intellijel SVF 1U Multimode State Variable Filter User Manual

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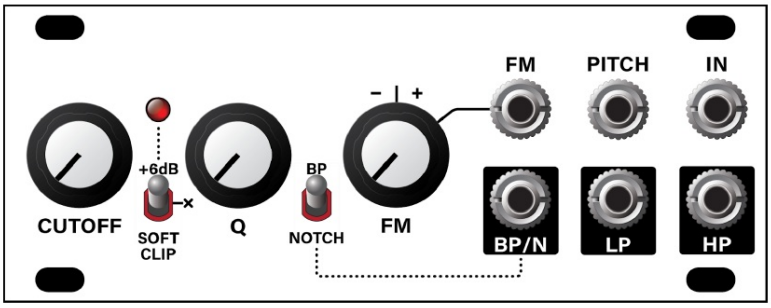
Product Information



- **Product Name:** SVF 1U Multimode State Variable Filter
- **Manual (English) Revision:** 2023.07.24

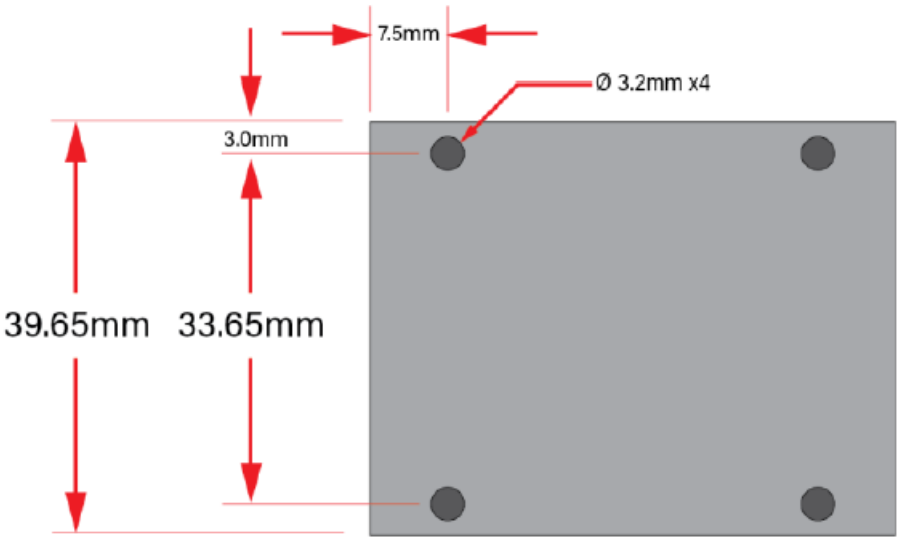
COMPLIANCE:

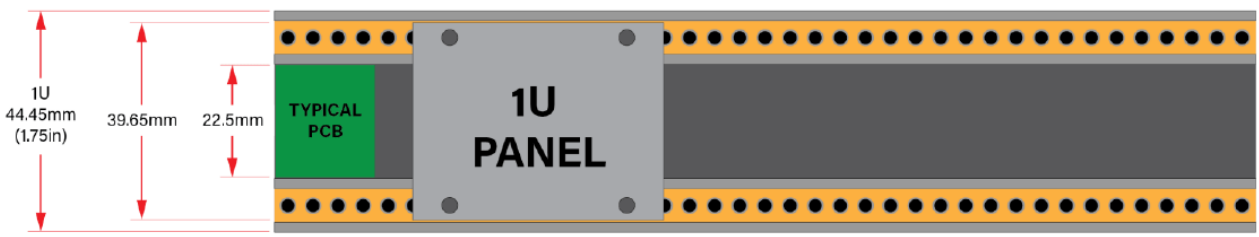
This device complies with the following standards and directives:

- EMC: 2014/30/EU EN55032:2015; EN55103-2:2009 (EN55024); EN61000-3-2; EN61000-3-3
- Low Voltage: 2014/35/EU EN 60065:2002+A1:2006+A11:2008+A2:2010+A12:2011
- RoHS2: 2011/65/EU
- WEEE: 2012/19/EU

INSTALLATION:

This module is designed to be used in an Intellijel-standard 1U row, such as the Intellijel Palette, or 4U and 7U Eurorack cases. The 1U specification is derived from the Eurorack mechanical specification set by Doepfer, which supports the use of lipped rails within industry standard rack heights.



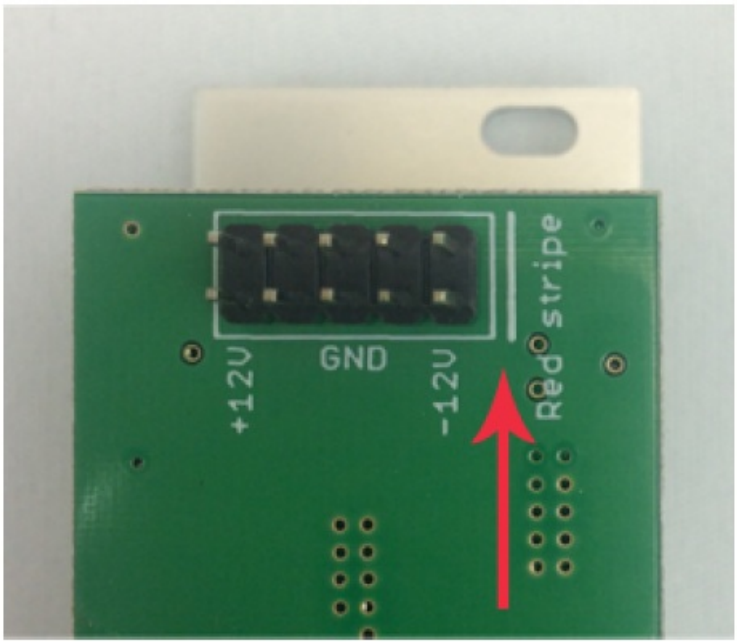


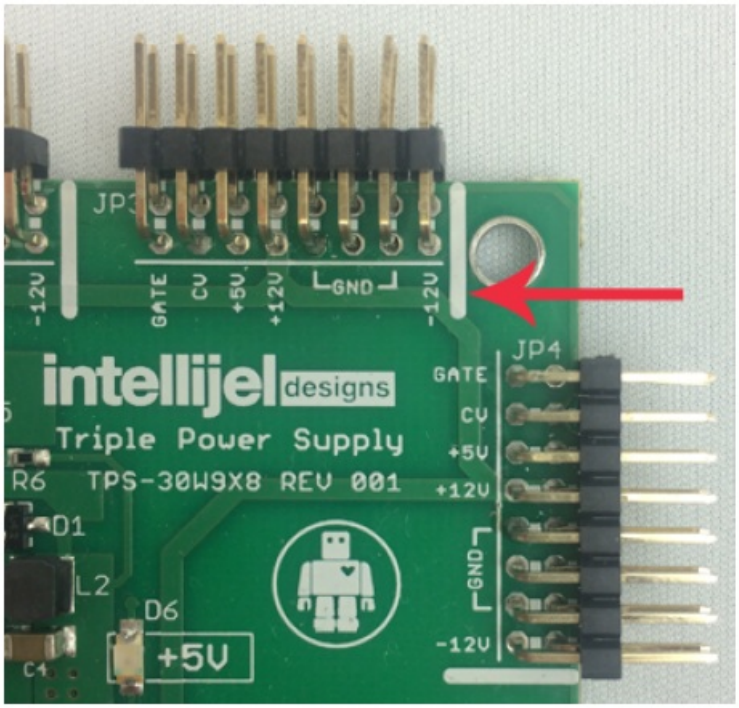
Before You Start:

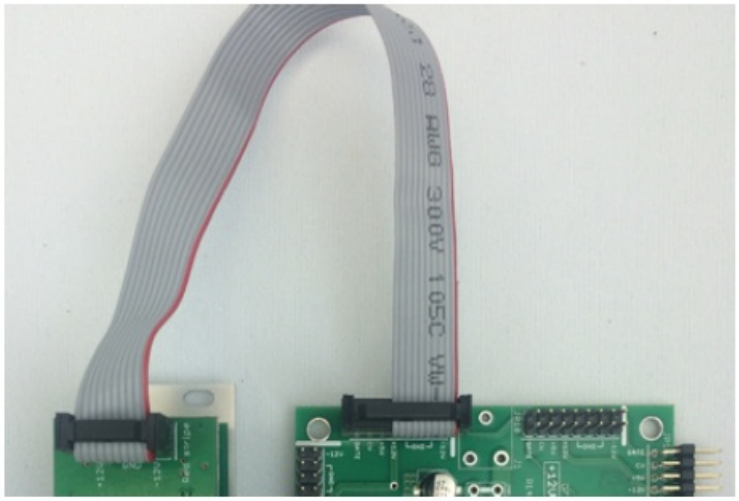
1. Check if your power supply has a free power header and sufficient available capacity to power the module:
    - Sum up the specified +12V current draw for all modules, including the new one. Do the same for the -12V and +5V current draw. The current draw is specified in the manufacturer's technical specifications for each module.
    - Compare each sum to the specifications of your case's power supply.
    - Only proceed with installation if none of the values exceeds the power supply's specifications. Otherwise, remove modules to free up capacity or upgrade your power supply.
2. Ensure your case has enough free space (hp) to fit the new module. Avoid leaving gaps between adjacent modules and cover all unused areas with blank panels to prevent debris from falling into the case and shorting electrical contacts.
3. Do not use open frames or any other enclosure that exposes the backside of any module or the power distribution board.You can use a planning tool like ModularGrid for assistance. If unsure, contact us before proceeding to prevent damage to your modules or power supply.

Installing Your Module:

When installing or removing a module:







- Always turn off the power to the case and disconnect the power cable to avoid injury or equipment damage.
- Ensure the 10-pin connector on the power cable is connected correctly to the module.
  - The red stripe on the cable must line up with the -12V pins on the module's power connector.
  - Some modules have shrouded headers to prevent accidental reversal.
  - Double-check the cable orientation even if it comes pre-connected.
  - Make sure the cable is connected to the correct header.
- The other end of the cable, with a 16-pin connector, connects to the power bus board of your Eurorack case.
  - Ensure the red stripe on the cable lines up with the -12V pins on the bus board.
  - Some Intellijel power supplies label the pins with -12V and/or a thick white stripe, while others have shrouded headers to prevent accidental reversal.

COMPLIANCE

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful i nterference, and (2) this device must accept any interference received, i ncluding interference that may cause undesired operation.
Changes or modifications not expressly approved by Intellijel Designs, Inc. could void the user's authority to

operate the equipment.
Any digital equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful i nterference to radio communications.

This device meets the requirements of the following standards and directives:

EMC: 2014/30/EU EN55032:2015 ; EN55103-2:2009 (EN55024) ; EN61000-3-2 ; EN61000-3-3 Low Voltage: 2014/35/EU EN 60065:2002+A1:2006+A11:2008+A2:2010+A12:2011
RoHS2: 2011/65/EU WEEE: 2012/19/EU

INSTALLATION

This module is designed for use within an Intellijel-standard 1U row, such as contained within the Intellijel Palette, or 4U and 7U Eurorack cases. Intellijel's 1U specification is derived from the Eurorack mechanical specification set by Doepfer that is designed to support the use of lipped rails within industry standard rack heights.

Before You Start

Before installing a new module in your case, you must ensure your power supply has a free power header and sufficient available capacity to power the module:

- Sum up the specified +12V current draw for all modules, including the new one. Do the same for the -12 V and +5V current draw. The current draw will be specified in the manufacturer's technical specifications for each module.
- Compare each of the sums to specifications for your case's power supply.
- Only proceed with installation if none of the values exceeds the power supply's specifications. Otherwise you must remove modules to free up capacity or upgrade your power supply.

You will also need to ensure your case has enough free space (hp) to fit the new module. To prevent screws or other debris from falling into the case and shorting any electrical contacts, do not l eave gaps between adjacent modules, and cover all unused areas with blank panels. Similarly, do not use open frames or any other enclosure that exposes the backside of any module or the power distribution board.
You can use a tool like ModularGrid to assist in your planning. Failure to adequately power your modules may result in damage to your modules or power supply. If you are unsure, please contact us before proceeding.

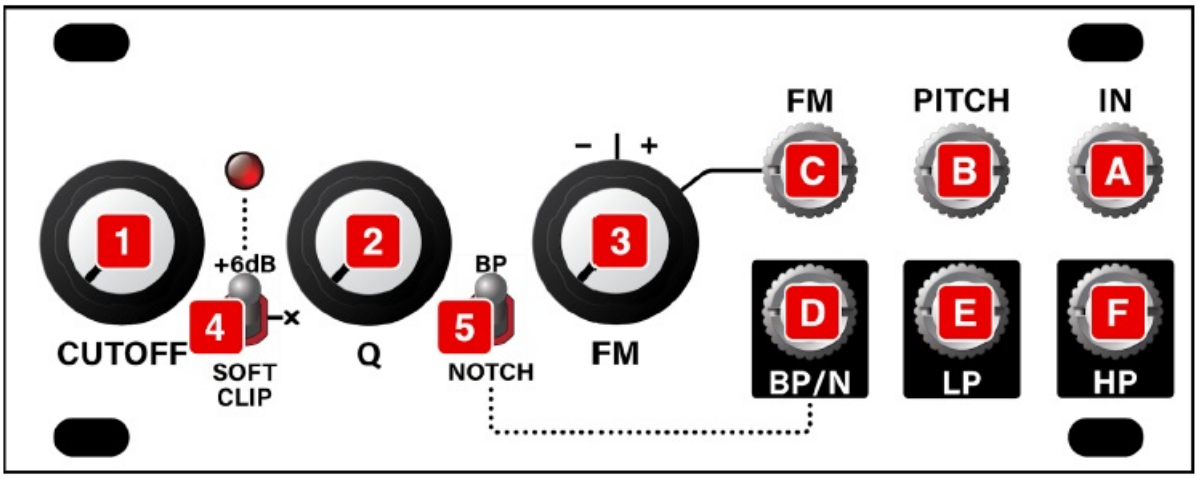
Installing Your Module

- When installing or removing a module, always turn off the power to the case and disconnect the power cable. Failure to do so may result in serious injury or equipment damage.
- Ensure the 10-pin connector on the power cable is connected correctly to the module before proceeding. The red stripe on the cable must line up with the -12V pins on the module's power connector. The pins are i ndicated with the label -12V, a white stripe next to the connector, the words "red stripe", or some combination of those indicators. Some modules have shrouded headers to prevent accidental reversal.
- Most modules will come with the cable already connected, but it is good to double check the orientation. Be aware that some modules may have headers that serve other purposes so ensure the cable is connected to the correct one.

- The other end of the cable, with a 16-pin connector, connects to the power bus board of your Eurorack case. Ensure the red stripe on the cable lines up with the -12V pins on the bus board. On Intellijel power supplies the pins are labeled with “-12V” and/or a thick white stripe, while others have shrouded headers to prevent accidental reversal:
- If you’re using another manufacturer’s power supply, check their documentation for instructions.
- Before reconnecting power and turning on your modular system, double check that the ribbon cable is fully seated on both ends and that all the pins are correctly aligned. If the pins are misaligned in any direction or the ribbon is backwards you can cause damage to your module, power supply, or other modules.
- After you have confirmed all the connections, you can reconnect the power cable and turn on your modular system. You should immediately check that all your modules have powered on and are functioning correctly. If you notice any anomalies, turn your system off right away and check your cabling again for mistakes.

FRONT PANEL

Controls

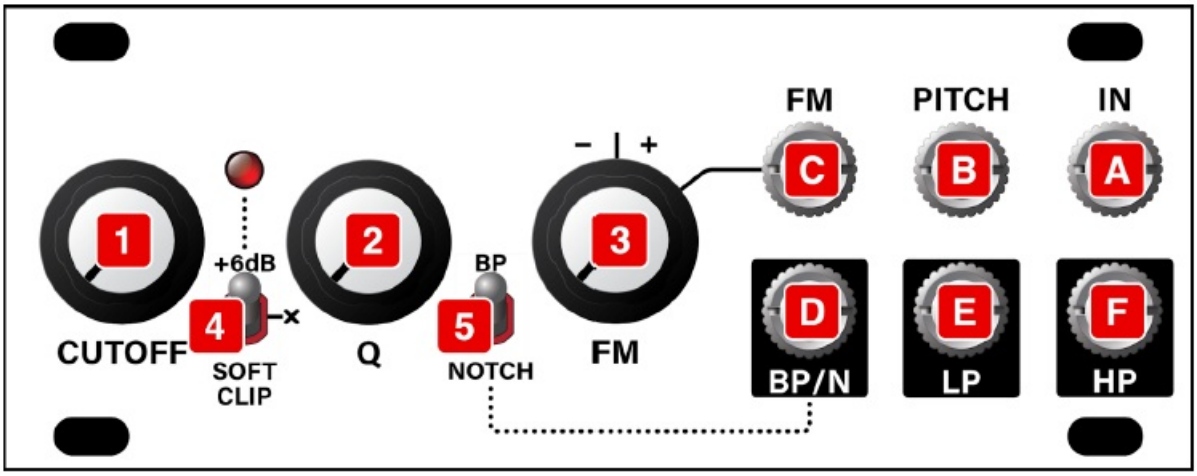


1. CUTOFF – Sets the cutoff frequency of the filter. The filter’s actual frequency is a combination of this setting plus any modulation applied to either the PITCH CV [B] or FM CV [C] i nputs.
2. Q – Sets the resonance of the filter. When fully clockwise, the filter will self-oscillate.
3. FM – Attenuverts the voltage patched into the FM CV [C] i nput. With the knob turned clockwise from noon, the filter’s CUTOFF [1] frequency increases as the FM CV [C] voltage increases. With the knob turned counterclockwise from noon, the filter’s CUTOFF [1] frequency decreases as the FM CV [C] voltage i ncreases. With the knob straight up (‘noon’ position), none of the FM CV [C] i nput modulates the CUTOFF [1] frequency.
4. CLIP switch – Selects whether the filter input is soft clipped or not and, if so, whether or not any gain is added to the input signal. Specifically: + 6dB : In the UP position, the input is soft clipped to a nominal level, and then boosted by 6dB, providing a hot signal to the filter. This is particularly useful for boosting low level input signals and/or giving them extra harmonic character for filtering.
    1. x : In the MIDDLE position, the input signal is passed straight through to the filter without any soft clipping or input gain.
    2. SOFT CLIP : In the DOWN position, the input is soft clipped to a nominal level, but no additional signal boost is added. This setting is good for taming hot signal sources. The effect can be fairly subtle unless the input is hotter than normal (i.e. it contains a mix of signals), or is lacking in harmonics, such as a sine or triangle wave.

The corresponding LED indicates the post CLIP switch signal level (i.e., the signal level going i nto the filter circuit). The brighter the LED, the hotter the signal.

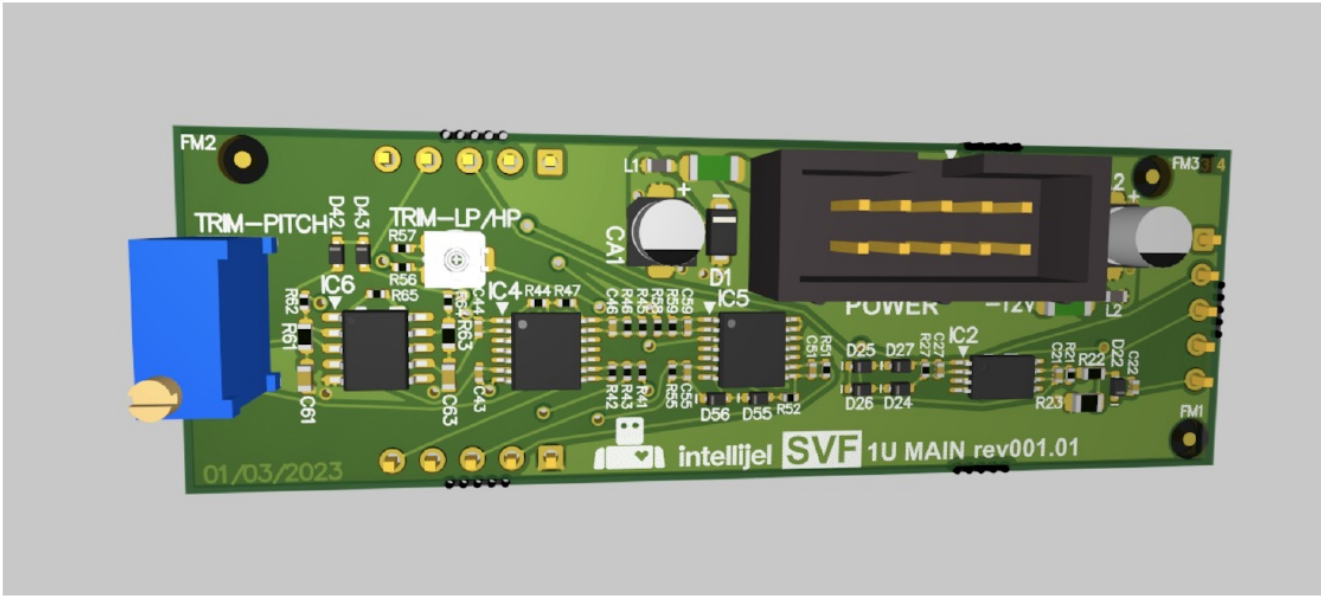
5. BP/NOTCH switch – Selects whether the BP/N [D] j ack outputs a bandpass (BP) filter or a NOTCH filter. **NOTE**: The LP/HP trimmer on the back panel adjusts the LP/HP balance of the notch — altering the volume, sonic character and resonance produced by a notch filter. See BACK PANEL for more information.

Jacks



- [A] IN – Input to the SVF 1U module.
- [B] PITCH CV In – CV input for controlling the cutoff frequency. This jack accepts 1 V/oct signals, and allows theCUTOFF [1] frequency to track a keyboard or sequencer input. This is particularly useful when Q [2] i s set to maximum (causing the filter to self-oscillate), since it enables the filter to be used as a sine wave oscillator, accurately tracking the pitch of the incoming CV.
- [C] FM CV In – CV input for controlling the cutoff frequency. The voltage arriving at this jack is attenuverted by the FM [3] knob, making it ideal for envelopes, LFOs and other modulation sources.
- [D] BP/N Out – Switchable 2-pole (12 dB/Oct) bandpass or notch filter output. The choice between BP and Notch i s made using the BP/NOTCH [5] switch.
- [E] LP Out – Dedicated 2-pole (12 dB / oct) low pass filter output.
- [F] HP Out – Dedicated 2-pole (12 dB / oct) high pass filter output.

BACK PANEL



There are two trim pots on the back panel:

1. PITCH – This trimmer IS NOT i ntended for customer use. It calibrates the filter's Volt/Oct tracking. Tracking is calibrated at the factory, so it should not be touched unless something has knocked it out of calibration, and you're comfortable adjusting it.
2. LP/HP – This trimmer IS i ntended for customer use. It adjusts the balance of the notch filter — that is, whether it's perfectly symmetrical (resulting in no resonance) or skewed toward the LP or HP side. In the middle (50%), the notch is perfectly symmetrical, but results in no resonance and a decreased output level. Turning the trimmer to either side will accentuate either the l owpass or highpass side of the notch, resulting in more volume and resonance. The trimmer is factory set to around 75% HP / 25% LP, providing a nice balance of symmetry, volume, and resonance — but if you'd like the notch to have a different sonic characteristic, you can find it via this trimmer.

TECHNICAL SPECIFICATIONS

Width	20 hp
Maximum Depth	35 mm
Current Draw	27 mA @ +12V 30 mA @ -12V

Documents / Resources

	intellijel SVF 1U Multimode State Variable Filter [pdf] User Manual SVF 1U, SVF 1U Multimode State Variable Filter, Multimode State Variable Filter, State Variable Filter, Variable Filter, Filter