

HELPINSTILL PIANO SENSOR

Model 125
For Upright Pianos



Please Read Instructions Carefully
Before Using Your Helpinstill

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Model 125 For Grand Pianos

Your complete unit consists of the following pieces:

3 Sensors in lengths of 14", 16" and 18"

1 Yellow Spacer Magnet 12" Long

Control Box

Insertion Tool

Owners Manual - Please read this first!

Grand Pianos:

This unit is not designed to be used on grand pianos. A kit consisting of the additional equipment for grand installation is available from Helpinstill.

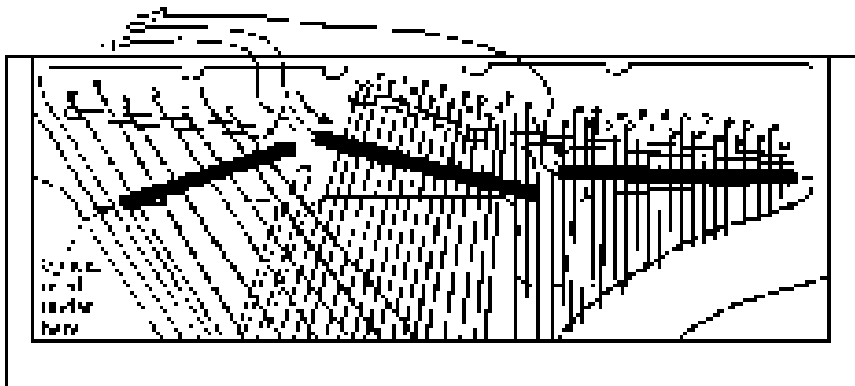
Installation

The Helpinstill Piano Sensor converts any upright piano into an electric instrument by using three magnetic pickups behind the strings. These elements work basically like guitar pickups, sensing the string movements, but not hearing any external sounds. This results in a signal from the piano with great attack and clarity, and plenty of volume before feedback.

CAUTION:The sensors are made to be flexible enough to be curved while being inserted behind the strings. Once in position, the natural magnetism of the elements will cause them to stick quite firmly to the iron frame of the piano. However, the interior of each element is composed of a complex arrangement of hair-fine wires and shielding; therefore, to guard against possible failure, never bend an element any more than absolutely necessary.

The kit is supplied with three sensors whose lengths have been selected to fit the largest number of pianos on the market. The first area to look at is the highest section of the piano; select which of the three sensors is approximately the same length as the width of this section. Next decide between the remaining two which one is long enough to cover the middle section. The remaining one will undoubtedly serve in the lower section, since it is the most accommodating area.

After deciding which element should be used in which section, insert the elements behind the strings near the top of the piano, leaving the connecting leads all trailing off to one side. Use the spacer magnet behind whichever element is used in the bass section to compensate for the greater distance between the strings and the frame in that part of the piano.



The insertion hook tool in the kit comes in handy to help guide the elements into the exact position, and to help push the element against the frame to insure a firm magnetic contact. Since the total length of the pickups is more than enough to cover all the notes, it may be necessary to have some excess pickup length sticking out into the V-shaped section between the low and

middle string sections, or beyond the top notes of the highest section.

The highest section is always the most difficult to insert the pickup behind, and care must be taken that the plastic covering on the sensor is not ripped or cut on the first string while sliding it in. This high section can be approached from either end, whichever permits the easiest access. Once the pickup is behind the strings, use the insertion tool to get rid of the bend necessary to get it in, and to raise it into position.

When removing these units from the piano it is perfectly okay to use the gray wires to pull them out of the piano. These wires are very strongly attached inside the sensors and nearly impossible to pull loose.

Adjustment & Hookup

A good way to keep the gray wires out of the way is to tuck them into the tuning pin section above the strings, zigzagging them across the top of the piano as you route them over to one side where they are plugged into the corresponding inputs on the control box. Either or both of the outputs can then be connected to a sound system or amplifier.

For proper balancing of the pickup levels, the signal needs to be routed to a monitor speaker or amp near the piano that is louder than the natural sound of the piano. The pickup can be used with the cover of the piano open or closed (it makes no difference to the pickup), but it is easier to tell the real volumes of the sensors with the lid shut.

Moving the middle pickup nearly as close to the top as possible will result in the best tone in that region; moving it further down will tend to emphasize the lower harmonics, resulting in more of an electric piano sound.

Control Box



The control box is a passive unit. It does not require batteries, phantom power, or any other power source. This means it is compatible with sound systems worldwide, and requires no maintenance. The XLR connector provides an output at mic level, while the 1/4" jack high-impedance output is comparable to that of an electric guitar.

The three knobs on the control box control the volume of the three sensors. To start with, they should all be turned to their full-volume (12 o'clock) position. If any section of the piano sounds louder than the rest, it can be turned down in volume to balance. Invariably the lowest (bass) section is quieter than the rest, and its knob usually remains at 12 o'clock. Never turn any of the volume controls all the way down, since that will cause the signal to be off for all three channels. The best way to tell if a single sensor strip is working is to plug and unplug the gray wire from the control box. When adjusting the volume controls, concentrate on smoothing the transition from one sensor region to the next.

The copper-wound bass strings will almost always be quieter than the other strings because their copper windings are not magnetic and do not contribute to the signal strength (only their steel cores generate signal.) Therefore the volume knob for the bass pickup is usually left at 12 o'clock, or full volume, while the other two knobs are turned down to bring the other two sensors into balance.

Play test notes on the piano in the following order: play notes on either side of the junctions between sensors while using the volume knobs to smooth the two transitions between pickups. After this procedure is followed, the entire keyboard should now be reproduced at uniform volume.

Troubleshooting

As durable as the Helpinstill systems have proven to be over the years, any instrument can malfunction.

Sensors It is important that care is taken not to puncture the outer plastic casing of the sensors.

The sensors are made to be flexible and durable, but contain hair-fine wires on the interior which could possibly be broken under extreme treatment.

If you suspect that a sensor is not working, measure it with an ohmmeter at the output plug on the end of the gray wire. Each sensor should read between 300-500 ohms. There should be no fluctuation of this measurement with bending or tapping on the sensor. If this measurement is consistent, the sensor will definitely work properly in the system.

Buzzing Noises Aside from mechanical buzzing of the strings against the pickup or wires, buzzing noise or hum of an electrical nature has two primary causes: ground problems between the unit and the mic line it's plugged into, and electromagnetic interference in the vicinity of the piano. It has been found that most hum or grounding noise originates in the system that the pickup is plugged into. If any noise is encountered when the pickup channel is turned on, the following procedures can be used to isolate the cause:

1. **Ground Loops** The Helpinstill system is completely passive and requires no power source itself. If ground-loop buzzing is encountered, try unplugging the mic cable from the control box and plugging it into an ordinary dynamic microphone, such as an SM-58. The continued presence of the hum in the system would, of course, rule out the piano pickup as its source. Indicate hum only when the piano pickup is connected, try patching the hi-Z output of the piano pickup into a direct box with a ground lift, and plugging the mic cable into the direct box. Lifting the ground at the direct box may then eliminate the hum.

2. **Airborne interference** There is a small chance that RF or other electromagnetic waves in the vicinity of the piano may be picked up by the sensors. To test for this possibility, unplug and plug back in the three gray wires from the sensors into the control box. If this action kills the hum, then it is actually being picked up by the sensors. Electric guitar players have to deal with this

phenomenon quite a bit from neon signs, etc. Sometimes the noise can be minimized by flipping over one of the sensors under the strings, which will create a hum-cancelling effect. The piano itself may be rotated in position to reduce the hum. As always, making sure the signal from the pickup is maximized through closer pickup-to-string proximity will minimize any hum.

Warranty

When you own a Helpinstill, you're a member of the family. We want your unit to work forever, and we'll do whatever it takes to keep you satisfied. Call us anytime at (713) 432-1089 with questions or suggestions, or e-mail us at pianopickup@aol.com, or visit our website at

www.helpinstill.com



"There's No Substitute for Real Piano"