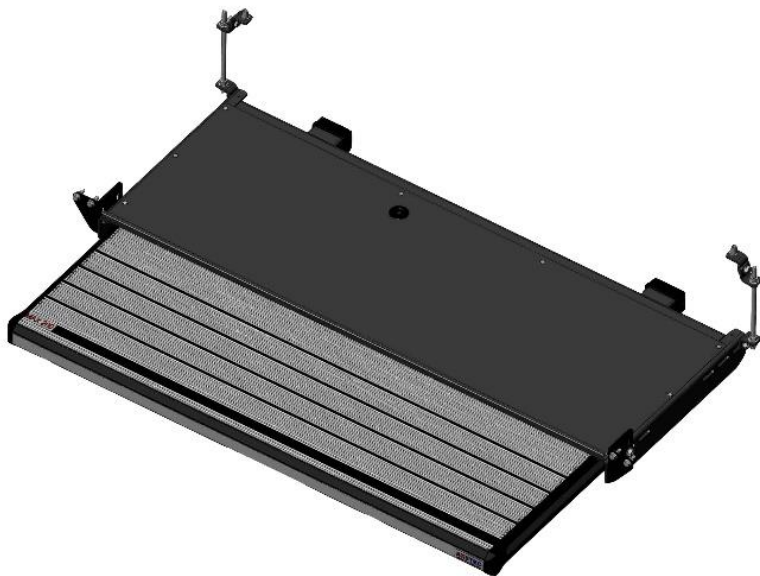


Condensed Manual

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



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Date: Nov 2017
Rev. 2.1

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 Installation

The installation must only be done by a company that is familiar with bodybuilding or modifying vehicles, and that have the trained technical staff.

3.1 Mechanical Installation

In order to mount the step you do not need to make any major vehicle adaptations. The step is placed under the floor in the middle of the front, middle or rear door. Chassis modifications are not needed, but you may need to remove some plastic underbody parts.

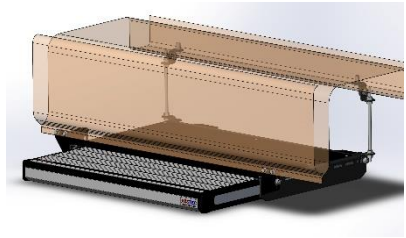
Exact measurements of the product should be taken from the official installation drawings. Ask Acdeos for the last revision and official installation drawing. Figures and drawings in this manual are only indicative.

Installation:

Create a safe working environment. Raise the vehicle to the appropriate working height.

Identify the location underneath the vehicle where the step will be mounted. Ensure the cassette can be mounted in the required position without being obstructed by the chassis or other vehicle parts.

Make sure that the step is not too close to hot parts such as the exhaust system. This can damage the step.

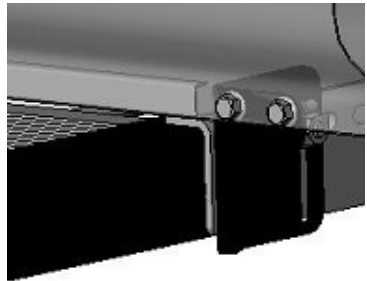


The picture shows the basic principles for mounting the step.

Identify where the 4 front mounting bolts will go. 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.



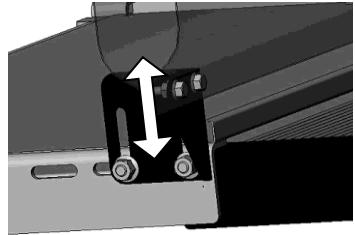
Take the flexible mounting brackets supplied with the step. These brackets can be mounted in several ways. The brackets should be used to fix the rear side of the step to the bottom of the vehicle. It is recommended that a sturdy section of the vehicle floor is used. Mount the brackets in so that they bridge the gap between step and vehicle floor / chassis. The M8 studs should be placed as vertical as possible. This fixing requires some technical knowledge and own interpretation.



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.

Adjust the step so that it is horizontal under the vehicle. Finally fit all bolts and nuts to complete the mounting of the step.

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



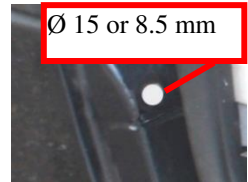
3.2 Electrical Installation

To correctly install the step follow these instructions:

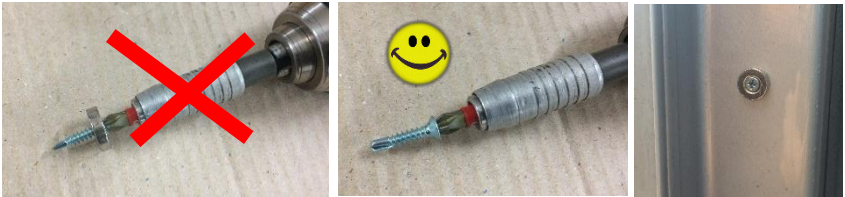
1. Find a good route for the cable to the front of the vehicle or to the area where it will be connected to the vehicles electrical system. The principal idea for the routing of the cable loom is as follows: cable should run under the vehicle to a place where you can enter the vehicle. Try to find a 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.
2. Please refer to the electrical diagrams in the rear of the manual appendix I.
3. 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 in 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.
4. Find a good location for the magnetic door switch. Normally this can be found near the original door switch
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.**
5. Place the door switch in the door pillar. If the door is closed the switch must be operated by the magnet fitted at the door. The door switch is supplied as standard with the cable loom.
6. Mechanical Installation of door switch: Find the right place on the door to install the door switch, preferably around the area on the doorpost where you find the original door switch. Make sure there is around 35 mm open space inside the doorpost. Drill a hole of $\text{Ø } 15 \text{ mm}$ if you are using the separate holder plate or $\text{Ø } 8,5 \text{ mm}$ if you are place the switch direct on the door pillar .
7. Fix the door switch using either the separate holder, or fitting the switch directly to the pillar, if you can reach inside the B pillar to hold the counter nut from the switch.

IMPORTANT: Max torque to fit the switch is 5 Nm (This is light hand tight)

If you use higher torque, the switch will crack, which will lead to unreliable door signals.

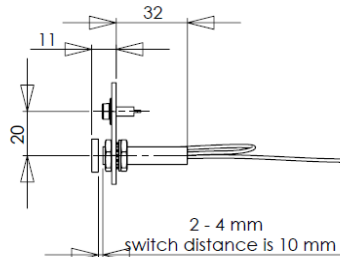


- Place the magnet on the opposite position on the door. Fix the magnet with a bit of PU glue or Loctite. Later models have magnets with a hole and can be fixed with a screw. **Careful the Magnet is brittle. First drill the hole and then fix the magnet with the screw just tight enough to fix it. Fixing it too hard will damage the magnet.**



- Adjust the switch if required to create the correct distance between the front of the switch and the magnet; 2-4 mm when the door is closed The Switch makes contact when the magnet is at a distance of around 5-7 mm.
- If you opt for driver operation, you should place a switch on the dashboard and connect it to the Green wire. Closed signal => step out. Open signal => step stowed. Also install the door switch to prevent driver error.
- 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 mAmp in standby mode
- Cable colours:

black	Ground
Red	Power (Use a 20 Amp fuse)
Green	Ground signal for operating the step
Yellow	LED signal
- Connect the cable loom to the step with the connector. Place this connector preferably inside the vehicle in a dry area.
- The step is now ready for operation.



3.3 Using the Step:

You should test the step after installation. Follow these instructions:

- MOUNTING** – Check that all the mounting bolts are in place and tightened.
- 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 !!
- 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)

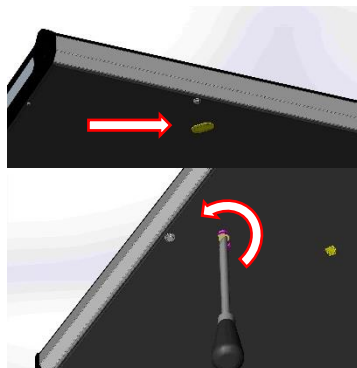
4. **SAFETY FUNCTION** – Move the step out and try to stop it with your hand. The step should stop, move back, and come out again. It will try this 3 times, then it will stop. It should go back in after closing the door.
5. **INTERLOCK VEHICLE** –Release the vehicle handbrake, then try to operate the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

If this small test procedure is successful, the step is ready to be used. If one of the tests fails the problem should be resolved before putting the step in to use.

4 Manual Operation

In the event that the step should fail, it is possible to operate the step manually.

1. Remove the plastic cover placed on the bottom of the step
2. Insert a screw-driver through the long hole in the bottom cover.
3. Turn ½ a turn anti-clockwise. This will unlock the driving mechanism. Now the step can be moved in or out by hand.
4. After moving the step in or out turn ½ a turn clockwise to lock the step.



5 Periodic maintenance / Inspection

5.1 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.

5.2 Periodic maintenance / Inspection

5.2.1 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.

5.2.2 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)

5.2.3 Yearly maintenance / normal maintenance

A thorough maintenance check should be done once every year or at least every 30.000 cycles.

If the number of cycles per year is less than 10.000 the maintenance interval can be extended to 1.5 years.

Normal maintenance must be done once every year or at least every 15.000 cycles.

If the number of cycles per year is less than 10.000 the large maintenance interval can be extended to 1.5 years.

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 Kroon Compound OGL 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 Ty-rap



We strongly recommend Kroon Compound OGL part nr 38001 from Kroon for all parts in the step, **do not** use WD40 or silicon sprays

<https://www.kroon-oil.com/nl/catalogus/product/164/compound-ogl/1564/>

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



6 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

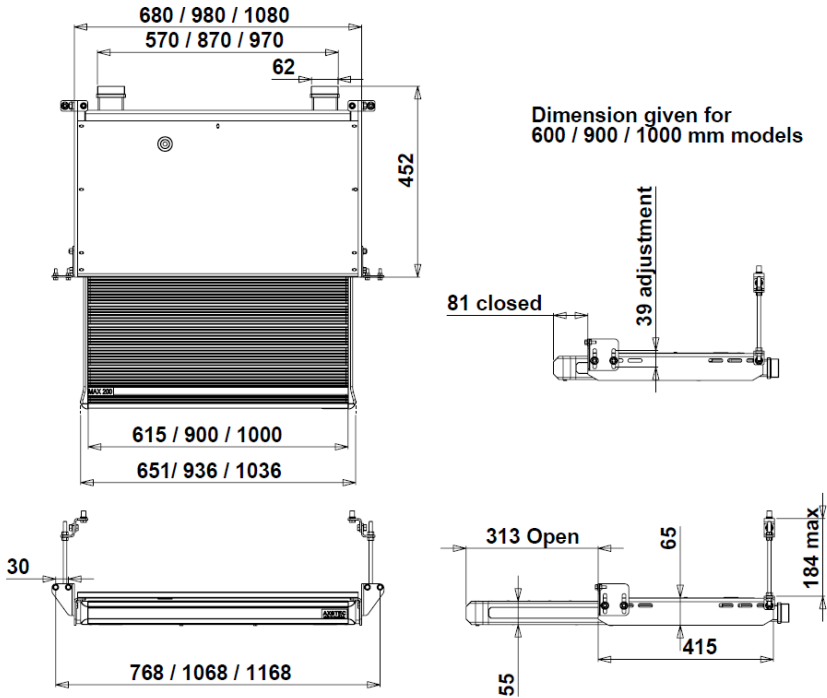
05 August 2015

Place

Leiderdorp, Netherlands



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



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