

EHRLUND MICROPHONES

EAP MANUAL

for

Ehrlund Acoustic Pickup
Ehrlund Preamp Portable
Ehrlund Preamp Phantom

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EAP SYSTEM QUICKSTART

1. Shape a small amount of the supplied putty into tiny balls about 3 mm ($\frac{1}{8}$ in) in diameter and attach these to the corners on the bottom of the pickup (opposite to the side with the Ehrlund logo).
 2. Attach the pickup to your instrument or sound source. For more information on mounting, see pages 5-6.
 3. Connect the pickup to the input jack on your preamplifier.
 4. Connect the output jack from the preamplifier to your audio interface.
Use a 6.3 mm ($\frac{1}{4}$ in) mono male jack for Preamp Portable.
Use a 3-pin XLR female for Preamp Phantom.
 5. Turn on your preamplifier. If using a Preamp Phantom, this is done by turning on the +48V phantom power at your audio interface. The Preamp Portable switches on automatically when a cable is connected to its jack labeled "OUTPUT".
- Please note:** Disconnecting the cable from the "OUTPUT" jack slot turns the Preamp Portable off. Remember to do this when it is not in use to save battery life.
6. Turn up the volume knob to maximum. For more info on volume see page 9.
You may need to use the "HIGH/LOW"-switch depending on the gain at subsequent stages. For more info on HIGH/LOW see page 9.
Try flipping the "PHASE"-switch if you experience feedback in a small venue or find the sound is odd. For more info on phase see page 9.



Good luck and have a great time performing. Discover Clarity.

Ehrlund Acoustic Pickup

The Ehrlund Acoustic Pickup is a linear pickup microphone intended primarily for acoustic string instruments such as guitar, violin, double bass and cello. It can however also be used for percussion or other instruments that vibrate or resonate. The function of the EAP is to pick up vibrations from the surface it is mounted onto. Linear means it has a flat frequency response and does not alter or “color” the sound of the recording or output at all. We strongly recommend you combine the EAP with a preamplifier that has a phase and frequency linear response to get the most out of your pickup. The Ehrlund Preamplifiers are optimised for this.

TECHNICAL SPECIFICATIONS

Dimensions of pickup	28x25x5 mm ($1 \frac{7}{64} \times \frac{63}{64} \times \frac{13}{64}$ in)
Length of cable	150 cm (4 ft 11 $\frac{1}{16}$ in)
Weight of pickup	4 g (0.14 oz)
Total weight with cable	42 g (1.48 oz)
Connector	6.3 mm ($\frac{1}{4}$ in) 90° angled mono male jack
Working Temperature	-40°C to +120°C
Working Humidity	The pickup can tolerate 10 minutes in boiling water without affecting the performance

FEATURES

- Small design
- Lightweight
- Can be used for a lot of different applications
- Picks up vibrations and resonances from the surface it is put onto
- Flat frequency response
- Captures a sound which is very natural and true to your unique instrument
- Suitable for all acoustic instruments with a sound box
- Attaches using adhesive putty which leaves your instrument undamaged and intact
- 100% waterproof

PLACING THE PICKUP

The EAP can be used with many different musical instruments and for other acoustic audio applications. It is easy to attach to pretty much any reasonably flat surface using the supplied adhesive putty. You can place it on pretty much anything to make impromptu percussion or sound effects for various applications. You are limited only by your imagination.

Each instrument is unique, which is why the positioning of the pickup needs to be tested thoroughly. The first time you do this, it can take some time before you find the best position. We know from experience that it is worth the time it takes to find the ideal position for the pickup. The recorded audio will produce a musical experience that sounds as natural as if you were playing without any amplification.

The properties of the adhesive used to attach the pickup is an area we are often questioned about. We have tested this putty for many years on different instruments and have never seen it leave a mark of any kind. It may however leave marks on some textiles and on very soft rubber or foam surfaces.

It is most important that you only use the white putty that is supplied with the pickup. Other types of grey or green adhesive may leave marks on your instrument. The supplied and recommended putty is Faber-Castell TACK-IT White.

At Ehrlund Microphones we value creativity and an out of the box attitude. We hope you will have fun experimenting with different ways to use and place the EAP for your intended usage. Göran Ehrlund himself loves experimenting and we hope you will experience the spirit of his inner curiosity when testing out and finding the best placement for an amazing sound.

If you find out a new placement or cool innovative way to use the Ehrlund Acoustic Pickup do not hesitate to tell us about it. It is always fun to hear about what creativity brings to this world.

KEEPING YOUR PICKUP IN THE SAME SPOT

The EAP yields different results when placed in different locations, this can sometimes be a drawback if you wish to get the same result every time you are performing. Some musicians have made a cardboard template to fit against part of their instrument, which makes it easier to attach the pickup in the same place for every performance. Others have cut the cable at a desired length and replaced the male-jack with a female-jack that they have mounted on the instrument so that the EAP can stay in the exact same spot.

Unfortunately the warranty is voided if you do decide to cut the cable.

We have kept the EAP cable length at 1.5 m (4 ft 11 $\frac{1}{16}$ in) because different instruments require different lengths and we don't want to exclude anyone.

Instead of cutting your cable we suggest you roll it up and put a piece of electrical tape around it. Attach this bundled up cable to the back of your instrument, inside the sound hole, or another spot that you find hides away the cable.



The sweetspot area of most common acoustic guitars is somewhere inside of the area marked in red on this picture. (The guitar shown here is a Hagström Orsa Grand Auditorium)

If you need help finding the sweetspot on your unique instrument you can head over to <http://ehrlund.se/community/> to get some ideas. Our users have posted pictures of spots that work well on their instruments. Each instrument is unique and there is no easy way to tell exactly where to place it on yours.

EHLUND PREAMPS

The Ehlund Preamps have an extremely low self-noise rating and low power consumption. They are optimised for use with the Ehlund Acoustic Pickup (EAP).

They are able to operate with most existing accessories, such as foot pedals, loop machines, effects pedals and transformer-equipped direct injection boxes. The preamps are fitted with belt clips so they can be attached to your waistband. The preamps have adjustable volume control, an amplification switch and a phase adjustment switch. Like all other Ehlund products, the preamps are developed and manufactured in Sweden.

The Preamp Portable is powered by a 9V battery (included). and has a long operating battery life of at least 600 hours, it will switch off when the output cable is disconnected.

The Preamp Phantom is driven by +48V Phantom power from the audio interface that it is connected to. Remember to turn it on at the audio interface.

FEATURES

- Linear frequency response
- Low noise amplifier
- Very natural and true to the input source
- Close to zero “coloration” of the sound
- Input: 1 x 6.3 mm (¼ in) mono tele jack
- Output:
 - Preamp Portable: 1 x 6.3 mm (¼ in) mono tele jack
 - Preamp Phantom: 1 x 3-Pin XLR female
- Preamp Portable turns itself on/off when the OUTPUT jack is connected/disconnected
- Preamp Phantom gets power from +48V Phantom feed at the audio interface
- Phase switch 0/180°
- HIGH/LOW switch to “pad” the input level from the pickup
- Adjustable volume knob

TECHNICAL SPECIFICATIONS PREAMP PORTABLE

Input Impedance	4.7 M Ω
Output Impedance	>1.2 K Ω
Full Gain Impedance	100 Ω
Output Voltage	Max 2V RMS
Frequency Response	5 Hz - 160 kHz \pm 1 dB
Current Consumption	0.5 mA
Dimensions	92 x 60 x 37 mm (3 ⁵ / ₈ x 2 ²³ / ₆₄ x 1 ²⁹ / ₆₄ in)
Weight	150 g (5.29 oz)
Supply Voltage	Minimum 7.2V / Optimally 9V
Connections	Input: 6.3 mm (1/4 in) mono tele jack. Output: 6.3 mm (1/4 in) mono tele jack.
Battery	1 x 9V (6LR61/6LF22/MN1604)

TECHNICAL SPECIFICATIONS PREAMP PHANTOM

Input Impedance	4.7 M Ω
Frequency Response	5 Hz - 160 kHz \pm 1 dB
Current Consumption	2.5 mA
Dimensions	92 x 60 x 37 mm (3 ⁵ / ₈ x 2 ²³ / ₆₄ x 1 ²⁹ / ₆₄ in)
Weight	105 g (3.70 oz)
Supply voltage	+48V Phantom
Connections	Input: 6.3 mm (1/4 in) mono tele jack. Output: 3-Pin XLR female.

PHASE SWITCH

It should be remembered that a switch in phase can make a big difference, because the speaker will create resonance in phase or in opposite phase of the sound box of the instrument. Ideally you want the phase to be consistent. This is particularly useful to bear in mind when playing at high volume in small venues. If the sound is “tinny”, “off”, lacks bass or feels weird in some way, use the switch to get the best possible sound.

HIGH/LOW SWITCH

The HIGH/LOW switch is basically a “pad” of about -6.6dB but built in an unusual way hence we do not simply call it a pad. The switch determines only the internal gain of the preamp; it has no other effect on the sound.

VOLUME CONTROL

Our preamps have low output levels. The volume control is usually set at the maximum level and is only adjusted if you want to limit the output for some reason. This is because the desire of any amplification chain is to achieve inherently low noise levels. To ensure the least amount of noise it is desirable to actually amplify the most at the point that is closest to the original source. The volume is then best controlled at the connected audio interface.

PREAMP PORTABLE BATTERY REPLACEMENT

1. Remove the nuts on the INPUT and OUTPUT sockets.
2. Remove the two screws on the sides of the front panel (the side with the volume knob).
3. Place your fingers on INPUT and OUTPUT sockets and press.
4. The front panel will now pop off. Carefully pull out the circuit board by the cover until you reach the battery. You can now replace the 9V battery with a fresh one.

Please Note: If you pulled the entire circuit board out of the case it is important that you put it back into the second slots from the bottom. Otherwise you will not be able to fit the front panel back into the casing.

5. You need to give the battery a gentle press downwards to make it fit under the casing when pushing the circuit board back into its original position.
6. Screw the nuts back into place, you don't need any tools to do this, your fingers will suffice. If using tools please be careful as this is a plastic thread and might break if you screw them too tightly.
7. Screw back the two screws on the front panel.

Your Preamp Portable is now ready to assist your discovery of another 600 hours of clarity!

THINGS TO CONSIDER

- In any pickup system, regardless of the brand there are drawbacks regarding the cable microphonics. If you set the cable in motion, for example by hitting it or through other strong movement, you induce mechanical waves, which propagate through the cable to the pickup. As the pickup is a microphone that is sensitive to mechanical vibrations, this wave will be converted to an electrical signal that interferes with the output. To counteract this, you can make a loop 30-50 mm (1-2 ft) in diameter on the cable, as close to the pickup as possible. Then attach the cable using a dampening material like cloth or adhesive putty where it leaves the instrument.
- A straight cable will generate more handling noise than a rolled up cable. You can try pinching the cable between your thumb and forefinger and then sliding your fingers along the cable to demonstrate this. Try it on both a straight cable and a coiled cable and you will notice the difference. We suggest rolling up the cable and putting a piece of electrical tape around it to keep it coiled up.
- Some musicians fit a contact and connect the pickup directly to a mixer or other device. It is possible to do this, but the result may not be as good because the components have different impedances.
- The Ehrlund preamps are optimised for the EAP and we highly recommend you use them. If using a preamplifier from another brand make sure that it has a high impedance input and a frequency response as linear as possible. Otherwise you will probably be disappointed with the results.
- The Ehrlund preamps can also be used for electric guitars and other instruments or pickup microphones with high impedance.
- If you connect the EAP to a preamplifier from another manufacturer, you may experience unexpected effects. Other preamplifiers often contain fixed filters to alter the frequency response in order to produce a better sound. The Ehrlund Preamp does not have any filters; it is a pure low-noise amplifier.
- Handle your instrument carefully. When you locate a pickup on an instrument it makes the entire instrument act as a microphone. This means the pickup may also capture other vibrations resonating within the instrument, such as sound from other instruments or loudspeakers in close vicinity. The sensitivity to these sounds will be significantly lower than with a normal microphone however the EAP is not entirely immune from them. The sound of strikes and impacts on your own instrument will be captured by the EAP.

If you have any questions, tips or comments, feel free to contact us at info@ehrlund.se