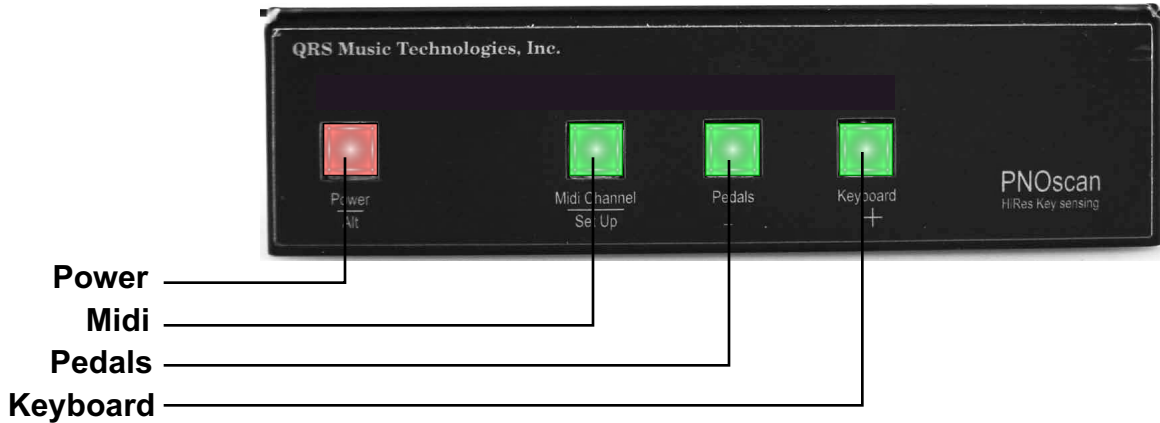


QRS PNOscan Quick Guide



PNOscan is a high resolution music keyboard capture system, designed to integrate into an acoustic piano or other musical instrument to provide an accurate, detailed midi rendering of a musical performance.

The system in no way mechanically contacts any moving part of the keyboard, retaining 100% of the instruments feel and character.

Please take a moment to read this guide and understand the PNOscan functions.

Front Panel

POWER - Press to power PNOscan system ON or OFF. When power is ON the button will light up red.

MIDI - This button is reserved for future functionality. However, the button will flash green when there is midi being output from PNOscan system.

PEDALS - This button is used to calibrate the pedal sensors during installation and for future maintenance of piano and record system. See page 2 for pedal setup. This button lights up green to indicate pedal activity.

KEYBOARD - This button has 4 functions associated with it.

1 - During normal use pressing this button will cycle through 3 mode options,

A - Record mode, midi output is optimized for acoustic record and playback on Pianomation

B - Sound card mode, midi output is optimized for playback through sound card. Useful for silent practice mode or connection to outboard midi devices.

C - MUTE mode, Stops midi output from PNOscan and sends out an "all events off" to the attached devices.

You can identify the mode you are in using the button lights. SEE PAGE 2

User modes and button lights,

Record mode (Mode A), Green keyboard button light flashes once every 2 seconds.

Sound card mode (Mode B), Green keyboard button light flashes twice every 2 seconds.

Mute mode, (Mode C), Green keyboard button light flashes continuously.

Other user mode light indications,

The first green lighted button labeled MIDI flickers anytime midi is being outputted from PNOscan. Both keyboard and pedal activity will cause this button to light

The first button will always indicate power on or off. When lighted, the PNOscan system is on.

Setup and calibration,

When the PNOscan system is first installed the electronics must be setup and calibrated to the piano. When setup is completed correctly, the setup is very reliable and the system should not require additional calibration often.

The requirement for recalibration can be caused by significant changes in the piano action regulation.

To enter setup mode the user must power the system off from the front panel power button.

1 - Hold the keyboard button firmly depressed and then press the power button momentarily. Continue holding the keyboard button until the keyboard button flickers rapidly. Release the button after the flicker stops. This takes about 4 seconds.

2 - You are now in keyboard setup mode. The system has cleared previous data and is waiting for new input from the user. Starting at the bass end of the keyboard play key 1 followed by key 2. Continue this chromatic , single key pattern until all 88 notes have been played one time.

As each note is played, hold the key down until your hear the piano voice from the speaker. Once the sound is heard you can move to the next key.

If your using the QRS Ancho or Petine with a sound card option, be sure to set the source to MI.

If you are not using Ancho or Petine controllers you can connect the PNOscan to any standard midi sound device to use this audible setup aid.

If you don't have a midi sound source for setup you can use the keyboard button light to tell you when to release a key and move to the next. Each time you press a key the midi button light will light up indicating that you can move to the next key. Depending on where the PNOscan midi interface is located, it may require a second person to assist in the setup, as you need to press keys down and have view of the light.

When playing the keys be sure to play just one note at a time. Be careful not to bump adjacent keys during this process.

Also use care to play the keys through their entire travel and don't press the key past it's natural down position. When piano keys are played and reach the bottom of their travel, they are stopped but a felt pad which can be crushed if you press too hard. This will cause in-accurate calibration for the scan system.

Once all keys have been played, keyboard setup is complete and you can use the PNOscan system or move to the pedal calibration.

While PNOscan system is powered on, press the Pedal button. When the green light starts to flicker release the button. The green light will go out. You are now in pedal setup mode.

Depending on the installation of PNOscan, there can be up to 3 pedals connected to the system. Sustain, Soft Shift and Sustenuto. When in pedal setup mode, all connected pedals can be calibrated at this point.

- 1 - Press the sustain pedal to it's full down position and then release the pedal.
- 2 - Press the soft shift pedal to it's full down position and then release. (Skip if no soft sensor is installed).
- 3 - Press the sustenuto pedal to it's full down position and then release. (Skip if no soft sensor is installed).
- 4 - After all connected pedals have been pressed down, once again press the Pedals button to exit pedal setup mode.
- 5 - Power the PNOscan system off from the front panel power button to save the setup.
- 6 - Power PNOscan system back on and press the sustain pedal. The Pedals button light will turn on at the point the sensor see's the pedal moment. This is referred to as the trigger position.
- 7 - If the trigger position seems early or late when compared to the piano damper moment you can adjust the sensors physical position to fine tune the trigger point for each pedal.

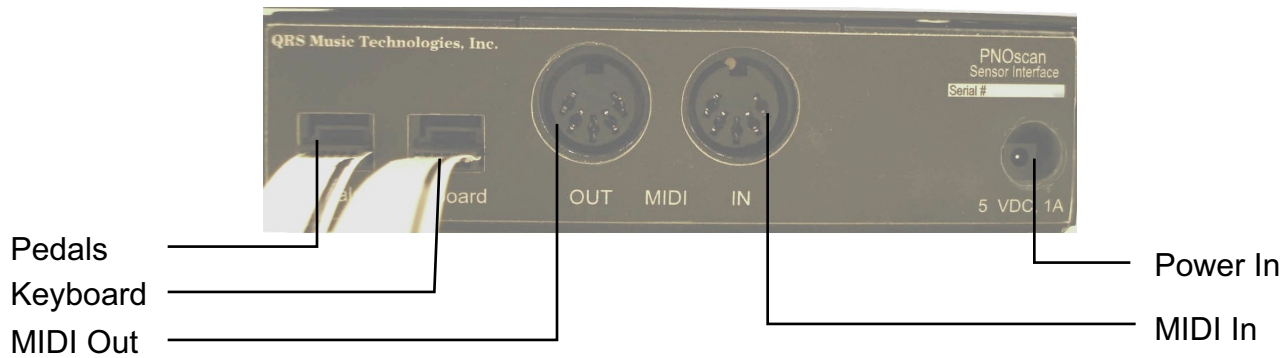
Depending on how the installation was done, the sustain sensor is generally located inside the piano cabinet at the damper trays treble end.

The sensors can be recognized as a small circuit board with a green light which glows when power is on.

This board can be raised or lowered to change the trigger point. Moving the sensor closer to the tray will cause an earlier trigger and further away will cause a later trigger event. This hardware adjustment is generally not required, but keep in mind a small adjustment in the sensors location can make a significant change in trigger position. If you change the sensors placement, move it in small incremental stages until you achieve the desired effect.

During normal play, when a pedal is pressed the Pedals light will turn on and the MIDI light will flicker indicating a pedal moment was sensed and the midi message was transmitted.

See page 4 for connections to PNOscan.



Important Note: Position of black stripe on cables and it's orientation. Always maintain this orientation.

Pedals - Connects to the pedal sensor cable.

Keyboard - Connects to the key sensor cable

MIDI Out - Standard MIDI OUTPUT. Connect to midi input of Ancho, Petine or any other midi compatible device.

MIDI IN - Standard MIDI INPUT. Used for system feedback with QRS controllers. Note that the purpose of this MIDI INPUT is for PNOscan configuration communication and serves no general use for MIDI.

DC POWER INPUT - Connects AC wall adaptor to PNOscan system. Do Not Substitute With Other Adaptors. Use only the factory supplied AC adaptor.

Some important notes about PNOscan system.

Key sensor circuit boards are static sensitive. Avoid discharge into system by discharging your body before touching the cables or printed circuit boards.

Sensor height, relative to the bottom of the sharp keys when in the down position is critical to record performance. When holding a sharp key down, the distance from the sensor lens and the key bottom needs to be between 1/8 and 1/4 inch. Should a technician re-regulate your piano, be sure to provide them with this information.

If any of the cables become disconnected, be sure to reconnect with all black lines facing up and toward the right side of the connectors on the printed circuit board. If these cables are connected incorrectly, the Keyboard button light will flash as if the system were in MUTE mode and will appear locked up. If pedals are not connected correctly the pedal sensor lights will not be lighted.

Remember to use the scan mode that's best for your purpose. Record mode for playback on the QRS Pianomation system and Sound card mode for silent practice with Petine and Ancho or external midi device.

Please check www.qrsmusic.com periodically for updated information about PNOscan.

As system up-grades and latest information become available, QRS will post the information for PNOscan customers.