

Twin Source Rechargeable Pick Up System for Acoustic Instruments



**Lily one**

Installation guide

## **Thank you for choosing AER's new PickUp System Lily one.**

After long times of trial and error, listening to musicians' needs, we developed a new pickup system which stands for brilliant reproduction and matches the highest demands for the natural amplification of your instruments' dynamics.

The innovative battery solution guarantees hours of playing without the need to change batteries. All you have to do is charge the internal battery with the enclosed USB-jack cable.

Lily one is a two source system: An undersaddle piezo crystal pickup combined with a high-end MEMS microphone integrated in the endpin pre-amp.

**Lily one** provides high volumes and impressive punch combined with low noise components for best possible signal to noise ratio as you might know from our AK 15 plus system.

Lily one is one step ahead.

**Lily one** can be used with all guitars and other instruments which allow under saddle pickup installation with string spacings from 10 to 12.5 mm.

The installation is similar to all under-saddle pickup systems. The instrument does not suffer mechanical stress in use or during installation.

There is no soldering necessary.

**Read on and have fun using Lily one**

## Checklist

Check the contents of the package to make sure everything is complete:

- 1 x **Lily one** piezo pick-up with 2.5 mm jack
- 1 x **Lily one** endpin preamp with integrated microphone, soundhole control (SHC) with installed battery
- 1 x adhesive tape for SHC
- 2 x cable clamps
- Manual/Instruction guide
- 1,5 m USB-Jack charging cable

### 1. General requirements

- Check the string spacing, centre to centre of the string, or middle between a pair, to make sure it matches **Lily one**.
- Make sure that the saddle has a minimum width of 2,3 mm. The undersaddle pickup is 2,3 mm wide.
- Check the string pressure on the pickup crystal by assuring a minimum 20° break angle, if more all the better. If your instrument does not provide this, the string slots will need ramping (done by a luthier).
- Fitting the **Lily one** soundhole control (SHC)
- Check the inside of the guitar to identify the ideal position for the **Lily one** SHC on the bass side of the soundhole for easy operation while performing.
- Bracing around the soundhole differs between makers and can conflict with the control unit. Some guitar constructions require an underlay to glue the SHC on properly. In any case should the gluing surface be flat and free of dust or grease.

## 2. Installing the Piezo-Pickup

**Caution:** the pickup-strip is delicate.

Avoid bending this component.

- Check that the top bracing does not conflict with the projected pickup cable hole through the saddle slot.
- Verify that the slot depth (including pickup) always remains more than half of the total saddle height. Not enough space for the saddle can cause bridge cracks. Check with your qualified luthier.
- Make sure that the pickup fits the slot and does not tilt within.
- Check the saddle. The materials, bone, Delrin® and Micarta® require different attention. You may consider getting a replacement saddle to work on, keeping the original untouched.  
The saddle-slot needs to be completely flat and the saddle rectangular and flat. Even if both are flat, some adjustments towards pickup signal balance may be necessary. In some cases the balance between the strings of the acoustic instruments is not even – the pickup just reflects this and needs compensation to increase the string-pressure.  
Loosen the strings and clamp them with e.g. a capo to prevent them hindering you at your task. Remove the string-pins, the saddle and the endpin. Depending on what work needs to be done, use paper masking tape to protect the surface of your instruments around bridge and endpin. Always check the tape for possible residue on your guitar first at a 'safe' spot.

### 3. Woodwork

- Drill or ream a 12 mm hole to fit the end-pin pre-amp. Make sure that it is centred properly and in a 90° angle to the end block.
- Then, drill a 2.5 mm hole through the saddle slot and the top of the guitar at the edge of the slot. It is immaterial which side is drilled, bass or treble side.

Avoid hitting the braces!

- For installing the piezo pickup there should be no routing required if the slot has a regular length and depth! The width and depth should be sufficient.
- Take the piezo pickup and lead the mini-jack through the hole in your instrument. The piezo will fit most saddle slots easily. The 6 piezoelectric crystals sit underneath the strings, they don't have to be centred. You can use the cable as a spring to keep the pickup in place. Make sure the saddle slides easily into the slot, however it should not tilt. [Paragraph ist doppelt]
- Fixate the saddle with masking tape to protect the piezo pickup during installation, and use a strip of masking tape to stick the piezo pickup cable inside the guitar to a near top brace, as strain relief.
- The saddle will sit higher now that the piezo is installed. For proper playing action, remove some material from the saddle. Use double side tape to fixate sanding paper to a completely flat surface and sand off enough material from the bottom of the saddle to match your playing requirement. Always check that the bottom of the saddle stays flat.

## 4. Endpin Mounting

- After drilling the 12 mm hole in the guitars end block, guide the preamp unit into the sound hole and slip the pre-amp endpin through the endpin hole and preselect the correct position with the hex counter nut inside the guitar. Then fix the endpin finally with the second hex nut from the outside, pushing an allen key through the hole in the thread for use as lock against twisting. When the endpin is safely fixed, screw on the strap-button.
- Now plug the piezo pickup connector into the piezo socket of the endpin, there should be an audible „click“, to make sure it sits firmly. The internal microphone is best pointed towards the back of the guitar.

## 5. Soundhole Control Unit

- Now connect the soundhole control unit with the small connector. You can then connect the output jack to an amplifier. Plugging the jack into the endpin socket closes the circuit and switches on the **Lily one** system, without jack there is no battery power consumption. Even when not playing, the system will lose battery power when a jack plug is connected.
- **Factory settings:**  
Piezo: +10dB  
Microphone: +10dB
- Check the sound of the piezo pickup first and listen if all strings sound equally loud. Imbalance in string volumes should be addressed by a luthier, or follow the tips in the trouble shooting section.

Now add microphone signal by turning the Mic control. Tapping the top will let you hear the microphone signal very easily. Sounds good?

- **Continue with the next step.**

Bear in mind:

The **Lily one** system is not made for ,microphone-only' performance! The microphone will add definition and authenticity as well as an acoustic ambience, which makes the sound more natural. Too much microphone signal will make the tone ,hollow' and can cause feedback. The piezo at full volume may make microphone use impractical.

If you can hear both signals loud and clear you can fix the cable with the cable clamps.

## 6. Soundhole

### Final assembling

Depending upon the construction of the instrument, you may find it necessary to use different materials to underlay or pad the soundhole control. First dry-fit the control unit to determine the position. If adhesive tape is used, make sure to degrease both surfaces. Position the SHC where you can reach it easily and fix the cable in a safe position. With the instrument in playing position, the left pot (in the direction of the bridge) should be the master volume, the left pot (in the direction of the neck) adds the microphone signal.

Now, after degreasing the position of the cable clamps, fix these to the side of the guitar and secure the cables to avoid unwanted rattling noises.

## 7. Operation

**Lily one** is a very powerful system, which combines a strong piezo signal with an additional microphone signal. It is designed to blend the microphone to the pickup for overtones and more liveliness. You can make use of the whole range of the SHC microphone control to almost maximum, depending on your personal sound preferences.

### **Please consider:**

the optimum range of this control is between 30 and 60% rotation! Full volume is neither necessary nor recommended. Adding the microphone volume will yield a more natural and lively sound. Too much microphone signal can cause feedback, lower the microphone volume if this occurs. Plugging the jack into the endpin-socket closes the circuit and switches the system on. Without jackplug the system is switched off and there is no active battery consumption.



## 8. Troubleshooting

### No piezo signal

Make sure you have connected the jack connector properly.

### No mic signal

Too much or too little mic signal  
The microphone master level is pre-adjustable independently at the preamp and controlled with the soundhole control (master volume + added microphone level). If you have trouble dialing in the right amount of microphone signal, if you feel there is too much microphone signal, or not nearly enough, we have a solution for that.

If you have so much mic signal that you can't use the soundhole control to get the right amount in the mix, or if the soundhole control is fully open and you still could use more mic signal is the only time to use this internal control.

### No output signal

Ensure that the battery still has enough charge to operate the system. The indicator light on the soundhole control unit will light up red if the battery is low.

In this case, use the enclosed charging cable to recharge the battery while using a standard Power/USB charger (from your cellphone)

Sometimes a loose strap holder may lead to a contact fault in the endpin socket. There are aftermarket solutions with straplocks for acoustic guitars that may prevent this.

### **Uneven balance**

Attention to proper string balance is a normal issue with all pickup systems – more or less obvious – depending e.g. on the dynamic range of the system. Just listen to your instrument as it is without pickup and play each individual string one after the other with the same impulse. You may find that the natural reproduction of the strings is already uneven. Just one example of many reasons for uneven reproduction.

### **How to react:**

If you don't have a luthier at hand, go through the following steps:

Assuming the installation of the saddle is correct, all surfaces are even and straight and the pickup is working properly, you can add layers of scotch tape to the saddle at weak positions to increase the pressure on relevant crystals.

To find the proper balance may require a little extra time and work which is annoying for everyone – especially the installer – but it has to be done – there is no way to evade it!

## In general

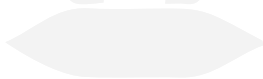
We have designed the **Lily one** system to produce the clearest and most dynamic sound possible. This high dynamic output means that your battery life will be less long than with other mainstream systems.

The Lily one battery management will safely indicate when recharging is recommendable soon. If the Batt-Low LED (red) lights up, you still have about 1.5h of operating time left.

Just charge your instrument with the enclosed cable and your USB / Power connector.

Our high output volume is suited for all amplification systems.

Good sound is an inspiration for life. We hope we can contribute to this with **Lily one**





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