OSCILLATOR DEVICES

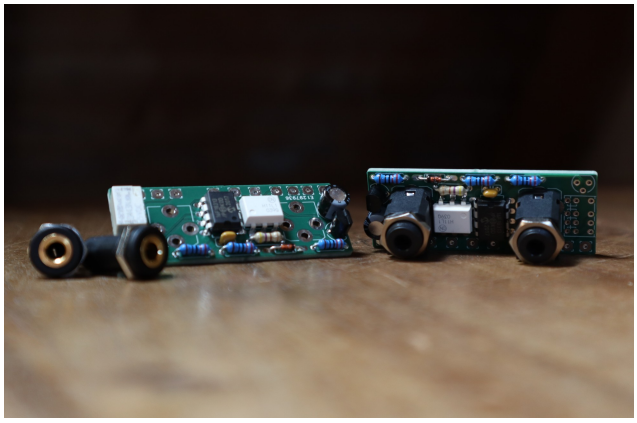
**MIDI-Solutions and Custom FX**

# Imp-3PDT 1.2 - Installation

## 1 Introduction

### 1.1 Wait, what?!

The ***Oscillator Devices Imp*** is a MIDI-capable module, just the size of a 9V block, which can take over switching tasks in guitar, bass and other effects devices. With the ***Imp*** it is therefore possible to switch an effects device on and off under MIDI control, to change the channel or to operate the tap tempo. The normal functionality is not restricted. On the contrary: old, loud and stiff 3PDT switches are being replaced by a modern, quiet, relay-based soft switch. The true bypass functionality is retained. The original switch is partially or completely replaced. There is basically compatibility with all 3PDT switches as well as a variety of SPST soft switch and tap-tempo circuits. In contrast to many relay-based soft switches, the ***Imp*** remembers the status after switching off. The ***Imp*** has MIDI In, MIDI Thru and understands MIDI Clock with different clock patterns. The MIDI channel can be configured via th switch.



*Imp-3PDT loose assembly (l.) and Imp-SPST socket assembly (r.)*

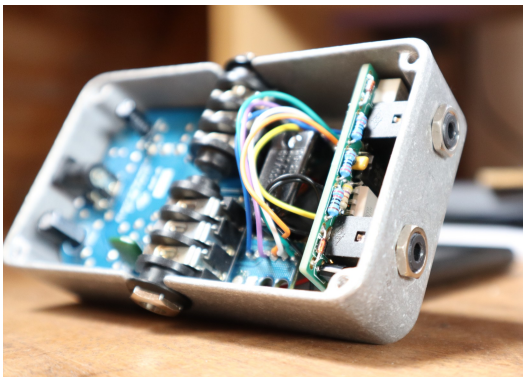
### 1.2 Variants

The Imp is available in two different versions, which - depending on the application - are equipped and programmed differently. If the existing effects device has a standard 3PDT switch, the ***Imp-3PDT*** is used. The 3PDT switch is then replaced by a soft switch and the ***Imp*** then brings its own relay in order to continue to retain the true bypass functionality. If the device already has an SPST soft switch, the ***Imp-SPST*** is used. The SPST-Soft-Switch is retained along with the relay, or the digital control unit.

This document describes the installation of the ***Imp-3PDT***.

## 1.3 Assembly options

In the socket mounting variant, the Imp is equipped with two 3.5mm jack sockets and is fastened through holes in the housing of the effects device. This mounting option is ideal for devices that have space for a 9 V block in the lower area of the housing (e.g. Electro Harmonix and Earthquaker Devices). The ***Imp*** can also be used without solderer sockets for free assembly.

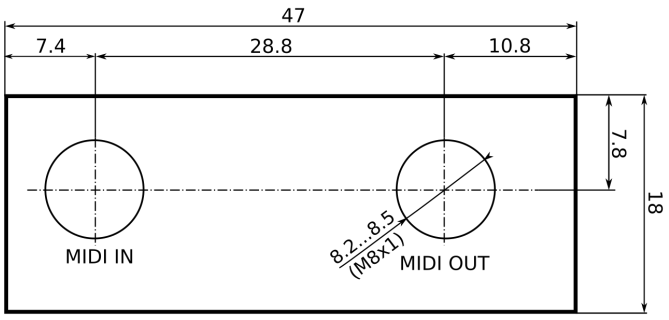


## 1.4 Electrical Properties

| **Electrical Properties** | Min | Typ | Max | |
|---|---|---|---|---|
| Supply Voltage | 7 | 9 | 18 | VDC |
| Current Consumption | 3 | | 33 | mA |
| Maximum voltage at LED terminal | | | 18 | VDC |
| Maximum voltage at SW terminal | | | 5 | VDC |

## 1.5 Mechanical Properties

The dimensions of the ***Imp*** are 47 x 18 mm in the base area. With pre-assembled sockets (socket assembly), the distance between the housing wall and the circuit board is 18 mm. The bore diameter for the sockets is 8.2 mm - 8.5 mm. With pre-assembled sockets, the hole spacing is 28.8 mm.




## 1.6 MIDI Commands

For the full list of MIDI commands and how to set the MIDI channel see *https://oscillatordevices.com/imp*

# 2 Assembly

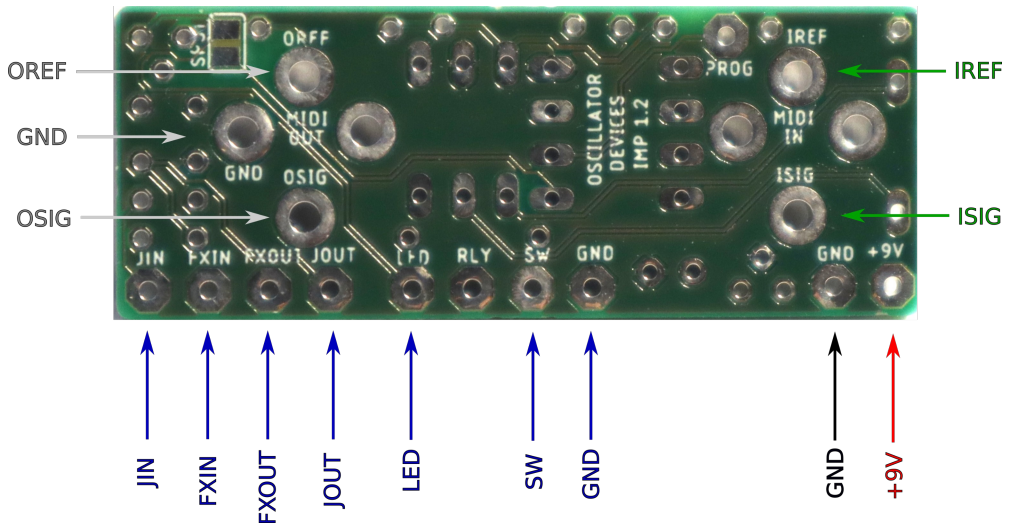
## 2.1 Voltage Supply

The electronics are supplied via the effects device's supply. In order to minimize interactions with the effects device, the supply for the ***Imp*** should be soldered directly to the socket for the power supply of the effects device. In principle, other points for tapping are also conceivable, such as, e.g. the reverse polarity protection diode.

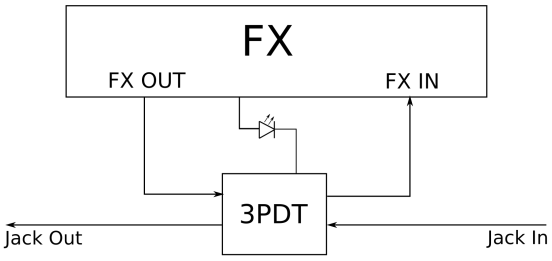
**Attention**! The ***Imp*** has no polarity reversal protection. The correct polarity should be checked before the first start-up.

## 2.2 Wiring

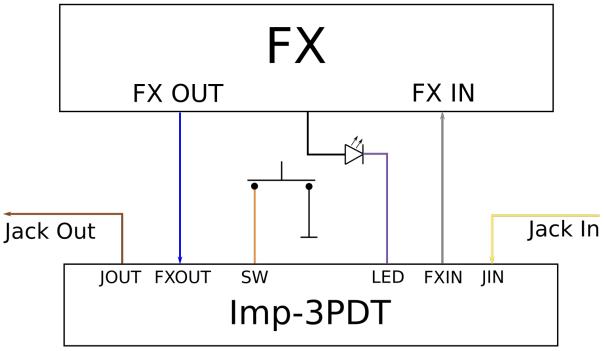
The connections to the ***Imp*** as follows, whereby one side of the soft switch is connected to the additional GND connection.




| Signal | Description |
|---|---|
| JIN | Jack in/from instrument |
| FXIN | FX in/to effects |
| FXOUT | FX out/from effects |
| JOUT | Jack out/to amplifier |
| LED | LED, which was connected to the 3PDT |
| SW | Soft switch |
| GND | Additional GND connection for switch |
| RLY | Not used in this variant |
| GND | GND |
| +9V | Supply voltage (9 V…18 V DC) |
| IREF | MIDI In (Reference/Current Source) - MIDI TRS-Type A Ring – DIN Pin 4 |
| ISIG | MIDI In (Signal/Current Sink) - MIDI TRS-Type A Tip – DIN Pin 5 |
| OREF | MIDI Thru (Reference/Current Source) - MIDI TRS-Type A Ring – DIN Pin 4 |
| GND | MIDI Thru (Shield/GND) - MIDI TRS-Type A Sleeve – DIN Pin 2 |
| OSIG | MIDI Thru (Signal/Current Sink) - MIDI TRS-Type A Tip – DIN Pin 5 |




*3PDT before assembly of the Imp*




*3PDT after assembly of the Imp*

## 2.3 Relay Signals

To reduce switching noise, when switching to Bypass FXOUT is switched to GND. However, it cannot be ruled out that a slight switching noise can be heard. This cannot be avoided without considerable effort and in most cases cannot be heard during normal operation.

## 2.4 LED

The input LED switches to GND when the effect is on and is open when the effect is off. This means that the series resistor for the LED is not integrated in the Imp. This is usually already available in the effects device.

## 2.5 MIDI Signals

With ***MIDI-TRS TYPE A***, the MIDI reference signal (or current source) is placed on *ring*, MIDI signal (or current sink) is placed on *tip*. With MIDI Out, the shield is placed on the sleeve.

**In order to isolate the GND of the devices, the sleeve for MIDI IN must remain open and the socket must be isolated from the housing!**

Digital signals, such as MIDI signals, can lead to crosstalk on other lines. Pay particular attention to this when laying the MIDI cables. In the case of MIDI signals, it can otherwise happen that a click can be heard in the audio signal with every MIDI command. This particularly applies to effects with multiple gain stages (distortion, fuzz, etc.).

To avoid this, the lines for the MIDI signals should be as short as possible and, if possible, not laid along the electronics of the effect. In this respect, socket mounting is the preferred mounting option.