

DESCRIPTION
REAL COMPETENCE

AXON AIX 101

G u i t a r P i c k u p I n t e r f a c e

AXON AIX 103

B a s s P i c k u p I n t e r f a c e

TERRATEC PRODUCER/AXON AIX 101/103

English Manual

Version 1.0, status: October 05

CE Declaration

We:

TerraTec Electronic GmbH, Herrenpfad 38, D-41334 Nettetal, Germany

hereby declare that the product:

AXON AIX 101 and AXON AIX 103

to which this declaration refers is in compliance with the following standards or standardizing documents:

EN 55013(2001)+A1(2003), EN 55020(2002).

The following are the stipulated operating and environmental conditions for said compliance:

residential, business and commercial environments and small-company environments.

This declaration is based on:

Test report(s) of the EMC testing laboratory



The information in this document is subject to change without notice and shall not be deemed as a warranty by the seller. No warranties, express or implied, are made with regard to the quality, suitability or accuracy of this document. The manufacturer reserves the right to change the contents of this document and/or the associated products at any time without the provision of prior notice to specific persons or organizations. The manufacturer shall not be held liable for damages of any kind arising from the use, or the inability to use this product or its documentation, even if the possibility of such damage is known. The information in this document is subject to copyright. All rights are reserved. No part of this manual may be reproduced or transmitted in any form or for any purpose without the express written permission of the copyright holders. Product and brand names contained in this document are used for identification purposes only. All registered trademarks, product designations or brand names used in this document are the registered property of their respective owners.

©TerraTec® Electronic GmbH, 1994 - 2005. All rights reserved (10/28/2005).

Contents

AXON AIX 101/103 Guitar/Bass Pickup 4

Safety notes 5

Parts list 6

Connectors and controls 8

Installation 9

 Installing the controller 10

 Determining the optimal location 10

 Selecting the mounting method 10

 Mounting with screws and/or adhesive strips/pads 11

 Mounting with Velcro 12

 Mounting with bracket 13

 Mounting with suction cups 14

 Installing the pickup 14

 Marking the optimal mounting position 15

 Selecting the mounting method 17

 Mounting with adhesive strips 17

 Mounting with screws and springs 20

 Installation with mounting plates (AIX 103 only) 21

Getting ready to play 23

Technical data 25

AXON AIX 101/103 Guitar/Bass Pickup



The AIX-101/103 is a high-performance guitar synthesizer pickup for use with the TerraTec AXON Guitar-To-MIDI Controller. Correctly installed and set up, it provides full MIDI capabilities to virtually any electric guitar or bass, or any steel-string acoustic guitar. The AXON AIX 101 is the pickup for six-string guitars, while AXON AIX 103 designates the pickup for bass guitars with up to 6 strings. The illustrations in the following instructions all show the AIX 101. The installation process for the AIX 103 bass pickup is identical, however. Please read these instructions with care and perform the steps in the order listed here to ensure trouble-free operation.

Safety notes

Place of installation

Protect the AIX 101/103 against the following influences to prevent distortion or discoloring of the housing or other serious damage:

- direct sunlight (e.g. near windows)
- high temperatures (near radiators, in direct sunlight or in closed vehicles during the daytime)
- excessive humidity
- excessive dust
- sharp mechanical shocks.

Connections

- Use only the 13-pin AXON AXK 100 cable (available separately) to connect the AIX 101/103 to the AXON.
- If you are using an electric guitar or bass, connect its pickups to the AIX 101/103 as well (see page 23), even if you do not need the conventional guitar sound. This connection is important for grounding the instrument to prevent noise and electric shock.
- Always grasp the plug, not the cable itself, when unplugging cables.
- Remove all cables before moving or transporting the instrument or any connected equipment.

Handling and transport

- Do not use excessive force on the controls or when inserting or removing plugs.
- Dropping or bumping the instrument or placing heavy objects on it can result in scratches or other damage.
- Take care not to damage the AIX 101/103 when placing the instrument on a stand.

Cleaning

- Use a soft, dry cloth to clean the instrument.
- Moisten the cloth slightly to remove stubborn dirt.
- Never use cleaning products such as alcohol or thinner.

Customer service, maintenance and modifications

- The AIX-101/103 does not contain any user-serviceable parts. Opening the housing or other tampering may result in electrical shock or irreparable damage. Please refer all servicing work to TerraTec technicians.

TerraTec cannot be held liable for damage resulting from installation and operation errors or improper use.

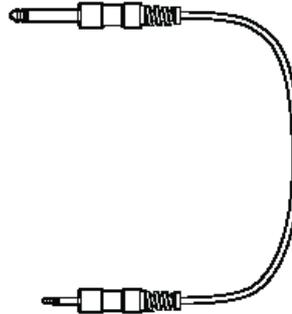
Parts list

Please ensure that you have received all of the following parts before installing the pickup:

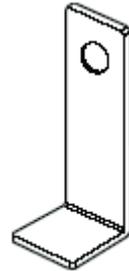
AIX 101/103 controller with pickup



guitar cable, 1/4" to 1/8" jack



spacing gauge

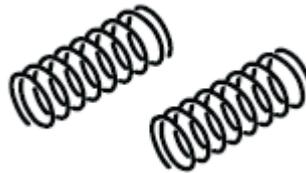


Mounting hardware for the AIX 101/103 pickup

2 button-head screws
(3x25 mm)



2 springs



double-sided adhesive strips,
4 ea. (AIX 101),
16 ea. (AIX 103)



1 pickup cushion (AIX 101)



spacer A (1 mm)
5 ea. (AIX 101)
10 ea. (AIX 103)



spacer B (0.3 mm)
10 ea. (AIX 101)
12 ea. (AIX 103)



reusable adhesive pads,
2 ea. (AIX 101)
8 ea. (AIX 103)



small screws, 3x6 mm
with washers,
2 ea. (AIX 103)



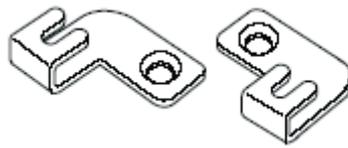
small screws,
3x6, 3x8 and 3x12 mm,
2 ea. (AIX 103)



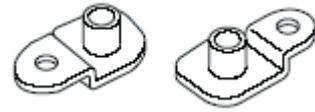
countersunk screws, 3x10 mm,
2 ea. (AIX 103)



mounting plates,
1 set (AIX 103)



pickup holders,
1 set (AIX 103)

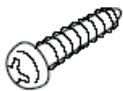


8 double-sided adhesive strips
for mounting plates (AIX 103)



Controller mounting hardware

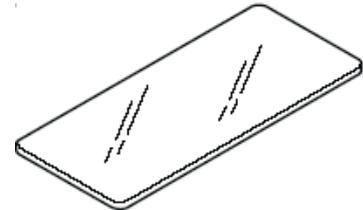
1 button-head screw
(3x16 mm)



3 double-sided adhesive strips
(AIX 101)



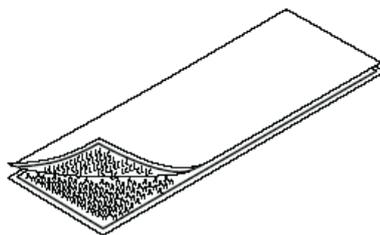
reusable adhesive pads
3 ea. (AIX 101)
6 ea. (AIX 103)



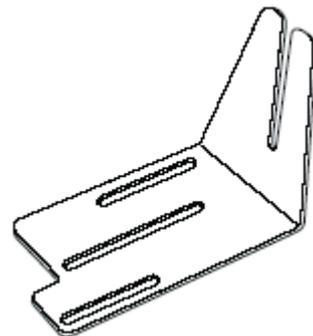
6 spacers
(with double-sided adhesive,
AIX 101)



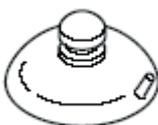
1 Velcro set



1 bracket



3 suction cups



Connectors and controls



- 1. Pickup:** this component converts the vibrations of the strings into an electrical signal that is processed by the AIX 101/103 and sent to the AXON.
CAUTION: due to its extremely flat design, the pickup is delicate and can easily be damaged by strong pressure, bending or twisting. Please handle the pickup with great care.
- 2. Connector socket for the 13-pin cable (AXON AXK 100):** this is the signal output of the AIX 101/103. Use the 13-pin cable to connect this socket to the INPUT socket on the AXON. The cable carries the signals of the individual strings from the AIX 101/103 pickup as well as the signal from the conventional instrument output. The cable also carries power for the AIX 101/103, as well as the control signals generated by the UP/DOWN buttons and the volume control on the AIX 101/103.
- 3. Guitar/bass input socket:** the AIX101/103 receives the signal from the conventional pickups of the instrument via this socket. Use the short cable supplied with the AIX 101/103 to connect this socket to the 1/4" output socket of the instrument.
- 4. Operation LED:** this LED indicates that the AIX 101/103 is receiving power from the AXON via the 13-pin cable.

-
5. **VOLUME:** this knob controls the volume of the sound generators connected to the AXON (the AXON translates the control position into a master volume value and sends this value to the connected oscillators). To adjust the volume of the conventional guitar sound, use the controls on the guitar itself.
 6. **UP (higher) and DOWN (lower) buttons:** use these buttons to select different sounds and other functions while playing. Press the buttons as required to step through the memory numbers of the AXON (and the corresponding voice numbers of the connected synthesizer). Press and hold the buttons to switch numbers without stopping.
 7. **GUITAR/MIX/SYNTH selector:** this switch determines the signal to be sent to the AXON:
 - **GUITAR:** the output contains only the signal from the conventional pickups (no MIDI)
 - **MIX:** both the direct guitar signal and synthesizer signals (MIDI) are sent.
 - **SYNTH:** only the synthesizer signals (MIDI) are sent, not the conventional guitar signal.

Installation

While mounting the AIX 101/103 on a guitar or bass is not difficult, it does require great care and a certain degree of manual skill. If you are not sure you have the necessary skills, we recommend leaving the installation work to someone who has experience in modifying and repairing guitars.

Note: before installing the AIX 101/103, be sure that the neck and the string height/intonation (bridge) of the instrument are set correctly.

Suitable guitars/basses

The AIX 101/103 can be used with most electric guitars and basses as well as acoustic guitars with steel strings, with the following exceptions:

- As the AIX 101/103 is equipped with a magnetic pickup, it will not work with nylon or other nonmetallic strings.
- The AIX 101/103 is designed for 6-string guitars or 4/5/6-string basses. The system cannot work correctly with 12-string guitars or unconventional string configurations.
- The AIX 101/103 pickup must be fitted between the bridge and rear pickup of the guitar. Installation is not possible if there is not enough room between the bridge and rear pickup or the body and the strings.

Installing the controller

Install the controller (interface) first – please ensure that the pickup is not damaged in the process.

Determining the optimal location

The controller (interface) should normally be installed behind the bridge. It should be within convenient reach, yet should not interfere with your playing or the controls of the instrument. Please observe the following points when determining a suitable mounting location:

- The controller should not be in your way when picking the strings. When installing the controller, ensure that it does not affect your playing style.
- The controller should not block the volume or tone controls of the instrument, or impede access to the bridge, especially the intonation screws that are adjusted from the back of the bridge.
- The mounting location must ensure that the length of the pickup cable and the connecting cable to the instrument are sufficient.
- Neither the controller nor the plug of the connecting cable should extend beyond the edge of the guitar body to reduce the risk of damage.
- When choosing the mounting location, ensure that the instrument can be placed on a stand with the controller attached.
- Choose the mounting location to ensure that the instrument will not be subjected to undue pressure while being transported in a bag or case with the AIX 101/103 attached.

Selecting the mounting method

Mounting with screws and/or adhesive strips/pads

- Permits the installation of the controller on a curved top in conjunction with adhesive strips
- Permits simple mounting and secure attachment.
- Requires a hole to be drilled in the body.

Mounting with Velcro

- Permits the controller to be mounted and removed with ease.

Mounting with bracket

- Permits the mounting of the controller on a curved top in conjunction with adhesive strips.
- The bracket can also be attached to the strap button of the instrument. This requires a certain amount of care to prevent damage to the strap button mounting screw, however.

Mounting with suction cups

- Permits easy mounting, removal and transportation of the unit.
- This is an elegant alternative for attaching the controller to guitars or basses with flat tops and a smooth, glossy finish.

Choose the method best suited to your instrument and intended use.

Mounting with screws and/or adhesive strips/pads

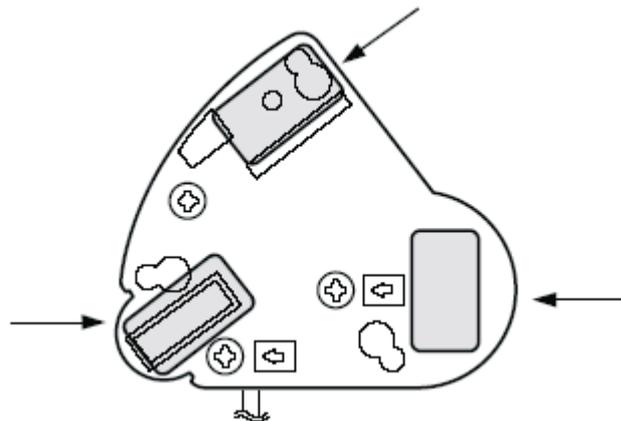
Marking and drilling the screw hole for the controller

Hold the controller in the planned position and mark the center of the hole to be drilled (in front of the socket for the multi-pin cable) in the instrument body with a sharp pencil or other suitable tool. Set the controller aside and using the greatest care, drill a 2 mm dia. and 10 mm deep hole at the marked point.

Note:

- If your guitar or bass is an acoustic or semiacoustic instrument with a top unsuitable for drilling, or if you break out in a sweat already at the thought of mistreating your instrument in such a manner, then you can also install the controller with double-sided adhesive strips or Velcro. Screw mounting is the most secure, however, and we recommend it wherever possible.
- Mounting with Velcro is advisable whenever the AIX 101/103 is going to be removed and replaced frequently. The adhesive strips must NOT be used when mounting the device with Velcro!

Remove the protective backing from one side of the adhesive strip/pad and apply it to the underside of the controller as shown (3 strips).



Clean the mounting surface of the guitar thoroughly to ensure that the adhesion is not affected by dust, dirt or grease. Remove the remaining protective backing from the adhesive strip/pads on the controller and place it on the guitar body in such a way that the screw hole in the guitar (if drilled) is aligned with the hole in the controller. Press the controller firmly – but carefully – into place to ensure proper adhesion. Finally, insert the self-tapping button-head screw (3x6 mm) through the hole in the controller and into the hole

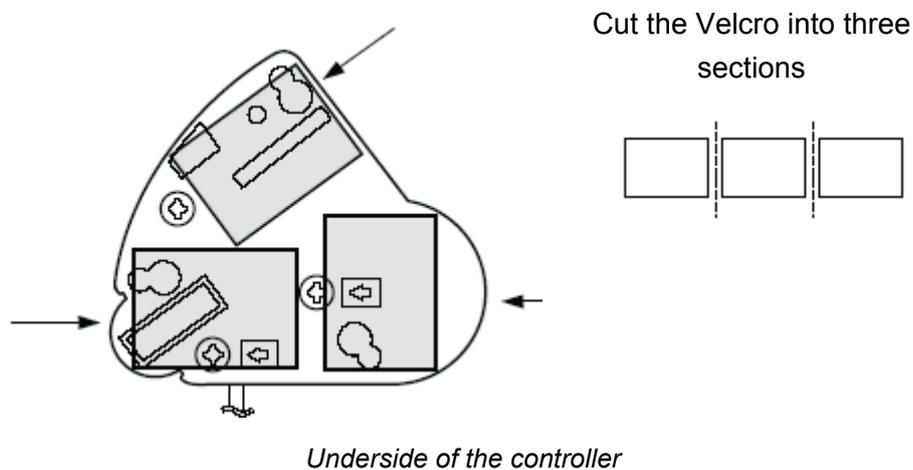
previously drilled in the instrument. Ensure that the screw is only finger-tight. Over tightening the screw can damage the controller or the instrument.

Note:

- The controller can be attached to practically any body type using the adhesive strips or pads. For more information, please see “Reusable adhesive pads” below.
- Adhesives may react chemically with some instrument finishes, resulting in discoloration or other damage. If in doubt, apply a small piece of adhesive strip/pad in an inconspicuous location for several days to determine whether they affect the finish of the instrument.
- If your instrument has a curved top or the installation location is shaped in such a way that the controller cannot be attached using adhesive strips alone, apply spacers to compensate for the uneven surface. Like the strips, the spacers also have adhesive on both sides which is protected by backing paper.
- The adhesive pads can be used in the same way as the strips to attach the controller. The pads can be reused many times, and can be washed carefully with a neutral cleaning product to remove dust and dirt, restoring their adhesive properties. When removing the controller, put the original protective backing back on the pads to keep them in good condition.

Mounting with Velcro

1. Cut the Velcro strips, which are attached to one another, into three sections and apply them to the underside of the controller.



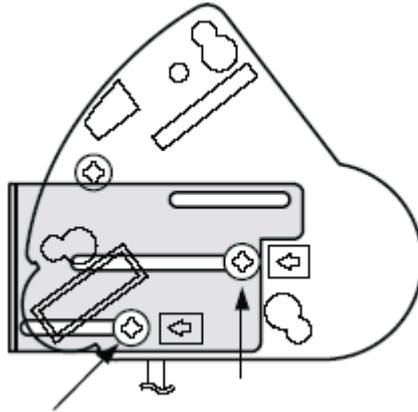
2. Remove the protective backing from the other side of the Velcro strips and attach the controller to the guitar body.
3. The controller can now be gently pulled off and reattached to the body as needed.

Note:

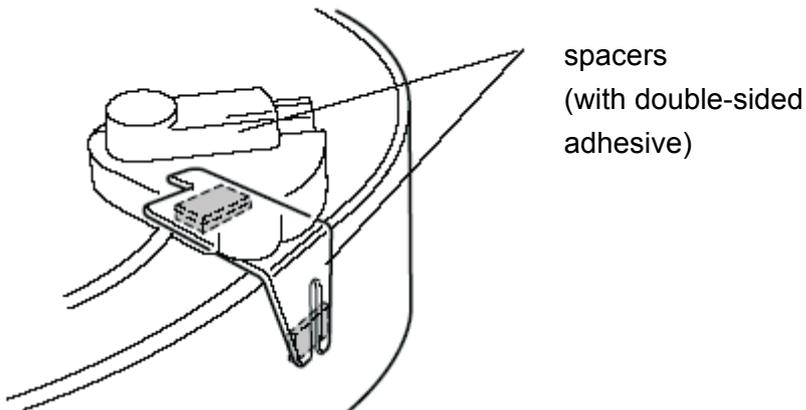
- This is not the most secure mounting method and should only be used if no other option is suitable, or if the pickup will be used often on different instruments.

Mounting with bracket

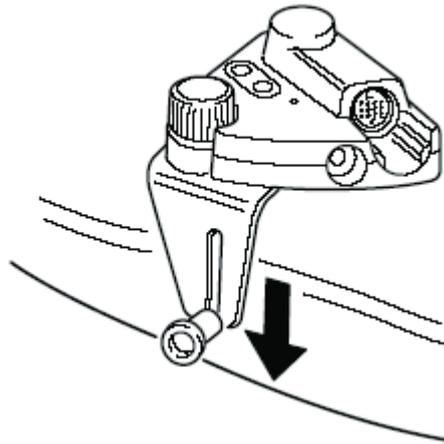
This mounting method has the advantage of not requiring screws to attach the controller to the instrument body. Before attaching the bracket to the instrument, remove the screws indicated by arrows on the underside of the controller and use the screws to mount the bracket to the controller as shown.



Apply two spacers (with double-sided adhesive) to the bracket to prevent scratching the instrument's finish and attach the controller to the instrument as shown.



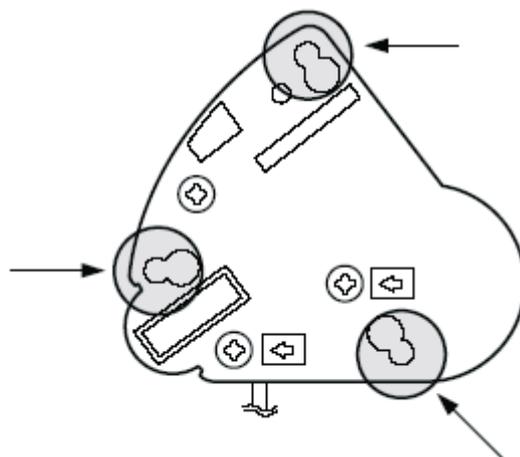
As an elegant alternative, you can also attach the bracket to the instrument with the strap button (using spacers if possible to avoid scratches). Loosen the strap button of the instrument by unscrewing it a couple of turns and insert the slot of the bracket under the button. Tighten the screw to secure the bracket to the body.



CAUTION! The screw of the strap button can loosen due to repeated removal and tightening or strong pressure on the bracket.

Mounting with suction cups

The included suction cups are an especially convenient mounting method and a completely adequate alternative for instruments with a glossy finish. Attach the suction cups to the controller by inserting the noses of the cups into the wider section of the cutouts on the underside of the controller, then pressing them into the narrow section until they are firmly seated. Ensure that the mounting surface on the body is free of dust or dirt, and press the suction cups onto the top of the instrument. To release the suction cups, simply lift them slightly at the edge.



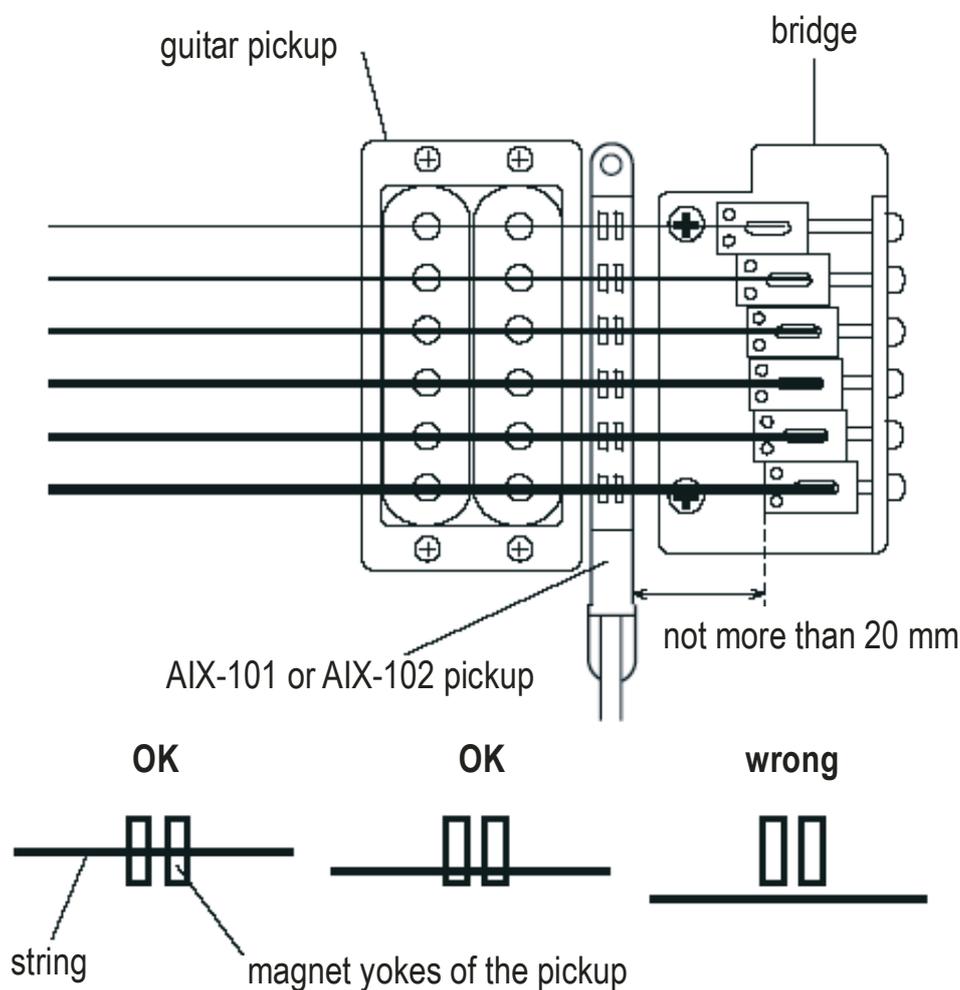
Installing the pickup

Once you have mounted the controller to your instrument, attach the AIX 101/103 pickup with double-sided tape, screws or mounting plates (AIX 103 only). Although adhesive tape is the most convenient method, we recommend screws, as these provide better seating and permit the height of the pickup to be adjusted. Regardless of the mounting method, the optimal position of the pickup must be determined first.

Marking the optimal mounting position

AXON AIX 101

The AIX 101 pickup must be mounted between the rear conventional guitar pickup and the bridge – ideally at a distance of 20 mm from the bridge. If not enough space is available to provide a spacing of 20 mm, ensure that the pickup is as far away from the bridge as possible (not more than 20 mm and no less than 10 mm). The end of the pickup with the cable must be positioned under the sixth (low E) string. Each of the six magnet pairs of the pickup must be aligned with one of the strings. The spacing of the strings may vary slightly from one guitar to the next, but the pickup will work correctly if the strings are above their respective magnets (it is not necessary to center them precisely). Ensure that the strings remain over their magnets even when bending them.



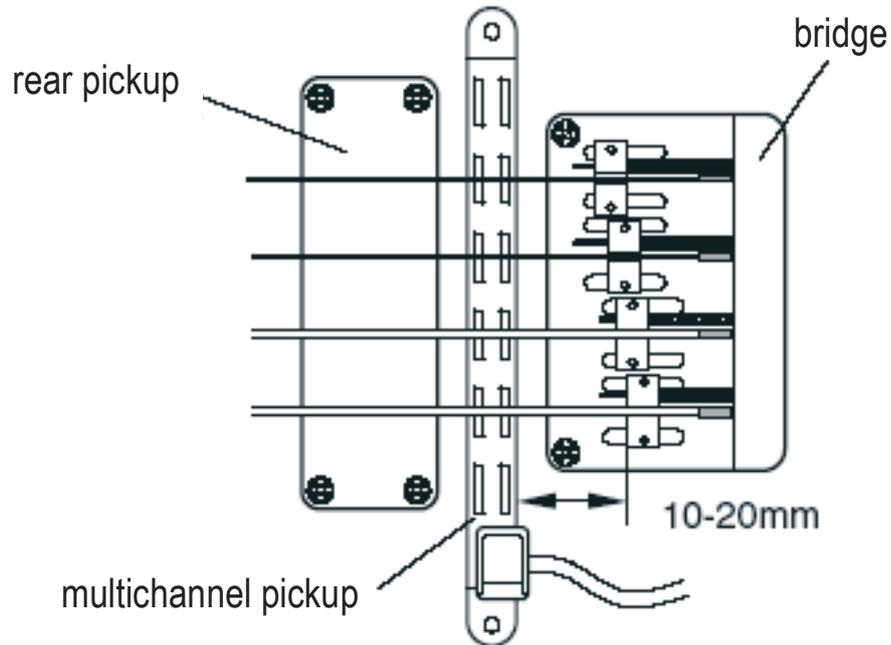
Note:

- Ensure that the pickup does not restrict the action of the tremolo arm, if present.

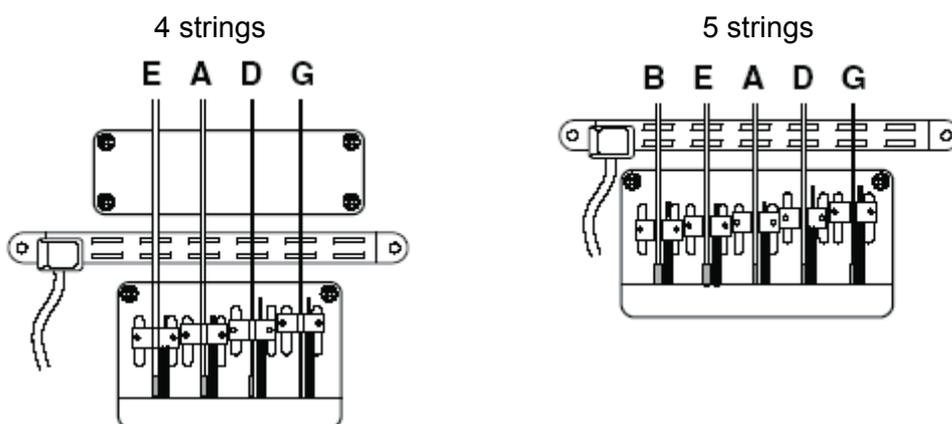
Once the pickup is correctly aligned, mark the centers of the screw holes with a sharp pencil or punch on the guitar top. If you do not want traces of the marking to remain on the top, use small pieces of marking tape instead of a pencil.

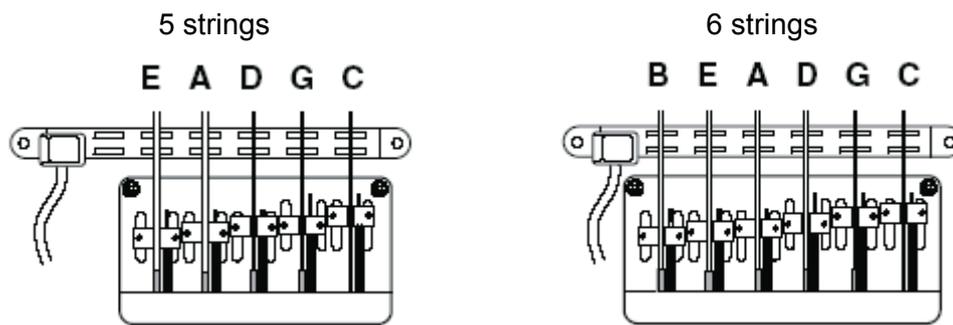
AXON AIX 103

The AIX 103 should be positioned between the rear pickup and the bridge (10 to 20 mm spacing to the bridge) in such a manner that the cable end is on the side of the lowest string – the pickup will not work otherwise.

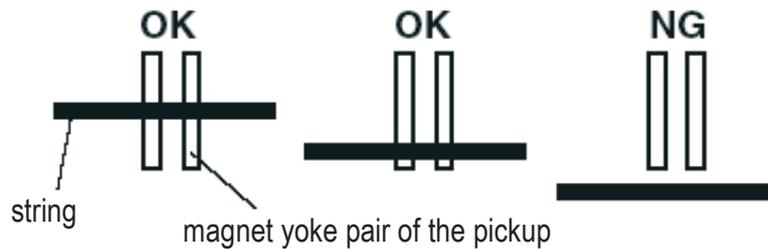


The pickup is suitable for bass guitars with up to six strings (6B, 5E, 4A, 3D, 2G, 1C). In the case of four-string basses, the four central magnet pairs must be positioned under the strings, leaving one pair at either end of the pickup unused. The mounting position for five-string basses depends on the tuning: for [B, E, A, D, G], the magnet pair opposite the cable end, for [E, A, D, G, C] the magnet pair at the cable end is unused, as shown below.





Each string must be positioned over its magnet pair.



Once the pickup is correctly aligned, mark the centers of the screw holes with a sharp pencil or punch on the bass top. If you do not want traces of the marking to remain on the top, use small pieces of marking tape instead of a pencil.

Selecting the mounting method

Mounting with adhesive strips

- Permits installation without damaging the body
- Requires more time and patience when setting the pickup height

Mounting with screws and springs

- Ensures easy adjustment of the pickup height
- Guarantees solid mounting of the pickup
- Requires holes to be drilled in the body!

Installation with mounting plates (AIX 103 only)

- Ensures easy adjustment of the pickup height.
- Permits the pickup to be removed and replaced without having to readjust the pickup height.

Mounting with adhesive strips

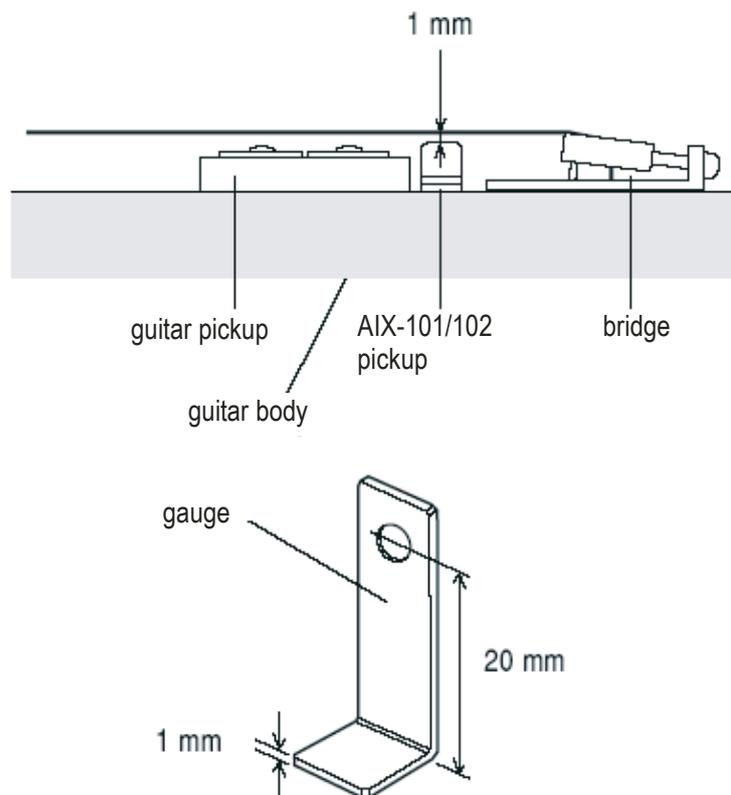
1. Adjusting the pickup height

Once you have determined the optimal mounting position, prepare the installation. However, please note that the spacing between the strings and the pickup magnets are an important factor. As the heights of the pickup magnets are not individually adjustable, you

must find a suitable compromise between the position and overall height of the pickup and the height of the strings. The distance between the upper edge of the magnets and the underside of the string should be around 1 to 2 mm when pressing the string to the highest fret. The spacing can also be less than 1 mm, as long as the strings do not touch the pickup when playing.

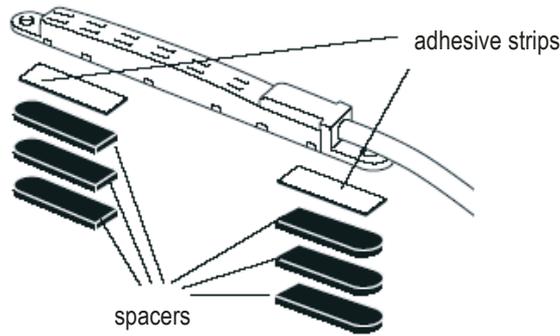
As the output level for the individual strings varies widely, you must set the input gain for the signals of the strings individually at the AXON Guitar-to-MIDI Converter after installing the pickup.

First ensure that the height of the strings (neck and bridge) is correct, then tune the strings. Increase the height of the pickup with spacers (see notes below) until the spacing between the top of the pickup and the underside of the strings is around 1 to 2 mm when pressing the strings to the highest fret. Use the included gauge to check the spacing.



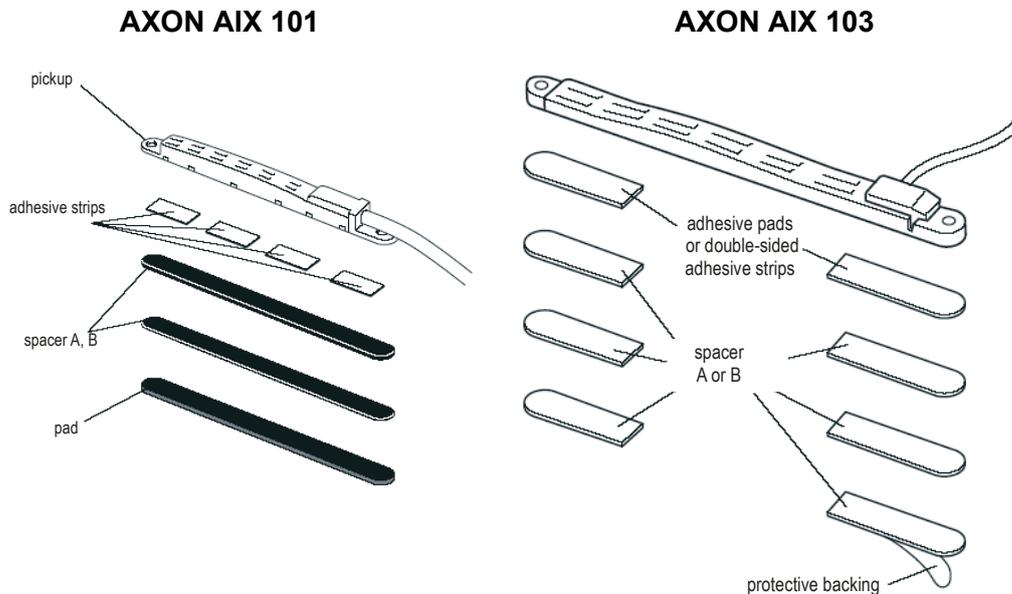
Note:

- Do not initially remove the protective backing from the adhesive when adjusting the height of the pickup. The protective backing increases the thickness of the pickup pads and spacers by 0.1 mm – please take that into consideration when using multiple spacers.
- If the mounting surface is not level – when applying the pickup to a guitar with a curved top, for example – add pieces of spacer shortened to one quarter or one third of their original length at either end of the pickup. The spacers can be cut easily with scissors.



2. Attaching the pickup

Remove the strings from the instrument. Apply one layer of double-sided adhesive (multiple strips) to the underside of the pickup and remove the protective backing. Next, apply the required spacer(s) by removing their protective backing and applying them to the underside of the pickup. Carefully apply the pickup/spacer assembly to the marked location. Replace and tune the strings.



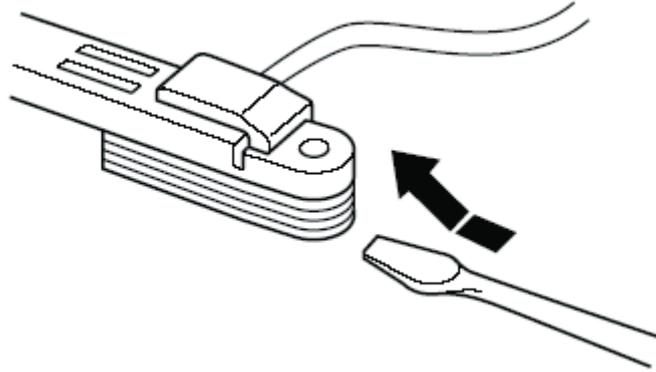
Note: the reusable adhesive pads may be used as the bottom (guitar-side) layer. Trim the pads as required to match the shape of the pickup.

3. Checking the height of the pickup

Measure the height of the pickup again and play across the entire range of the instrument to ensure that the strings do not touch the pickup at any point. If everything is correctly set up, the installation is complete and the instrument is ready to play.

4. Changing the pickup height

Should it become necessary to change the height of the pickup, remove the strings and release the pickup from the instrument by inserting a thin, flat object such as the blade of a small knife between the pickup and the top spacer. Gently lever the pickup off of the spacer.



The double-sided adhesive can be rolled off the underside of the pickup with a fingertip. Correct the height of the pickup by adding or removing spacers.

- When adding spacers to raise the pickup, remove the remaining double-sided adhesive from the existing spacer before removing the protective backing from the new spacer and applying it to the existing one.
- When removing a spacer to lower the pickup, remove the spacer together with its adhesive.

Next, apply a fresh layer of double-sided adhesive to the underside of the pickup and remove its protective backing. Carefully apply the pickup to the top spacer. Replace and tune the strings.

Mounting with screws and springs

Mounting the pickup with screws and springs has a number of advantages over adhesive mounting. Not only do the screws ensure that the pickup is securely positioned, they also permit the height of the pickup to be adjusted easily, without adding or removing spacers and adhesive strips.

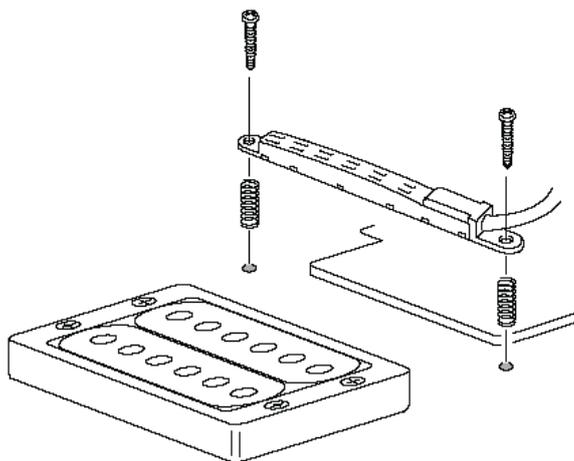
Note: mounting with screws is only possible if a minimum space of 13 mm is available between the instrument top and the strings.

1. Drilling the screw holes

Remove the strings from the instrument and carefully drill two holes with a diameter of 2 mm and a depth of approx. 10 mm at the marked points (see page 15 „Marking the optimal mounting position“). If the top is made of extremely hard wood such as maple, cherry or rosewood, it may be necessary to drill holes of a slightly larger diameter.

2. Mounting the pickup

Insert the self-tapping button-head screws (3x25 mm) through the screw holes in the pickup and the springs under the pickup. Fasten the pickup by threading the screws into the holes in the guitar top.



3. Replacing the strings and adjusting the pickup height

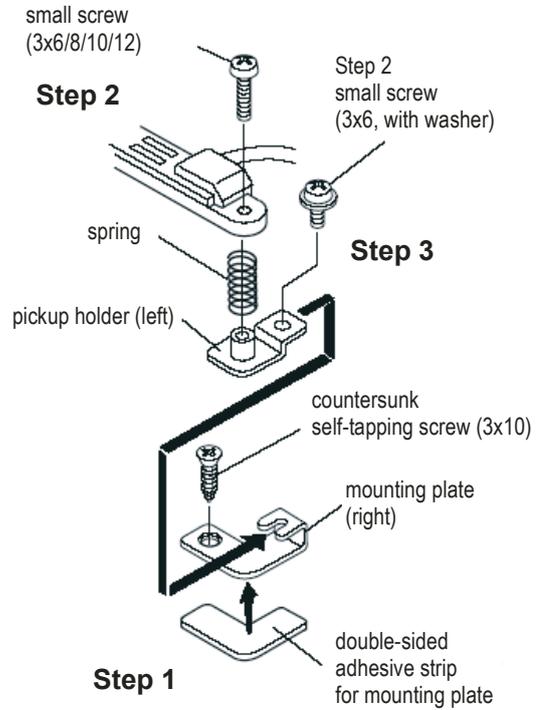
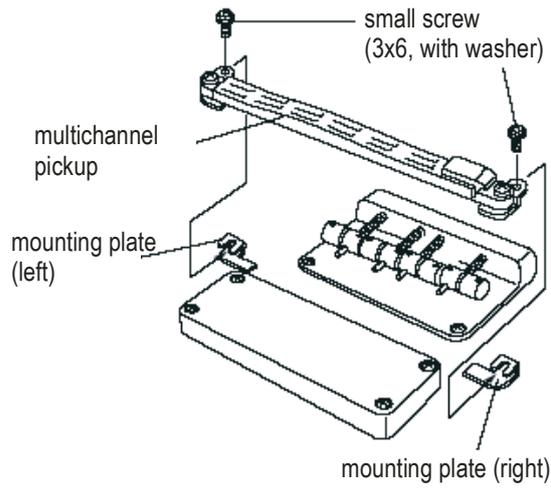
Replace the strings of the instrument and adjust the height of the pickup by turning the mounting screws. The distance between the upper edge of the pickup and the undersides of the strings should be around 1 mm when pressing the string to the highest fret. Use the included gauge to check the spacing.

Installation with mounting plates (AIX 103 only)

Permits the pickup to be removed and replaced without having to readjust the pickup height.

1. Apply one double-sided adhesive strip each to the undersides of the mounting plates. (Do not remove the protective backing.)
2. Attach the mounting plates to the pickup with screws and springs. Select the correct screw length to ensure the proper height of the pickup (6, 8, 10 or 12 mm). You may initially mount the pickup with 6 mm screws and replace them with screws of the proper length after installing the mounting plates.
3. Attach the pickup holders to the mounting plates with the 3x6 mm screws and washers.
4. Align the pickup assembly on the body of the guitar in order to mark the positions of the mounting plates.
5. Remove the protective backing from the double-sided adhesive strips (left and right) on the mounting plates.
6. Hold the pickup assembly over the marked mounting location without contacting the adhesive surfaces, align the mounting plates exactly and attach the assembly.
 - Press the pickup gently into place at either end so that it adheres properly.
 - If the mounting plates are also to be fastened with screws, remove the pickup and its holders from the mounting plates at this point. Drill holes with a diameter of 2 mm vertically into the guitar body at the mounting point. Attach the mounting plates to the guitar body with one countersunk screw (3x10 mm) each.

7. Tune the bass and adjust the spacing between the pickup and strings with the small screws. Measure the spacing between the strings and their respective magnet pairs when pressing the strings to the highest fret using the included gauge.
8. When the pickup height is correct, set the input gain for each string at the AXON Guitar-to-MIDI Converter (see AXON manual).

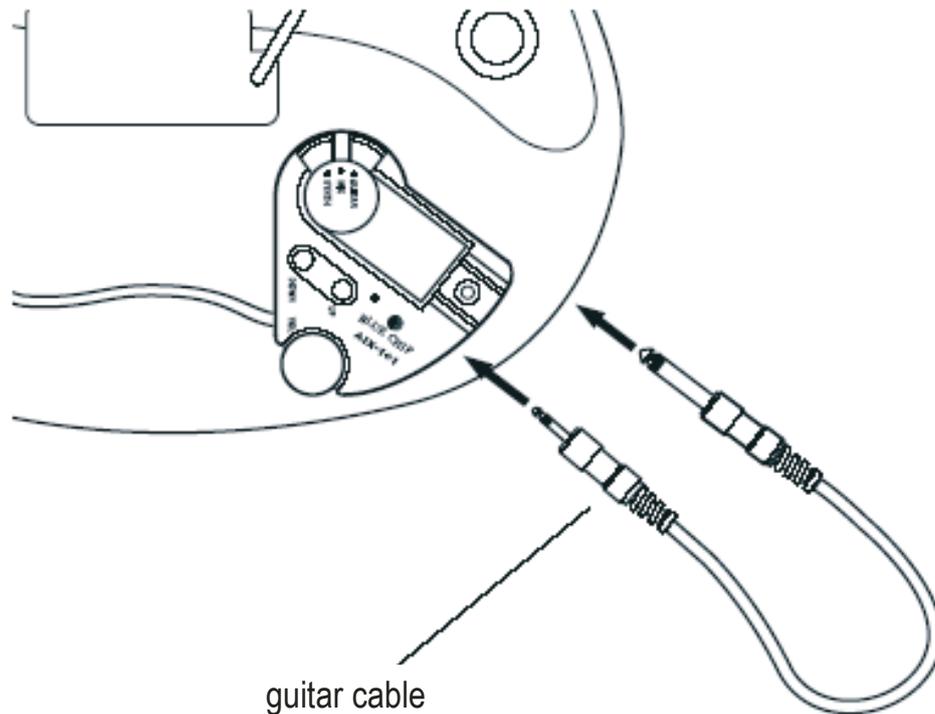


Getting ready to play

Once the controller and pickup are installed, connect the AIX 101/103 to your AXON Guitar-to-MIDI Converter. The 13-pin AXON AXK 100 cable, which is available separately, is required for this.

1. Connecting the instrument cable

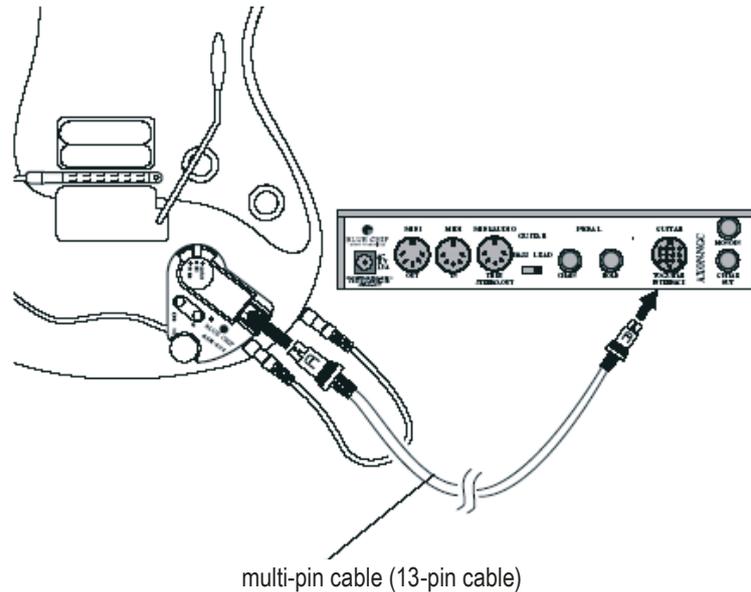
Insert the 1/4" jack of the instrument cable included with the AIX 101/103 into the output socket of the guitar or bass and the 1/8" jack into the input socket of the AIX 101/103.



Note: connect the instrument cable even if you will not be using the conventional pickup sound. This connection is important for grounding the instrument to prevent noise and electric shock.

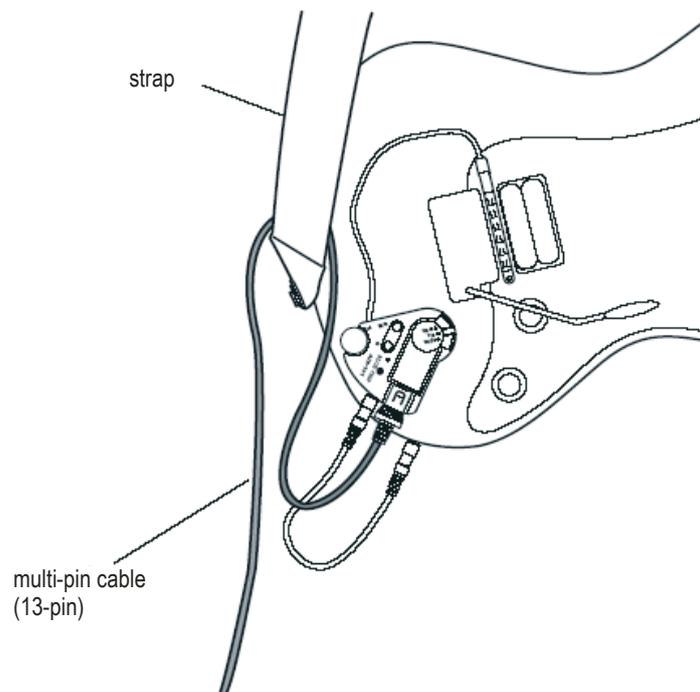
2. Connecting the AIX 101/103 to the AXON

Ensure that the AXON is switched off, then connect one end of the 13-pin AXON AXK 100 cable to the appropriate socket of the AIX 101/103 and the other to the INPUT socket of the AXON.

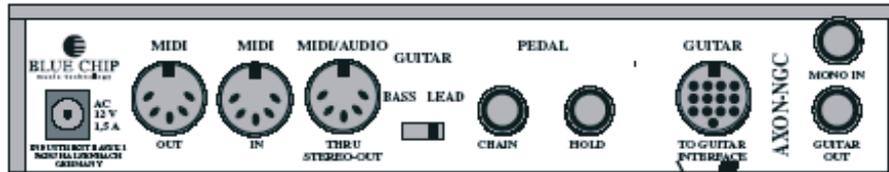


Note:

- To prevent the 13-pin cable from coming unplugged or being damaged, we recommend running it between the strap and the body of the instrument.

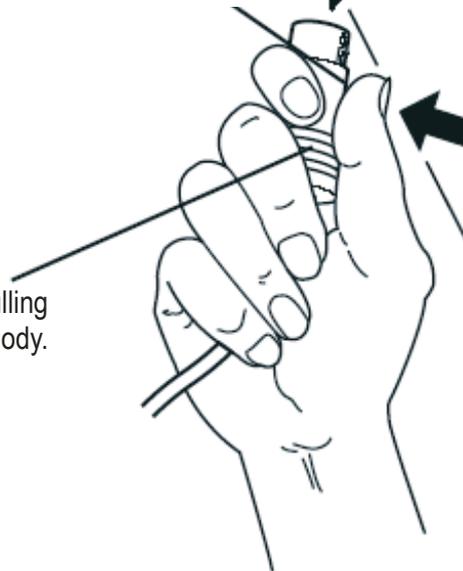


- To unplug the 13-pin cable from the AXON or the AIX 101/103, press the unlock button on the plug body.



1. Press unlock button.

2. Remove cable by pulling the plug body.



3. Switching on the AXON

The LED of the AIX-101/102 will light up when the AXON is switched on. The controller is now receiving power from the AXON.

4. Playing

The system is ready to play when the AXON, the synthesizer and other devices are properly connected and set up as described in their respective manuals.

Technical data

- Dimensions (WxHxD): 85.1 mm x 75.9 mm x 28.8 mm
- Weight: 30g (AIX 101), 78g (AIX 103)