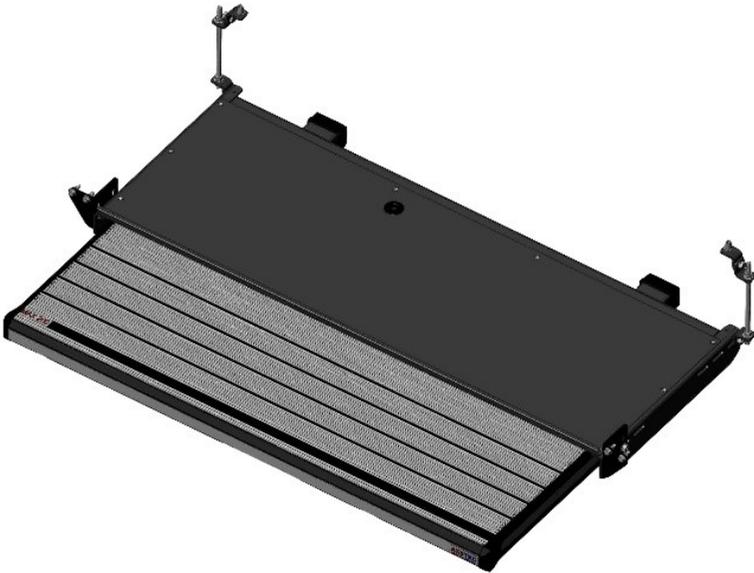


Condensed Manual

A full-size complete manual
is available on www.acdeos.com



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Date: Jan 2022
Rev. v5

1 Technical specifications

Product description	Electrically operated step for mounting externally under the vehicle floor
Installation	Externally under the vehicle floor below the front, middle or rear door
Dimensions	Step depth 300 mm, Step width 600, 900 or 1000 mm depending on model Please refer to the installation drawings for detailed dimensions
Weight	25-32 Kg depending on the model
Load	Maximum load 200 Kg (2000 N). This is always labelled on the Step
Materials	Frame; steel plate work, EP corrosion protected Step: Aluminum profile and Plastic corner covers
Life cycle	Tested life cycle of the step is 150.000 cycles
Electrical connection	Waterproof 4 pin connector (IP65)
Drive	Electric motor 12V 20W
Electric signals	Electric signals are available via dashboard light: Step moving / open
Safety functions	Motor switched off by current control.
Cycle time	Time required for opening or closing the step is approx 2,5 Sec
Legislation	The product fulfils R107 UN Bus directive and 98/37 EC Machine directive.

2 Safety instructions

These Safety instructions should always be kept with the step. The operator must be made aware of these instructions before operating the Step. Read and follow these safety instructions carefully.

The step is intended to be an extra step to enter a vehicle. It should be used appropriately by passengers to enter or exit a minibus, taxi camper or other vehicle, and the maximum load should not be exceeded.

- 1. Before operating the step the vehicle must be stationary and the hand brake or parking brake must be applied.**
- 2. Before operating the step, ensure that there is nothing obstructing it. Look out for people moving outside the vehicle near the step.**
- 3. It is recommended that the step is only operated by the driver or other qualified operators.**
- 4. The driver or operator must have a clear view of the step when they are operating it.**
- 5. It is recommended that the middle of the platform is used when stepping onto the step.**
- 6. NEVER drive away when the RED dashboard LED light is still on, this means that the step is not properly stowed.**
- 7. The step platform must be kept clean and free of oil and other greasy materials.**
- 8. If there is any doubt about the safety of a passenger when using the step, ensure they are assisted.**
- 9. If you have any questions about the safe operation of the step, contact the person responsible directly.**
- 10. Never use the step for any other use than described here.**
- 11. Never overload the step.**
- 12. The step should always be operated until it is fully in or out.**
- 13. Repair and maintenance must be done by qualified and trained staff only.**
- 14. If any parts need replacing, ensure only original Acdeos Parts are used.**
- 15. If the anti slip profile on the step becomes worn, the step platform must be replaced.**
- 16. Always use the recommended cleaning materials.**
- 17. Report any unsafe aspects of the step to the step supplier.**

3 Mounting / Installation

The installation can only be done by a company that is well known with bodybuilding or modifying vehicles, which has the trained technical staff to do this job.

3.1 Mechanical Installation

For mounting the step you do not need to make any large vehicle adaptations. The step is placed under the floor in the middle of the front, middle or rear door. Chassis modifications are not needed.

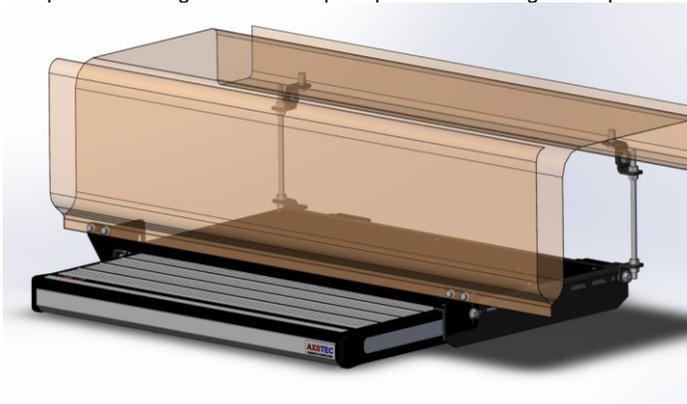
Warning: Changing the vehicle chassis affects the strength of the vehicle. This kind of changes is only allowed after approval of the vehicle builder / constructor. You need to consult the vehicle builder for these kinds of changes. Acdeos cannot be made responsible or held accountable for any vehicle / chassis changes.

Exact measurements of the product should be taken from the official installation drawings. Ask Acdeos for the last revision and official installation drawing. Figures, drawings in this manual are only for indication.

Installation:

Create a safe working condition. Lift the vehicle to the appropriate working height. Define the place where you want to mount the step under the vehicle. Make sure the cassette can be mounted on the required position without colliding with the chassis or other vehicle parts. **Make sure that the step is not too close to hot parts like the exhaust system. This can damage the step.**

The picture below gives the basic principles for mounting the step.

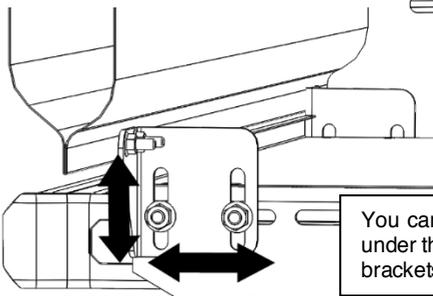
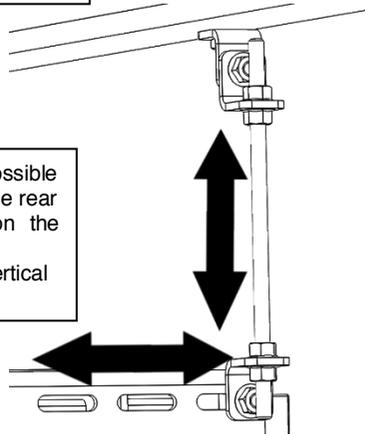


Define the place for the 4 mounting bolts on the front. The holes for this fixation should be drilled in the lower flange of the outer chassis bar of the vehicle. Drill the holes $\varnothing 6.5$ mm. Always protect all drilled holes with zinc spray. Make sure there is enough material in the flange under the hole. Place the step with two bolts at the flange and support it at the rear.



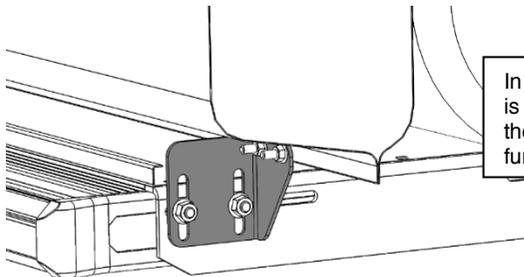
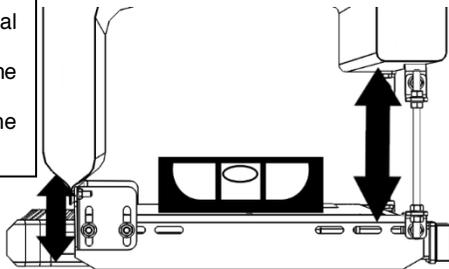
Take the flexible mounting brackets supplied with the step. These brackets can be mounted in several ways. The brackets should be used to fix the rear side of the step to the bottom of the vehicle. It is recommended to find a strong point at the vehicle floor. Mount the brackets in such a way that they bridge the gap between step and vehicle floor / chassis.

Always try to go as vertically as possible straight up from the fixing point on the rear of the step to the fixing points on the vehicles floor. The M8 studs should be placed as vertical as possible



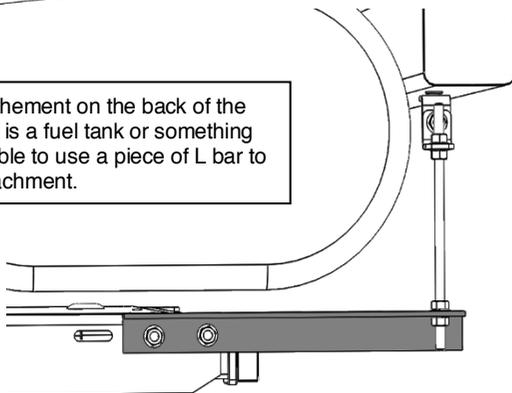
You can adjust the height of the step under the vehicle by adjusting the front brackets in the slot holes.

This fixing requires some technical knowledge and own interpretation. Adjust the step to be horizontal under the vehicle. Finally fit all bolts and nuts to mount the step completely.



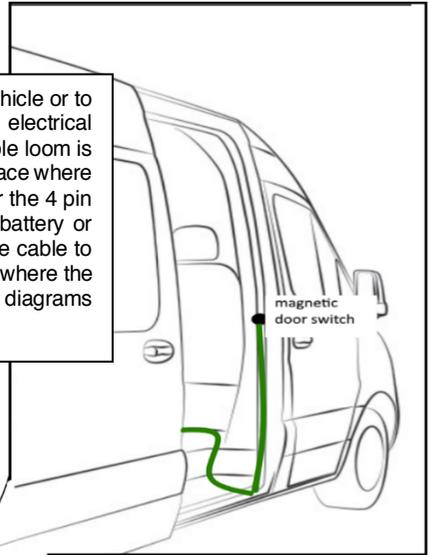
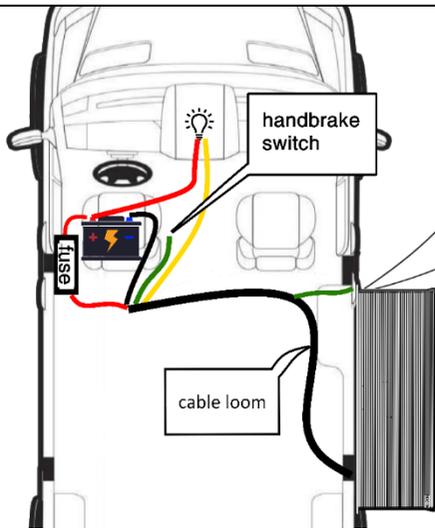
In the case the flange of the chassis is too far back, it is possible to flip the brackets as to place the step further forward.

When the possibility of attachment on the back of the step is too far back, or there is a fuel tank or something similar in the way, it is possible to use a piece of L bar to extend the back point of attachment.



3.2 Electrical Installation

Find a good route for the cable to the front of the vehicle or to the area where it will be connected to the vehicles electrical system. The principal idea for the routing of the cable loom is as follows: cable should run under the vehicle to a place where you can enter the vehicle. Try to find a dry place for the 4 pin connector in the cable loom inside the vehicle to battery or power point and dashboard for dashboard light. The cable to the door switch should run directly to the door-pillar where the door switch is mounted. Please refer to the electrical diagrams in the rear of the manual appendix I.



There are two possible operations of the step.

- 1 - Door switch. Steps moves out automatically when the door opens
- 2 - Driver operated switch on the dashboard where the driver operates the step. In this case, it is still recommended that the door switch is installed. Without the door switch the driver could forget to close the step when the door is closed, and drive away with an open step.

Connect the green wire at the handbrake switch or other signal indicating that the vehicle is stationary. You need a signal when the vehicle is stationary. The handbrake switch is not supplied with the step.

For safety reasons we recommend this signal is used.

If you decide not to use this signal Acdeos cannot take any responsibility for any unsafe operation of the step.

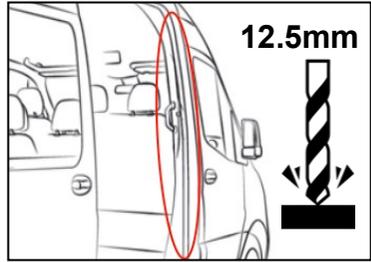


Cable colours:

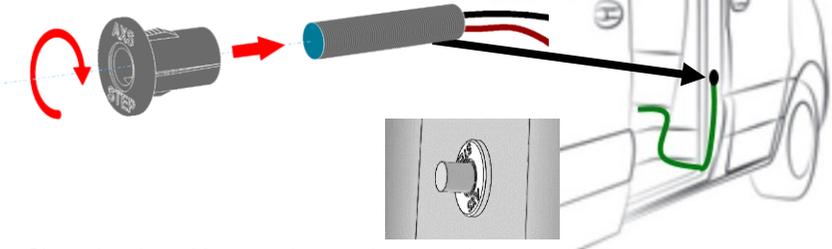
black	Ground
Red	Power (Use a 20 Amp fuse)
Green	Ground signal for operating the step
Yellow	Dashboard LED

Mechanical Installation of door switch: Find the right place on the door to install the door switch, preferably around the area in the doorpost where you find the original door switch. Make sure there is minimum around 10-12 mm free space between the door and the door post when the door is closed.

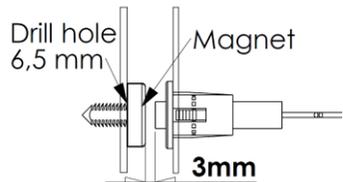
Drill a hole of 12.5 mm at the selected place. The door switch is supplied as standard with the cable loom.



Lead the cable with the door sensor through the doorpost and stick the switch through the 12.5 mm hole. Place the Switch in the plastic holder. This is a tight fit. You need to screw the holder around the switch.



1. Close the door. Measure the gap between the door and the door post. Adjust the switch so, when installed, there is **8.5 mm of space between the switch and the door** or 3 mm between switch and magnet.
2. Push the switch + plastic holder in the drilled hole and fix / seal with a bit of PU glue.
3. Place the magnet on the opposite position on the door. Drill a hole of 6,5 mm and push in the black magnet holder with magnet.

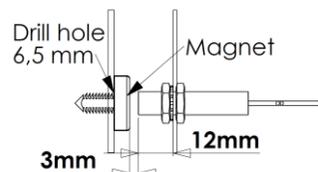


Check that magnet does not touch the switch when door is closed with high speed and force (slammed)



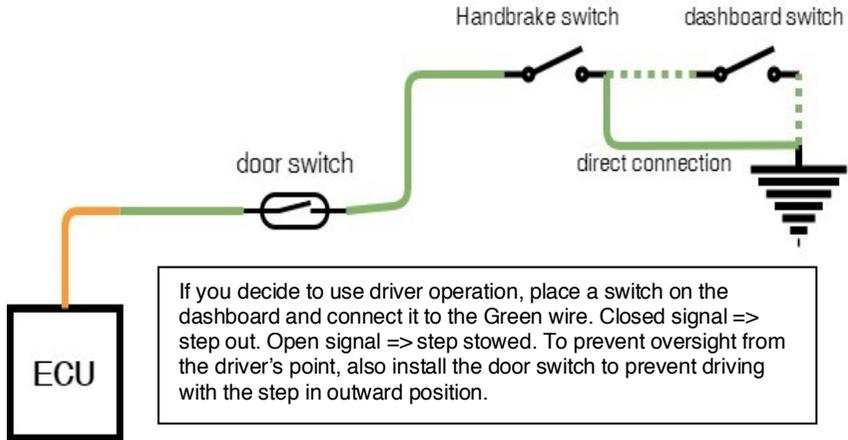
We recommend using the plastic holder but you can choose to fix with the nuts

4. When installing the switch using the nuts, the switch must stick out at least 12 mm because of the need for magnetic flow around the switch.



- The distance between the end of the switch and the door should still be 8.5 mm.

IMPORTANT: Max torque to fit the switch is 5 Nm (This is light hand tight) If you use higher torque, the switch will break / crack, which will lead to unreliable door signals.



- Place the red LED in the dashboard in the direct view of the driver. Connect the free wire to 12 V power. The LED lights up red when the step is out and flashes when the step is moving in or out.



- Connect the black wire to ground.
- Connect the red wire to 12V power. **You need to add a fuse of 20 Amp** between the battery and the power cable. Decide whether to connect the step to constant power or to power behind the main switch. We recommend placing the step behind the main switch. The step ECU has a sleep mode using less than 1 mA in standby mode
- Connect the cable loom to the step with the connector. Place this connector preferably inside the vehicle in a dry area.



4 Operation

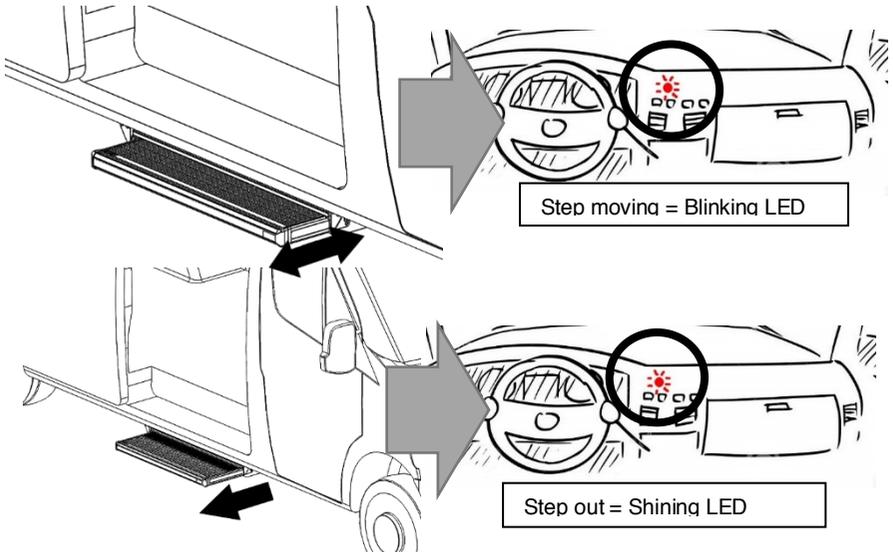
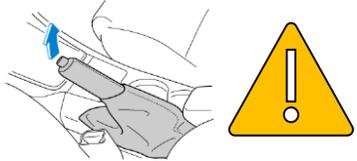
4.1 Deploy Operation procedure

The step must have clearance from the vehicle. The vehicle must have the parking brake on, and then the step can be safely operated.

The electronics receive a signal from the door switch or driver switch. If a door switch is installed the step will move out automatically once the door is opened.

Time for either the full deploy / out or the full stow / in cycle is approximately 2.5 seconds. When the step is moving the red LED on the dashboard will flash until the step is completely out.

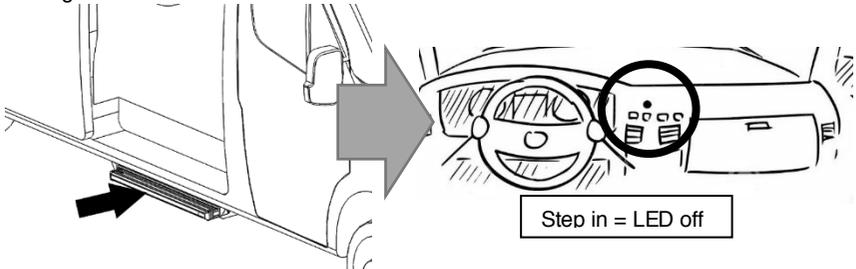
If the step encounters an obstacle it automatically stops. It will move backwards for a few centimeters and then move forward again. If there is still an obstacle it will repeat this procedure three times, then it will stop in the position where it encountered the obstacle.



4.2 Stow operation procedure

To stow the step the door should be closed or the driver has to give a signal that the step should stow. The same rules apply as for moving out.

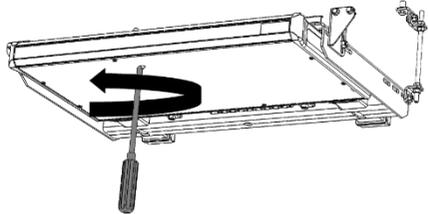
At closing a signal from the close switch will indicate that the Step is completely closed. This close signal will also give the vehicle the OK that it is safe to drive the vehicle away, the Red LED light at the dashboard will go off. If the step is not stowed properly the RED LED keeps blinking.



5 Manual Operation

In case the step fails, it is possible to operate the step by hand. This is done by the following procedure:

1. Put a large screw-driver through the long hole in the bottom cover in the slot in the motor base plate.
2. Twist the screwdriver counterclockwise. This will unlock the driving mechanism. Now the step can be moved in or out by hand.
3. After moving the step in or out return the screw-driver in the slot to re-lock the step in the in or out position.



6 Periodic maintenance / Inspection

6.1 Cleaning

To prevent severe damage to the step, the step must be cleaned thoroughly in the normal cleaning schedule of the vehicle, depending on the use of the vehicle and the filthiness of the operation. Therefore, especially in wintery situations when salt is being sprinkled on the road, it should be cleaned more regularly. Normal non-aggressive cleaning materials, as used for cleaning the other parts of the vehicle, should be used.

It is not recommended to use high-pressure water cleaners.

Do not use aggressive solvents; these could affect the paint, rubber and glue used on the step.

6.2 Periodic maintenance / Inspection

6.2.1 Small maintenance

This product is very low maintenance. This means that it is not necessary to grease any of the moving parts on a monthly basis, apart from the yearly maintenance.

6.2.2 Regular inspection

Following the vehicle inspection schedule, check following points:

1. **MOUNTING** – Check that all the mounting bolts are in place and tightened.
2. **MOUNTING** – Bring the step out and have 2 people (Max 200kgs) step on it. Check whether the mounting of the step is strong enough for this weight. The construction of the step means that with a weight of 200 Kg the step will give slightly - this is normal !!
3. **ELECTRICAL INSTALLATION** – Move the step in and out electrically.
Check for unusual noises or uneven movement whilst the step is moving.

Check that the step stops automatically at the end of the stroke.

Check that the red LED on the dashboard turns red when the step is out.

Check that the buzzer works while the step is moving in or out. (If not disconnected)

4. **SAFETY FUNCTION** – Move the step out and try to stop it with your hand. The step should stop, move back, and come out again. It will try this 3 times, then it will stop. It should go back in after closing the door.
5. **INTERLOCK VEHICLE** –Release the vehicle handbrake, then try to operate the step. It should not be possible to operate it. (unless the handbrake interlock is not installed)

6.2.3 Yearly maintenance / normal maintenance

A thorough maintenance check should be done once every year or at least every 10.000 cycles.

We recommend reduce the maintenance period to 6 months when the step is used in hard conditions with much snow / ice / mud / gravel etc,

Normal maintenance:

Bring the step in the out position. Remove the bottom plate screws. Remove the bottom plate by lifting it with a flat head screwdriver.

- Check all moving parts like, arm gears, push rods and wheels for excessive play. If there is excessive play on moving parts it is recommended to replace these parts.
- Check the adjustment of the in and out switch.
- Check wires and electrical connections for possible failures.
- Clean all parts
- Grease moving parts with MOTIP White PTFE grease or normal bearing grease.



Close the bottom plate.

With step still in out position remove ty-rap at the rear of the step from both rubber end caps.

Spray a good grease in the tube or use normal bearing grease with a long brush. This is the most important part of the maintenance.

Close rubber caps again and fit with a new Tie-wrap

We strongly recommend MOTIP White PTFE grease part nr 090204 for all parts in the step, **do not** use WD40 or silicon sprays

Other similar PTFE grease sprays can also be used.

This spray is also available at Acdeos under part number S150 310



7 Certification

Product	Product description AXS STEP Electrical Sliding step
Type	AXS FL 600 A AXS FL 900 A AXS FL 1000 A

Company	Production under responsibility of Acdeos BV
Address	Touwbaan 1A
City	2352 CZ Leiderdorp
Country	Netherlands
Website	WWW.ACDEOS.COM
Legal represented by	Mr. A de Moes

Conformity

Product is designed, tested and produced confirm:
The loading recommendations in the Machine directive 98/37/EG
step is tested for a maximum weight of 200 Kg

On behalf of producer:

Name / Function

A de Moes / Engineering

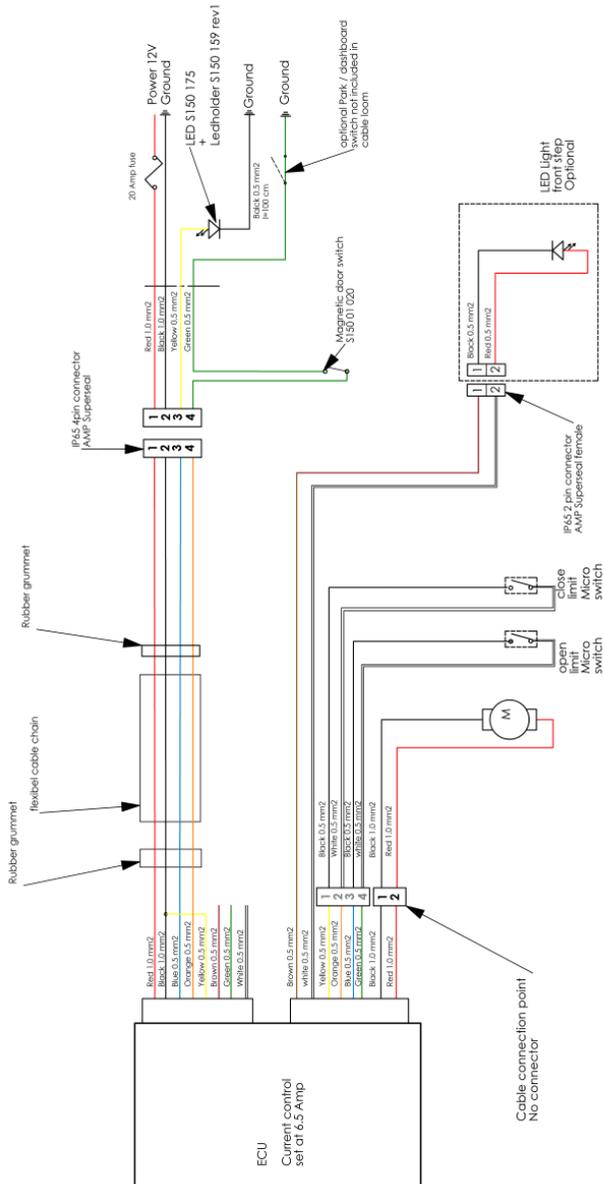
Date

05 August 2015

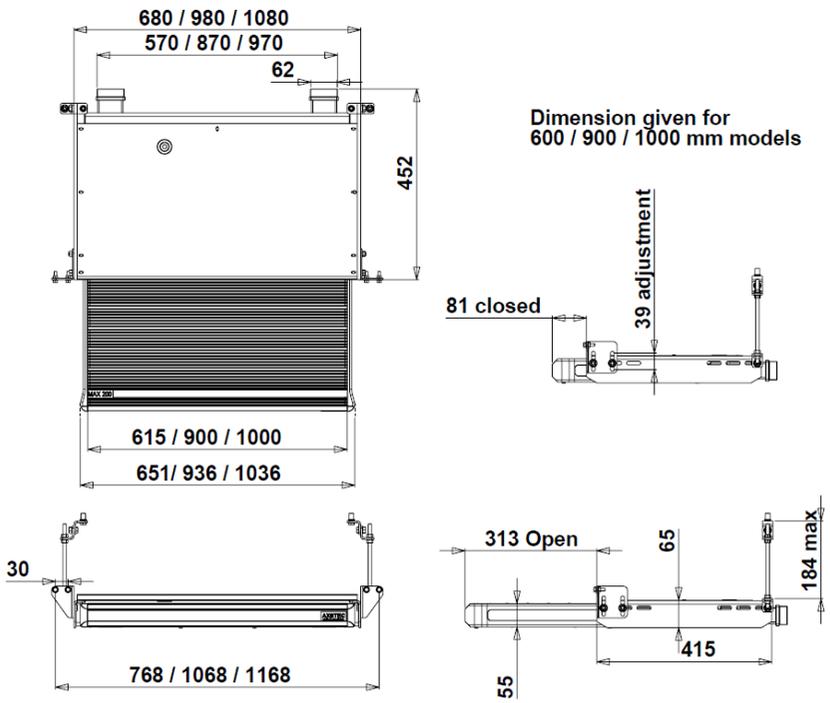
Place

Leiderdorp, Netherlands

8 Appendix 1; electric schedule



9 Appendix 2; Installation drawings: AXS FL 600 / 900 / 1000 A



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