

MOTION DETECTION MODUL MODEL X

INSTALLATION GUIDE



V. MX FOS20-MKI 00

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About this guide

Product descriptions

All specifications and descriptions of the products in this installation manual have been verified and tested at the time of writing and are valid for the respective version mentioned in the manual. We reserve the right to make modifications and improvements to the products at any time.

Errors and inaccuracies

If you notice any errors or inaccuracies in this installation guide or if you notice that some descriptions are not complete, please use the following e-mail for your feedback: feedback@amptech.store.

We are open to your recommendations and suggestions and will gladly accept them under the email.

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Safety instructions

The Motion Detection Module was designed to enable safe and, above all, convenient opening and closing of the tailgate, yet as such it does not replace the visual inspection. Therefore, always check that your trunk is securely closed before starting a journey. In any case, the safety instructions marked "⚠️ CAUTION:..." in these instructions must be observed. In case of disregard of the safety instructions and resulting damages to the AMPTech components or even vehicle parts, the warranty claim as well as any liability for damages or consequential damages expires due to own fault (see GTC's on www.amptech.store/agb/, V. Liability). If you have any questions or problems with the Motion Detection Module, please contact AMPTech at +49 176 64990890 or e-mail support@amptech.store.



Preparation

To ensure that the installation can be carried out quickly, tools required for the installation should be provided before starting. The required tools are listed below.

List of tools needed for the installation

Tool list	
Position	Designation
1	Slotted screwdriver
2	Plastic mounting lever
3	Ratchet/Ratchet
4	Socket wrench set / nut
5	Cable tie / Velcro
6	Adhesive tape
7	Cable lubricant
8	Retracting aid/guidewire



Tip

A commercially available toolbox contains many of the necessary tools.

Please check the scope of delivery of the order before starting the installation.

List about the scope of delivery

Scope of delivery	
Position	Designation
1	Control unit
2	Foot sensor
3	Interior wiring harness
4	Tailgate wiring harness
5	Splitter harness for diagnostic connection

After checking the scope of delivery and providing the tools, you can proceed with the installation instructions.

Installation guide

Before proceeding to the removal of the cladding, it is advisable to expose storage areas for the parts removed in the course of the installation. In addition, it is helpful to keep the clamps and screws that are removed sorted.

Relocate tailgate wiring harness

The tailgate harness connects the tailgate button, lock signal and close button units to the AMPTech control unit via the three-pin connector (cable colors: red, yellow, black). For an overview of the connector connections on the tailgate wiring harness, see Figure 1.



Figure 1: Tailgate wiring harness

- Open the trunk
- Using a plastic mounting lever, remove the plastic trim around the tailgate lock (Figure 2)

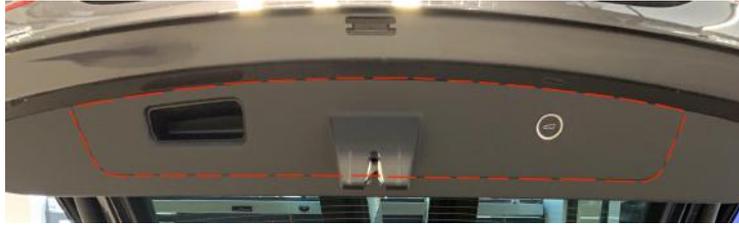


Figure 2: Plastic trim around the tailgate lock

- Loosen the plug of the closing button on the removed plastic trim. This is held according to the barb principle
- Loosen the plastic trim on the underside of the open tailgate. To do this, grasp the trim at the lower end and lever it out (Figure 3).



Figure 3: Plastic trim of the tailgate

- The connector for the signal of the tailgate button can be seen through the opening of the recessed grip (Figure 4). Pull the tailgate trim down a little to make room. Disconnect the tailgate button connector and connect it to the green colored connector on the wiring harness. Connect the other end of the Y-connector to the disconnected connector.

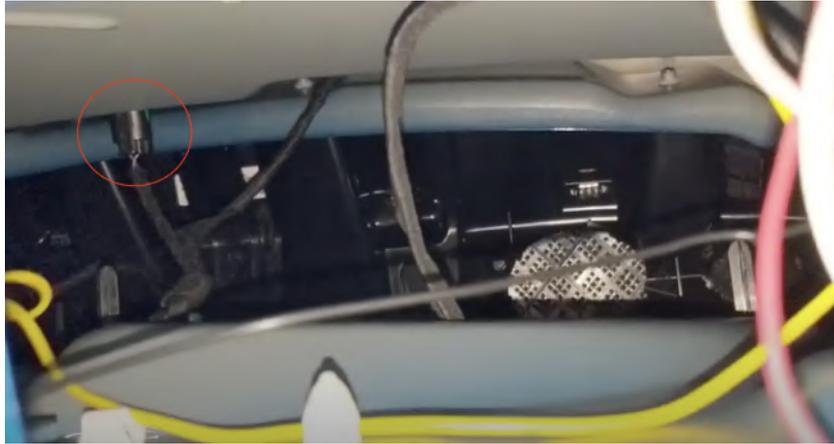


Figure 4: Plug to be removed

- Disconnect the connector for the lock signal below the tailgate lock and connect the Y connector of the wiring harness. Connect the female part of the Y-connector to the loosened plug connection

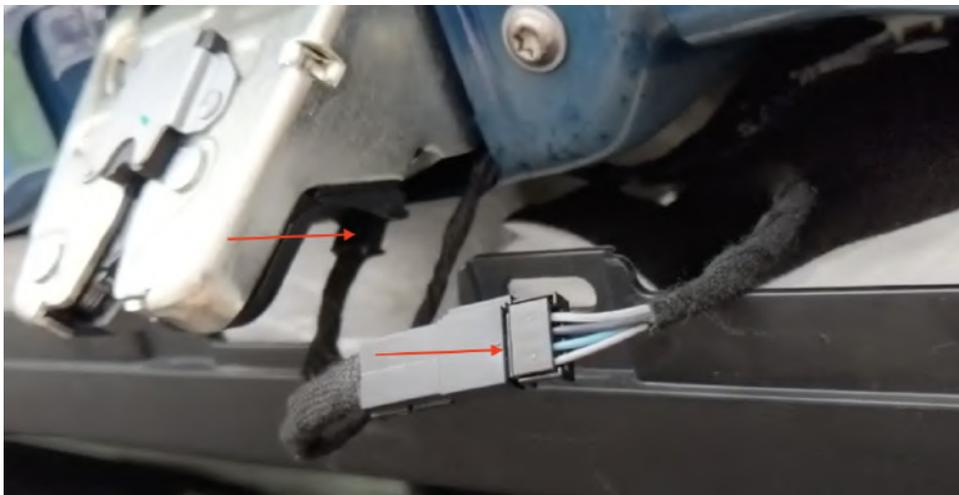


Figure 5: Attaching the Y-connector for the lock signal

- Connect the last Y-connector of the wiring harness to the disconnected connector of the closing button and to the connector on the plastic casing
- Route the connection to the interior wiring harness (see Figure 1) down the side of the tailgate trim, through the wiring harness to the right side of the vehicle. You can release the trim from the rubber lip on the top of the trunk opening



Figure 6: Tailgate wiring harness guide

 Tip

Use a retraction aid to guide the cable through the tailgate trim. Lubricate the cable conduit with cable lubricant.

Laying the interior wiring harness

The interior harness connects the AMPTech control unit to the foot sensor, the tailgate harness and provides ground via the forked cable lug. See Figure 7 for an overview of the connector connections on the interior harness.



Figure 7: Interior wiring harness

- Loosen the plastic side panels of the trunk opening by pulling them out (Figure 8)
- Lift out the bumper guard after loosening one screw at each end of the bumper guard (Figure 8)



Figure 7: Components to be removed

- Loosen the 4 pin clamps underneath the loading edge protection that hold the carpet trim. To do this, drive a flat-blade screwdriver under the head of the pin and lever the pin. The clamp can then be removed

- Loosen the two pin clips on the maintenance flap on the underbody and lever out the maintenance flap with a plastic tool
- Guide the foot sensor connector through the grommet below the closing flap (and under the carpet) down through the opening of the maintenance flap
- Fasten the forked cable lug underneath the screw located near the feed-through for the foot sensor cable. Loosen the screw and insert the forked cable lug underneath. Then fasten the screw
- Align the connection for the foot sensor and connect the foot sensor. Fasten the foot sensor crosswise on the maintenance flap using the adhering 3M adhesive strip
- Route the interior harness with the two-pin connection to the splitter harness forward through the side panels in the vehicle interior to the center console (Figure 8)



Figure 8: Cable routing through the interior

Installing the control unit

To control the motion detection module, a control unit is first installed in the center console of the vehicle. This is installed on the vehicle's diagnostic port (ODB2) using the splitter harness supplied. In this way, the diagnostic port can continue to be used to diagnose the vehicle even after the equipment has been installed.

To do this, perform the following steps:

- Remove the compartment under the multifunction display. Press the tray down with both hands to release the clamps (Figure 9).

- The splitter harness is connected together with the control unit to the blue diagnostic port of the vehicle exposed in this way (Figure 9)



Figure 9: Storage compartment and diagnostic port

- Connect the white-colored plug of the splitter wiring harness into the control unit connector. At the two-pole plug of the splitter wiring harness, connect the interior wiring harness in the next step (Figure 10)



Figure 10: Splitter wiring harness and control unit

- The control unit is then placed in the right side opening from the inside. After the two-pin connector of the interior wiring harness has been routed sideways to the passenger footwell, the compartment under the center console can be removed (Figure 11)

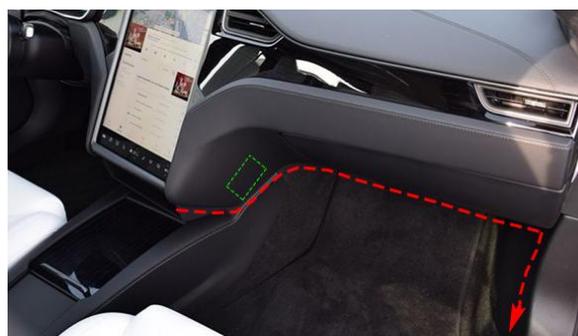


Figure 11: Cable routing

System test and system settings

For the system test, first check that all cables are securely fastened and routed and that nothing is pinched when closing the trunk lid.

While the vehicle is in Drive (D), wipe the underside of the bumper from side to side with your foot.

In this state, the motion detection module must not trigger the tailgate.

Repeat this procedure while the vehicle is in Neutral (N).

In this state, the motion detection module must not trigger the tailgate.

Finally, the vehicle is placed in parking position (P) and the test is repeated.

In this state, the tailgate must be able to be both opened and closed via the wiping motion.

Tip

The motion detection module only reacts to fully executed wiping or stepping movements at the height of the sensor. This prevents incorrect operation of the tailgate.

Tip

Before starting to remove the panels, check whether the tailgate can be operated via the pushbutton, the Tesla app and the multifunction display.

ATTENTION

It is essential to note that in neutral position "N" the foot sensor is inactive. In parking position "P", the vehicle must be locked and the telephone key must be switched off in order to deactivate the foot sensor. Switching Sie hierfür das Bluetooth on your cell phone. **Observe these instructions when driving into a car wash!**



Checklist and dismantling

The following checklist will help you to check all the steps again in a quick run-through and to improve them if necessary.

Assembly of the components:

- The control unit is installed under the main screen, connected and in operation (the LED is lit)
- The compartment below the multifunction display is jammed
- The motion detection module is placed and fixed with 3M adhesive tape
- The plastic coverings of the baseboard and B-pillar are attached
- The carpet trim is fixed below the load sill guard with all 4 clamps
- The screws on the left and right of the bumper guard are tightened and the bumper guard lies flush on its tray
- The cable conduit is moved to the original position
- The rubber lip is put over the trim on the top of the trunk opening
- The recessed grip is inserted
- The plastic covering around the tailgate lock is inserted and the connector on the back is connected
- The panels of the vehicle interior are fixed
- The two clamps of the maintenance flap are fastened

Check wiring and plug connections:

- The splitter harness is connected to the control unit, the vehicle's diagnostic port and the interior harness
 - The connections of the tailgate lock and the tailgate control unit are connected to the Y-connectors of the tailgate wiring harness
 - The plug of the trunk lighting is connected
 - The fork cable lug is fixed under a body bolt
 - All cables are securely routed and fixed with cable ties to existing OEM cable bundles
 - Excess lengths of cables are tied together and fixed to surrounding OEM cable bundles with cable ties or Velcro tape
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