

English installation manual – Active Sound Technology (AST / ASS) - Perfect Sound on your BMW (Diesel or Petrol) -

This manual only works in combination with our products:

The original **insidePerformance Active-Sound System**

To our products: <http://www.insideperformance.de/en/active-sound/>

You can find the operation manual and all other installation manuals as well as our installation and operation videos (mostly with English subtitles) here:

[http://www.insideperformanceperformance.de/en/anleitungen/](http://www.insideperformance.de/en/anleitungen/)



1. Connection / electric installation

We recommend to do the electric installation first and to test the flawless operation before you do the final installation and mounting of all components and the Soundbooster / Actuator

In general, there are only 4 wires that have to be connected to the car: Power, Ground and the both CAN-Bus wires (Can-High and Can-Low) that need to be connected to the PT-Can-Bus (PowerTrain CanBus) of your BMW.

The main system (actuator / sound booster) will be installed inside the trunk with only the sound outlet going to the outside underneath the car. Only on some models it might be necessary to install the complete soundbooster underneath the car. Most of the electric installation is also done in the trunk.

We start with the connection of the red power cable:

Most BMW do have the fuse box and some ground-pins / central ground point behind the right side panel of the trunk:



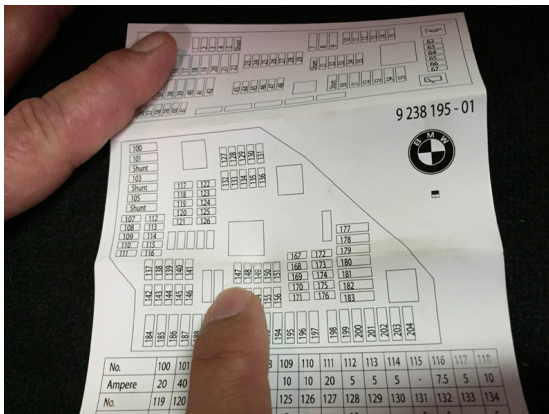
On the BMW F30-F36 3series and 4series cars the trunk fuse box is below the trunk floor:



Only on 3series E90-E93 there is no fuse box in the trunk at all. On these cars you need to go to the glovebox on the co-passenger seat. If you open it and open the two black screws, you will find the fuse-box there:

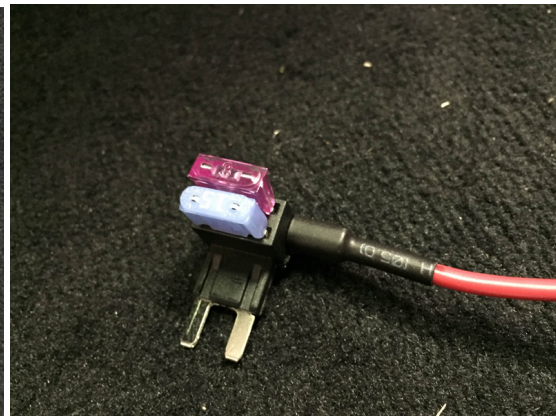


Look at the fuse-map to identify the fuse for the cigarette lighter. Remove this fuse (picture is only an example – might be different on your car):

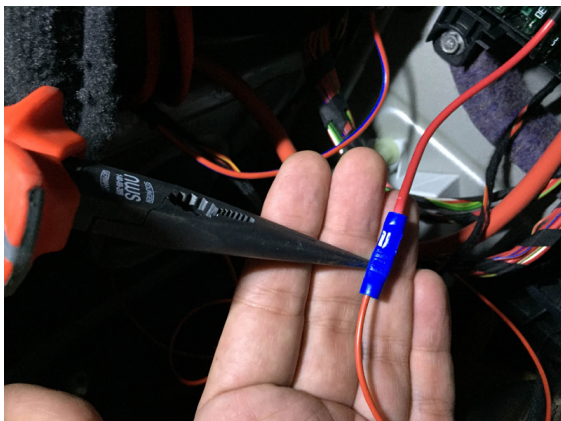




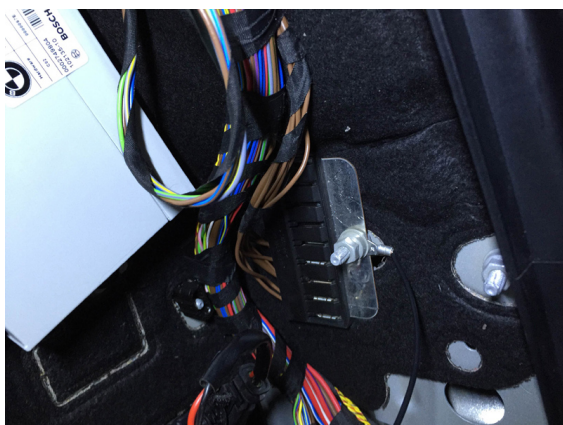
Put this fuse into our supplied fuse holder – **Attention:** make sure that there are TWO fuses in our fuse holder – otherwise it won't work:



Connect our fuse holder to the power wire of the harness (red) and plug the fuse-holder into the socket where you removed the cigarette-lighter fuse:



Connect the Ground-Cable with the eyelet / Grommet to a central ground screw in the trunk:



Next step is to connect the two data-bus wires to the cars PT-CAN-Bus.

On all **BMW E-Models and F-Models** (3 series E90-E93 and F30-F36 or 5 series E60/E61 or F10 / F11 / F05, 6series E63 / E64 and F12 / F16 / F06, X5 and X6 E70/E71 and F15 / F16,...) the PT-CAN Bus always is a pair of drilled cables in the colors RED and BLUE with a RED line as shown on this picture:



On all new **BMW G-Series** (i.e. G30 / G31 5series or 7series G11 / G12) the PT-CAN-BUS is a drilled pair of yellow cables – one with a white line on it and one with a black line on it:



You can connect to this drilled cable pair at any place in the car – independent of where you find it, where it comes from and where it goes. Connecting to them will always work fine, independent of the location. Further below there will be some hints where you can find them in the different BMM models

It has to be connected in the following way:

On all BMW E-models and F-models except BMW X5 F15 and BMW X6 F16:

Can High: Black-White Cable from the Active Sound harness has to be connected to the Blue-Red wire of the car Can-BUS

Can Low: Black-Yellow cable from the Active-Sound harness has to be connected to the RED wire of the car CAN-BUS

Only on BMW X5 F15 and BMW X6 F16:

Attention: only on X5/X6 F15/F16 it has to be connected contrariwise:

Can High: Black-Yellow Cable from the Active Sound harness has to be connected to the Blue-Red wire of the car Can-BUS

Can Low: Black-White cable from the Active-Sound harness has to be connected to the RED wire of the car CAN-BUS

On all BMW G-models:

Can High: Black-Yellow Cable from the Active Sound harness has to be connected to the Yellow wire of the car Can-BUS with the BLACK line on it

Can Low: Black-White cable from the Active-Sound harness has to be connected to the Yellow wire with the WHITE line on it of the car CAN-BUS

Our harness is already supplied with BMW pins and plugs. So if you find an ECU where the BMW Can-Bus wire-pair is connected to, you can use our pins and plugs to connect it to the ECU plug (description follows below)

Here are the places on the different BMW-models where you can find this BMW Can-Bus pair and an ECU where you can plug in the Active Sound harness. Best ECU is always the fuel-pump ECU because it is mostly in the trunk or near the trunk.

On 3series E90-E93 and also 3series and 4series F30-F36 it is behind the left part of the back seats (just pull):



On some newer F30-F36 models you might not find it there at all – do not worry – see “Option B” below.

On X6 / X5 F15 / F16 it is mostly below the bench-seat of the rear seat bench (right side). You can just pull the bench up.

If you do not find it below the rear seats or is is to much effort to remove them – do not worry – see “Option B” below.

On X5 / X6 E70 / E71 and on 5series / 6series cars it is in the trunk on the right side (somewhere around / below the fuse box) or in the spare wheel compartment. It might look like on the following picture but can look different or might be a complete different ECU. Important is, that twisted blue-red wire-pair goes to this ECU:



Option B:

If you do not find the BUS cable / an ECU as described above, do not worry.

In that case, you will always find that BUS cable on the right side behind a cover in the co-driver foot compartment / footwell. Just remove the cover on the right wall below the handglove compartment. There you will find a big box with a lot of connectors / plugs. In at least one if this connectors you will also find the blue/red drilled BUS-cable pair:



Our harness is long enough to go to the footwell compartment. To reach this place with the harness, just remove (pull up) the door entry covers as shown in the following picture and put the harness below the floor:



On all **BMW G-models** you always have to connect at the footwell compartment below the handglove compartment as described above in „Option B“.

But as described above, the cable color is different on BMW G-models so the drilled cable pair is not RED and BLUE but yellow with a white and a black line on it:



Now we explain how you connect to this BUS-Cable / the OEM BMW Plugs by using our PINs / connectors. The following pictures are only as an example. Depending on your model and where you connect, the Plug / ECU / place might look different and also the wire colors might be different (see wire connection table above!). The following description could only show how to connect and insert the pins and how to build the Y-connection:

Make sure ignition of the car is turned OFF

Unplug the plug of the ECU and open the lip / mechanism that secures all pins:

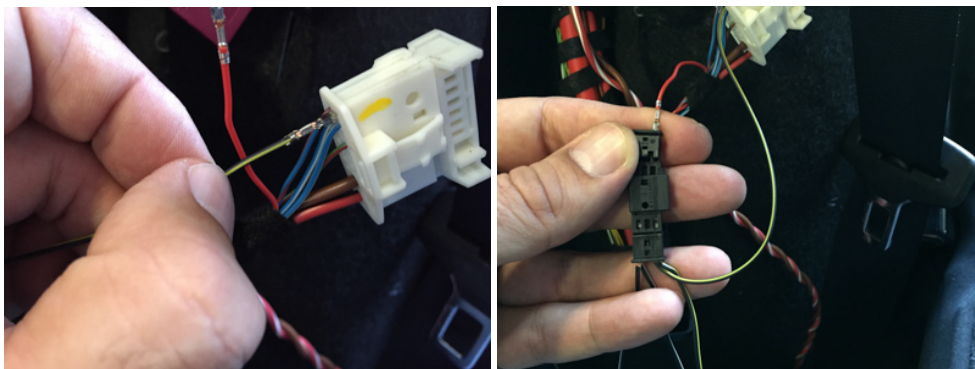


Remove the red pin of the drilled BUS-Cable pair first (on G-models the yellow cable with the black line) – you can remove the pins by holding down the spring-lip on the side through the hole with a small screwdriver or a paperclip:



Insert the black-yellow pin of the Active-Sound harness into this pin-hole (only on X5/X6 F15/F16, it is the black-white PIN instead – see table above).

The removed red pin is inserted into our supplied small plug. Pay attention to insert the red pin into this plug-hole that is directly connected to the black-yellow cable if you put the plugs together later on. In that way you create a Y-connection:



Same is done with the blue-red pin and the black-white pin/cable of our active-sound system:



Now the plugs can be connected back into the ECU

We are ready for the first test! Please wait before you mount all paneling until the function test was done.

Now the rest of the harness is connected together as shown in the following sample picture. All plugs only fit in one way – so you cannot connect wrong plugs. If you ordered the basic set with one Soundbooster / Actuator, one plug of the harness will be left free. This plug is only in case you order a second Booster. In that case you can also connect this second booster to this harness without changing anything else:



Now it is time to test the whole installation. If you turn on the car (not only ignition – the engine has to be running) you already should hear the basic sound.

Attention: if you do not hear any sound or if your BMW shows some errors in the dashboard it only means that you have done something wrong with the connections. Check all connections and wirings again. Check if you did not mix them up and if all PINs are completely deep into their places. All error-messages of the car will disappear as soon as the connection is correct. It might help to built everything back to stock until the errors are gone and start over again. Also check the LEDs on the small silver ECU that is delivered with our Active Sound system. One LED should light constantly green, the other LED (this one which is on the opposite side compared to the plug going into this ECU) should blink green if cars ignition is on or might light red if ignition is off.

If this LED is always red (even when the engine is on), the ECU receives no BUS-data from the CAN-BUS.

If all components work fine, you can start with step 2 – mounting of the Soundbooster / Actuator:

2. Mounting the Aktuator (Soundbooster)

We recommend to mount the booster inside the trunk into the spare wheel compartment or a side stacker/compartment of the trunk.

Only the sound-outlet-pipe of the Soundbooster is connected to the outside through a hole so the sound goes outside below the car. Only on a few models it might be necessary to mount the soundbooster on the outside underneath the car.

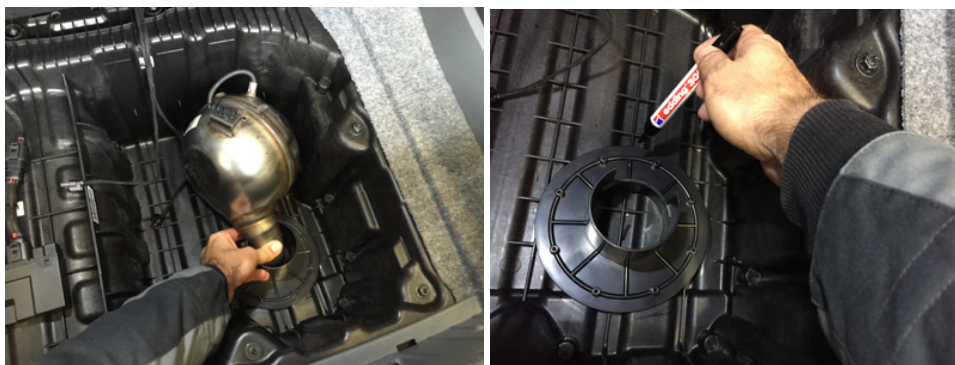
On some models there are already existing holes you can use. On other models you might have to drill a hole (between 3-8 centimeters – it does not matter).

First, we describe how the soundbooster is prepared and mounted on the hole (the example shows an **BMW E90 / E91 / E92**) – below that we show some other examples, how we recommend to mount the booster on other models.

First prepare the supplied flange and cut it as shown here so the booster-pipe fits in from the side: (hint: the pipe/tube of the soundbooster can be cut or truncated if necessary)



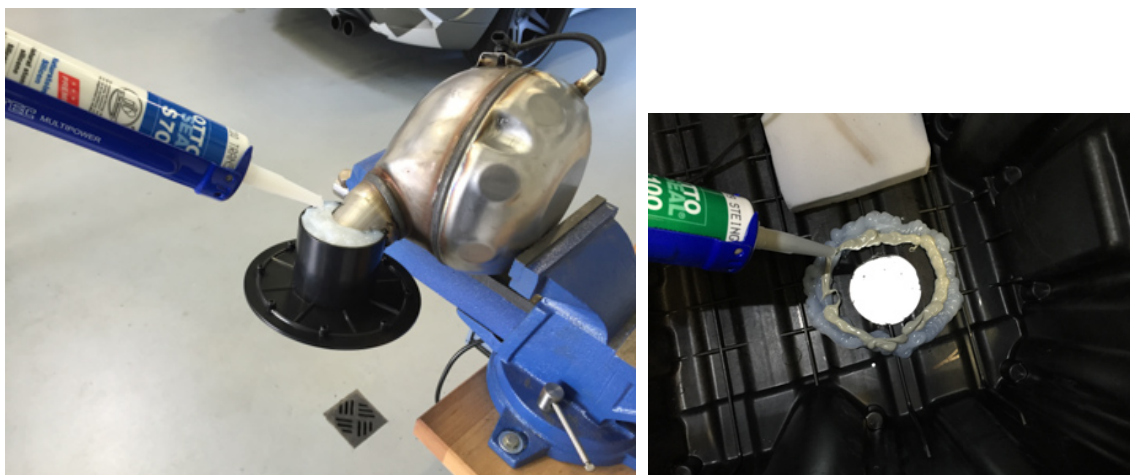
If there is no existing hole, do a test-mount and mark the position where you want to drill the hole:



Drill the hole (about 7 centimeters – most drillers have 68mm size) and also drill small holes where you can screw the flange from the outside (screws are supplied by us):



Glue the Soundbooster-pipe into the flange with regular silicone or dual-component adhesive. Then put enough silicone around the hole so it is waterproof if you put the flange with the soundbooster on it:



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Use the screws to tighten the flange from the bottom side:



That's it – done!

On **BMW X5 / X6 models** we recommend to mount the Booster into the storage compartment below the trunk floor (in the black smaller compartment or into the big gray compartment – both is possible):



On X6/X5 E70 / E71 you might to have to drill a new hole – on F15 / F16 X5/X6 there mostly is an existing hole:



This is with direction into the big gray compartment (you can reinstall the floor later on):



And this is the installation within the smaller black compartment (you will have to shorten the pipe of the booster):



Additionally there is a special cover available from BMW (F15 / F16) where the compartment is completely closed so the soundbooster is hidden and covered (BMW partnumber: 51477316454):



On **BMW 3series / 4series F30-F36**, there are already existing holes in the compartment below the trunk floor:



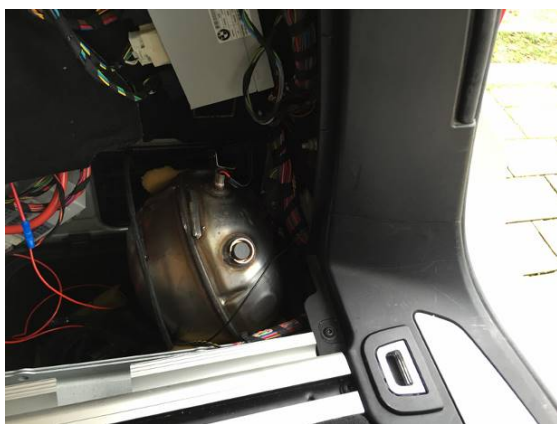
Just remove the plastic-plug of the left hole:





On **BMW 5-series F10 / F11** and **6-series F12 / F13** cars there might be different options – please check all of the following:

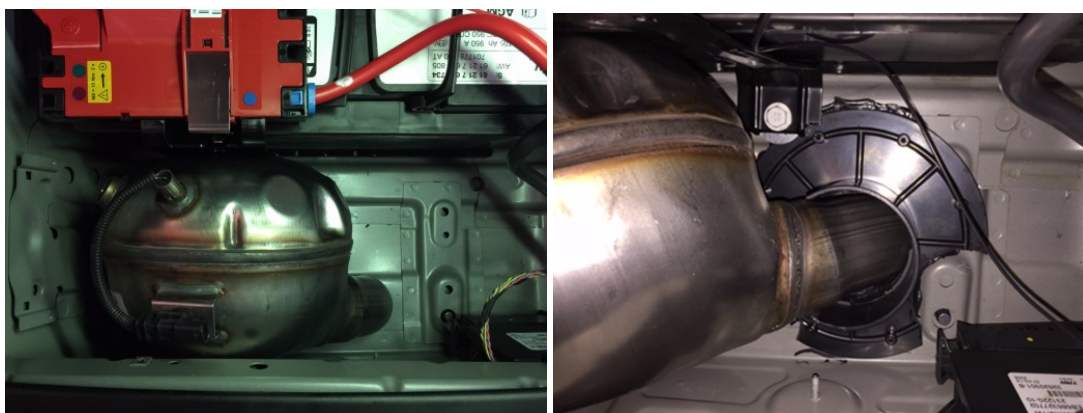
Especially on BMW F11 Stationwaggon we recommend to mount it on the right side into the right compartment (it will look different on 535d or on cars with AdBlue Tank):



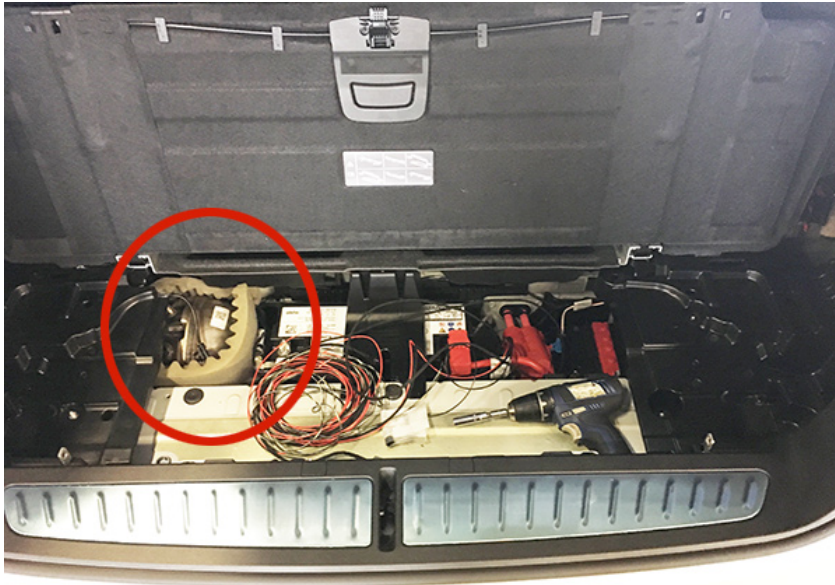
From under the car it looks like this:



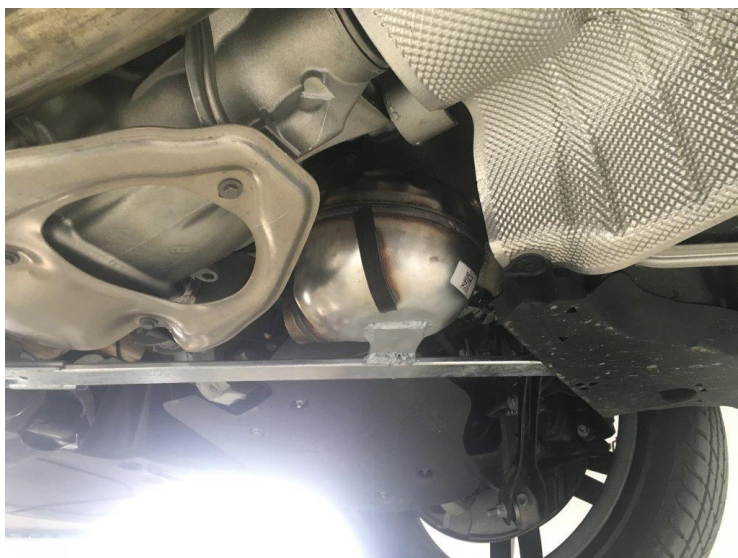
On BMW F10 sedan or on F12/F13 6series it will be mounted next to the battery into the middle trunk compartment below the floor (next to the battery):



On **BMW G30 / G31 5series** (depending on the accessories of the BMW) the space next to the batterie in the middle of the trunk might fit perfectly. Because the space is very limited there, you might not be able to mount / use the flange / ring as well – you might have to mount it without.. The following pictures do show a G30 installation – second picture shows the outlet-tube of the soundbooster from underneath the car:



On some BMW G-models (5series G30 / G31 or 7series G11 / G12) the place inside these compartments might not be big enough. In that case the soundbooster has to be installed completely underneath the car. Therefore, you need to build some brackets that hold the Soundbooster. You can weld them directly onto the Soundbooster. But welding must only be done on this half of the soundbooster "ball" where the outlet comes out of the ball. Do not weld on the other half because the speaker is in there and will be damaged. Furthermore do not weld with too much heat. The final construction might look like this (as an example):

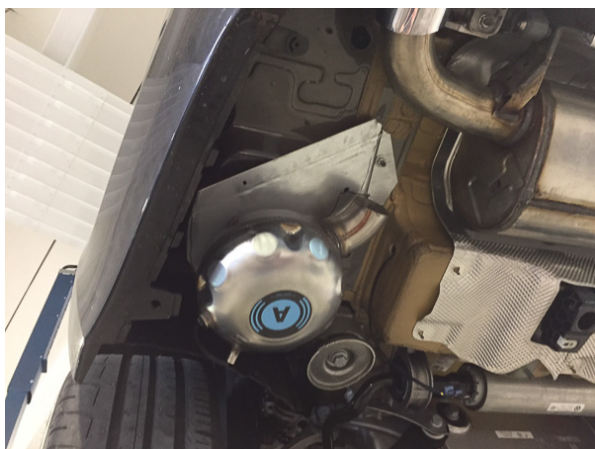


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Here on a 5series G30:





Do not worry: the soundbooster is waterproof / water does not hurt our system at all.

But you can also find your own option in your car.

To adjust the sound and do all settings, please read our separate operation manual here and also watch our operation and installation videos. Most do have English subtitles:

<http://www.insideperformance.de/en/anleitungen/>



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