Pedal Box / Pedal Board Home

PbX = Pedal Box | PbD = Pedal Board | PB = Both

Help can be found in the Pedal Box forum thread

# Understanding how it works, and what it does

PbX and PbD are almost identical, except that PbD uses it's own buttons. Where as PbX uses MIDI Input to replace the buttons. PbX should be used when you already have external floorboard. PbD IS an external floorboard.

PB needs to know what it is controlling, and the messages that it has to send. This is done via device files which are uploaded to a bankstick. Each device file requires a 24LC256 bankstick.
A maximum of 7 device files can loaded (due to the MBHP limit of 8 banksticks, the first is used for internal settings).

When setting up pedals, buttons and patches. You do not enter CC or program change numbers, instead you select names from the list located on the device file.

Pedals and buttons are mapped to an event by the given bankstick number and event number.
MIDI IN events are matched up to a bankstick channel

## In the Devices Files (or Device banksticks)

Device files hold vital information about your midi equipment.

1. The Event Map
A list of CC numbers and Program Change numbers.
Each entry contains:

- The name of the event
- And how the event is handled - On/Off, Tap Tempo, Link to value map, etc There are 9 types to choose from (we'll look at these later).

2. 10x Value Maps
These maps contain named values (parameter 2 byte of a midi message).
These allow for CC's that are linked to an amp type, effect type, or anything that has a name associated with it's value.

When using a CC linked to a value map, instead of seeing meaningless numbers, it will show the name of te selection

Value Maps are linked to events list in the handler column of the event map.

# Master Settings (or Master bankstick)

There are 2 main sections. The Patches and The Settings.

## The Patches

1. Rig Control Patch Maps (There are 128 patch maps)

- Firstly a name is given to the patch as a whole
- Entries contain (there are 32 of these entries in each patch map)
    - Enabled or Disabled for that entry. If disabled, the event will not be triggered.
    - The bankstick number of the device you wish to trigger
    - the event type
    - The event on that device
    - The value you wish to set the event to
- Finally the Relay Settings
    - Relays 1 - 8 each have an enabled or disabled setting. If disabled nothing will happen
    - Relays 1 - 8 each have an on or off setting

2. Gig Control Song Lists (There are 30 to choose from)

- The Song List can be given a name
    - Entries contain the Rig Control patch # to be triggered

## The Settings

1. DIN map (only required for PbD)

- Bankstick of device to control
- The MIDI event type
- The event #
- A Low value
- A High Value
- Button type - either momentary, or switching

2. AIN Map (8 maps, 1 for each pedal. 128 entries in map (1 for each patch change)

- Bankstick of device to control
- The MIDI event type
- The Event #
- Low Value
- High Value

2a. Static?
Each pedal can be set to 1 (static) or 0 (change w/pc)
Not Fixed Pedals can change the bankstick, device and values they are set to by following Rig Control patch change events.

# Getting Started

## Pedal Box Mode

Pedal Box mode is designed to add up to 8 controller pedals and an LCD display to a floorboard / midi device (namely guitar modellers) combination.

### Pedals

- Scales between the min and max value
- Displays either:
  - a meter of approx position, some events will display 'off' when 0 and/or 'on' when 127.
  - A named value (eg. 'Ping/Pong Delay' for an effect select control).
- Pedals can not be mapped to program change, on/off or tap events.
- Pedals can have different settings for each program change, or can be fixed to the same event regardless of program change.

### MIDI Input

Pedal Box displays incoming midi messages that are listed in the event tables, the information displayed depends on the event type.

This allows a floorboard to provide input to pedal box, the display reacts the same as if the floorboard's midi messages were buttons/pedals connected (like for Pedal Board).

### Triggering Relay Changes

Version 2 can feature up 8 relays to toggle external switches
Relays can be controlled by sending midi cc mesages 0x70 to 0x77, controlling relay 1 to 8 repectivly. The channel must match the Master bankstick.

Value 0 set's the relay off, value 127 set's the relay on.

### Rig Control

New in Version 2 - 'Rig Control'. This allows up to 32 midi events to sent at the same time, and also to change the 8 relays.

MIDI program changes matching the channel of the Master bankstick will trigger a Rig Control patch change.

## Gig Control

Also new in version 2 - Gig Control allows you to set up song lists, to change the Gig Control patch number in any order using cue next/previous buttons.

Cue next/previous are executed by sending a midi cc event on the channel matching the Master bankstick of 0x7a, with a value of 1 for previous cue, and a value of 2 for next cue.

## Hooking it all up

### Separate floorboard

*eg. Behringer FCB1010 Floorboard and a Behringer V-Amp Pro.*

- Midi Merger should be ON
- Connect the MIDI out of you floorboard into Pedal Box
- Connect the MIDI out of Pedal BoX into your midi device.

### Combined Floorboard

*eg. Boss GT8*

- Midi Merger should be OFF
- Connect the MIDI out of Pedal BoX into your midi device.
- Connect the MIDI out of your device into Pedal BoX

## Setup Modes

### Event Setup mode

Event setup mode allows you to set the midi message, as well min and max values for scaling.
It's activated by a pre defined midi command (defined in main.h). CC127 on the Master bankstick channel, with a value of 127 is the default.

Use the screen change midi event (defined in main.h) to go to the next screen.

The 1st screen allows to select the device that should be used. Up to 8 devices can stored on 8 banksticks.




Moving any pedal will select the device. If a bankstick is not present 'BS Not Available' will be displayed.

The 2nd sets the midi event type, using any pedal you can scroll through the availble types (NEW IN V2.5)

The 3rd sets the midi event, using any pedal you can scroll through the event map for CC's and Program Changes, or select notes for note on/off and aftertouch.




The last screen is where you first set the low value, and after sending the screen change event again, you can set the high value.




At this point you can send the event setup midi command again to save the settings, or send screen change again to return to setup screen 1.

**Global settings**

Each pedal has the option of being set to a fixed midi event, or can have different setting for each program change (event, min and max all included).

The AIN setup screen allows to select which are fixed, and which are not. It's accessed by sending the AIN setup midi event (defined in main.h).




Moving a pedal all the way to the on position will set it to be fixed (1). Moving a pedal to the off position will set it to follow program changes (0).

Sending the screen change MIDI event takes you to the bankstick channel select. Here you can set the channel of each device loaded into your banksticks. If no bankstick is present 'NA' is displayed




Moving any pedal will change the channel for the selected bankstick - '>' marks the selected. Each time you send the screen change midi event the next bankstick will be selected.

Send the Global setup midi event again to save and exit.

**Setting up Rig Control patches**

Send the Patch Setup Event to go to the Rig Control Patch edit screen, The last pacth change will be the one that is edited. In this screen we set the bankstick to be used, listed by the device it is controlling




Use any pedal to scroll through the list

Send the Screen Change Event to move to the event type screen.
Again by moving any pedal, you can select any of the available types.
(NEW IN V2.5)

Send the Screen Change Event to move to the event select screen.




Again by moving any pedal, you can scroll though the list of events.

Send the Screen Change Event to move to the value select screen.




Moving any pedal will change the value.
Also at this screen, you set whether or not the event should be enabled or disabled. If enabled, the midi event, with the high value will be sent, if disabled it will not. Toggle by send ing the 'Global Setup' Event.

Send the Screen Change Event to go back to the bankstick select screen, but for the next message. Up to 32 messages can be sent.
At this time, the message you have just been editing will be saved.

Send the Event Setup event at any time to exit Rig Control Patch Setup Mode. However the current message being edited will not be saved.

**Relay Control in Rig Control**
For this. We start in the Rig Control patch setup screen (see above).
This time send the enter patch setup command again.




The top line indiates whether the relay will be triggered or not. The bottom line indicates whether it will be triggered on or off.
To toggle the enabled line - Send the global setup event.
To adjust the on/off line - Move any pedal.

The screen change event will move to the next column.

When finished, send the patch setup command to save and return to the Patch Setup Screen.

**Setting up Gig Control Song Lists**
You can change the current song list by sending the song list setup midi event. This is on the channel matching the first bankstick, with cc 0x7f, and a value of 0x7c.




You can scroll the song list using any pedal connected.
Sending the event setup command will exit song list selection mode

Alternativly you could send the screen change midi event, which takes you to the cue setup mode.




Again using any pedal, you can select the patch number you want for the first cue.
Sending next or previous cue events, will take you through the cue list to set each cue step.
Sending the event setup event will exit.
Cues are automatically saved.

# Pedal Board Mode

Pedal Board Mode is designed to... well, i'm sure you get it!

## Pedals

- Scales between the min and max value
- Displays either:
  - a meter of approx position, some events will display 'off' when 0 and/or 'on' when 127.
  - A named value (eg. 'Ping/Pong Delay' for an effect select control).
- Pedals can not be mapped to program change, on/off or tap events.
- Pedals can have different settings for each program change, or can be fixed to the same event regardless of program change.

## Buttons

Fixed buttons always output the same MIDI command regardless of bank.

Banked buttons gives you up to 128 midi commands, It's recommended to use these for program changes.

Buttons have 4 main types of events for buttons - Normal, On/Off only, Program Change or Tap Tempo.

#### Normal

- Toggles between the min and max value
- Can be switching or momentary
- LED indicator is off when at min value, on when at max value
- Displays either:
  - a meter of approx position, some events will display 'off' when 0 and/or 'on' when 127.
  - A named value (eg. 'Ping/Pong Delay' for an effect select control)

#### On/Off only

- Toggles between 0 and 127, regardless of min/max value
- Can be switching or momentary
- LED indicator is off when at 0, on when at 127
- Displays 'On' or 'Off'

#### Program Chnage

- Only sends the Status byte, and Parameter 1 byte
- Is momentary only, regarless of setting
- LED indicator lights up on the button assigned to the current program change
- Displays the program change name.

#### Tap Tempo

- Sends the preset tap tempo midi event, with a value of 127 on down press.

- Momentary only (regardless of setting)
- LED indicator is on when button down, off when button is up.
- Displays approximate BPM

This is only a guide calculated by Pedal Board, your device may calculate a slightly different BPM

## Relays

New in version 2 - Up to 8 relays can set up for changing switches.

Buttons can be setup to control a relay via the same means as any other event, except you select the Master bankstick (the first bankstick) when programming. Relays are listed after the Rig Control Patches.

## Rig Control

New in version 2 - Allows you to send up to 32 midi events at the same time, as well as set the 8 optional relays, with one button press.

Buttons are assigned to Rig Control Patch via the same means as any other event, except you select the Master bankstick (the first bankstick) when programming.

We cover setting what the patch controls later.

## Gig Control

Also new in version 2 - Gig Control allows you to set up song lists, to change the Gig Control patch number in any order using cue next/previous buttons.

Cue next/previous can be set to any button via the same means as any other event, except you select the Master bankstick (the first bankstick) when programming. Next and Previos Cue are located between the Rig Control Patches and the Relay events.

## Hooking it all up

- MIDI merger should be OFF
- MIDI out of Pedal Board to MIDI in of your device
- MIDI out of your device to MIDI in of Pedal Board

## Setup mode

### Event setup

Setup mode is activated by pressing holding bank down and pressing the event setup button (pin defined in main.h) The last pedal moved, or button pressed in selected. There are 2 programming screens. You can move between them with the bank up button.

In the first screen, you select the device that should be used. Up to 8 devices can stored on 8 banksticks.




Moving any pedal will select the device. If a bankstick is not present 'BS Not Available' will be displayed.

The second allows you to select the desired event type. Move any pedal to scroll through available types. (NEW IN V2.5)

3rd screen; Moving any pedal connected will scroll the event list, select the desired event.




Multiple pedals/buttons can be set to the same event.

Finally
For each pedal and button (and banked button) a minimum and maximum value can be specified.
With buttons, the min and max are toggled
With pedals, the value is scaled between the min and max.




First select the low value with any pedal or pot, and press the bank up button. Now you can adjust the high value. Pressing the event setup button will toggle buttons between momentary and switching modes.
Low and high values can be set to the same value.

From here you can bank up to go back to screen 1.

Pressing bank down at any time saves settings and exits setup mode.

### Global settings

Access by holding bank down and pressing the Global setup button (defined in main.h)
Each pedal has the option of being set to a fixed midi event, or can have different setting for each program change (event, min and max all included).

This screen allows to select which are fixed, and which are not.




Moving a pedal all the way to the on position will set it to be fixed (1). Moving a pedal to the off position will set it to follow program changes (0).

Pressing bank up takes you to the bankstick channel select screen. Here you can set the channel of each device loaded into your banksticks. If no bankstick is present 'NA' is displayed




Moving any pedal will change the channel for the selected bankstick - '>' marks the selected. Each time you press bank up the next bankstick will be selected.

Press bank down to save and exit.

**Setting up Rig Control patches**
Firstly, you need to have the patch you wish to edit assigned to a button (see 'Event Setup' above).

Enter 'Event Setup' mode again, at the 'Event Select' screen - press the 'Event Setup' Button.

In this screen we set the bankstick to be used, listed by the device it is controlling




Use any pedal to scroll through the list

Pressing bank up brings you to the event type select screen. Move any pedal to scroll through available types. (NEW IN V2.5)

Press Bank Up to move to the event select screen.




Again by moving any pedal, you can scroll though the list of events.

Press Bank Up to move to the value select screen.




Moving any pedal will change the value.
Also at theis screen, you set whether or not the event should be enabled or disabled. If enabled, the midi event, with the high value will be sent, if disabled it will not. Toggle by pressing the 'Event Setup Button'

Press Bank Up to go back to the bankstick select screen, but for the next message. Up to 32 messages can be sent.
At this time, the message you have just been editing will be saved.

You can press Bank Down at any time to exit Rig Control Patch Setup Mode. However the current message being edited will not be saved.

**Relay Control in Rig Control** For this. We start in the Rig Control patch setup screen (see above). This time press the event setup button again.

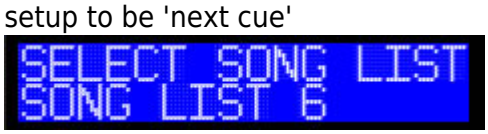



The top line indiates whether the relay will be triggered or not. The bottom line indicates whether it will be triggered on or off.
To toggle the enabled line - Press the Global Setup Button.
To adjust the on/off line - Move any pedal.

Bank up will move to the next column.

When finished, press the Event Setup Button to save and return to the Patch Setup Screen.

**Setting up Gig Control Song Lists**
You can change the current song list by holding bank down, and pressing the button that you have setup to be 'next cue'



You can scroll the song list using any pedal connected.
Pressing Bank Down will exit song list selection mode and save

Alternativly you could press bank up, which takes you to the cue setup mode.




Again using any pedal, you can select the patch number you want for the first cue.
Pressing bank up again and again, will take you through the cue list to set each cue step.
Pressing bank down will exit.
Cues are automatically saved.

# Creating Device Files

Use the PC Editor

# MIDI Implementation

| Function | PbX - TX | PbX - RX | PbD - TX | PbD RX |
|---|---|---|---|---|
| Channel | 1 - 16 | 1 - 16 | 1 - 16 | N |
| Mode | N | N | N | N |
| Note | Y | Y | N | N |
| Velocity | N | N | N | N |
| After Touch | Y | Y | N | N |
| Pitch Bend | N | N | N | N |
| Control Change | Y | Y | Y | N |
| Program Change | Y | Y | Y | N |

Implementation is largly based on the Device Event List. Incoming events not listed will not be be responded too.

The inbuilt MIDI merger if activated will forward all incoming events to the MIDI output (PbX and PbD)

## Special MIDI Implementaion for Pedal Box

As PbX does not have any buttons for executing special commands, such as with setup modes, triggering relays, etc. Special MIDI events are used for this functionality. These are only available Pedal Box.

*MIDI Implementation can be modified in pbx_midi_config.h)*

The channel is set by the Master bankstick (the first bankstick)

**General Setup Commands**

| Control Changes | CC# | Value |
|---|---|---|
| Event Setup | 127 | 127 |
| Screen Change | 127 | 126 |
| Global Setup | 127 | 125 |

event setup is also used to save and exit most setup screens

#### Rig Control

| Control Changes | CC# | Value |
|---|---|---|
| Patch Setup | 127 | 124 |
| Relay 1 | 112 | 0 = off 127 = on |
| Relay 2 | 113 | 0 = off 127 = on |
| Relay 3 | 114 | 0 = off 127 = on |
| Relay 4 | 115 | 0 = off 127 = on |
| Relay 5 | 116 | 0 = off 127 = on |
| Relay 6 | 117 | 0 = off 127 = on |
| Relay 7 | 118 | 0 = off 127 = on |
| Relay 8 | 119 | 0 = off 127 = on |
| **Program Change** | 0 - 127 | |

#### Gig Control

| Control Changes | CC# | Value |
|---|---|---|
| Cue Select | 122 | 127 |
| Next Cue | 122 | 2 |
| Previous Cue | 122 | 1 |

# Troubleshooting




Help can be found in the Pedal Box forum thread

## Error Codes

#### 100 - Config errors

- Not yet implemented

#### 200 - Bankstick errors

# = Bankstick number 0-7.

- 21# = Incorrect version of bankstick file loaded
- 22# = Master Bankstick not present, or Device bankstick is in slot 0

- 23# = Master Bankstick found but not in slot 0
- 24# = Bankstick not formatted for PB

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