# K-Switch User Manual

v1.1

Payne-Labs

# Features and Functionality Overview

- **8 Switches:**
  - 4 “Virtual Footswitches” for controlling amplifier functions
  - 4 Effect Loops for inserting effect units into a signal chain.

- **Virtual Footswitches: S1 - S4**
  - Used to control an amplifier's various functions with 1/4” jacks
  - They may be grouped together to represent amp channels (only one active at a time).
  - All switches may be configured as latching or momentary

- **2 Signal Chains**

  One signal chain (#1) for the effects loop of an amplifier and another signal chain (#2) for use “in front” of an amp.

- **Effect Loops: L1 - L4**

  The effect loops are used to insert an effect unit into a signal chain. L1 and L2 are used for signal chain #1. L3 and L4 are used for signal chain #2.

- **Instant Access to all switches**

  The current patch's settings can be changed on the fly by using MIDI Controller Change (CC) commands. You can enable or disable this functionality in the configuration mode. Also, in the configuration mode, you set the base controller number. Each switch has an offset to the base controller number. Sending a value from 0 to 63 turns off the switch and sending a value from 64 to 127 turns on the switch.
  - **S1 :** Base Controller
  - **S2 :** Base Controller + 1
  - **S3 :** Base Controller + 2
  - **S4 :** Base Controller + 3
  - **L1 :** Base Controller + 4
  - **L2 :** Base Controller + 5
  - **L3 :** Base Controller + 6
  - **L4 :** Base Controller + 7

# Usage

**During normal operation, pressing a given button will toggle the state of the given switch.**

- If the switch is an effect loop, it will toggle it between active (LED = on) and bypassed (LED = off).
- If the switch is a control function, it will toggle it between a “shorted” ground to tip state and an open circuit state. If the switch is part of an amp channel group, the previously selected switch will be deactivated.

**When a switch is changed from the currently stored patch, it will blink. This is how you know when the current patch is “dirty” and has been altered from what is stored.**

- If the switch is now “on” then the switch's LED will stay lit for about a second and quickly flash off and then back on again.
- If the switch is now “off” then its LED will stay off for about a second and quickly flash on and then back off again.

**When a patch is dirty, the program LED will be lit. Pressing the program button sill store any of the changes. After the patch is stored, it will turn off the program LED and all of the switch LEDs will stop flashing.**

# Virtual Footswitches

S1 – S4 are “virtual footswitches” that are typically used to control an amp's channels, reverb, EQ or other functions provided by standard 1/4” jacks.  When a switch is activated a relay connects (“shorts”) the tip to ground.

- They can be set up as a latching or momentary switch (with a choice of 4 momentary delay times).
- They can be grouped together to represent the channels of your amp. In this group only one can be active at a time.
- When you press the button for a switch:
  - If the switch is part of a channel group, it will become active and the previously selected channel automatically deactivates.
  - If the switch is not part of a channel group, it will toggle between active and inactive.

-- See the configuration instructions for setup information.
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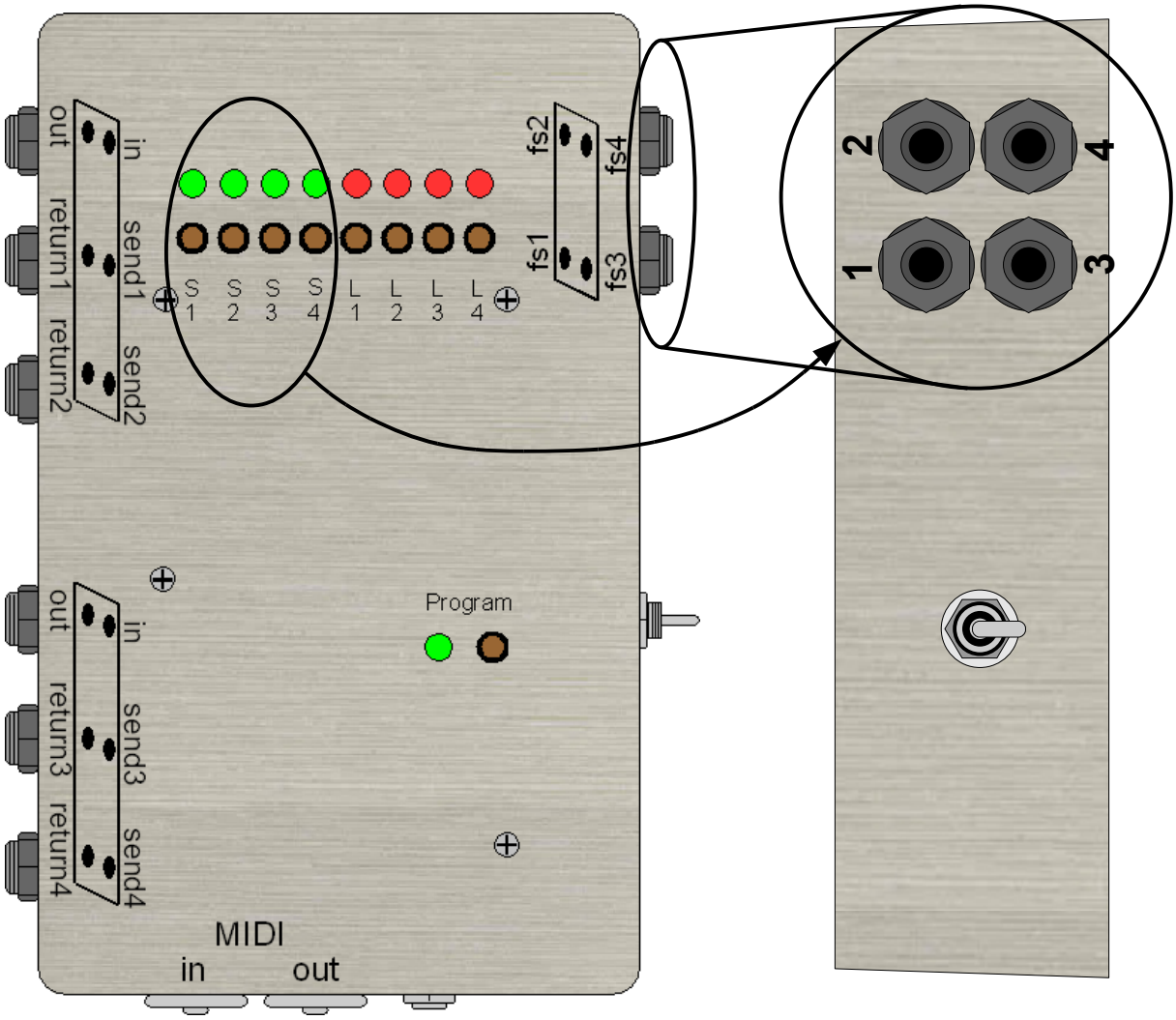
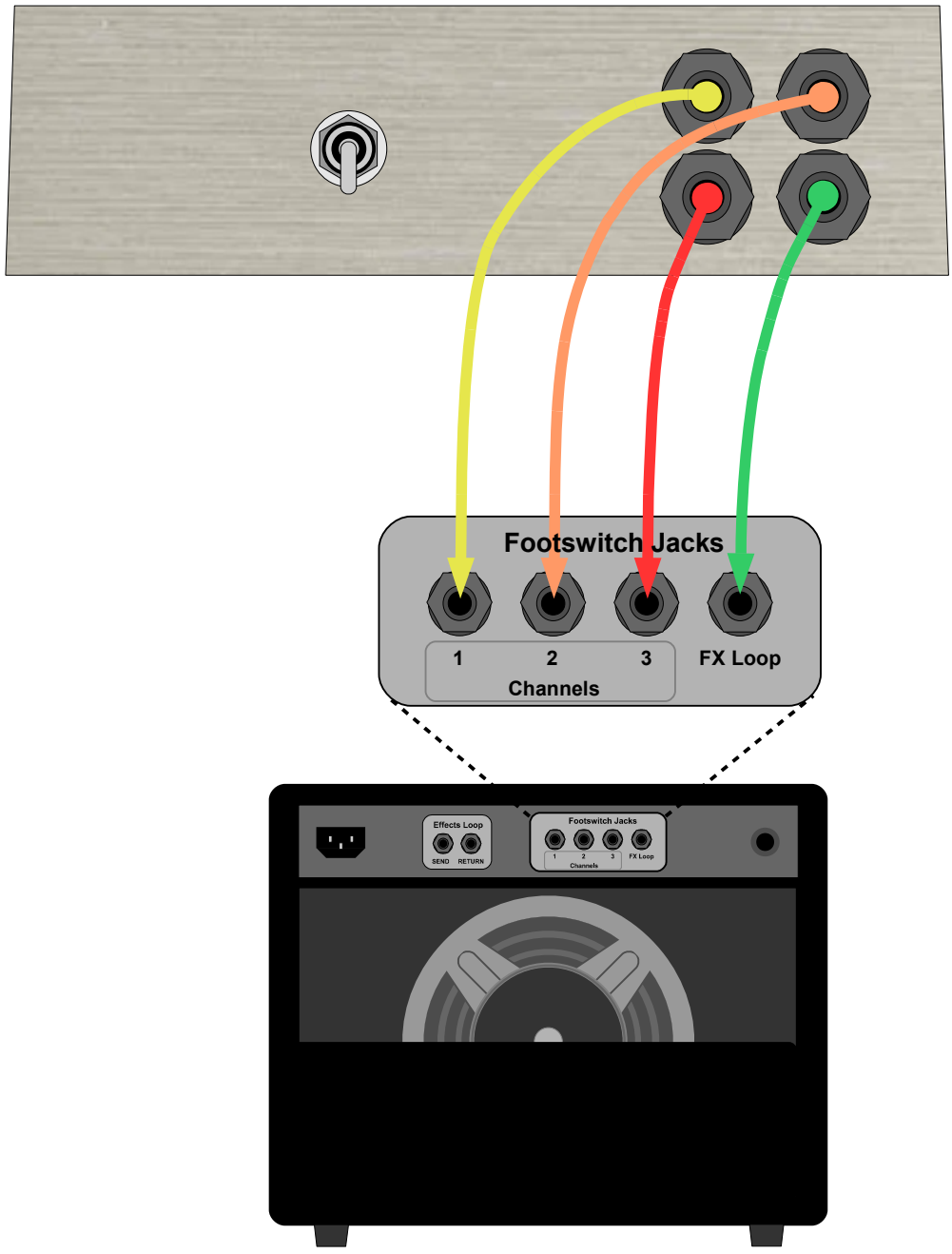


# Example Setup

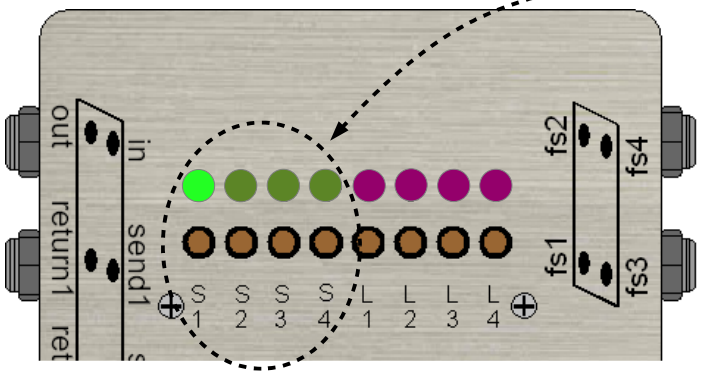
This example shows an amplifier with 3 channels and its effects loop controlled by 1/4” jacks.

Since the K-Switch's channel grouping always starts with the first switch, we use S1, S2 and S3 for the amp's channels.

S4 is used for controlling the amp's effects loop.

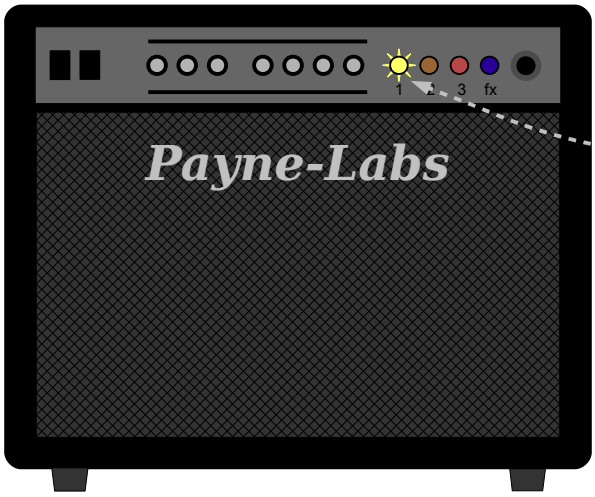


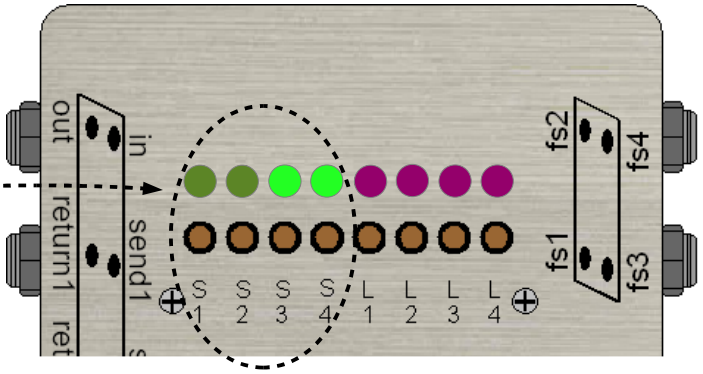
# Example Setup (cont.)




Setting (patch) 1

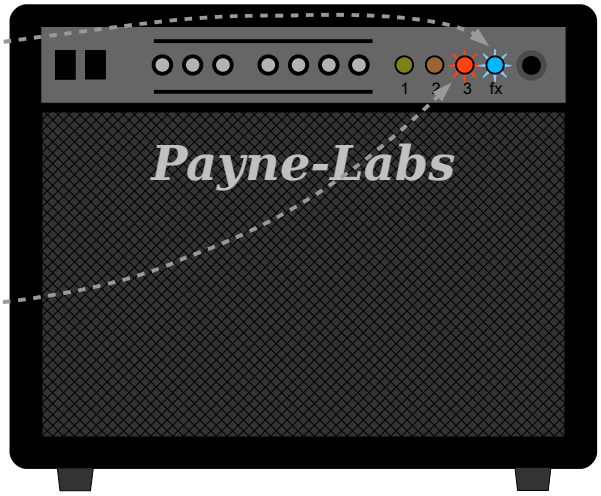
S1 is active and turns on channel one of the amp.




Setting (patch) 2

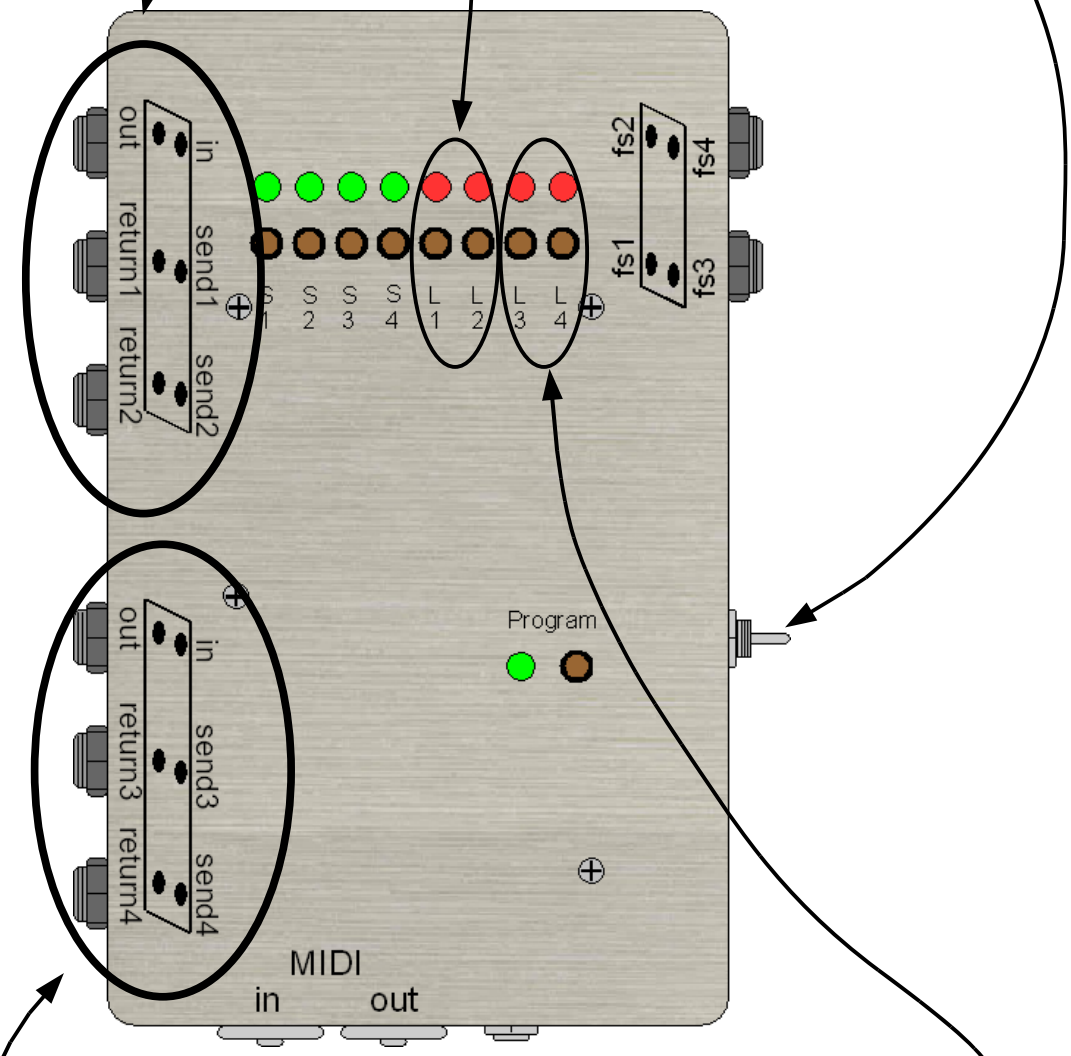
S3 and S4 are active. This turns on channel 3 and the amp's effects loop.



# Signal Chains and Effect Loops

Signal Chain #1

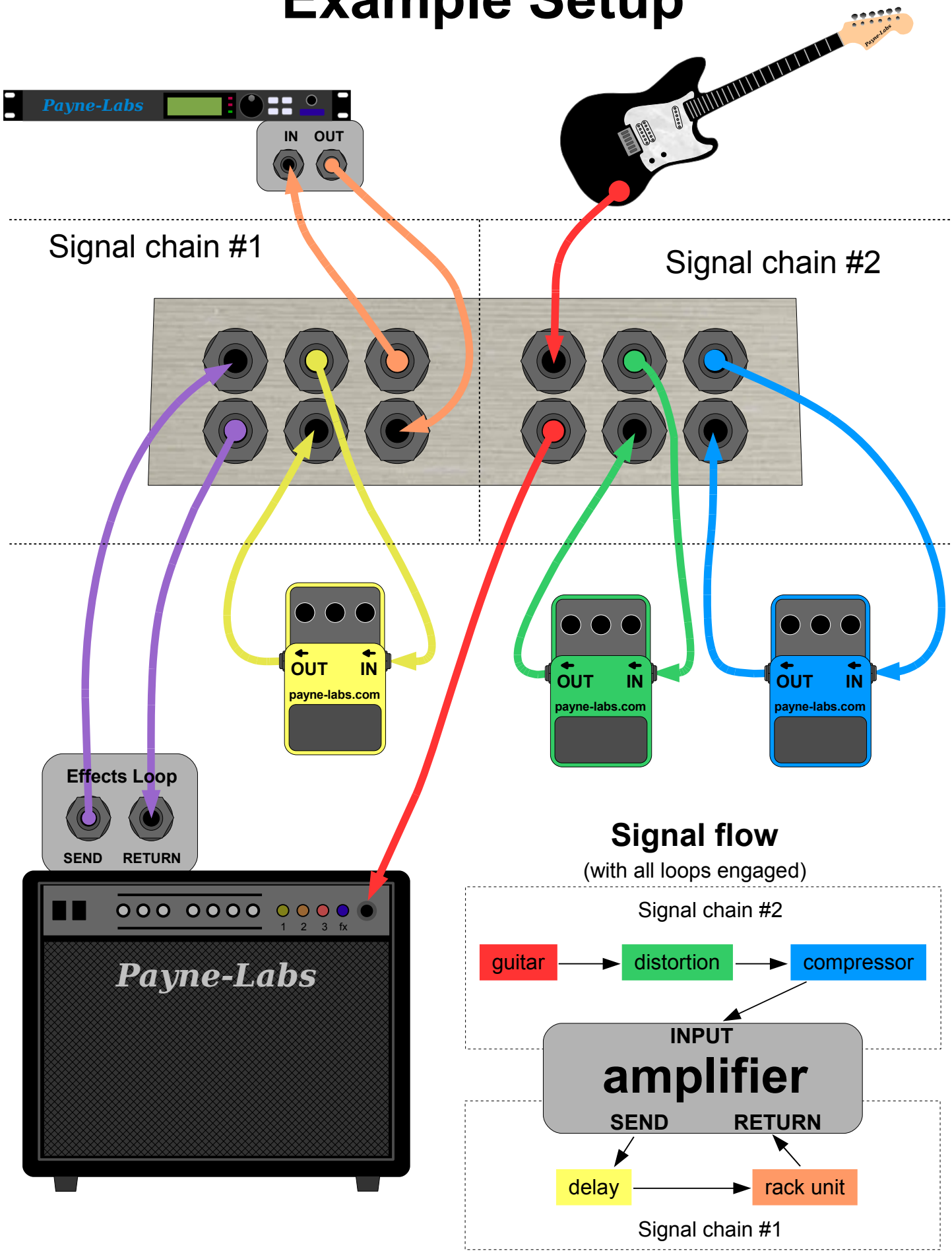
- Typically used with an amp's effects loop
- Ground lift switch for this chain only (down = grounded)
- Uses loops “L1” and “L2”




Signal Chain #2

- Typically used “in front” of an amp; from the guitar to the amp's main Input.
- Uses loops “L3” and “L4”

# Example Setup



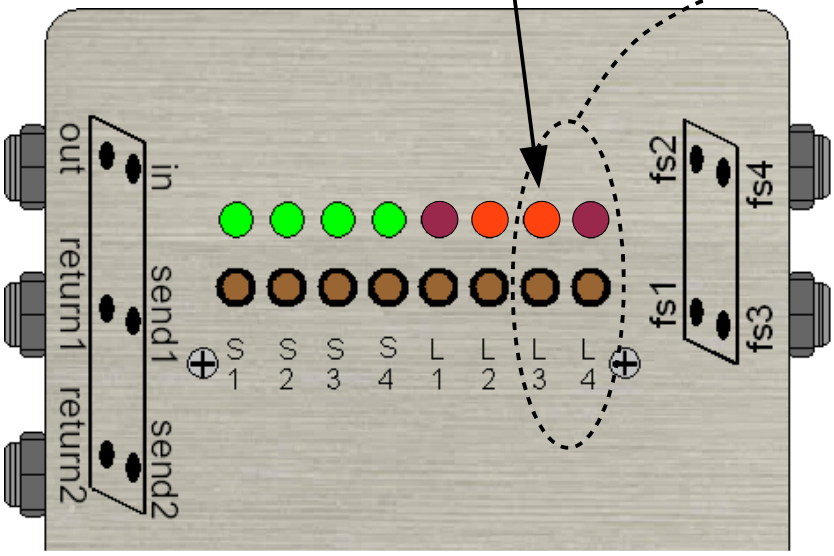

## Signal flow

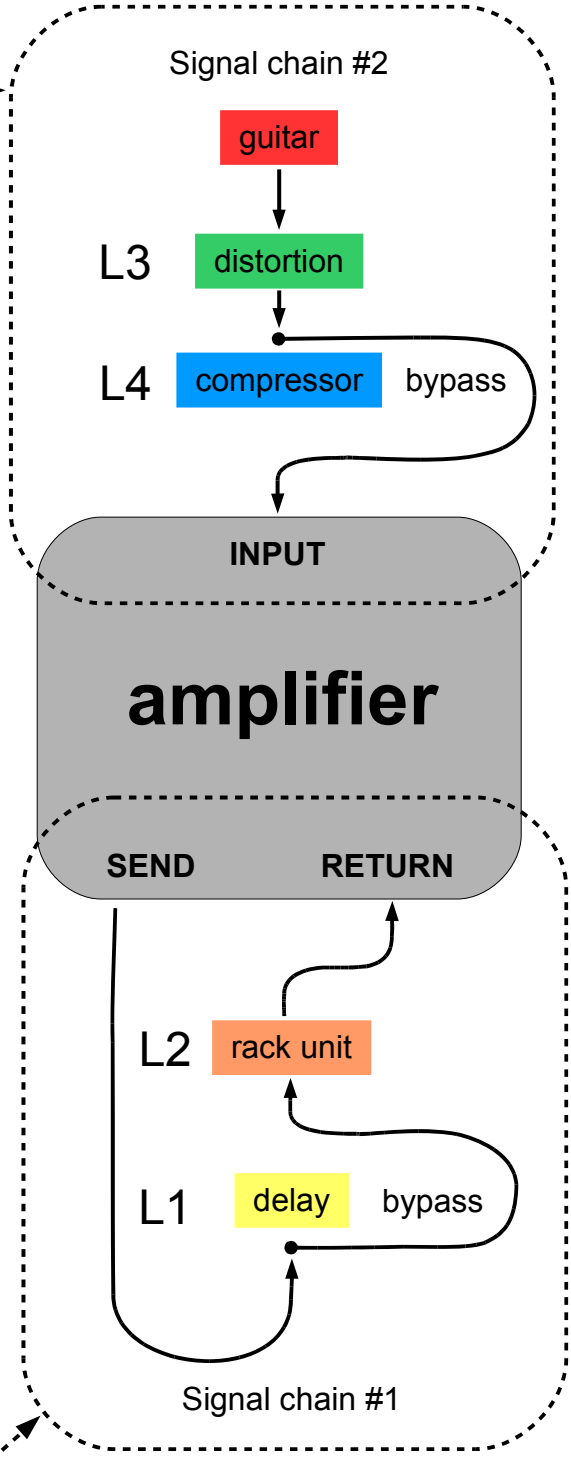
(with all loops engaged)

# Example Setup (cont.)

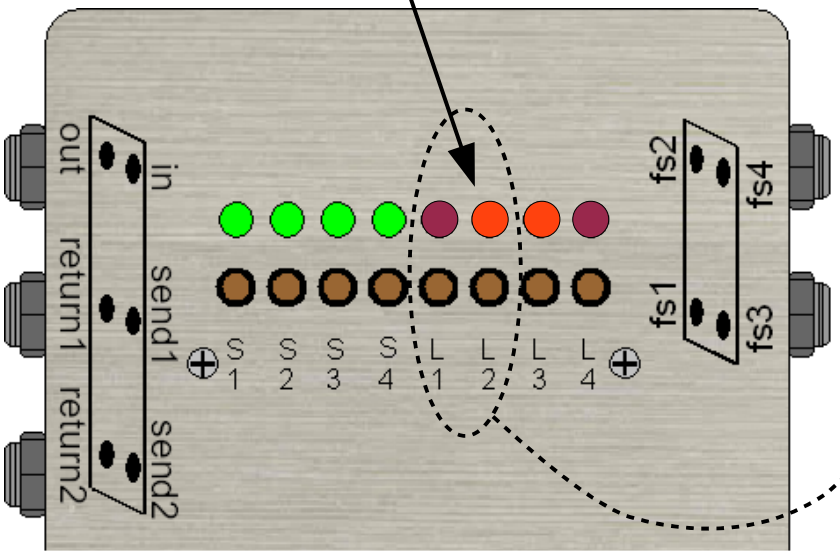
Pressing any one of the L1 – L4 buttons toggles the loop's active/bypass state. When a given loop's LED is lit, it is active and when its LED is off the loop is bypassed.

Notice here that the only loop, in signal chain #2, that has its LED lit is L3. This will route the signal through the distortion pedal (green) and bypass the compressor pedal (blue) in this signal chain.




Here, the only loop, in signal chain #1, that has its LED lit is L2. This will route the signal through the rack unit (orange) and bypass the delay pedal (yellow) in this signal chain.



# Configuration Setup

To enter the configuration setup hold down the program button for 3 seconds. When the unit enters this mode all of the LEDs will quickly flash several times and then enter mode “S1”. When you're in the configuration setup the program LED will continue to blink (the blink rate varies according to the “mode” you're in).

There are 4 modes of the configuration. Press the program button to advance through the modes S1 – S4. When you enter a new mode, the corresponding LED will quickly blink several times.

To exit the configuration setup, just like you enter it, hold down the program button for 3 seconds. All of the LEDs will quickly blink several times and then the unit will resume normal operation.
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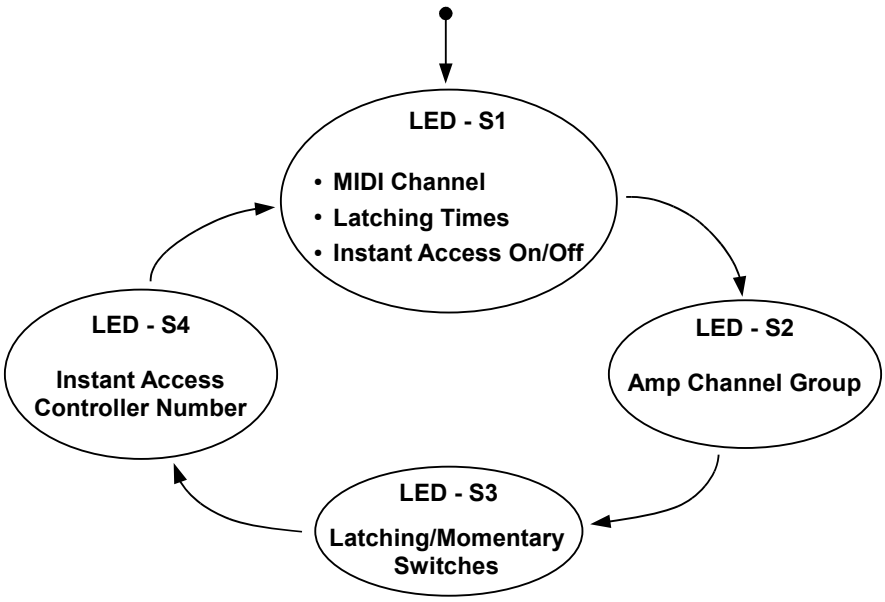
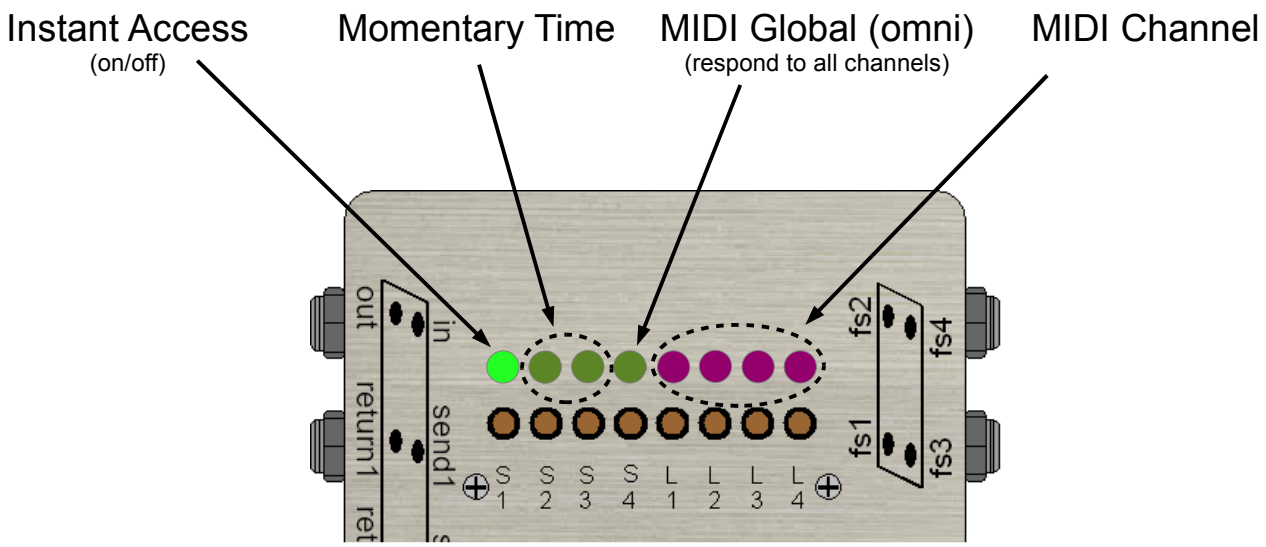


# Configuration Setup (cont.)

## S1: MIDI Channel, Latching times and Instant Access On/Off

- **Instant Access (on/off)** – When this is active (LED=on) the unit will respond to Controller Change commands.
- **Momentary Time** – For any switch that is set for momentary activation, the time it stays active is set here.

  There are 4 times:
  - ● ● - short (about 1/8 second)
  - ● ● - med short (about 1/5 second)
  - ● ● - med long (about ½ second)
  - ● ● - long (about ¾ second)
- **MIDI Global/Omni** – When this is on the unit will respond to messages on any MIDI channel
- **MIDI Channel** – If MIDI Global (omni) is off, then the unit responds to messages on the MIDI channel set here. See the chart for the number/LED conversions.



# Configuration Setup (cont.)

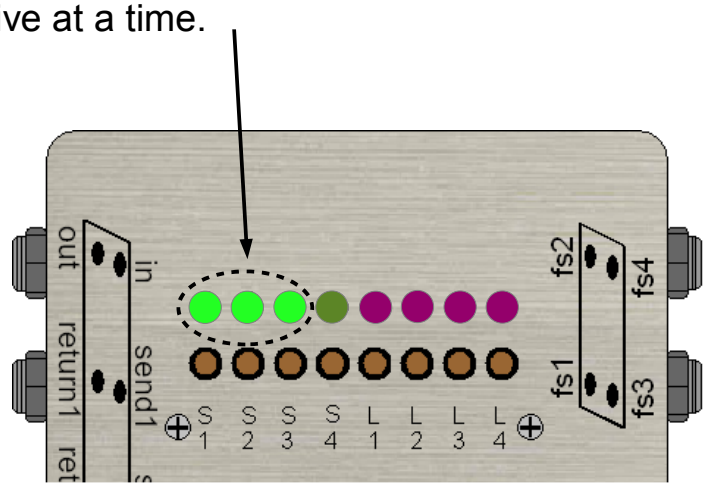
## S2: Amp Channel Group

Normally a switch (that is not in a group) may be active or inactive independent from any other switch. Channel grouping allows 2 or more switches to act as a group where only one switch may be active at a time. You can think of grouped switches as radio buttons on a web page and switches that are not grouped as checkboxes.

Grouping always starts with S1 and grows to the right. The smallest possible group is S1 and S2 since grouping requires at least 2 switches.

- Pressing S1 removes all grouping
- Pressing S2 and up creates a group from S1 up to and including the one pressed

**Channel Group example:**
This amplifier has 3 channels so we press S3. Now the LEDs for S1 – S3 are lit and, during normal operation, only one of them (S1, S2 or S3) can be active at a time.



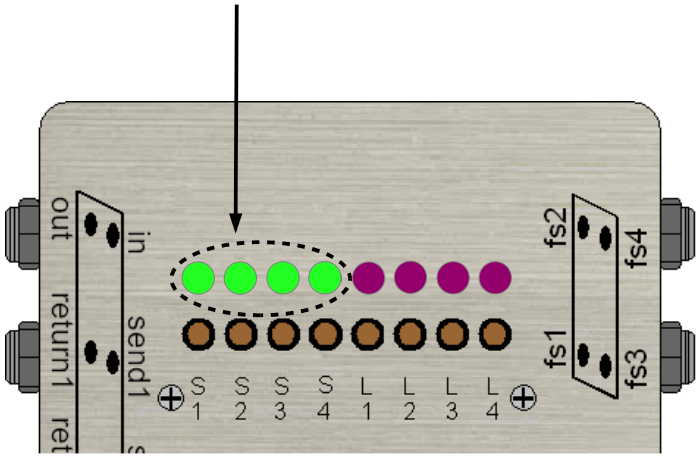
# Configuration Setup (cont.)

## S3: Latching / Momentary Switches

Most amplifiers use latching footswitches, but some amplifiers use non-latching momentary switches for their particular switching functions. In this configuration mode, pressing the button for any switch will toggle it between momentary (LED = lit) and latching (LED = off). Factory setting is all latching (all LEDs off).

**Momentary Switch example:**

This amplifier's 3 channels and FX loop switches are momentary. To make them all momentary, press the button for each switch so their LEDs are lit.

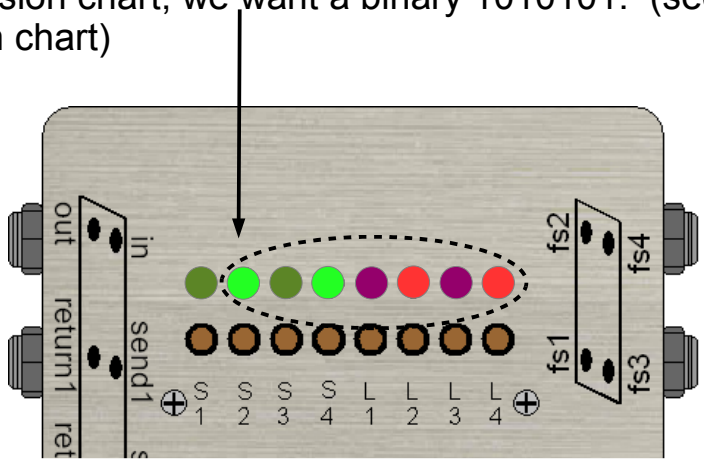



## S4: Instant Access Controller Number

If you are using the Instant Access functionality you must assign the (base) controller number for interpreting the MIDI messages. The rightmost LEDs are used to set the base controller number (in binary – see the conversion chart).

**(base) Controller Number example:**

We want to use 85 as the base controller number, so from the conversion chart, we want a binary 1010101. (see conversion chart)



# MIDI Channels

| LEDs | MIDI Channel |
|---|---|
|  | 1 |
|  | 2 |
|  | 3 |
|  | 4 |
|  | 5 |
|  | 6 |
|  | 7 |
|  | 8 |

| LEDs | MIDI Channel |
|---|---|
|  | 9 |
|  | 10 |
|  | 11 |
|  | 12 |
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# MIDI Controller Numbers

| LEDs | Controller |
|---|---|
|  | 0 |
|  | 1 |
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| LEDs | Controller |
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