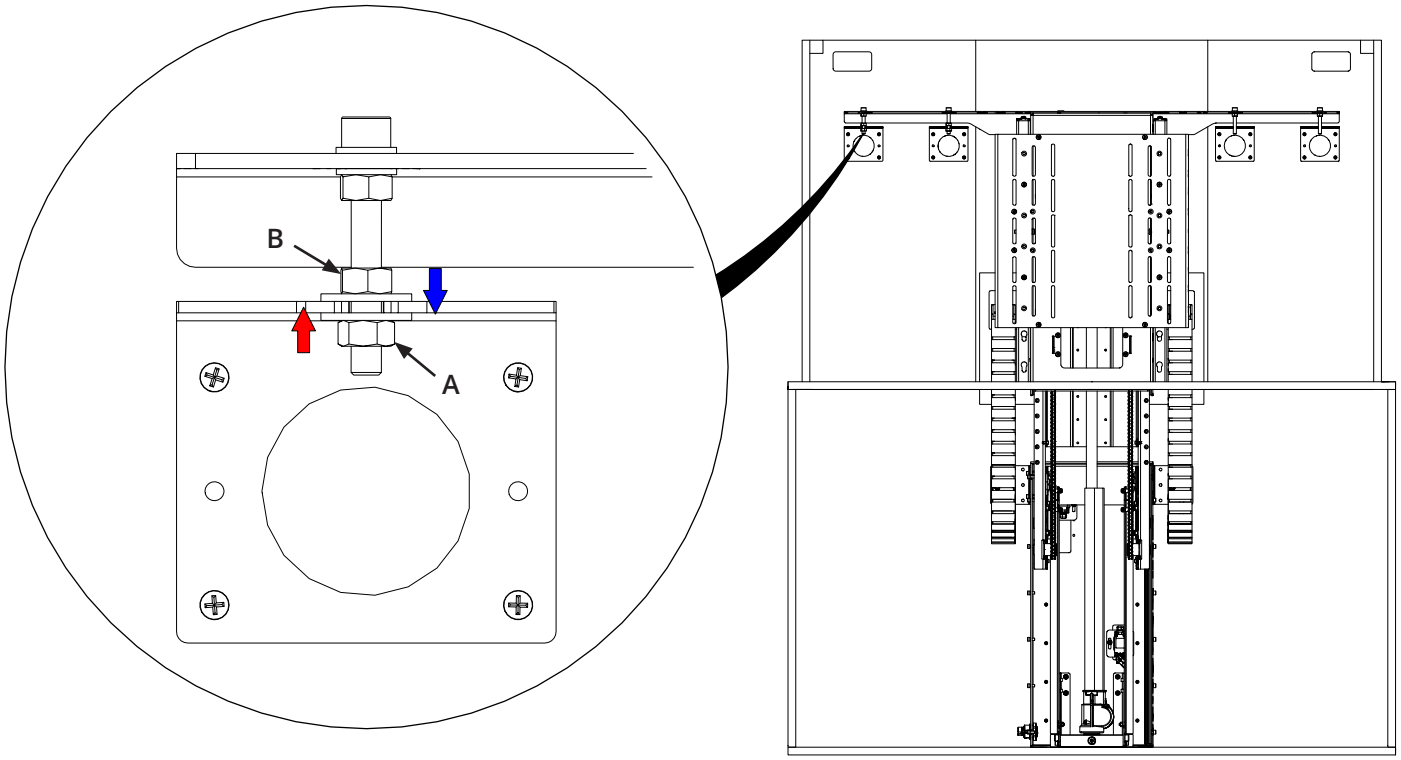


7

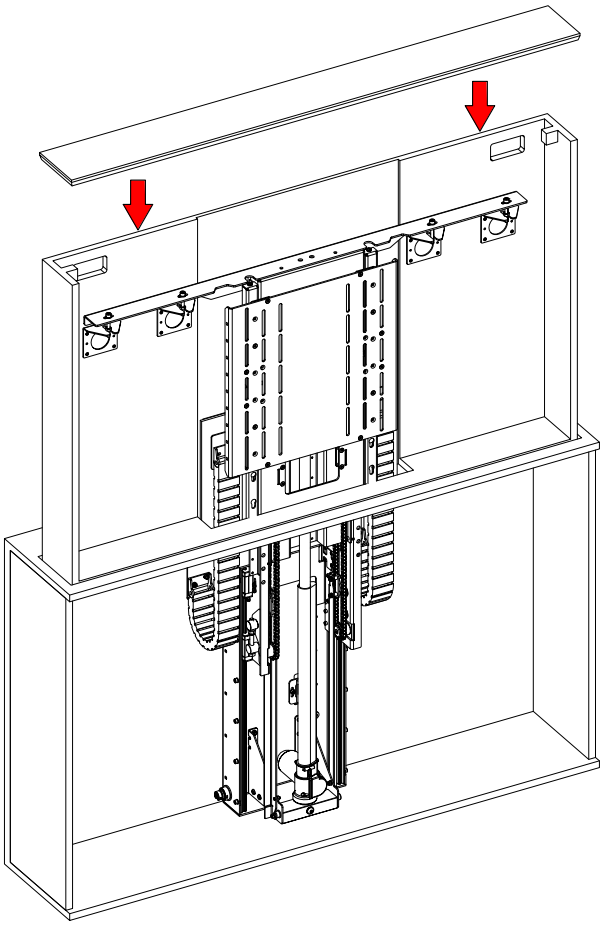
Use the ‘IN’ and ‘STOP’ buttons on the IR remote to carefully guide the box enclosure through the aperture to check it fits correctly.

8 Once the box enclosure is in the desired position, press ‘OUT’ on the IR remote and tighten nuts A and B and all other fixings on the top brace.





SWITCH
ADJUSTMENT

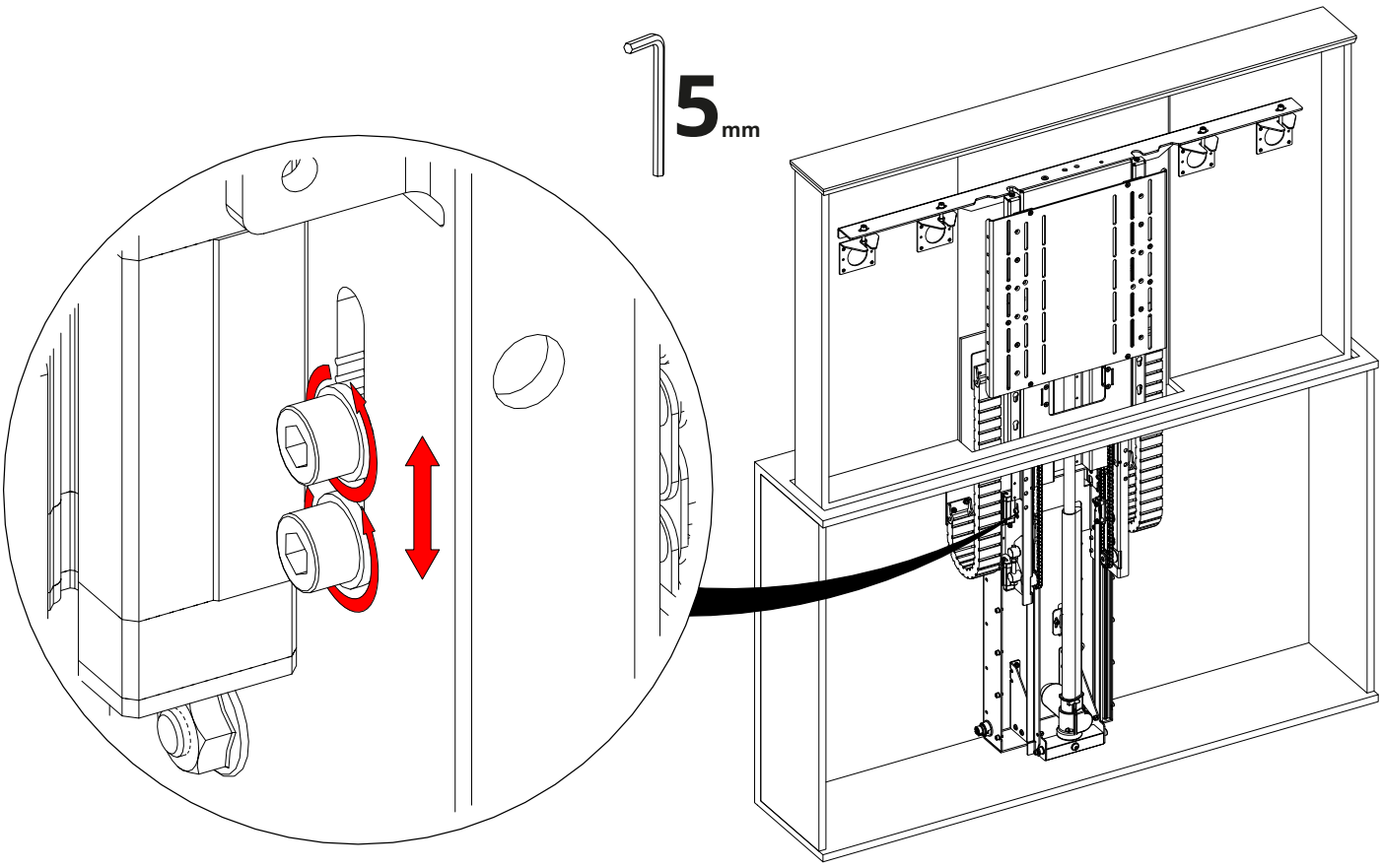


1

Place the cabinet lid on top of the box enclosure.

2

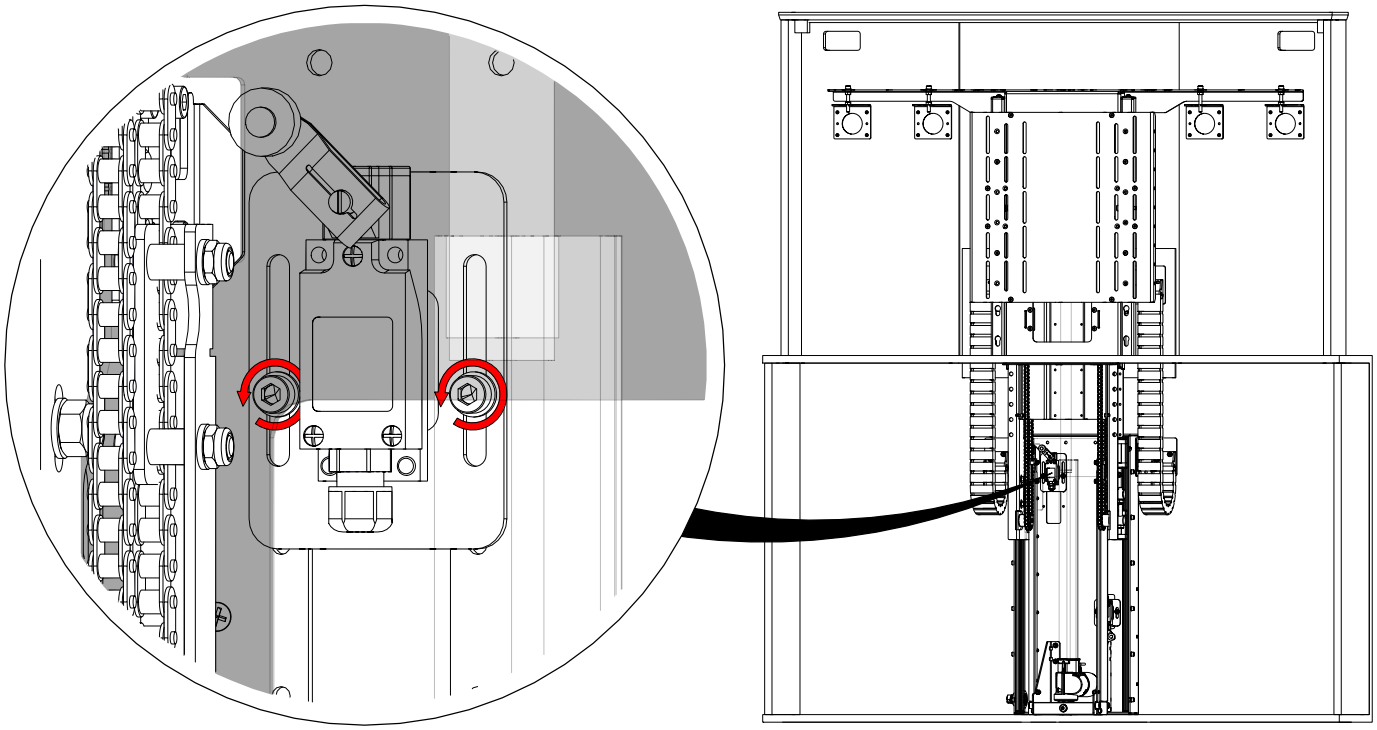
Loosen the two bolts shown below. Shift up or down to adjust the ‘OUT’ position.



SWITCH
ADJUSTMENT CONT.

3 For larger adjustments, loosen the bolts shown below and shift the switch bracket up or down.

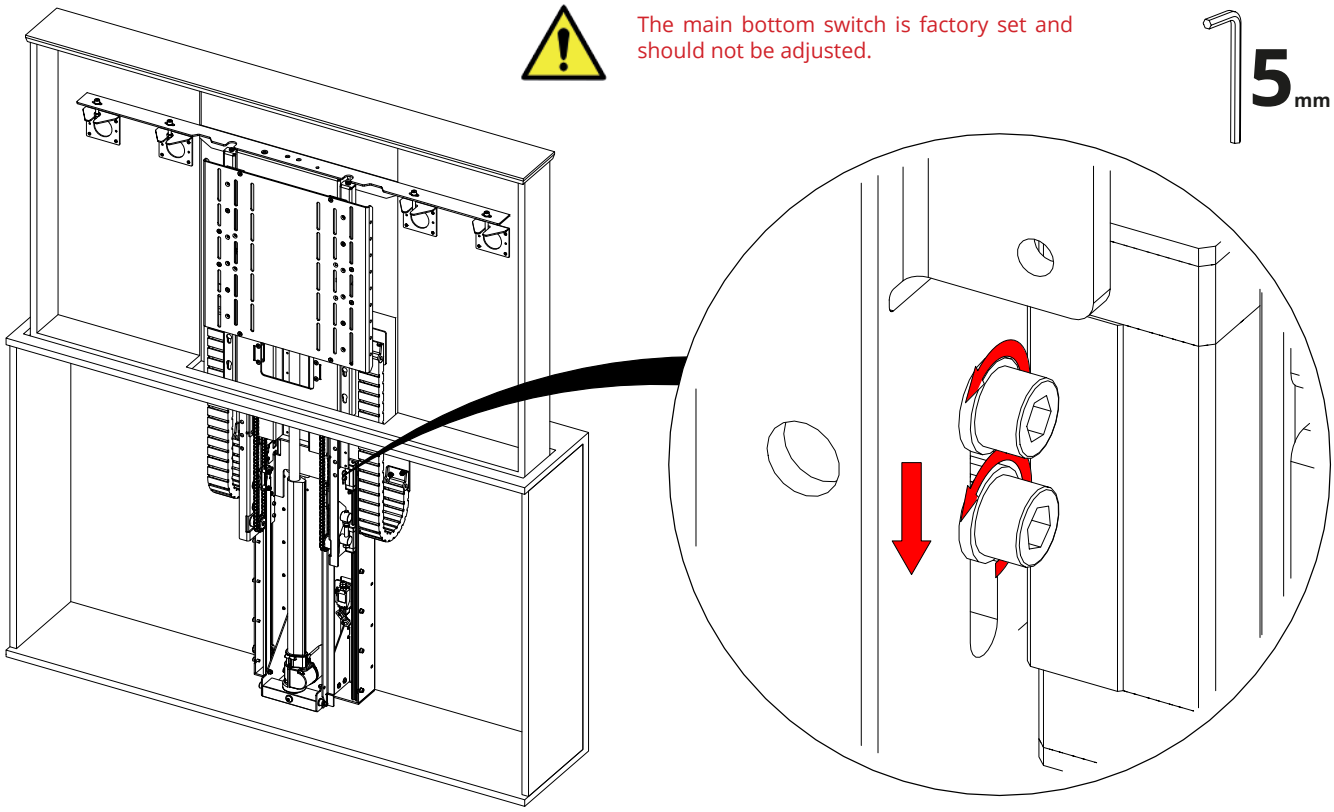
5mm



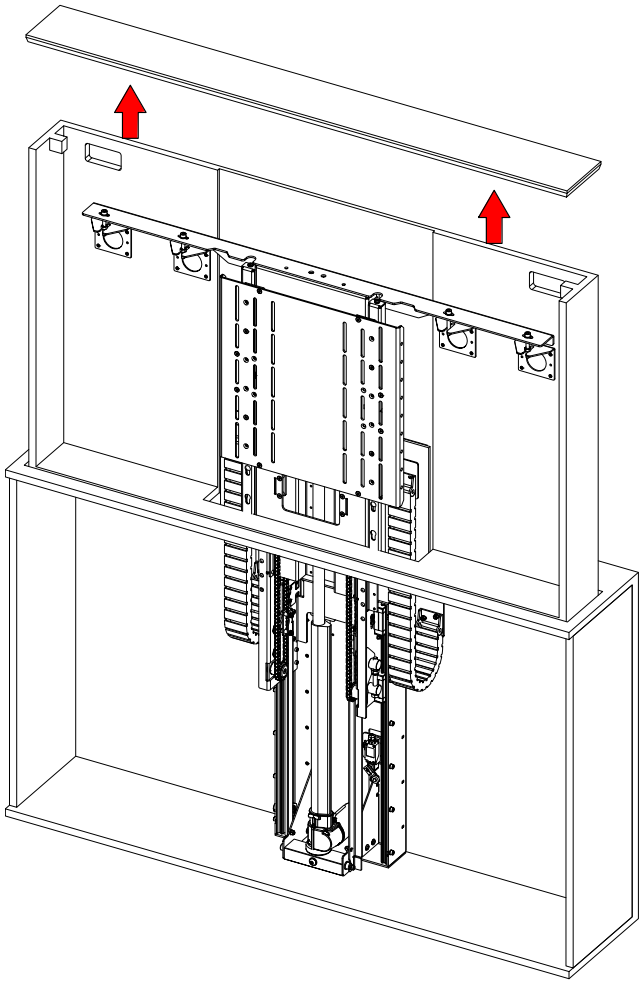
4 The ‘IN’ switch is factory set to the lowest position, only adjust upwards.

The main bottom switch is factory set and should not be adjusted.

5mm

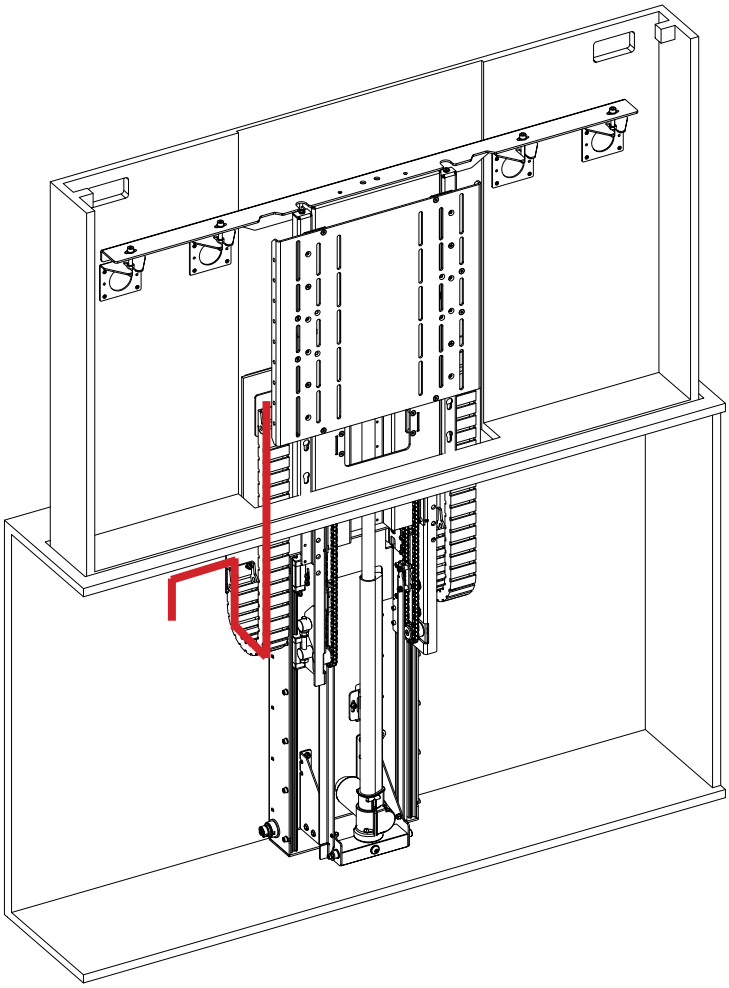


CABLE
MANAGEMENT



1

Remove the cabinet lid.

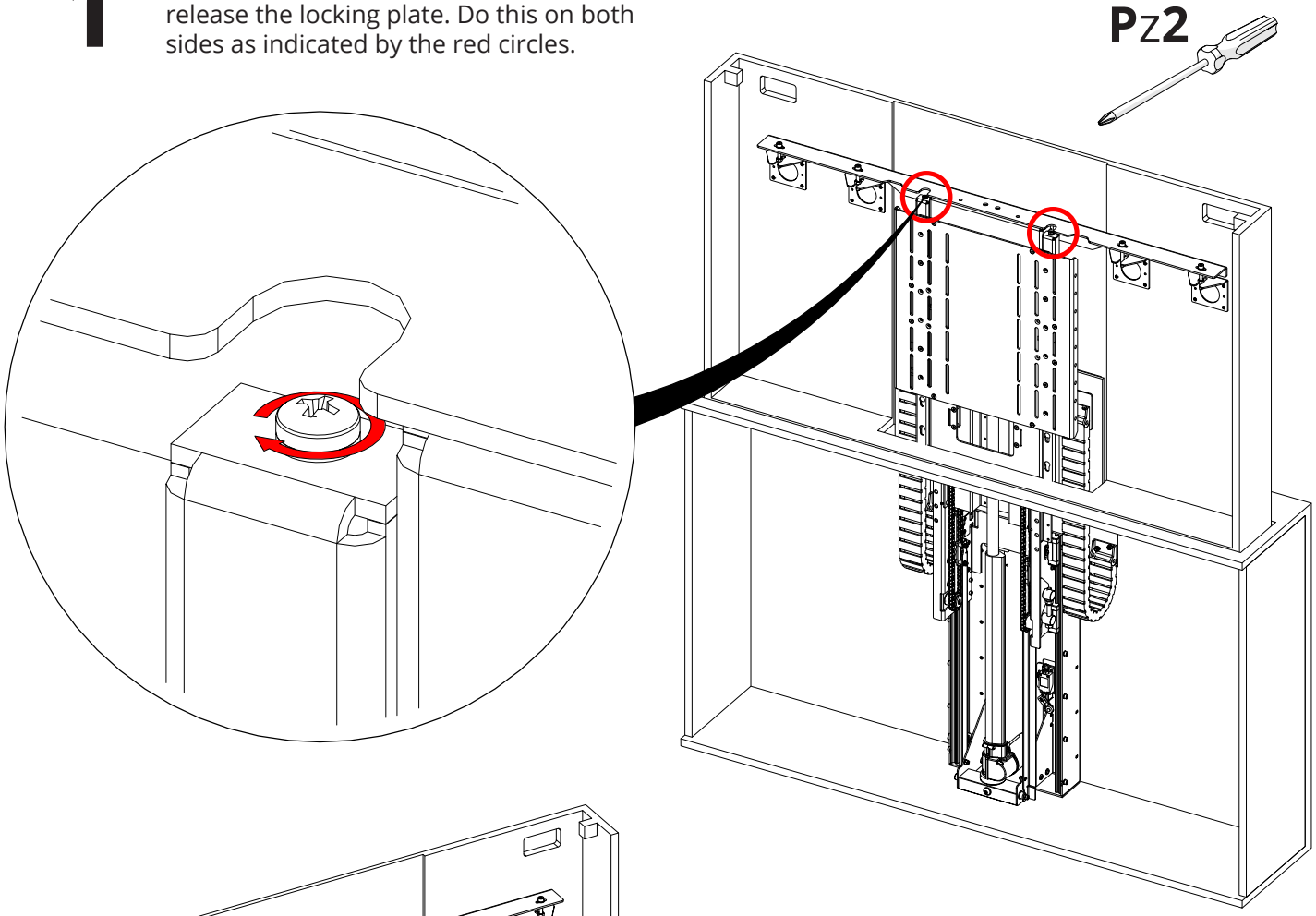


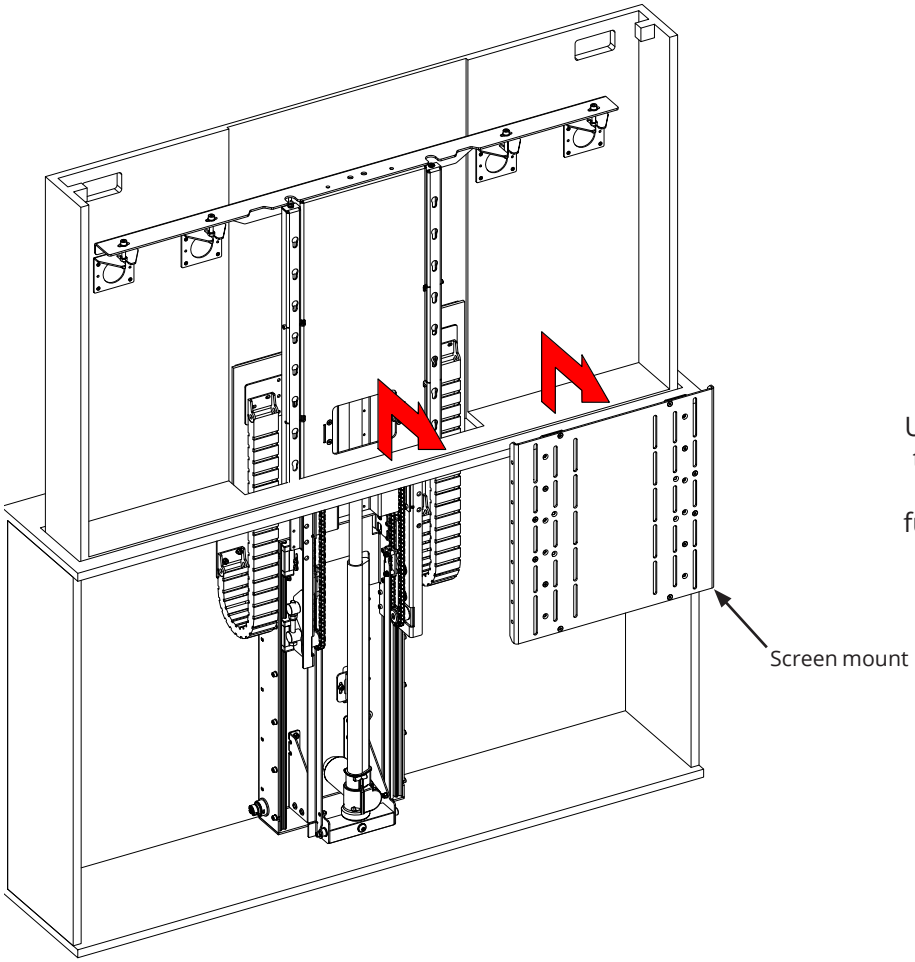
2

Screen cables should be run into the cabinet, through the cable management chain and up to the screen mount.

SCREEN
MOUNTING

1 Turn the bolt shown below clockwise to release the locking plate. Do this on both sides as indicated by the red circles.





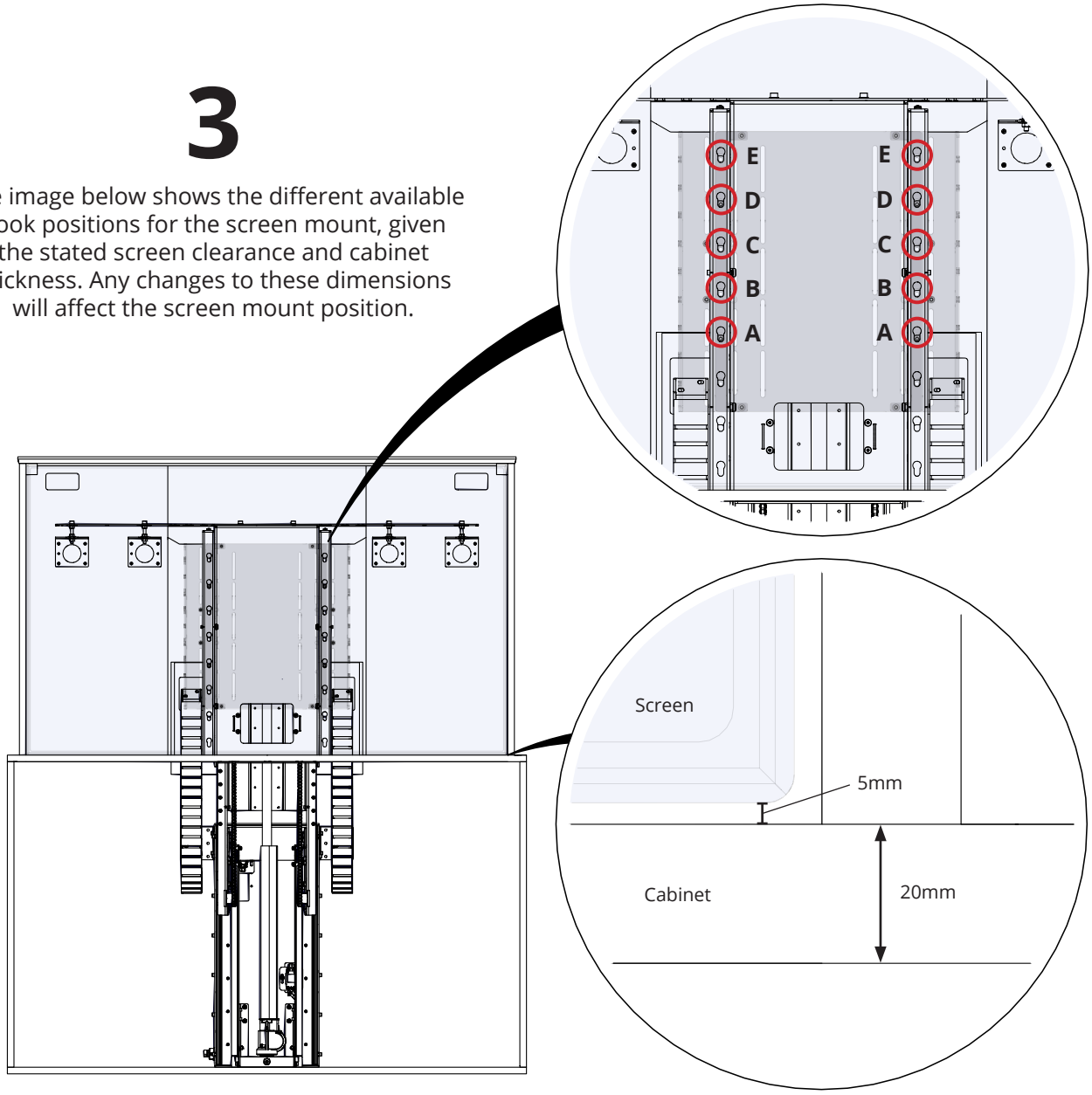
2

Unhook the screen mount from the mechanism. If it cannot be unhooked, repeat step 1 and further turn the bolts clockwise.

SCREEN
MOUNTING CONT.

3

The image below shows the different available hook positions for the screen mount, given the stated screen clearance and cabinet thickness. Any changes to these dimensions will affect the screen mount position.



4 Place the screen mount on the back of the screen. Based on the mechanism size, use the tables shown below to position the screen mount until the VESA pattern is accessible.

TOP OF SCREEN

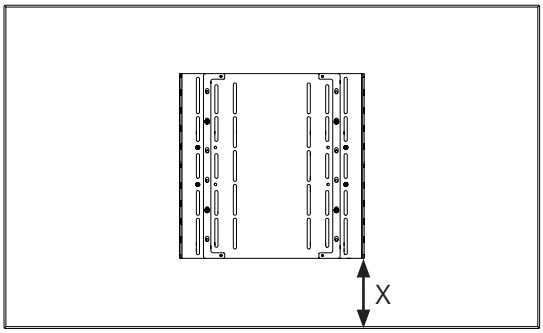


Table 1 - Mech. Size 2:

Dimension X (mm)	Top Hook Position
55 [2 3/16"]	C
135 [5 5/16"]	D
215 [8 7/16"]	E

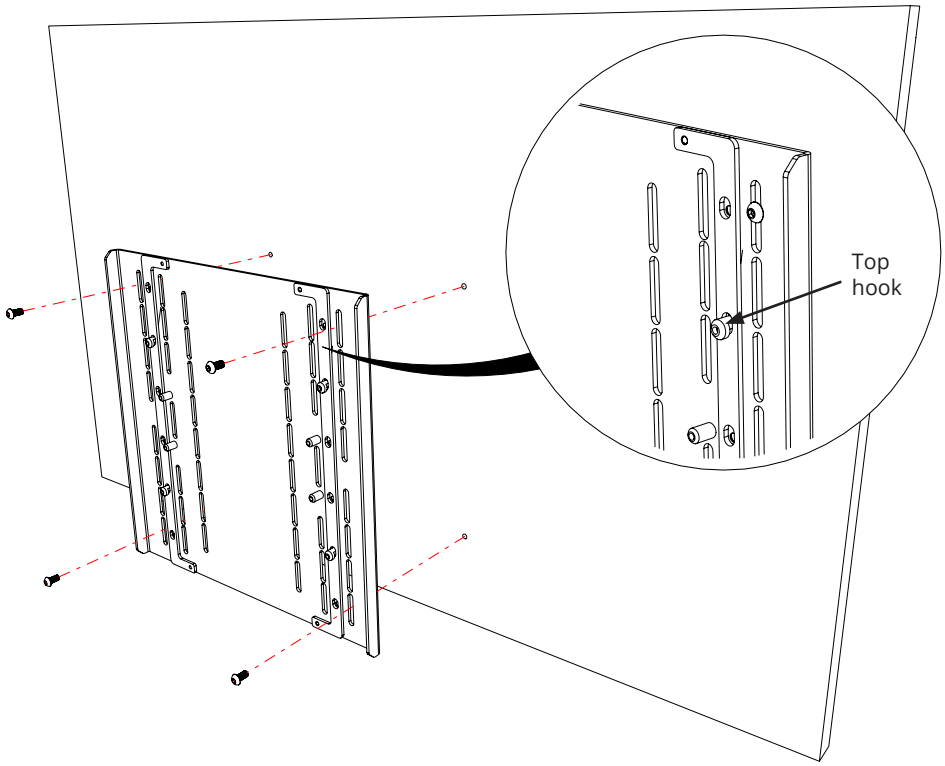
Table 2 - Mech. Size 3:

Dimension X (mm)	Top Hook Position
60 [2 3/8"]	A
140 [5 1/2"]	B
220 [8 11/16"]	C
300 [11 13/16"]	D
380 [14 15/16"]	E

SCREEN
MOUNTING CONT.

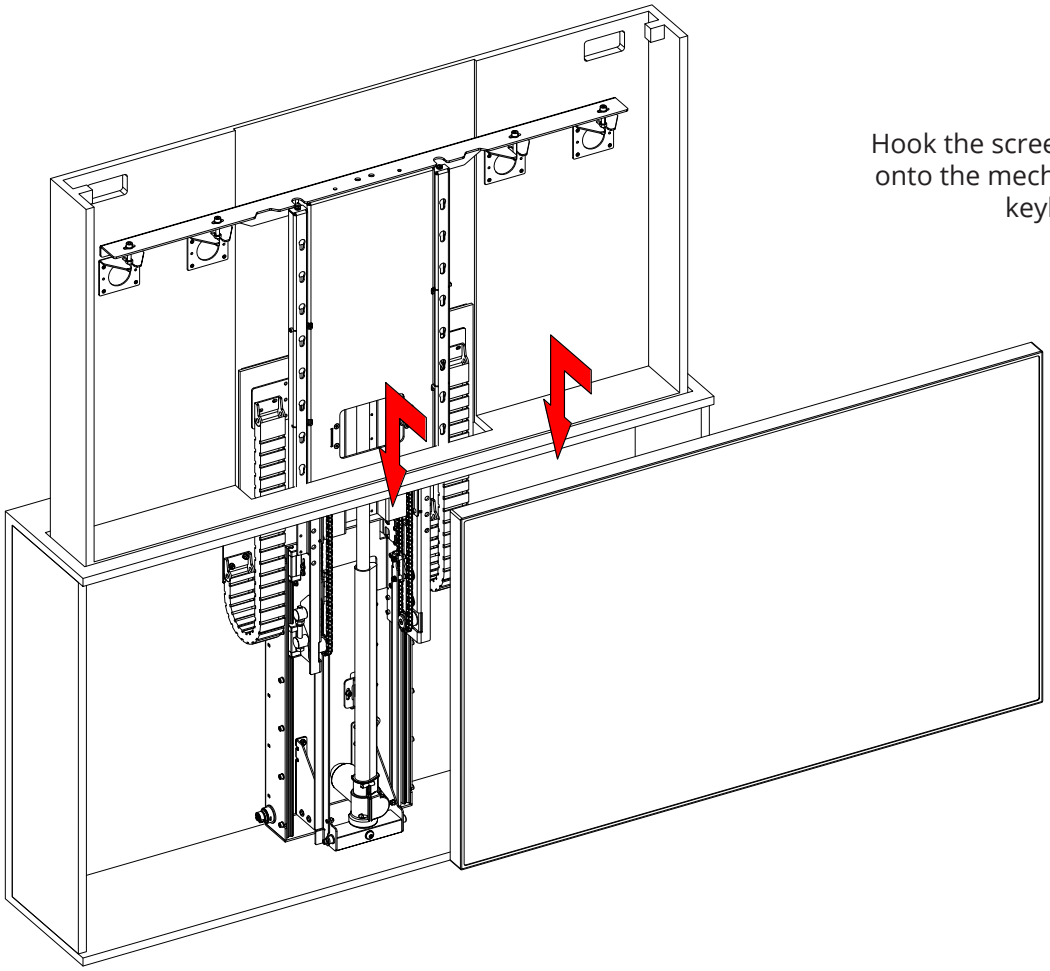
5

Once the screen mount is in the correct position, bolt it to the screen.



6

Hook the screen mount and screen onto the mechanism in the correct keyhole slots.

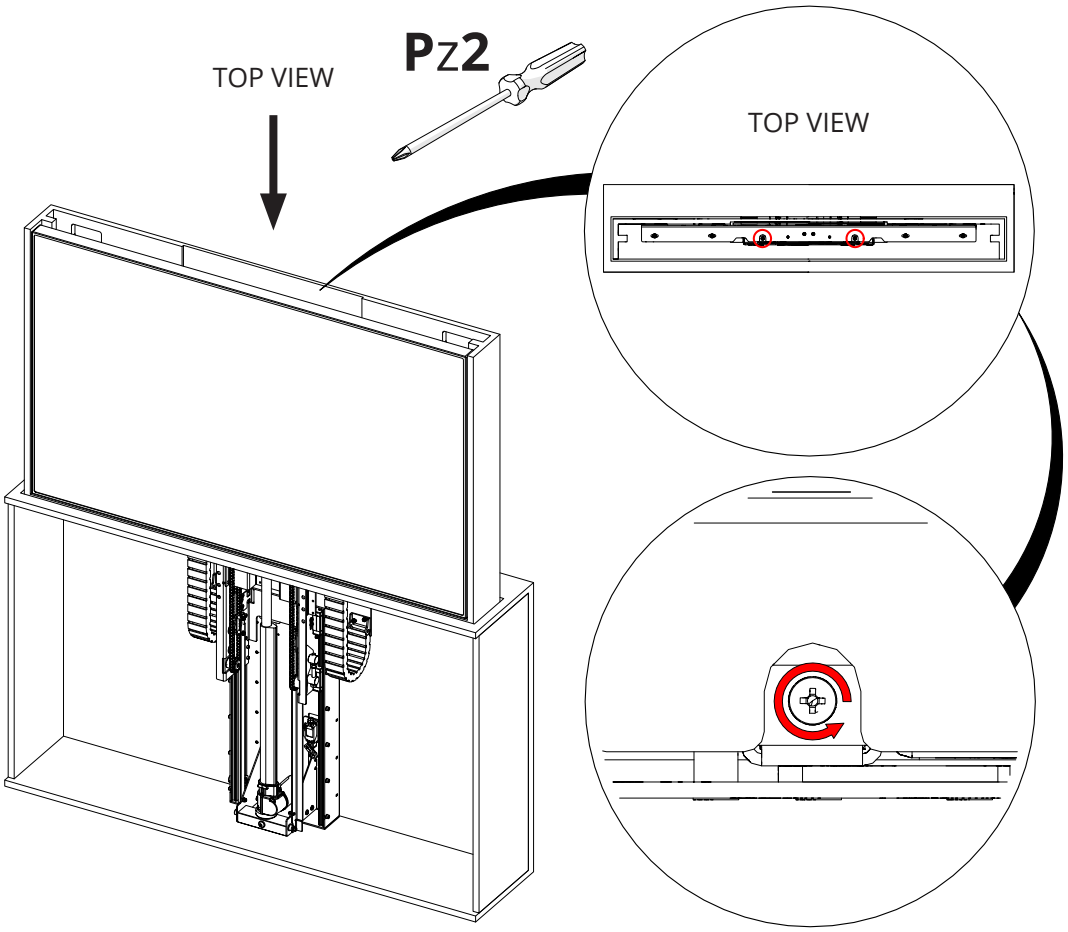


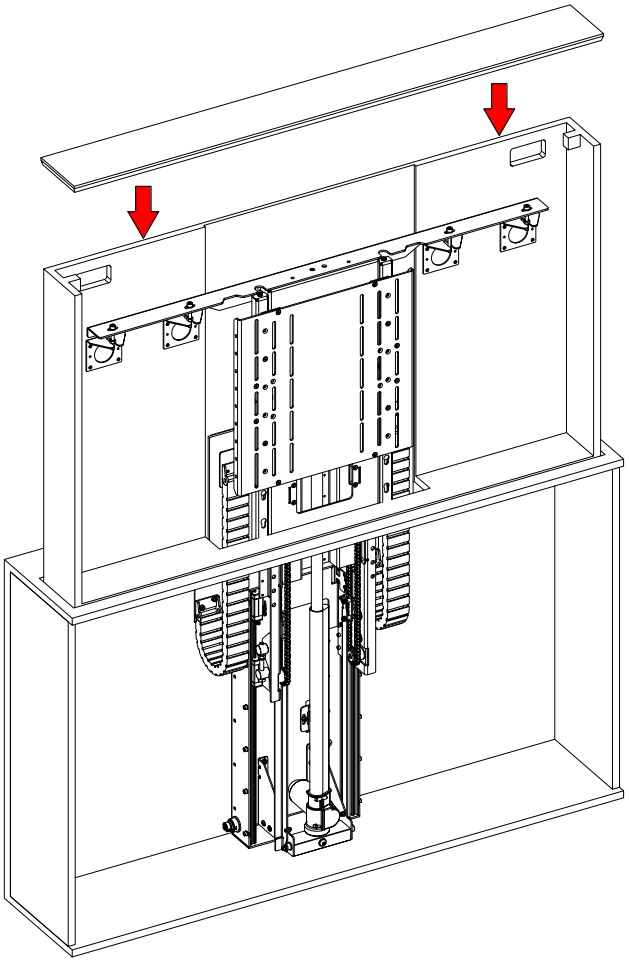
SCREEN
MOUNTING CONT.

7

To lock the screen and screen mount in place, turn the pozi head bolts at the top of the mechanism anti-clockwise until there is resistance.

The total weight of the screen and the enclosure must not exceed 75kg (165lbs).





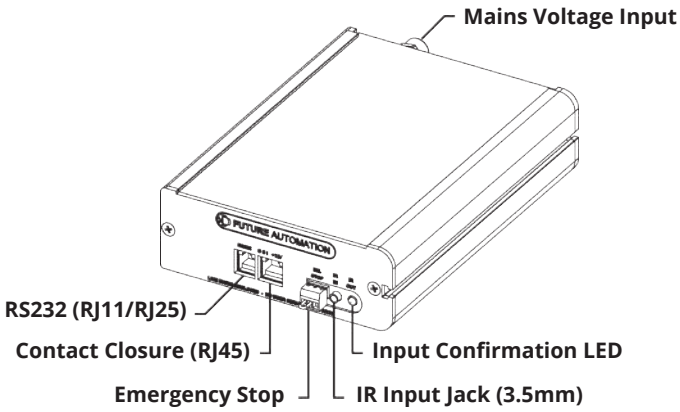
8

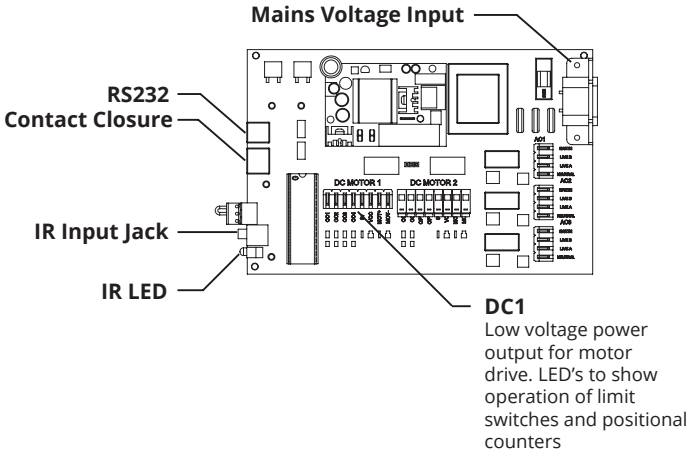
Reattach the cabinet lid. Press the 'IN' button on the IR remote to check it fits correctly.

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

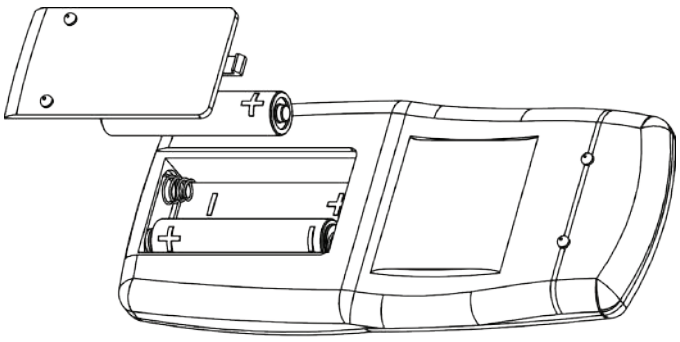
This mechanism features an Emergency Stop Connector, which MUST be plugged into the control box in the connector labelled above for the mechanism to operate. If this connector is not plugged in, the Input Confirmation LED will be permanently lit. As per the red plastic tag attached to the Emergency Stop 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 requires x2 AAA batteries to operate. These are provided with the mechanism in the Accessories Pack. These batteries can be replaced as per the image below.



INFRARED
(IR)

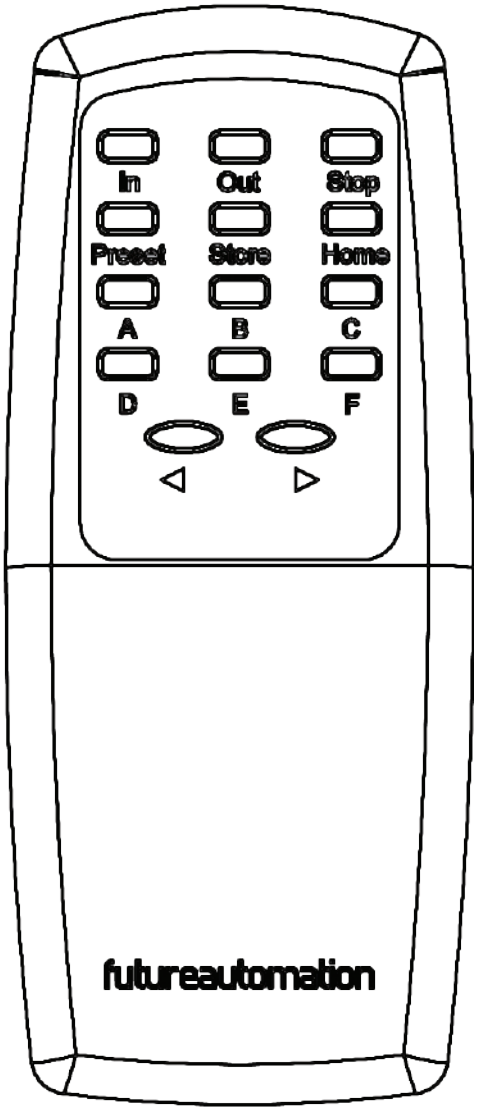
This mechanism can be controlled via the supplied 14 button Infrared (IR) Remote Control, paired with the supplied Infrared (IR) lead and sensor.

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 via line of site, the Infrared (IR) sensor must be directly viewable from the location the remote control is being used from.

Infrared (IR) Remote Control Button Layout



IN - The mechanism is brought fully in.

OUT - Raises the mechanism fully out.

STOP - Stops the operation of the mechanism.

IMPORTANT

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

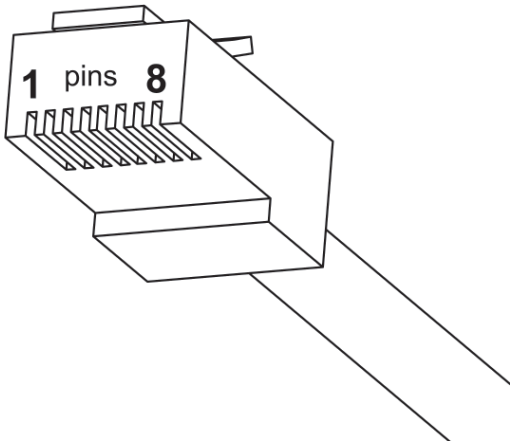
CONTACT CLOSURE

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

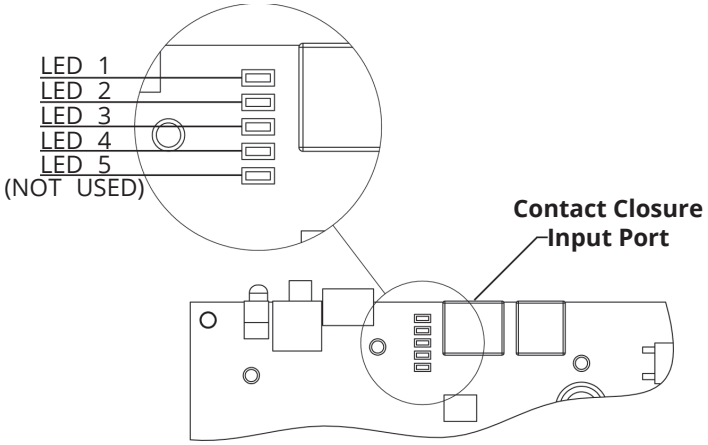
The mechanism's functions can be controlled by plugging this into the RJ45 port on the mechanism control board, then shorting pins 1-8 on this connector as shown in the Contact Closure Input Table below.

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

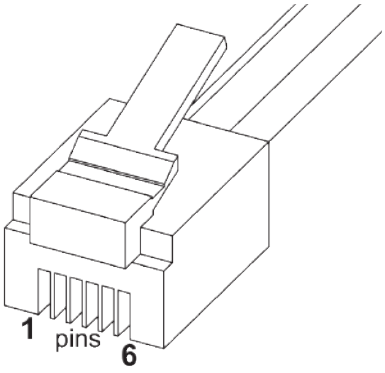
This Mechanism can be controlled via RS232, utilising a 6 Pin RJ11/RJ25 connector OR 9 Pin Serial connector attached to a length of 6 core cable.

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.

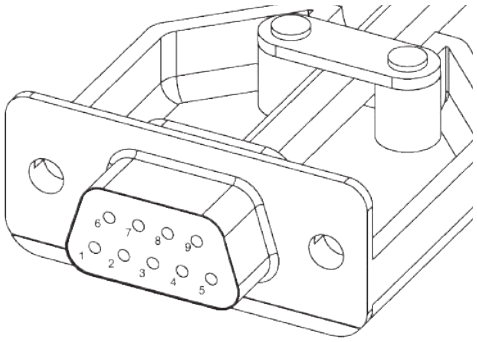
RJ11/RJ25 PIN LAYOUT

PIN 1: 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-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)

TSLM TELESCOPIC SCREEN LIFT

MEDIUM

future automation

GENERAL MITIGATIONS:
- Implement hold and run (Dead man switch operation).
- Control methods should be located within direct line of sight of the mechanism.
- Implement password or key switch protected operation.

HIGH RISK - CRUSH HAZARD
Crush hazard between the top panel and the cabinet top as the lift closes.

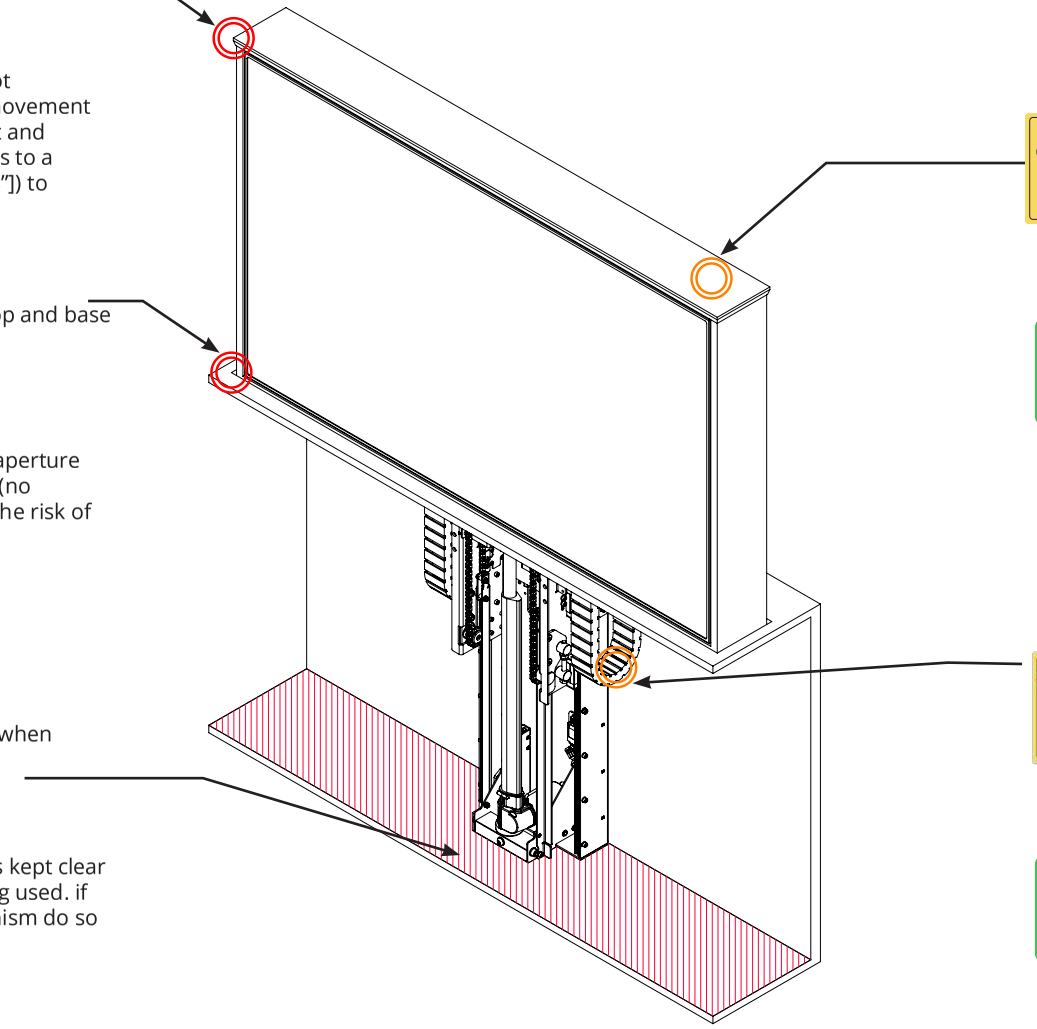
MITIGATION
The top panel can also be floating/not permanently fixed to allow vertical movement if an obstruction is caught between it and the cabinet top. Keep all shadow gaps to a minimum (no smaller than 3mm [1/8”]) to reduce the risk of obstruction.

HIGH RISK - CRUSH HAZARD
Crush hazard between the cabinet top and base panel as the mechanism opens.

MITIGATION
Keep the gaps between the cabinet aperture and the moving panels to minimum (no smaller than 3mm [1/8”]) to reduce the risk of obstruction.

HIGH RISK - CRUSH HAZARD
Crush hazard below the mechanism when mechanism is closing.

MITIGATION
Ensure area below the mechanism is kept clear at all times when mechanism is being used. if installing or maintaining the mechanism do so with the mechanism turned off.



LOW RISK - FALLING OBJECT HAZARD
Falling objects hazard if items are left on the top panel.

MITIGATION
See general mitigations.

LOW RISK - CABLE SNAGGING HAZARD
Cables could be snagged if not properly managed through and round the mechanism and electronics.

MITIGATION
Ensure sufficient cable slack is allowed around movement joints to prevent stretching and/or damage to the cables and /or mechanism.

The installer is responsible for conducting a site-specific risk assessment. Due to the unique conditions of each installation, Future Automation cannot provide an exhaustive list of all potential risks. Installers must ensure that all risks associated with installation, operation, and maintenance are identified and mitigated in accordance with applicable legislation and best practice.
Further safety and servicing guidance is available at:
www.futureautomation.net/safety

NOTES



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