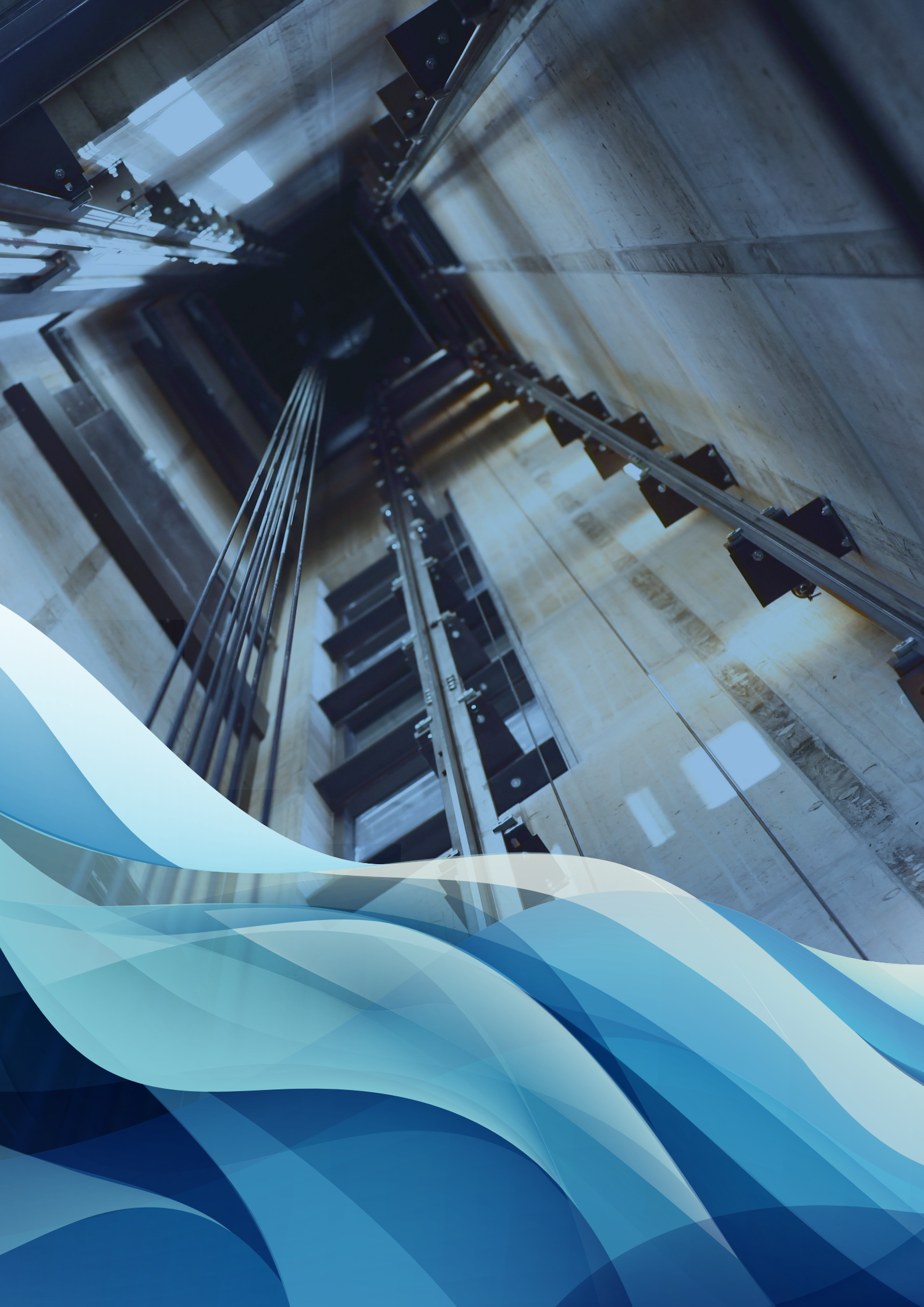
VG AiO Speed Watcher

Technical Manual

Version 1.1

ATWELL INTERNATIONAL



Contents

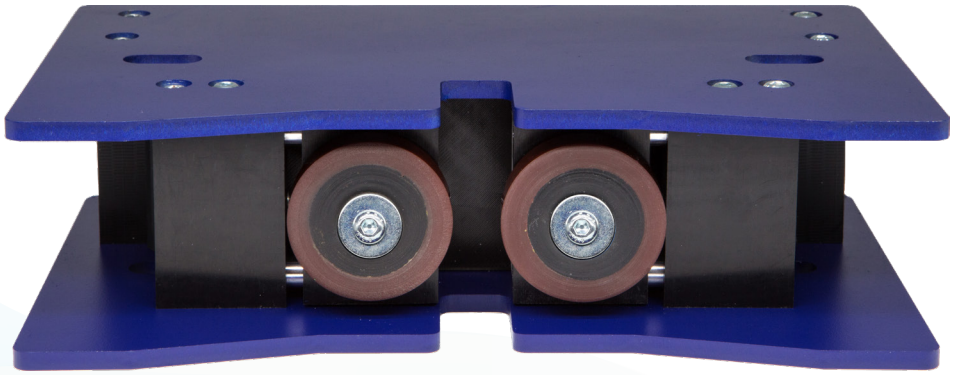
Overview

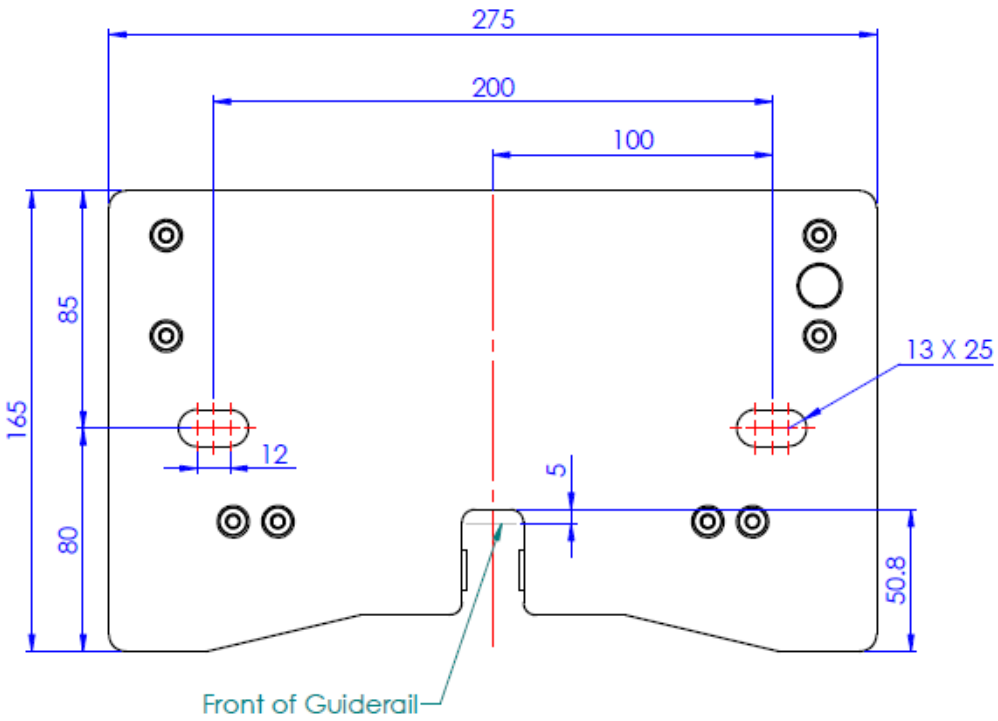
The VG AiO Speed Watcher is a revolution in speed control and uncontrolled movement detection for the lift industry. The UMD and overspeed detection system is located on the lift car and uses two speed and movement sensors which run on the car guide rail. The two 50mm diameter wheels self-adjust to the size of the rail from 9mm to 19mm as standard. Each wheel is mounted into a sprung loaded carriage which allows constant pressure on the guide rail ensuring contact is always maintained between the wheel and guide rail. The internal Overspeed Governor / UMD Control technology is designed to be the system which controls the state of the electro-mechanical braking system, independently monitoring the lift for movement, speed and the interface to the main lift controller.

The completely self-contained system means that there is no requirement for a traditional friction or drop jaw overspeed governor, tension weight system, governor rope or mechanical connection kits either vertically or horizontally across the car.

To do this, the VG AiO requires a battery back-up power supply (which must be supplied by the installer or optional accessory) to allow the VG Safety Gears to remain set during mains power loss, deployment diagnostics as required, and brake reset functions.

The VG AiO Speed Watcher is housed in a steel constructed frame with an identical footprint of the VG8 Safety Gear. Fail Safe Design, easy site wiring especially with plug and socket arrangement to assist on site wiring.

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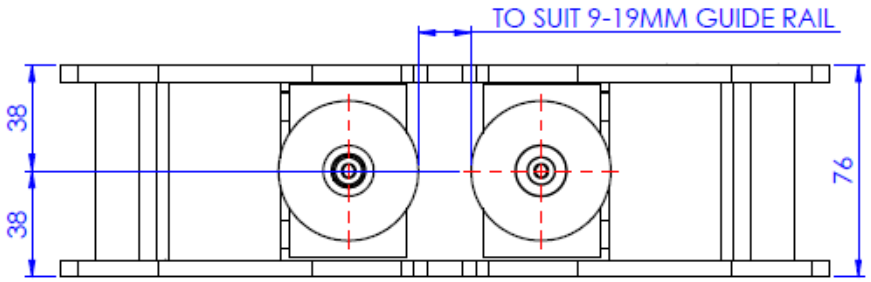
TO SUIT 9-19MM GUIDE RAIL
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BSI Certification

Product Description and Certificates

Building on the previous success of the BSI Certified UMD-SRB02 Control Box Atwell International have taken this tested technology and have fitted it into a self-contained overspeed governor which is now fitted to the lift car.

The VG AiO has the same frame as the VG8 Safety Gear and is now certified by BSI:

- Company name and Address: Atwell International Ltd, Ball Mill Top Business Park, Hallow, Worcester WR2 6PD, United Kingdom.
- Holds Certificate Number: CE 793061
- In respect of Unintended Car Movement Protection (UCMP), Ascending Car Overspeed Protection (ACOP) and means of tripping the safety gear - models: UMD-SRB02 and VG AiO Speed Watcher - subsystems Detection and Activation only.
- Company name and Address: Atwell International Ltd, Ball Mill Top Business Park, Hallow, Worcester WR2 6PD, United Kingdom.
- Holds Certificate Number: CE 793060
- In respect of Safety Circuits - models: UMD-SRB02 and VG AiO Speed Watcher

Design Considerations

BS EN 81-20:2020 States at

5.6.2.2 Means of tripping the safety gear

5.6.2.2.1 Tripping by overspeed governor

55.6.2.2.1.1 General provisions

The following shall be satisfied:

Tripping of the overspeed governor for the safety gear shall occur at a speed at least equal to 115 % of the rated speed and less than:

1. 0.8 m/s for instantaneous safety gears except for the captive roller type; or
2. 1 m/s for safety gears of the captive roller type; or
3. 1.50 m/s for progressive safety gear used for rated speeds not exceeding 1.0 m/s; or
4. 1.25 v + 0.25/v, expressed in metres per second, for progressive safety gear for rated speeds exceeding 1.0 m/s.

For lifts where the rated speed exceeds 1.0 m/s, it is recommended to choose a tripping speed as close as possible to the value required in 4) above.

For lifts with low rated speed, it is recommended to choose a tripping speed as close as possible to the lower limit indicated above.

Response time:

In order to ensure tripping of the overspeed governor before a dangerous speed can be reached (see EN 81-50:2020, 5.3.2.3.1), the maximum distance between tripping points on the governor shall not exceed 250 mm related to the movement of the governor rope.

To put this into context based on an average 8 person lift with a lift speed of 1.0m/s:

- Contract Load (Q) = 600kg (8 person x 75kg)
- Car Mass (P) = 950kg
- Total P+Q = 1550kg
- Lift Speed = 1.0m/s
- Overspeed Governor Trip Speed = 1.3m/s
- Safety gear Operating speed = 1.3m/s
- Standard Friction Type OSG has 4 latching points at 250mm spacing to meet the requirement of EN81-20 / 50:2020.

Design Considerations

Therefore, in a Free Fall Condition, worst case scenario is the OSG misses the first latching point and travels 250mm until reaching the second latching point:

- Drop Height = 250mm
- Total P+Q = 1550kg
- Actual Speed of lift after 250mm of free fall = 2.21m/s
- Time taken to move 250mm = 0.23s
- Total energy to dissipate to stop the lift = 3797.50 joules

This is based on:

- The force of gravity, g = 9.8 m/s^2

  Gravity accelerates you at 9.8 meters per second per second. After one second, you're falling 9.8 m/s. After two seconds, you're falling 19.6 m/s, and so on.
- Time to Engagement: √ (2 * height / 9.8)

  It's the square root because you fall faster the longer you fall.
- Velocity at engagement time: √ (2 * g * height)

  This is why falling from a higher height hurts more.
- Energy at engagement time: 1/2 * mass * velocity2 = mass * g * height

These calculations do not consider air friction or any other form of friction, so reality is not quite as simple as the theory. It also does not consider the mechanical reaction times of the brakes. Which means the lift is still accelerating after activation of the OSG to deployment and engagement of the safety gears (the point at which braking starts).

The important figures in this example are:

- Actual speed of lift after 250mm of free fall = 2.21m/s
- Time taken to move 250mm = 0.23s

So, by reducing the reaction time, we can reduce the activation speed. A reduced activation speed means the less distance the lift will fall, and the safety gear will operate closer to the designed activation speed.

This is the basis of the VG AiO Speed Watcher – faster reaction times = safer lift.

Target Reaction Time = 0.002s or 100% improvement.

What that means when using the same example controlled by the VG AiO.

- Drop Height = 86mm
- Total P+Q = 1550kg
- Actual Speed of lift after 86mm of free fall = 1.3m/s
- Time taken to move 86mm = 0.13s
- Total energy to dissipate to stop the lift = 1306.34 joules

How to order the VG AiO Speed Watcher

The existing VG Safety Gear site survey form has been adapted to make ordering a new VG AiO Speed Watcher as straight forward as possible. The form should be completed with as much detail as possible from site to ensure the VG AiO Speed Watcher and fixings arrive on site correctly.

A copy of the form is available upon request:

VG AiO ENQUIRY FORM

Section A – Job Specification	
Job No. (By Atwell International)	
Company Name:	
Contact Name:	
Site Name:	
Lift Reference:	
Your Reference No.	
Section B – Information Required	
Car & Sling Mass (P)	kg
Duty Load (Q)	kg
Car Height	mm
Lift Speed	m/sec
Trip Speed	m/sec
Tracel	m
Distance Between Guides	mm
Guide Rail Blade Width	mm
Guard Rail Type (T89 etc)	
Section C – Safety Gear	
Down Acting Only	
Bi-Directional	
Safety Gears Below Lift Car	
Safety Gears Above Lift Car	
Safety Gears Above and Below	
Section D – Optional Extras	
Interface Terminal Box	
WiFi Router	
Break Glass Overide	
8“ Display Screen	

Specification

Operation

The internal sensors monitor two wheels which remain in contact with the guide rail at all times to activate the VG Safety Gear when either uncontrolled movement or overspeed in either direction is detected. The VG AiO connects to the main lift control panel.

The VG AiO Speed Watcher will receive an external signal to say that the lift doors are open, which will activate the system to "Monitor for movement".

As the lift car moves so do the sensor wheels, which in turn rotates two encoder discs within the VG AiO Speed Watcher enabling the control system to monitor both movement and lift direction. In accordance with EN20/50, if movement is detected above the predetermined limit of 50mm to 900mm, (actual pre-set limit is 150mm but can be modified to suit customer requirements) the VG AiO will cause all safety systems to be deployed. Once deployed, the controller should deliberately not allow the lift to run or revert to a normal state until the safety gear has been reset.

If no movement is detected and the VG AiO receives a signal to say doors are closed it will deactivate and allow the normal operation of the lift and primary safety circuit. The system will always deploy the VG Safety Gear immediately and interrupt the main lift safety circuit if overspeed or uncontrolled movement is signalled. The standard sensors work within a range of 0.10m/s up to 7.75m/s.

During its operation, the VG AiO will also continue to monitor the integrity of the sensor assembly. It will also monitor the status of the VG Safety Gear.

It will continually perform a simple self-diagnostic test to ensure all sensors are working, if a fault develops a fault signal will be sent to the main lift control panel. We suggest this is used to request the lift is brought to a halt at the next floor and open the doors (Please note the VG AiO can only send the signal and not control stopping of the lift). During this time whilst the doors are open the system will continue to detect excessive movement or overspeed.

There are other functions included within the system such as an indication of status to assist fault finding and a section to reset the safety gear. There is also the facility for manual override to test the deployment of the VG Safety Gear, and an ability to bypass the door open signal (allowing car top control, without deploying the VG Safety Gear).

Power loss to the main lift can be covered by the battery back-up so the safety gears do not deploy immediately. But, if during the power loss of the main lift panel, excessive movement occurs, or the overspeed is detected the VG Safety Gear will be deployed and a full reset will be required, once the power is restored.

The System

The VG AiO has been designed and constructed to comply with all current CE requirements, i.e. EMC, Low Voltage, RoHS, WEEE and more specifically to meet the requirements of EN 81-20:2020 5.6. Precautions against freefall, excessive speed, unintended car movement and creeping of the car.

An optional 12-volt battery back-up Power feed and lift panel connections will be the responsibility of the end customer. Back-up can be supplied upon request.

Specification

Overspeed Detection

Functionality: - The VG AiO Speed Watcher will monitor various speeds during the operation of the lift. It will monitor Levelling Speed, Re-Levelling Speed, Normal Contract Speed and Test Speed:

- Speed and movement sensing – 2 fully independent sensors with quadrature displacement providing self-checking and redundancy.
- 12 volt DC Mains power supply
- Battery Back-up and charging circuits.
- Certified Safety circuits.
- Sprung loaded mounting of monitoring system – allows various widths of guide rails to be accommodated (9mm – 19mm as standard).
- Remote Reset Facility for both governor and VG8 Safety Gear. Remote is taken as not in the lift shaft but on the landing or motor room.
- Self-checking.
- Wi-Fi connectivity to secure MAC address
- On board data logging.
- Simplified input / output signals with push fit wire connectors.

Required Signals

The VG AiO Speed Watcher will require an input power supply of 12 – 14.5v DC at 4 Amps.

The system requires the following signals and connections to the external contacts to enable it to operate.

- Doors Open / Closed Input signal.
- Lift Power OK.
- Motor On/Off.
- Option for Emergency Stop Deployment of safety gears
- E-Stop.

These inputs should be a connected to a dry / volt free, normally open, pair of relay contacts wired in parallel. It only requires a maximum switching current of 0.25A 12v DC.

Please note if this is via a relay and the lift loses mains power the above door signals will open.

Output signals from the controller will be volt free relay contacts. The contacts are rated for up to 2 Amp Max at 250v AC. These are:-

- Main Lift Safety Circuit Output Signal.
- Main Lift Alert Output Signal.

Specification

Handling, Transport and Storage

The components of this system have been carefully packaged for shipping, including strapping and strong tape. If you use a knife to cut open the boxes, please be very careful to ensure that you only cut through the tape and straps and not through the cardboard potentially damaging the components inside.

Please inspect the components of this system thoroughly prior to attempting to install it. If any part of the VG AiO or the supplied cables, has been or suspected to have been damaged or exposed to moisture, they should not be used. Please return them to Atwell International for examination and re-test.

Components Supplied

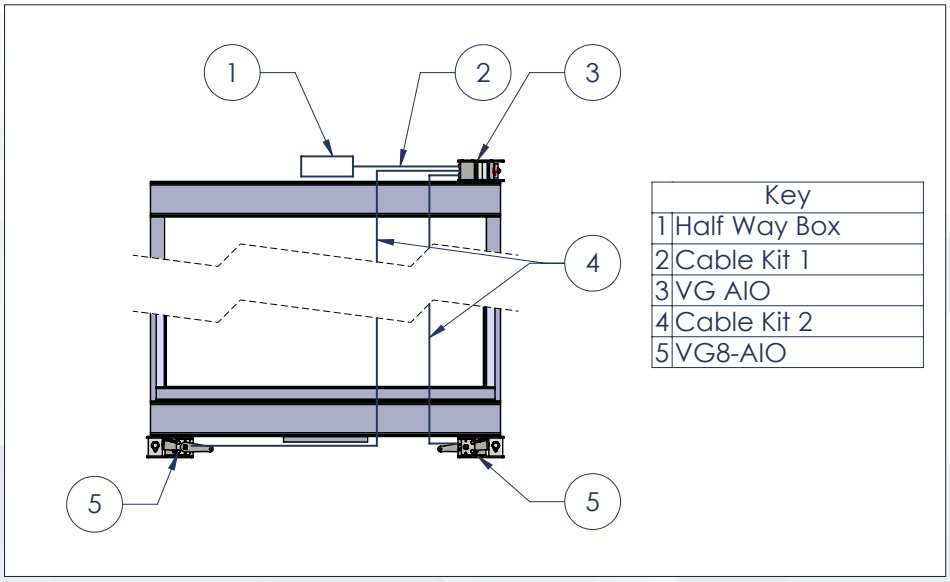
The system delivered to site will differ between single direction and bi-directional safety gear systems. Please check that all components listed below are delivered to site and have been received in good condition before attempting to install the system.

Standard Components - Single Direction Application

- 1x VG AiO Speed Watcher Unit
- 1x Left / right-hand Cable support bracket, 1 set M12 fixings.
- 1x cable Kit depending on enquiry form.
- 2x Electromechanical safety gears.
- 2x Inverted fitting kits
- 1x Router (Pre-programmed)

* *If DBG is greater than 2m please specify on the enquiry form.*

* *NOTE: If the VG AiO Speed Watcher is to be fitted above the car then the same 5m cable can be used. However, longer flat cables will be required. Please contact Atwell International at point of order.*



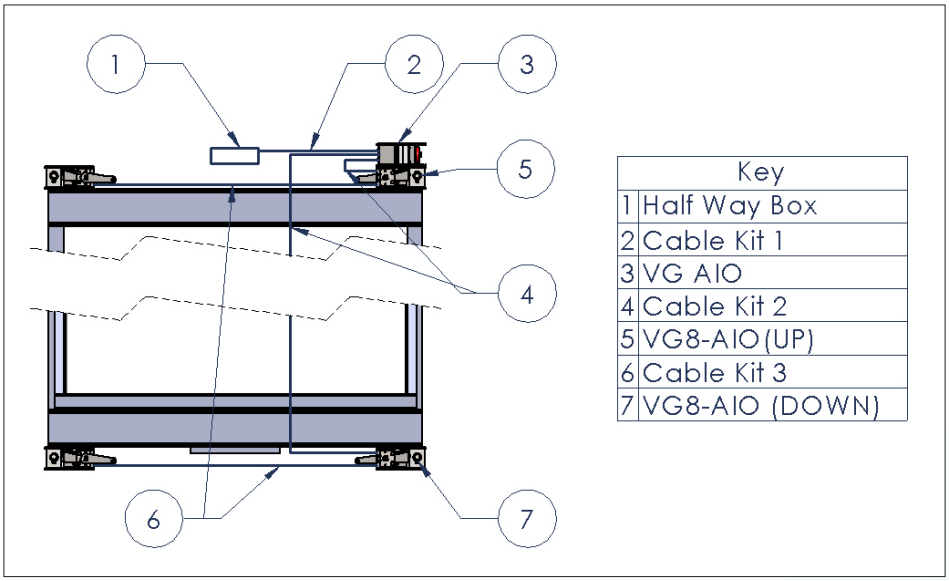
Specification

Standard Components - Bi-Directional Application. Below car only

- 1x VG AiO Speed watcher Unit
- 1x left / right-hand cable support bracket. 1 set M12 fixings.
- 4x Electro mechanical safety gears.
- 1x cable kit as per enquiry
- 3x Inverted fitting kits.
- 1x WiFi Router

* *If DBG is greater than 2m please specify on the enquiry form*

* *NOTE: If the VG AiO Speed Watcher is to be fitted above the car then the same 5m cable can be used. However, longer flat cables will be required. Please contact Atwell International at point of order.*



Key	
1	Half Way Box
2	Cable Kit 1
3	VG AIO
4	Cable Kit 2
5	VG8-AIO (UP)
6	Cable Kit 3
7	VG8-AIO (DOWN)

Optional Accessories

- Interface terminal box with 12v DC back up battery (if not available on site)
- Break Glass contact / Door Override switch (for firefighting lifts).
- Display screen
- VG8 Sling adapters.

Safety Notes

Responsibilities

Both employers and employees have a duty of care in relation to the health and safety of people or property which may be affected by their actions, or failure to act. Therefore, building owners or those who have responsibility for controlling buildings are required under the Management of Health and Safety at Work Regulations to ensure that their premises are safe and free from risk to health so far as is practicable. This includes access to the plant equipment and articles or substances used and in this respect will be relevant to the Workplace (Health, Safety, and Welfare) Regulations.

Installation, commissioning, and maintenance of this system should only be carried out by authorised persons who have received the necessary instruction because it is dangerous for any other persons to attempt to do so.

Any failure to take adequate precautions may render the authorised person guilty of negligence should an accident occur.

It is essential that a "Competent Person" has installed and commissioned this system. It is also essential that a "Competent Person" maintain this system in a safe manner and at regular intervals. The "Competent Person" must have had adequate training in theory and practice together with experience of the equipment in question; to enable a true assessment of its condition for continued safe operation.

No alterations, modifications or repairs to this system or its components should be undertaken without the written consent and advice or instruction of Atwell International. Any advice or instructions from the supplier must be followed; any deviation may risk the safe operation of the lift. Even if consent is given then all the risks associated with the work will have to be suitably and sufficiently assessed by the owner before these alterations are implemented.

No replacement parts other than those specified or supplied by the supplier Atwell International, should be used as incompatible parts may risk the safe operation of the lift. Genuine spares are available within 24 hours at a reasonable cost. But if spares are needed quicker, then the exact same or equivalent parts may be sourced locally, once the exact specification of those parts has been obtained and you have suitably assessed the implications of using non-standard parts. If there is any doubt, then you should render the lift out of service and contact Atwell International or one of its appointed agents for assistance.

Owners Obligations

The Owner of the Lift or any delegated party shall inform the Maintenance Company immediately:

a) About any detected abnormal functioning of the installation.
b) Before any modification work on the installation.
c) About any modification of any equipment or condition related to the installation which existed at the time of the original installation.

In the case of suspected or actual dangerous situations, the installation shall be put out of service immediately.

We strongly advise that you should carry out a Risk Assessment to determine, as completely as possible, the different intervention procedures of the maintenance operations and to associate appropriate safety measures with each of these procedures.

Installation

Mechanical Installation

SAFETY NOTE: DO NOT TAMPER WITH THE INTERNAL SYSTEM OF THE VG AiO UNIT

General Advice

The trip speed and uncontrolled movement distance have been factory set in accordance with the order from the customer at point of sale. Tamper proof fixings have been utilised to prevent unauthorised access to the unit.

Specific hazards arise for inadequate lighting, untidy work area, trip hazards and poor access.

The drawing on page 5 can be used to produce an adaption plate to attach the VG AiO Speed watcher to the lift car. The plate should be a minimum of 10mm thick steel plate. The VG AiO Speed watcher can then be mounted mechanically using 2 x M12 x 60 set screws, spring washers, plain washers and full nuts. When locating the VG AiO Speed watcher care should be taken when opening the two sensor wheels to accommodate the guide rails. The chamfered roller wheels will assist the VG AiO Speed watcher to be positioned in full contact with the guide rail. See below.

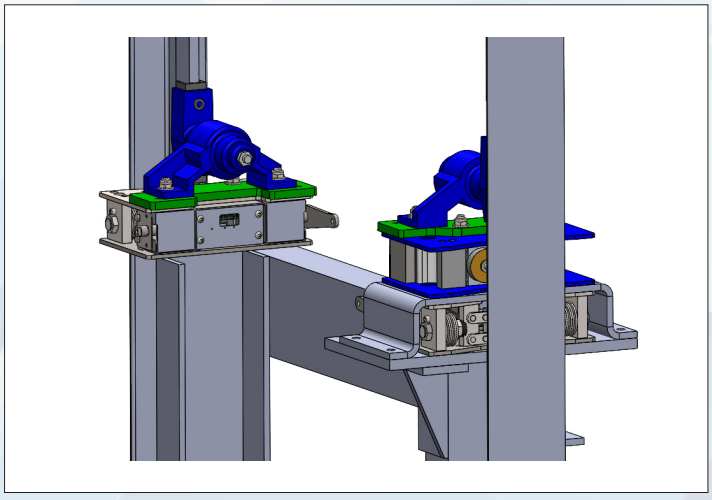
The VG AiO Speed Watcher can be fitted to the underside of the car, bolted directly to the under side of the lift car or below the VG8 Safety Gear.

Wiring

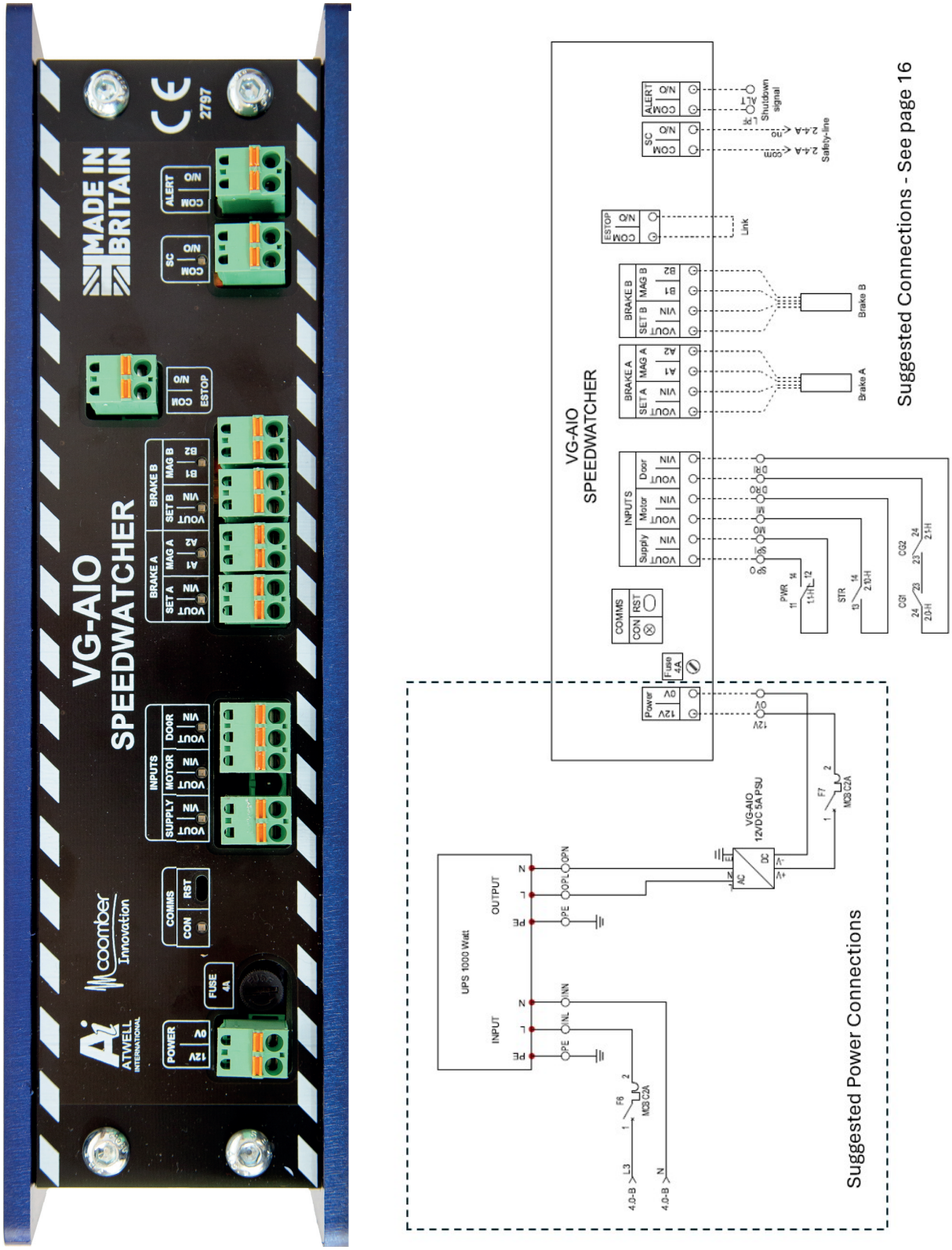
During wiring great care must be taken to ensure that there is no risk of short circuits from stray strands, cross connection, loose terminals or strain on cable joins. All terminations should be made using boot lace ferrules or similar and each wire appropriately identified with its corresponding wire number at each end of the cable. Wiring of power and internal main lift connections must be carried out by a competent electrician and checked prior to applying power. 0.5 - 0.75mm wiring should be used.

Please also see electrical drawings supplied with this manual for further information page 16.

SAFETY NOTE: Once connected to the main lift control panel there will be potentially live connections within the VG AiO Speed Watcher even when the fuses for the enclosure have been withdrawn.



Wiring Diagram



Network Connection & Dashboard

WI-FI Connectivity

The VG AiO Speed watcher is capable of sending information to a desktop, tablet or Phone dashboard that can be accessed through a secure web browser such as Google Chrome (recommended) or Microsoft Edge. Each VG AiO Speed Watcher can be accessed via a standalone router via a unique IP address which will allow you to log into the Speed Watcher while you are on site from the safety of the landing or motor room area.

Installing the Router

If you have purchased a wireless Router from Atwell, it will have already been connected and configured to the Speed watcher you have purchased. The router should be fitted securely to the top of the car utilising the 230v supply to the car top box. If you have purchased another model of router then you should follow the manufactures guide and install to the car top.

Device Identification

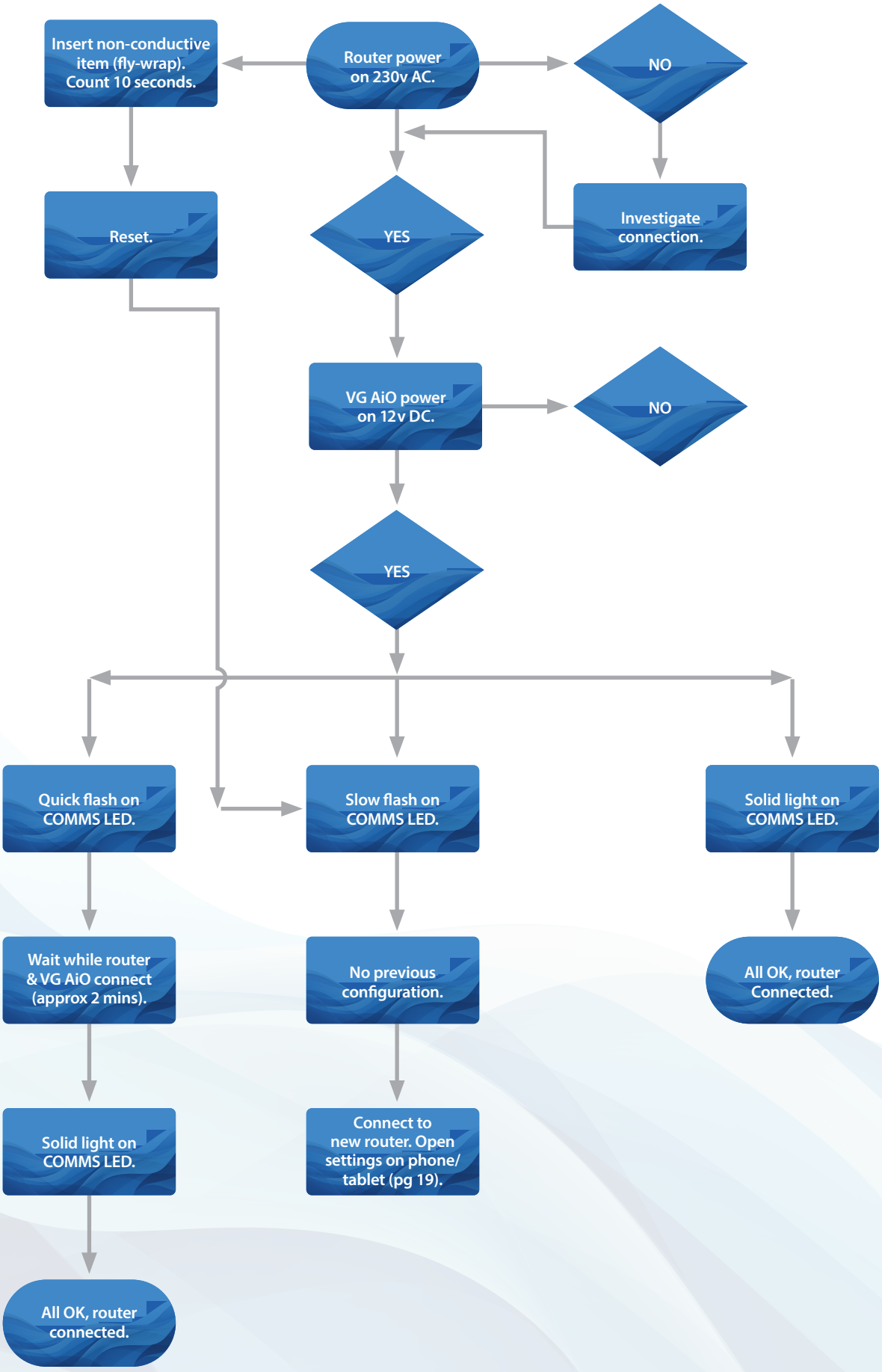
All VG AiO Speed Watchers have a unique ID so they can be correctly identified when installing. The Unique ID code will look as follows;

ATW-VG AiO-11BB33DD55FF

- The first part is an identifier that it is an Atwell International product
- The second part is the device type. This device is the VG AiO Speed Watcher.
- The third part is the unique MAC address for your device.

Before connecting any device follow the flow chart on page 18.

Connection Status Flowchart



Network Connection & Dashboard

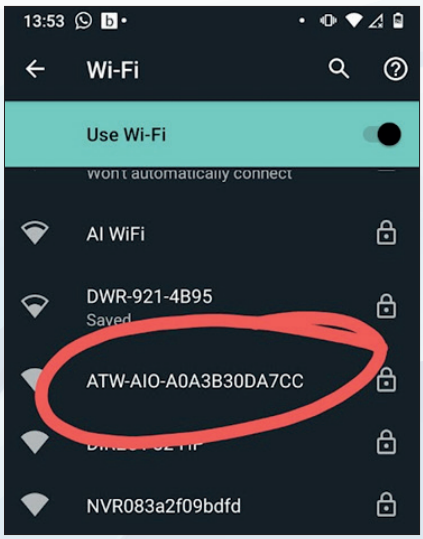
Erase the current Wi-Fi settings

To connect the VG AiO to a new router you will need to erase the current Wi-Fi settings. First power down the VG AiO and then insert a non-conductive item (Tie wrap) into the COMMS-RST slot on the rear of the VG AiO Speed Watcher approximately to a depth of 10mm. Power back up the VG AiO and hold it there for 10 seconds until the COMMS-CON LED starts blinking. The Wi-Fi settings have now been erased.

VG AiO Connection to a new Router

Once the VG AiO Speed watcher is fitted it needs to be connected to a Dashboard screen via a tablet or phone. This requires the VG AiO to be connected to a standalone router. If the VG AiO Speed Watcher has been supplied without a Router, it will not yet be connected to a network. Once powered it will create its own Wi-Fi Network. Using a device such as a phone or tablet you will be able to see the VG AiO Speed Watcher Wi-Fi Network. It will have the devices unique ID displayed when you search for a Network (see device identification section below).

1. First connect the VG AiO to the Router. Open the settings on your phone or tablet.
2. Select the Atwell device shown in the list of WiFi connections.



Network Connection & Dashboard

3. When you select the Atwell device it will take you to the following screen:

4. You will then need the Wi-Fi SSiD and Password/Pin from the Router you are connecting to. If supplied by Atwell this can be found on the hand winding instructions. Enter these into the screen as shown above. (see page 27)
5. Click submit, the Network details are now saved to the device, and it will connect to the chosen Network. If you make a mistake entering the details, follow the instructions below "Erase the current Wi-Fi settings" page 19.
6. If successful, the COMMS/ CON LED will become solid.

Device Connection to Router

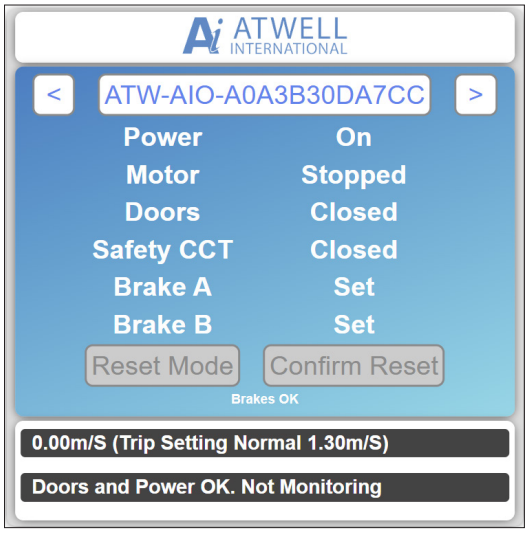
1. You now need to connect your Phone / Device to the Router.
2. Open settings again on your phone. Select Internet/Wi-Fi connections on your phone.
3. Scroll down and locate the Wi-Fi SSiD code again on the hand winding instructions as previously.
4. Enter the Router Password/Pin. (found on the Router or the hand winding instructions).
5. Most devices will warn you that you are connected with no Internet access (if prompted) select Stay connected.
6. Open a browser such as Chrome or Microsoft Edge and enter the IP address found on the side of the VG AiO or the Hand winding instructions (all start with 192.168)
7. On your phone you should now see the dashboard for the VG AiO Speed Watcher.

* *NOTE: If you are using a non-Atwell supplied Router you will need to manually need to obtain the IP address.*

Network Connection & Dashboard

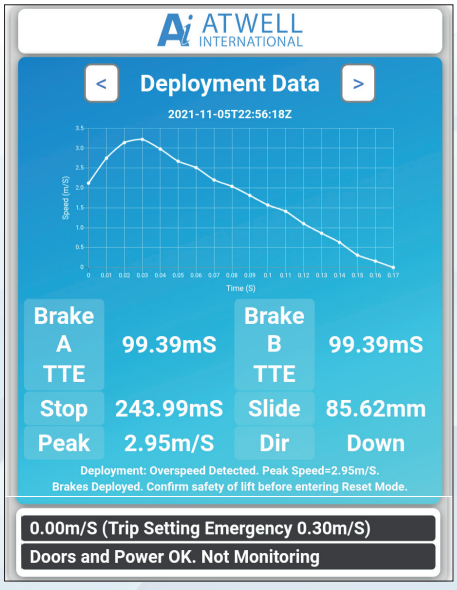
Normal Running Screen

Once you have connected the VG AiO Speed Watcher to the Wi-Fi Network you can navigate to the Speed Watcher dashboard. The first dashboard screen image shows the lift in normal running. The top banner identifies the unit serial number then below this is the current state of the various signals from both the lift and the VG AiO Speed Watcher. The two buttons (Reset Mode & Confirm Reset) provide the remote reset facility for the safety gear. The two boxes below this shows the current running speed, and the factory set trip speed. Below this is the door and power monitoring box indicating that normal running is in progress.



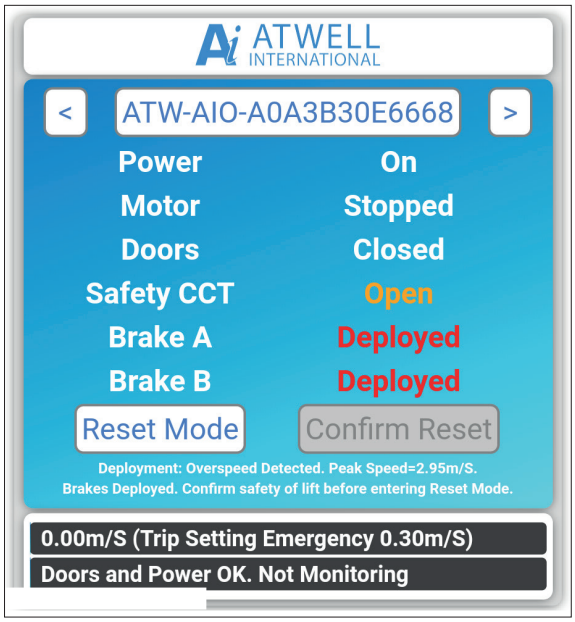
Deployment Screen

This dashboard screen, which can be accessed using the top right arrow gives the engineer the information from each safety gear including the time taken to activate, the time taken to stop the lift and the total slide distance. The graph produced will show the event based on the lift speed and the time taken to stop the lift. Following an engagement the engineer should check that the activation time of both safety gears were roughly equal to show no bias to one or the other safety gear.



Overspeed Trip

When the safety gears engage following an overspeed activation this screen will be displayed. It shows the doors remain closed and the safety circuit is open. Both safety gears have successfully deployed along with the VG AiO Speed Watcher. The Reset Mode button is now available to reset the system. The Door and Power signals remain OK. The top right arrow will take the engineer to the deployment screen.

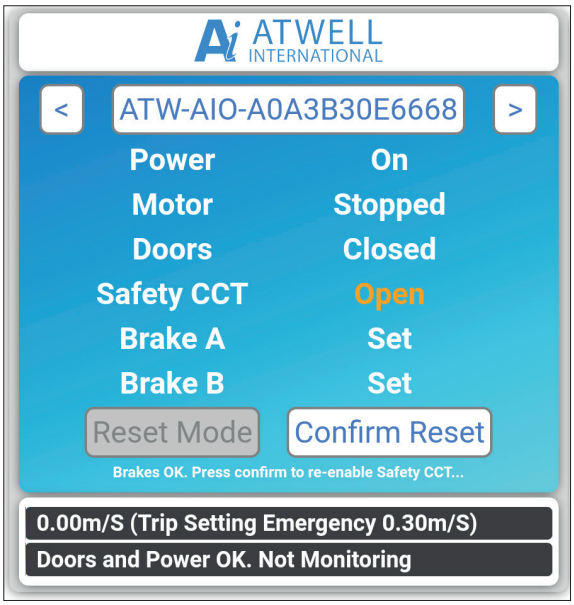


Uncontrolled Movement Trip

When the safety gears engage following a UCM (Uncontrolled Movement) detection this screen will be displayed. It shows the doors are now open along with the safety circuit. Again, both safety gears have successfully deployed the VG AiO Speed Watcher. When UCM occurs, the bottom box will show the distance travelled against the UCM factory setting of 149mm. The Reset Mode button is now available to reset the system once the reason for activation has been investigated. The top right arrow will take the engineer to the deployment screen.

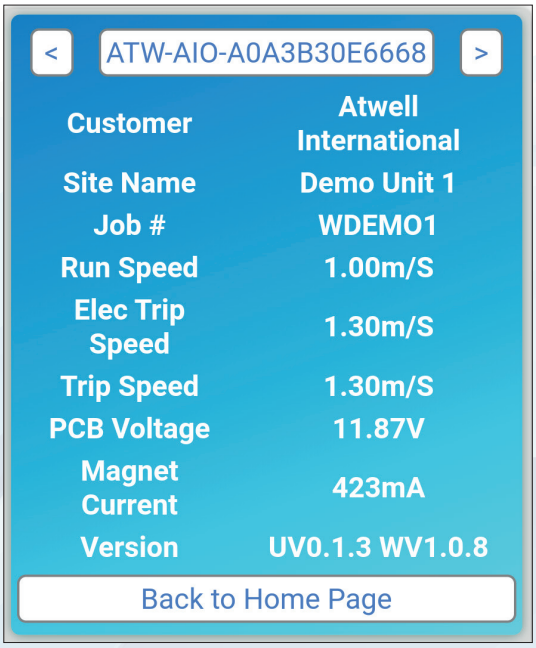
Reset Confirmation

Once all safety gears have been successfully reset by pressing the Reset Mode button the dashboard will ask for confirmation of the reset. The Confirm Reset button will now be white and ready to activate. Once this is pressed the dashboard screen will return to the Normal Running screen.



The Engineers Screen

This screen is accessed by pressing the Atwell International banner. As well as the individual unit information the screen will allow the engineer to navigate to the Bypass Mode, UCM/UMD settings using the right and left arrows. Once this is activated the engineer will be able to move the lift car with the doors open at test speed (0.3m/sec). On the main Normal Running screen, the door status will change to "Bypass". There is a time limit on the Bypass Mode when the system will revert to Normal Operation after 15 minutes.

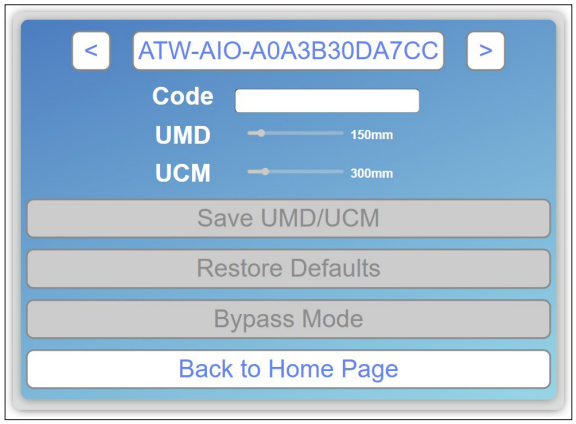


Network Connection & Dashboard

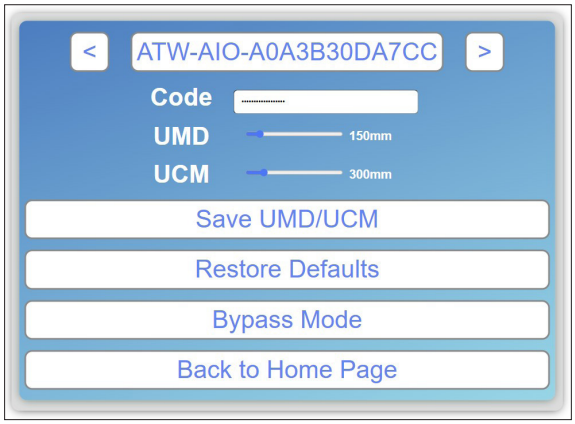
Once Bypass Mode has been entered via the dashboard, a three-word code is required using the Unique Device Identifier code. This unique code will allow the device to be put into Bypass. The three-word code can be found on the label of the VG AiO Speed Watcher OR on the hand winding instructions label, which should be clearly visible when fitted in the motor room for future reference.

As an example, the code will look like: antique-drop-drum

All words should be entered in lower case, and each word separated by a hyphen.



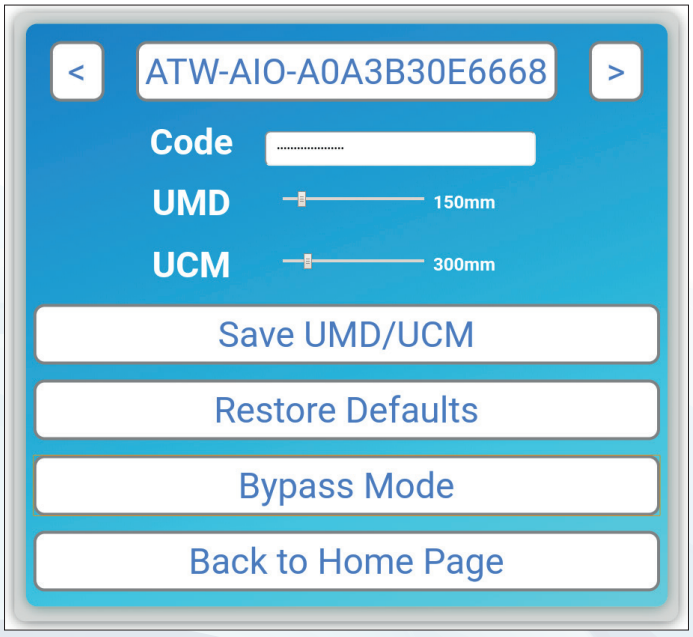
Access to By-Pass mode



Code Entered

UMD Settings

The permissible distance for Uncontrolled Movement Detection is factory set to 149mm. Please contact Atwell International Ltd if you need this distance to be increased.



Normal Operation

Resetting the System

To set the system for the first time is the same procedure as each time you reset the system and is as follows:

Once you have connected the VG AiO Speed Watcher and the tablet to the required Wi-Fi network and have accessed the Speed Watcher Dashboard (see page 19) all the resetting of the speed watcher and the safety gear can be carried out from the safety of the landing or motor room area.

First check that all faults are cleared and that there is no reason why the lift cannot be placed back in service i.e. the reason for the safety gears to be deployed has been investigated and the fault cleared. All faults must be rectified first by a competent person. Then from the dashboard main screen;

1. Check the power is on and that the motor is energised.
2. The doors are in the open or closed position.
3. The Safety circuit will still be open.
4. The main and secondary brake will be deployed.
5. The Reset button will then be available (Confirm Reset will remain grey)
6. The mechanical lock of the safety gear will now need to be broken by following local Handwinding instructions.
7. You can then push the Reset button on the dashboard.
8. Both brakes (Up & Down Direction or both Down direction) will show as "Held Off"
9. The Reset button will then be greyed out and Confirm Reset will be active.
10. Note: the brakes OK message should appear on the bottom of the dashboard screen.
11. The Confirm Reset button should then be pressed to confirm and re-enable the Safety Circuit.

Uncontrolled Movement Settings

These parameters are variable and should they require changing please contact Atwell International for details.

Site Testing of Uncontrolled Movement

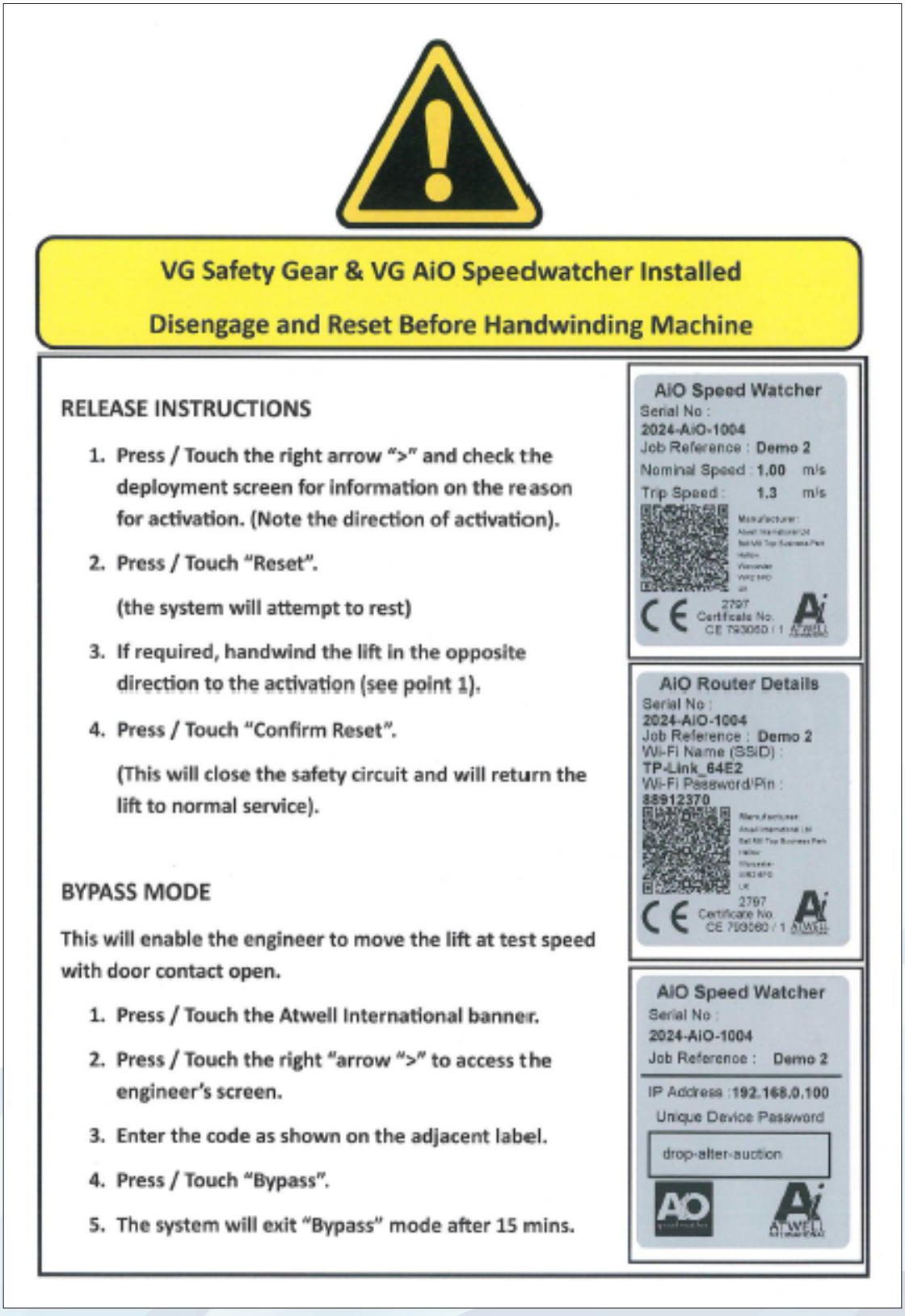
Test 1 – Slow speed creep away from the landing entrance.

1. Check local operating conditions and guard the lift entrance in accordance with local requirements.
2. The lift should be parked at a landing floor with both the landing and car doors open.
3. Ensure the VG AiO Speed Watcher is monitoring the lift doors and for UCM.
4. Levelling speed will be set at 0.30m/s.
5. Follow local handwinding instructions and slowly hand wind the lift until the safety gear is activated.
6. Measure the height between the car floor and the landing floor. This should be 150mm.

Test 2 – Sudden loss of traction.

1. Check local operating conditions and guard the lift entrance in accordance with local requirements.
2. The lift should be parked at a landing floor with both the landing and car doors open.
3. Ensure the VG AiO Speed Watcher is monitoring the lift doors and for UCM.
4. Lift the machine parking brake and allow the lift to run away uncontrolled until the safety gear activates on the rails.
5. Measure the height between the car floor and the landing floor. This should be 150mm plus the slide distance (check the specific lift calculations). This combined total should be no more than 900mm as stated in EN81-20/50 2020.

Instructions for Rescue Operations



VG Safety Gear & VG AiO Speedwatcher Installed

Disengage and Reset Before Handwinding Machine

RELEASE INSTRUCTIONS

1. Press / Touch the right arrow ">" and check the deployment screen for information on the reason for activation. (Note the direction of activation).
2. Press / Touch "Reset".

   (the system will attempt to rest)
3. If required, handwind the lift in the opposite direction to the activation (see point 1).
4. Press / Touch "Confirm Reset".

   (This will close the safety circuit and will return the lift to normal service).

BYPASS MODE

This will enable the engineer to move the lift at test speed with door contact open.

1. Press / Touch the Atwell International banner.
2. Press / Touch the right "arrow ">" to access the engineer's screen.
3. Enter the code as shown on the adjacent label.
4. Press / Touch "Bypass".
5. The system will exit "Bypass" mode after 15 mins.

AiO Speed Watcher
Serial No :
2024-AiO-1004
Job Reference : Demo 2
Nominal Speed : 1.00 m/s
Trip Speed : 1.3 m/s
2797
Certificate No.
CE 793060 / 1

AiO Router Details
Serial No :
2024-AiO-1004
Job Reference : Demo 2
Wi-Fi Name (SSID) :
TP-Link_64E2
Wi-Fi Password/Pin :
88912370
2797
Certificate No.
CE 793060 / 1

AiO Speed Watcher
Serial No :
2024-AiO-1004
Job Reference : Demo 2
IP Address :192.168.0.100
Unique Device Password
drop-alter-auction

Maintenance Instructions

It is essential that a "Competent Person" maintain this system in a safe manner at regular intervals.

We would recommend that a monthly interval for an observational check, then every 3 months to 6 months for more thorough cleaning and checking, then an annual test.

The "Competent Person" must have had adequate training in theory and practice together with experience of the equipment in question; to enable a true assessment of its condition for continued safe operation.

No repairs to this system should be undertaken! The advice and instructions from the supplier must be followed, any deviation may risk the safe operation of the lift.

No replacement parts other than those specified or supplied by the supplier (Atwell International) should be used as incompatible parts may risk the safe operation of the lift. Genuine spares are available within 24 hours at a reasonable cost, but if they are needed quicker then exact same or equivalent parts may be sourced locally once the exact specification of those parts has been obtained and you have suitably assessed the implications of using non-standard parts. If there is any doubt then you should render the lift out of service and contact Atwell International or one of its appointed agents for assistance. There are no user serviceable parts on the VG AiO Speed Watcher.

Safety Note

During any maintenance work, great care must be taken to prevent coming into contact with any live terminals. If there is any doubt, then isolate the device and test it with a multimeter to be sure it is not live. Because this controller connects to external power sources then do not assume that because the fuses are out there no potential for electric shock.

Monthly

- Ensure exterior of the VG AiO Speed Watcher is free from damage, is clean, dry and free of dust.
- Check the screen shows the correct function.

6 Monthly

- Check the Fuse is correct rating and is intact.
- Check cable entry points are secure and free of damage. Check cables are strain free an adequately supported.

12 Monthly

- Check that the control voltage is at least 12v DC and no more than 14.5vDC.
- Check that when running on Battery the control voltage is at least 12.2v. If not charge the battery for 12 hours and test again, if it does not hold a charge, it must be replaced.

36 Monthly

- Replace the battery after a maximum of 36 months of service.

General Definitions

Spare Parts

Fuse 4 Amp
Cables
Mounting Hardware

Please contact Atwell International for immediate despatch of compliant parts.

General Information

Electrical Supply Voltage . . . . . 12VDC +/10%
Full Load Current. . . . . 4.0AmpsMax.
Normal Running Current . . . . . 0.5 – 2.0 Amp.
Type Of Safety Component . . . . . Single or Bi-directional VG safety gears

Definitions

For the scope of this documentation, the following terms are clarified to have the described meanings.

Owner of the Lift

The natural or legal person who has the power of disposal of the lift and takes responsibility for its intended operation and use.

Emergency

An abnormal situation in which persons require outside assistance.

Fault

A situation of operation in which the safe operation of the lift for its intended use is restricted or impossible.

Installer

The natural or legal person who takes responsibility for the design, manufacture, installation and handover of the lift, including its safety components.

Maintenance Company

A company that is given responsibility for carrying out company maintenance operations, and which has competent persons at its disposal.

Maintenance Operations

All necessary operations (lubrication, inspections, cleaning, operations etc.) to ensure the correct and safe functioning of the lift after the completion of the installation.

Repair

Replacement or repair of defective and/or worn components.

Safety Components

Components which are defined as safety components in the EU Lifts Directive (2014/33/EU).

Competent Maintenance Person

Persons with the knowledge, technical ability and equipment able to perform the tasks allocated to them without danger.

Very Important

Under no circumstances should any attempt be made to open the VG AiO.

The VG AiO is built under strict revision control, it has been thoroughly tested.

If any attempt is made it will be logged and your warranty and any responsibility placed upon Atwell International will be immediately removed and the relevant certification body notified.

Any suspect VG AiO must be returned to Atwell International for test and evaluation.

Frequently Asked Questions

1. **Is the Speed Watcher really an overspeed governor I can use to comply with EN81/20?**

   Yes – An overspeed governor as defined by (www.lawinsider.com) and applicable to the lift directive is an automatic device which brings the lift or counterweight to rest by operating the safety gear in the event of the speed in a descending direction when exceeding the predetermined limit. When the VG AiO is used in conjunction with the VG Safety Gear it fully complies with the statement above and the requirements of EN81 20/50.

2. **Will I need to install additional Wi-Fi equipment?**

   You will need to fit a router in order to access the dashboard per VG AiO. Each VG AiO is accessed through a unique IP address.

3. **What data can the dashboard show me?**

   The dashboard will allow you to see the status of the lift brakes and the lift inputs including the door and motor connections, the power supply, the real-time lift running speed and the lift tripping speed. Following a deployment, the dashboard will show the reason for braking, the braking profile (in graph form), the maximum speed the lift reached and any required reset functions.

4. **Can I use any web browser to access the dashboard?**

   Yes. Because each VG AiO will be assigned its own unique IP address.

5. **Will the speed watcher require additional maintenance?**

   No, other than regular visual inspection. See full product manual for maintenance guide.

6. **Do I still need a conventional governor to comply with EN81-20?**

   No, the VG AiO has been fully certified by BSI for Safety Circuit, ACOP, UCMP and the means to trip the safety gear.

7. **Can I leave the existing governor and tension weight in situ?**

   Yes, but it is recommended that all redundant equipment is removed to prevent any confusion on site as to the safety system fitted.

8. **How many lifts can I monitor?**

   Each individual lift installation will require its own VG AiO.

9. **Does the VG AiO and safety gear need to be fitted together as I have limited room in the pit?**

   No, the VG AiO Speed Watcher can be fitted to the top of the lift car if required, this needs to be advised at point of order.

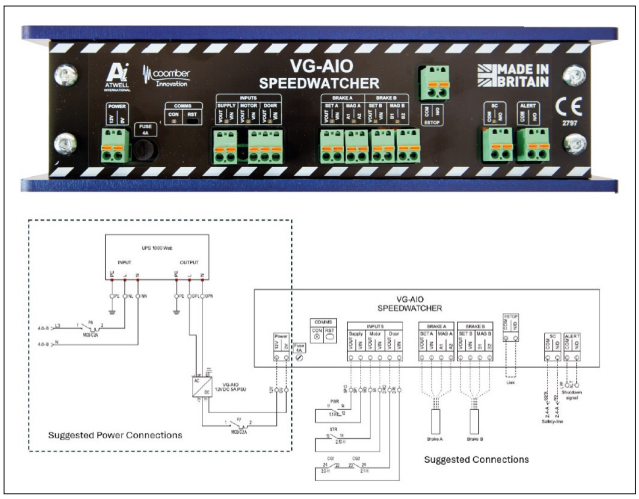
Frequently Asked Questions

10. What signals do I need from the lift car?

The following are required from the lift car:

- 12v DC power supply with in-line battery back-up.
- Door signal
- Motor On/Off
- Option for emergency stop deployment of safety gear
- E-Stop

Then from the VG AiO to the lift controller to the main safety circuit.



11. What power do I need for the VG AiO?

A 12v DC power supply with in-line battery back-up.

12. What is the IP Rating?

The standard factory unit is IP42. However, other special ratings can be requested at the point of order.

13. Is there a maximum number of floors / travel that it can cover?

No, as the unit is fixed directly to the lift car the length of travel is not a consideration when ordering.

14. Can I adjust the trip speed?

No, this is a factory pre-set figure and must be specified at the point of order. Should an error be made with the speed then the unit will need to be returned to the factory to be reset.

15. What if the encoder fails?

The VG AiO features fail-safe design and if an encoder or any other safety-critical component should fail it will send an alert signal to the lift controller. It is recommended that the controller allows the lift to travel to the next called floor and when the doors open take the lift out of service.

Frequently Asked Questions

16. What happens if there is a loss of power to the lift and VG AiO?

Once installed the system should be connected to a 12v DC power supply battery backup that will allow the lift car to carry on to the next called floor, open the doors and disable the lift via the safety circuit. The lift will remain out of service until power is restored. If the VG AiO loses power completely, the safety gears will be deployed.

17. Do I need to reset the safety gear and VG AiO manually?

No, this can be done remotely via the dashboard.

18. Are the VG Safety Gears held off by solenoids?

No, the VG Safety Gears are held off by a 12v DC electromagnet.

19. Can the VG AiO be wired into an existing lift controller?

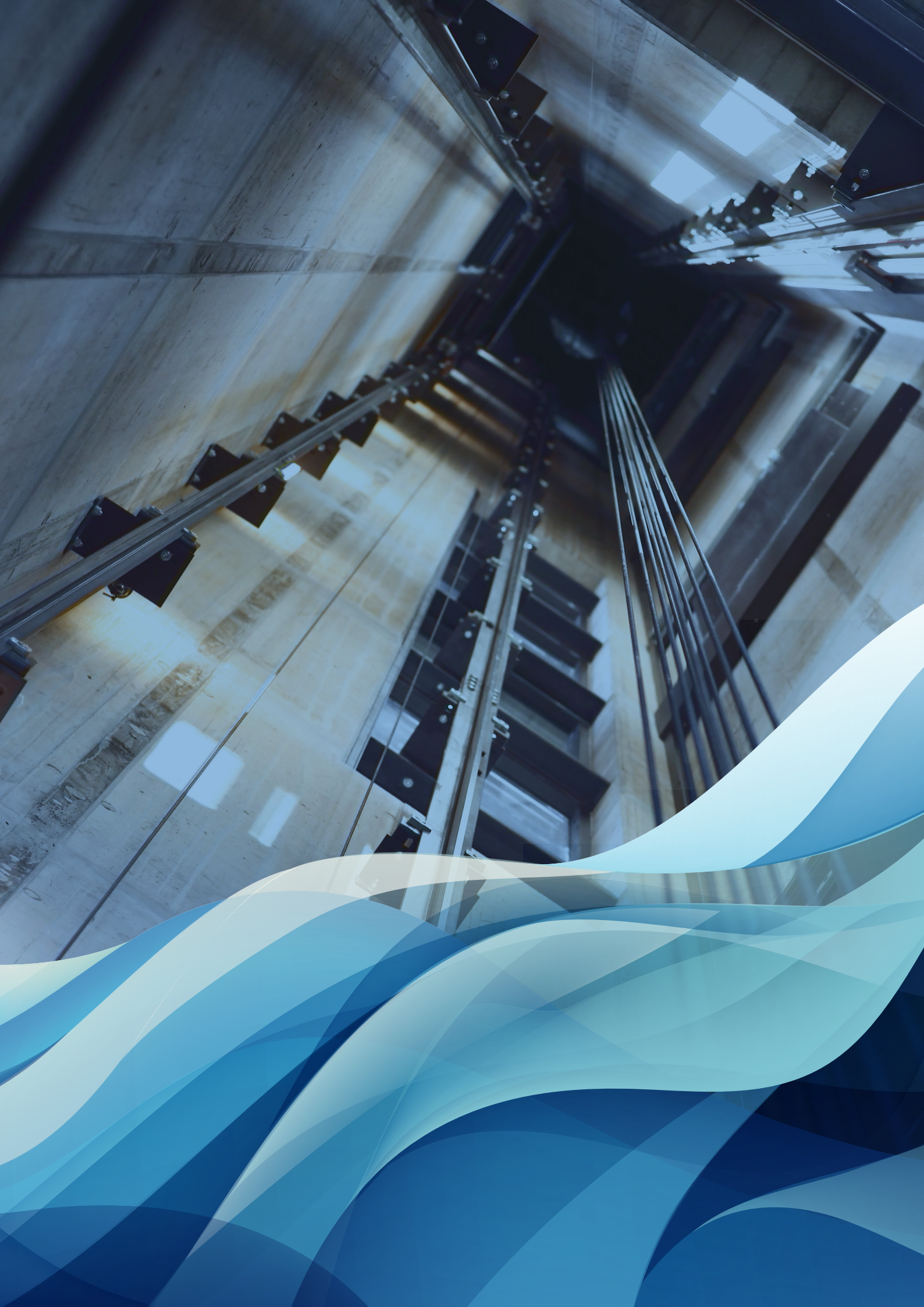
Yes, this would be no different to adding a new friction type overspeed governor.

20. Will the addition of an VG AiO affect the existing certification of the lift?

No. The VG AiO Speed Watcher is fully certified by BSI and would be no different to adding a new friction type overspeed governor to the lift.

21. What is the max guide rail size / width?

The current model is limited to a 9 – 19mm guide rail (Suitable for most of the UK market). Larger-size guide rails can be accommodated on request to Atwell International.



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