

AnyMic/i Mounting guide and hints

This 'mounting guide' was carefully worked out with lots of advice from qualified luthiers in order to be easy and safe and to achieve repeatable results everywhere. So there is no need to 'reinvent the wheel' as all provided methods are checked by qualified luthiers for fitness.

The recommended tools were chosen to make the tasks easy for persons with good woodworking skills who would like to mount their AnyMic/i themselves; e.g. if there is no nearby luthier. Our recommendation, though, is to have it done by your 'friendly luthier in the neighborhood' ...

<u>Please read through all the instructions before you do anything, if you are doing</u> <u>this for the first time.</u>

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<u>Acknowledgement</u>

Many thanks go to master luthier <u>Stephen Sedgwick</u> of "*Stephen Sedgwick Guitars*" (<u>http://stephensedgwick.co.uk</u>) for proof-reading this English document and truly helpful advice.

Do not contact Stephen Sedgwick with requests, since he is not responsible for this document. Always contact us for what reason ever. Hence, if you have any questions or want to contribute to this 'mounting guide' send email to: info@music-on-the.net)

Also many thanks go to luthier <u>Ernie Rissmann</u> (<u>https://www.rissmann-gitarren.de</u>) for testing the 'offset mount method' on one of his own inventory instruments and has provided quick feedback about the 'offset mount method'.

1 Preface

AnyMic/i is the AnyMic variant to be directly mounted into instruments ('inbound microphone').

Here we explain (examples are a classical guitar and a western-/steel-string guitar) the easiest ways to install an AnyMic/i. In principle you do not even have to loosen the strings or have to remove them at all. The entire process takes only 10 to 15 minutes, if you have the mentioned tools.

1.1 Contents of the mounting kits

If any of the shown parts are missing: Complain!

1.1.1 Center mount kit



The 'center mount' kit comprises of:

- Two wood screws 2,9x9,5mm
- A laser-cut side protection foil (also used with the offset mount)
- A piece of prepared wire to probe the tail-block thickness.

It is packed with an 'AnyMic inside' ID card to protect the protection foil from breaking.

1.1.2 Offset mount kit



1.2 Contents of the drill kit (optional)

- 1.5mm drill
- 3.5mm drill
- 3/4-Inch (19mm) hole-saw

A 16mm flat-drill bit is not included, since it is just a helper-tool for the 'center mount' method. This tools is available in common hardware stores for small money and can be bought locally if needed.

1.3 Tools for the center hole

The mounting will flawlessly succeed if using the following tools for the center-hole of the AnyMic/i:

- 19 mm hole-saw
 - needs a electric screwing- or drilling-machine with (quick) drill chuck due to a 'triangle shaft'
- 16 mm flat drill bit
 - <u>only for the 'center mount' method</u> as a helper tool; see section 'center mount' for details
 - has a HEX shaft for screwing machines. So having a second electric screwer at hand can be helpful.
- <u>Alternative</u>: Step drill bit that <u>ends with a 20mm step</u> (handy for all methods)
 - You may compensate the 1mm excess in diameter by winding some layers of tape around the connector shaft of the AnyMic/i so it will sit snugly in the center-hole which is important to mark the centers of the fixation screw holes.
 - <u>Caution</u>: The center-hole should never be bigger than 20mm!
 So: Do <u>not</u> use a step drill that exceeds 20mm as the end diameter!!

<u>Note</u>:

You may also work out the center hole manually with a fine half-round wood-file reasonably smaller than 20mm. If you have just that, pre-drill with a reasonable size below 19mm and work out carefully little-by-little whilst checking often with the connector shaft of the AnyMic/i as you proceed. Mounting time can go over 15 minutes, though, if the workout of the center hole is done manually.

1.4 Other tools and materials

Hence you should have available the following tools and materials:

- A roll of masking tape
- Some strong paper or cardboard to cover the soundboard.
- an electric drilling machine with a (quick) drill chuck
 - This must have a 43mm Euro neck, so that a drill-helper for exact vertical drilling can be mounted.
- a medium cross-point screwdriver (Size #1)

1.5 Before any drilling ...

Take special care, if there is another pickup-system already installed in the instrument. There could be cables in the drilling zone where you have chosen to place the center hole of your AnyMic/i. These cables (or maybe other parts) must be put aside from the drilling zone to secure them from any harm. If this is the case, you yet need to loosen some strings, in order to reach inside the instrument to put the cables or other parts away from the drilling zone.

2 Discussion of Mounting methods

There are two fundamental methods to mount an AnyMic/i:

- 1. Center mount: On the center line of the "tail block" preferably directly in the center
- 2. Offset mount: In the thin side (with offset to the center line of the tail-block).

Bear in mind, that some things are mirrored for 'left handed' instruments and must be done accordingly on such instruments. The pictures show the proceedings for a 'normal' (right-handed) instrument.

2.1 Center mount ...

Mounting centric 'in the tail block' offers the best stability but demands more accuracy to place the drill holes; i.e. exact vertical entry of the drilling tools, so that the connector sits comfortably in the hole.

The method to install AnyMic/i in the center of the tail-block is in principle the better way.

With this method there is also no distinction to make for right- and left-handed instruments for the drilling part of the task. Only the modeling of the gooseneck must be mirrored, since the string order is flipped (E1..E6 on a guitar) on left-handed instruments.

2.2 Offset mount ...

For western/steel-string guitars that are often/mostly played standing upright, the 'strap button position' may not be suitable - in particular, if there is the jack-socket of an already installed pickup-system. In this case only the 'offset mount' method is applicable.

The 'offset mount' method uses a small aluminum back-plate (included with the mounting kit) to achieve the same stability as the 'center mount' method. This back-plate must be positioned behind the holes in the side while coming from the inside of the instrument. But don't worry – this process step is designed to be pretty easy. Just see the details in the specific section.

3 Method #1: Center mount ('through the tail block')

This method is 'stable by nature' and should be preferred where possible.

But it is <u>restricted</u> to situations where the center in the foot-point of the instrument is not already occupied by an end-pin (strap-button) or the 1/4-Inch jack of an already existing pickup system. This is mostly the case for classical and flamenco guitars, for instance.

Consider method #2 (offset mount) if the center-point is occupied and nothing should or can be changed.

Pro:

- No care must be taken for left-handed instruments with this method ...
 - **But:** The gooseneck adjustment depends on normal or left-handed instruments changes, since the treble strings switch sides on a left-handed instrument! (for a guitar E1..E6; left to right!)

Con:

- Needs more accuracy esp. exact vertical entry of drilling tools is important for the much thicker 'material' at the tail-block.
 - When drilling the 'pilot hole' and the tiny holes for the fixation screws use a 'drill helper' that assists you in drilling accurately vertical.

Put the instrument on a clean, even and soft surface. Secure the instrument carefully yet properly (e.g. straps and some pieces of soft foam material to protect edges) If you cannot find something like this then ask another person to firmly hold the instrument. Then tape the working zone generously with masking tape. Even a bit more with the 'center mount' method depending on the size of the 'drill helper' that you use for drilling the 'pilot hole' for the hole-saw and the fixation screw holes. With the 'center mount' method leave gaps at first at the top and bottom, so that you can draw an exact centerline.
Mark the center position for the connectors center hole.
Finally tape-up the gaps you have left.
Drill the 'pilot hole' first of all (about 3,5mm) for the center position of the connector shaft.
Use a ' <u>drill helper</u> ' for reasonably vertical drill entry.
(We used a PROXXON fine-drilling machine with a 'router guide' in the picture. But you may use any other 'drill helper' on the market to assist for exact vertical drilling)
<u>Don't drill 'by eye measure'!</u>
With the 'pilot hole' drilled determine now the tail- block thickness of the particular instrument.
To do so, use the piece of wire included with the mounting kit and push it into the pilot hole with the hook ahead and going completely through the pilot hole.

	Then gently pull the wire back a little so that it hooks with the pilot hole edge on the inside. Now make a mark on the wire at the outside with an appropriate pen. (e.g. a fine black permanent marker) You now have a clue of thickness at the tail block for the particular instrument.
	Transpose this thickness measure to the flat drill bit (helper tool) and diminish it by about 5mm.
	Finally apply the usual 'drill stop trick' with a piece of tape to the flat drill.
	Now you can cut step-by-step the center hole for the connector shaft starting with the hole-saw. When the hole-saw is stuck after ~6mm by the rim it leaves behind, remove this rim with the flat drill. But just the rim – don't cut for depth with the flat drill bit. Hole-saw to cut for depth, flat drill to remove the rim, hole-saw, flat drill, a.s.o. until the flat drill bit reaches the instrument side with the drills 'stop mark'.
	Run the electric tools only at low speeds and don't press too hard! <u>Hint</u> : If you have another electric screwer at hand it can be handy to use it for the flat drill, This saves you a tool change at every step to be done.
(For clarity shown on a piece of bright test wood)	When the flat drill reaches the drill-stop-mark after several process steps the hole-saw is going all through in the next step. So continue with the hole-saw carefully at low pressure. This gets you a nice cut on the exit w/o any splinters on the inside edge.

	Now insert the AnyMic/i as a template, align it and mark fixation screw holes by just circling with a pen in the fixation screw holes with a fine pen. Then remove the AnyMic/i and make an accurate cross right in the center of the circles you have just drawn.
	Pre-drill fixation screw holes (1,5mm with the 'center mount' method and about 10mm depth) Use the ' <u>drill helper</u> ' for an accurate vertical entry of the drill.
	<u>Gooseneck Adjustment</u>
	Hold the AnyMic/i right above the mounting hole to the edge of the instrument and model the gooseneck that it points from the right to the treble strings in a distance of about 3cm before the saddle.
	Take care with instruments for left-handed players. The modeling of the gooseneck is mirrored in this case!
For a Left- handed player!	



For the **vertical adjustment** hold the vertical edge of the AnyMic/i to the vertical drill mark at the mounting position that was drawn in the beginning.

The microphone cartridge at the end of the gooseneck should be about 3cm below the instrument top/soundboard line pointing up in an angle of roughly 45 degrees.

Function check before fastening ...

Before fastening do a short function test for the microphone circuit and microphone cartridge. To do so, connect the AnyMic/i with your pre-amp by a microphone cable and have phantom-power turned ,On' for this channel. The circuit board has a LED integrated that will light up, if phantom-power is available. If you then speak to the microphone the level meters in your equipment should react and/or you hear your voice coming from the speakers. Everything is o.k., if the LED works and you get reaction from the microphone cartridge.

If the LED does <u>not</u> light up, check that phantom-power is turned ,on' for that microphone cable.

If the function test shows, that everything is working fine, you can remove the tape and clean the instrument from traces that the masking tape might have left.



4 Method #2: Offset mount ('in the thin side')

If the 'center mount' method is not applicable for a good reason, the 'offset mount' method can be considered.

First things first:

- Care must be taken for left-handed instruments with the 'offset mount' method ! As a rule of thumb the offset goes to the side with the treble strings.
- Never use this method for flamenco guitars or historical instruments as these have sides, that are either very thin or made of fairly brittle wood: e.g. the cypress wood of flamenco guitars. With such instruments you are restricted to method #1.

For steel-string instruments this can be the prefered method as these instruments have sides, that are fairly robust.

The 'offset method' takes a few more steps. But the drilling tasks are much easier, since exact vertical drilling is less important due to the small thickness of the sides compared to the thickness of the tail-block.

With this method a laser-cut aluminum back-plate is to be mounted on the inside right behind the center hole of AnyMic's mounting position. This back-plate provides the same stability as mounting into the tail-block.

The needed parts are provided with a special mounting kit for mounting in the thin sides:



The 'offset mount kit' comprises of:

- the laser-cut aluminum back-plate with stick-pad and metric 3mm (M3) fine threads.
- two screws M3x10mm
- the two 'pull-in cords' with conic ends for easy lead-in.
- the two rivets as 'leading & centering helpers'

 Put the instrument on a clean, even and soft surface. Secure the instrument carefully yet properly (e.g. straps and some pieces of soft foam material to protect edges) If you cannot find something like this then ask another person to firmly hold the instrument. Tape the mounting region generously, so that you overlap the top (soundboard) of the instrument by ~6 centimeters. Take care that you tape this region left from the strap button position on left-handed instruments. For a western-/steel-string guitar you should position the center hole about 6-7cm right from the end pin (or
jack socket of an already existing pickup-system.) For a <u>left-handed instrument</u> the measure is about 6- 7cm <u>to the left</u> of the end pin (or jack socket of an already existing pickup-system.).
Note: Never ever drill all holes at once! First workout the 19mm center-hole as this will be the reference to mark and drill the holes for the fixation screws. For the ¾-Inch (19mm) hole-saw, first pre-drill with a smaller drill (3,5mm) the center-hole position for the connector.
In the next step you work out the center-hole for the connector to 19mm (¾ inch). The center-drill of the hole-saw has a diameter of ~5mm. Use an electric drilling machine at low speed (about 200 to 400 RPM (max). The hole-saw has a fairly long center-drill, so a jump-off cannot happen. This is why we recommend it to unskilled woodworkers – it is quick, safe and easy and





Gooseneck adjustment ...

Prior to the connector mount the gooseneck has to be adjusted for your particular instrument.

For that, hold your **AnyMic/i** above its center-hole on the guitar top (soundboard) with the flange aligned with the side. Give the gooseneck a slight right-bow (leftbow on left-handed instruments) and model it, so that the axis of the microphone point across the treble strings from a distance of ~3cm before reaching the bridge. Then bend the microphone-end up a little that it points up to the soundboard (roughly a ~45° angle).

Take care that the distance to the top is not too small, so that the microphone might touch the top. As an "eye-measure" watch the mirror of the microphone capsule on the guitar top. The mirror should be 2..3cm before the bridge. The second indication you get by the distance of the real capsule and its mirror on the guitar top – it should be about half the size of the sides of the guitar.

<u>Note</u>: You may check after mount with a pocket mirror, a WEB-cam or USB endoscope how the microphone is actually positioned. (Probably you yet need to loosen the strings a little with a simple pocket mirror or a WEB-cam)

With the gooseneck adjusted properly you can now proceed to mounting the connector ...

... as a **3D CAD drawing** with inside view ...



For better understanding here is yet a **3D-CAD drawing** that gives insight into the guitar body about where the microphone cartridge is to be placed. The microphone should touch a virtual area (shown in light red) around the treble strings pointing from the right and up to the treble strings while keeping a distance of about 3 cm away from the top/soundboard. On a steel-string guitar also watch-out the bridge-pins – there should not be a possibility, that the microphonecartridge can touch a bridge-pin as this can cause noise, if a part from the vibrating soundboard gets in touch with the microphone cartridge.

(Take care on <u>left-handed instruments</u>. The positioning is 'mirrored' here along the instrument axis and the center-hole of the AnyMic/i is drilled left from the tailblock) For the ,final mount' you can now remove the tape from the instrument and clean probable traces that the masking tape might have left.



Positioning the back-plate

Before the AnyMic/i can finally be mounted with the 'offset mount' method the back-plate must be brought into place.

First push the two cords from the 'offset mount' kit through the fixation screw holes and leave about 15 cm hanging out to the outside.

Hint:

You can make a lose knot close to the ends of the cords, so that the ends cannot slip into the body inadvertently.

Let the other ends come out from the sound-hole, so that the ends come out between the same two strings.

You may cover the strings with two folded pieces of paper.

Take utmost care that you did not have caught cables of an already mounted pickup-system between the two cords!

Push the ends of the two cords through the 3mm threads of the back-plate from the side with the sticker- pad. Since everything is <u>perfectly symmetrical</u> no care must be taken about which end to push through which hole.
Then make a firm knot in each cord end close to the back-plate (roughly in the middle of the cords), so that about 50cm of the cord ends are left.

•	Bind the end of each cord to a string with a lose knot, so that the cord ends cannot slip into the instrument body. One will need this ends to pull the cords back out finally.
	Cut the protection foil of the stick-pad as shown in the picture, so that the protection foil can be removed. Fine pair of scissors do best here.
	Now go back to the instrument side and push the two rivets onto the cord ends and into the fixation screw holes to get a perfect lead of the cords through all hole centers.

	Remove the protection foil of the stick-pad completely and push the back-plate into the instruments body. You may spread the strings a little, so that the glued surface cannot get in contact with anything on the way into the instrument body: e.g the 'cover papers'
<image/>	 Then one can carefully pull the back-plate into place and it will sit perfectly while sticking to the inside of the instruments side with the holes perfectly aligned on a common axis that is determined by the rivets. Wrap the cord ends evenly around your right hand to get kind of a 'handle' and then pull on the cords until you feel the elasticity of the foam rubber of which the sticker is made. [Notice that the rivets will come out a little (by the thickness of the side), if the plate aligns with the side on the inside.] Pull and hold the cords a few seconds, so that the glue on the stick-pads can react with the surface on the inside. Important: Check that the center-hole in the wood aligns well with the center-hole of the back-plate and carefully remove any wood from the center-hole that overlaps the center-hole in the back-plate. You may use a round or half-round file – but some tightly rolled-up sandpaper will also do. Check with your AnyMic/i connector turned by 90° that the connector shaft can go through smoothly. Take care with tools - at this stage the tape is already removed! Finally you can remove the rivets and pull-out the cords at the other ends (at the soundhole) and remove them, since they are no longer needed.

Then do a short function test for the microphone circuit and microphone cartridge. To do so, connect the AnyMic/i with your pre-amp by a microphone cable and have phantom-power turned ,On' for this channel. The circuit board has a LED integrated that will light up, if phantom-power is available. If you then speak to the microphone the level meters should react and/or you hear your voice coming from the speakers. Everything is o.k., if the LED works and you get reaction from the microphone cartridge by sound coming from the speaker.

If the LED does <u>not</u> light up, check that phantom-power is turned ,On' for that microphone cable.





5 Conclusion

If you have read up to here, you probably come to the conclusion to leave the mounting to *"your friendly luthier in the neighborhood*". But if you want to do it by DIY manner and feel comfortable with it, we wish you a *"successful job"* after you have now read the instructions entirely and have a complete overlook of either mounting process that is sufficient for your particular instrument.

We appreciate your hints or suggestions about this manual. If you have some, please let us know by sending an email to <u>info@music-on-the.net</u>

Enjoy your AnyMic product ... AnyMic ... by musIC