# MIDI 1U System

## 1U USB/DIN MIDI-to-CV Interface System
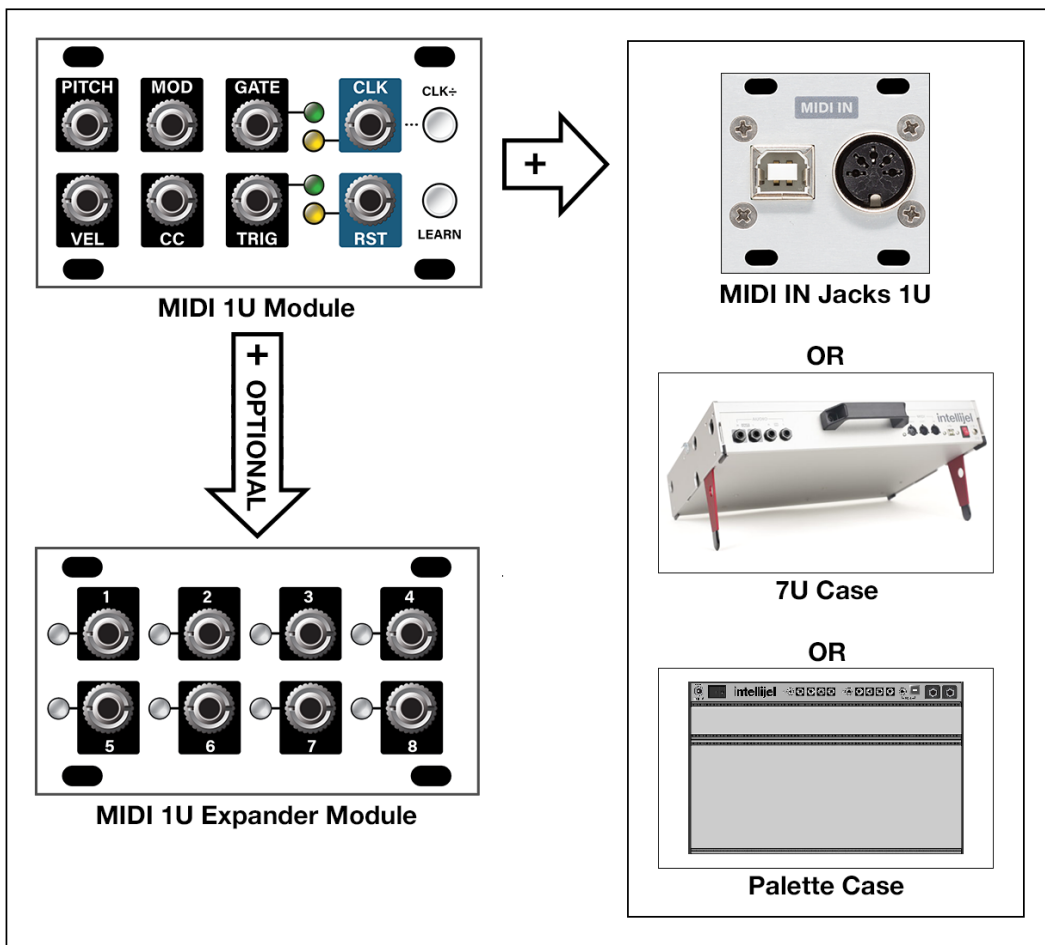


**MIDI 1U Module**

+ OPTIONAL

**MIDI 1U Expander Module**

**MIDI IN Jacks 1U**

OR

**7U Case**

OR

**Palette Case**

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# 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 interference, and (2) this device must accept any interference received, including 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 interference 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

# OVERVIEW

Intellijel's MIDI 1U system comprises several elements, which work together to provide flexible, programmable MIDI-to-CV conversion to your Eurorack modules: The system comprises two mandatory components, and one optional component:

- **MIDI 1U module** - This 14HP 1U module receives MIDI from an attached, external MIDI input connector (7U case, Palette case, or MIDI IN Jacks 1U module), and extracts (by default) Pitch, Velocity, Mod, CC, Gate, Trig, Clock and Reset messages — sending the proportional voltages to individual 3.5mm jacks for patching.

  If desired, the CC and MOD jacks may be configured to respond to either Channel Aftertouch or High Resolution CC, and the Reset jacks can be configured as a Run jack, instead.

  Additionally, MIDI 1U features an alternate Dual Mode, which maintains the Clock & Reset functionality, but uses the other six jacks to transmit Pitch, Velocity and Gate messages derived from two separate MIDI channels.

- **MIDI input connector** - the MIDI 1U module does not have its own MIDI input jack. This enables you to use the MIDI/USB inputs built-in to your Intellijel 7U Performance Case or Palette Case. If you don't own one of these cases, you can purchase the MIDI IN Jacks 1U module to connect an external MIDI device.

- **MIDI Expander 1U module** - This optional 14HP 1U module connects to the MIDI 1U module and adds an additional eight 3.5mm CV outputs. These outputs are fully programmable using the *Intellijel Config* app, and greatly expand MIDI 1U's ability to control your entire Eurorack system.

  *NOTE: This module is not yet available. Upon its release, this manual will be updated accordingly.*

The MIDI 1U system provides all the essentials to control and sync your Eurorack modular from your computer, mobile, or hardware MIDI device with a minimum of fuss. Several of the module's most important features can be changed using the two front panel buttons, with full configuration capabilities offered via the *Intellijel Config* app, which is available for both Mac and Windows. The connectivity, feature set, expandability, and compact size make the MIDI 1U system ideal for integrating your modular gear with the rest of your rig.

# INSTALLATION

The MIDI 1U system is designed specifically for use within an Intellijel-standard 1U row, such as contained within the Intellijel 4U, 7U, and Palette 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.
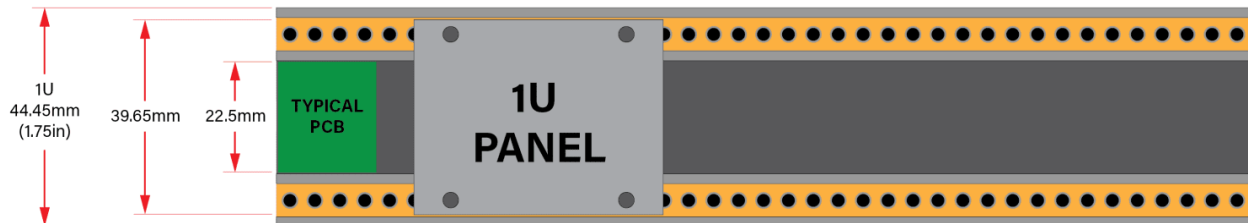


Power requirements for 1U conformorm to the Eurorack standard.

## 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 leave 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 Modules

When installing or removing a module from your case 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.

**IMPORTANT: The MIDI 1U Module has two different 10-pin connectors on its circuit board. One is for connecting to power, and the other is for connecting to the MIDI/USB jacks on your case or MIDI IN Jacks 1U module. Be sure, when connecting power, that you connect it to the one labelled POWER, as indicated in the illustration to the right.**



MIDI JACK/CASE CONNECTOR

POWER CONNECTOR

MIDI EXPANDER CONNECTOR
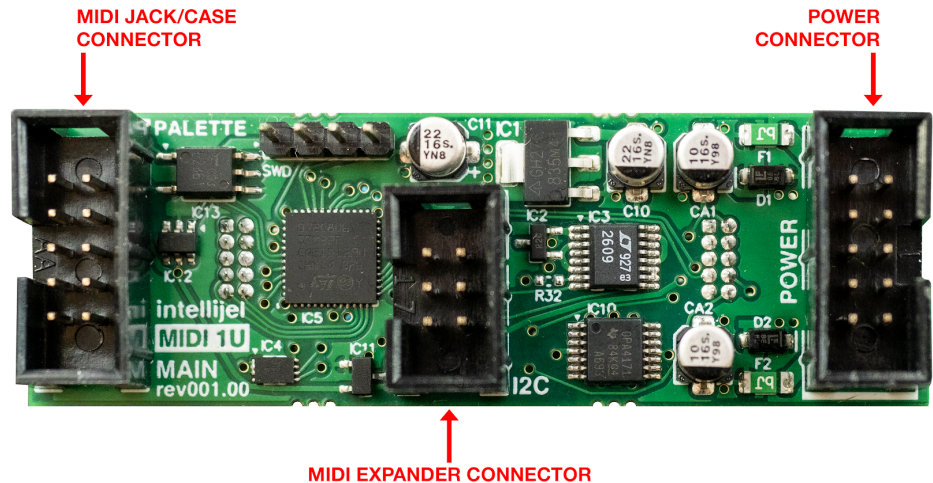
## Connecting Power to the MIDI 1U

To power the MIDI 1U module, use the included 10-pin to 16-pin cable. Plug the 10-pin end into the 10-pin connector labelled "POWER" on the MIDI 1U (as shown above). **DO NOT plug it into the other 10-pin connector.** The connector is shrouded, and can only be inserted in one direction (ensuring proper orientation if you use the supplied Intellijel power cable). If you're using a different power cable, make sure the red stripe (negative) is closest to the thick white line printed on the circuit board along one edge of the POWER connector.

Plug the other end of the cable (the end with the 16-pin connector) into 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 labelled with "-12V" and a thick white stripe. Sometimes the connectors are shrouded, ensuring the cable can be oriented in only one direction. If you are 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
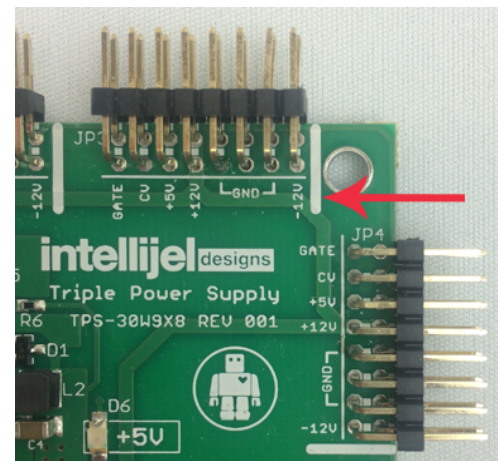
both ends and that all the pins are correctly aligned. If the pins are misaligned in any direction or the ribbon is backwards you can cause damage to your module, power supply, or other modules.

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 immediately and check your cabling for mistakes.

## Connecting the MIDI 1U to a MIDI IN Jacks 1U

You will need to connect the MIDI 1U to either a MIDI IN Jacks 1U module or to a case with built-in MIDI/USB jacks. This section discusses how to connect the MIDI 1U to the MIDI IN Jacks 1U module.

1. Turn off power to the case.

2. Connect the supplied 10-pin-to-16-pin power cable between the MIDI 1U and one of the Case's 16-pin power connectors (as discussed previously).

3. Connect one end of the supplied 10-pin to 10-pin ribbon cable to the shrouded 10-pin port on the MIDI 1U module. The connector is keyed, and will fit in only one direction.

4. Connect the other end of the cable to the MIDI IN Jacks module.

   Pay particular attention to the orientation (aligning the red wire with the white stripe on the circuit board).
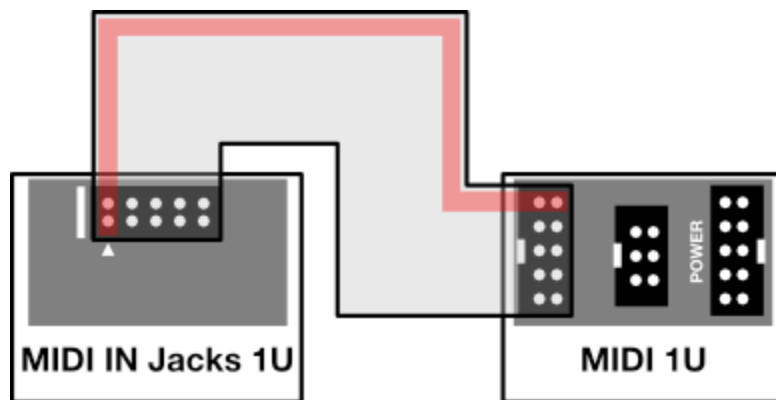
## Connecting the MIDI 1U to a 7U Case

You will need to connect the MIDI 1U to either a MIDI IN Jacks 1U module or to a case with built-in MIDI/USB jacks. This section shows how to connect the MIDI 1U to the MIDI/USB jacks on an Intellijel 7U case.

1.  Turn off power to the case.

2.  Connect the supplied 10-pin-to-16-pin power cable between the MIDI 1U and one of the Case's 16-pin power connectors (as discussed previously).

3.  Connect one end of the supplied 10-pin to 10-pin ribbon cable to the shrouded 10-pin port on the MIDI 1U module. The connector is keyed, and will fit in only one direction.

4.  Connect the other end of the cable to the MIDI Jacks circuit board on your 7U case.  On newer 7U cases, this connector is shrouded (ensuring the cable fits in only one orientation). On older cases, the connector is not shrouded, so pay particular attention to the orientation (aligning the red wire with the white stripe on the circuit board).



**MIDI 1U MODULE**

**MIDI/USB Connector**   **Power Connector**

**MIDI Jacks Board (mounted to case)**
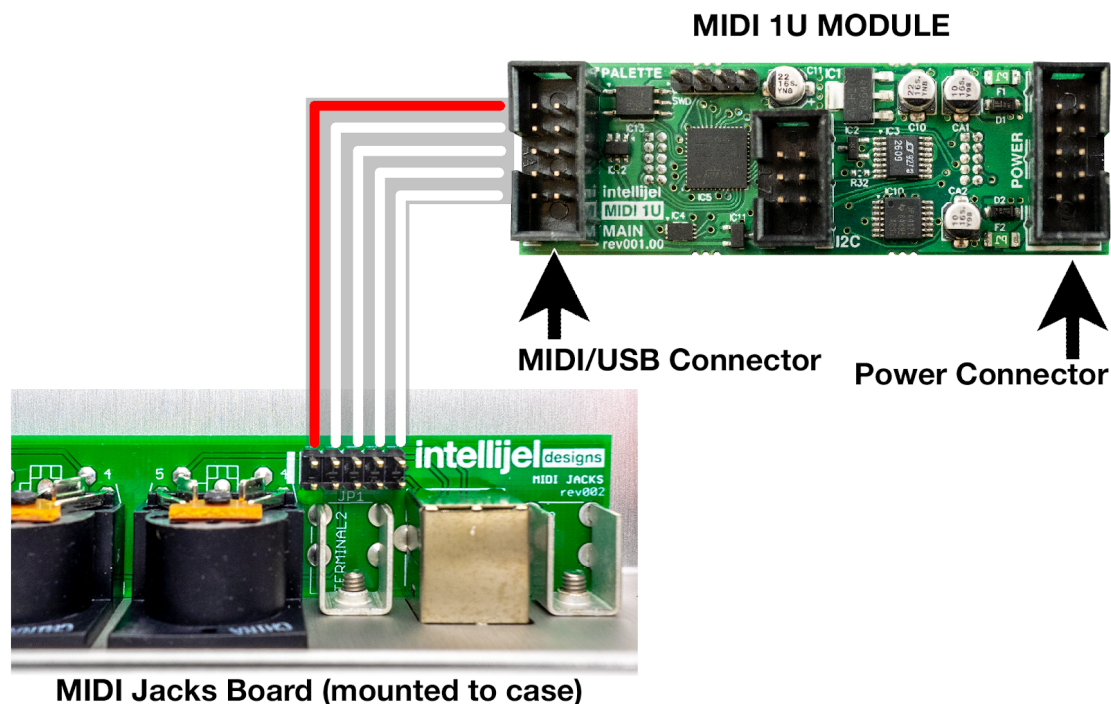
5.  Power on the 7U Case.

   The MIDI 1U module will now receive MIDI from the 7U case's MIDI IN jacks (both USB and 5-pin MIDI) and convert it to CV. In addition, the 7U case's MIDI OUT jack will function as a MIDI Thru — passing along any MIDI data received at its MIDI IN jack.

## Connecting the MIDI 1U to a Palette Case

You will need to connect the MIDI 1U to either a MIDI IN Jacks 1U module or to a case with built-in MIDI/USB jacks. This section discusses how to connect the MIDI 1U to the MIDI/USB jacks on an Intellijel Palette case.
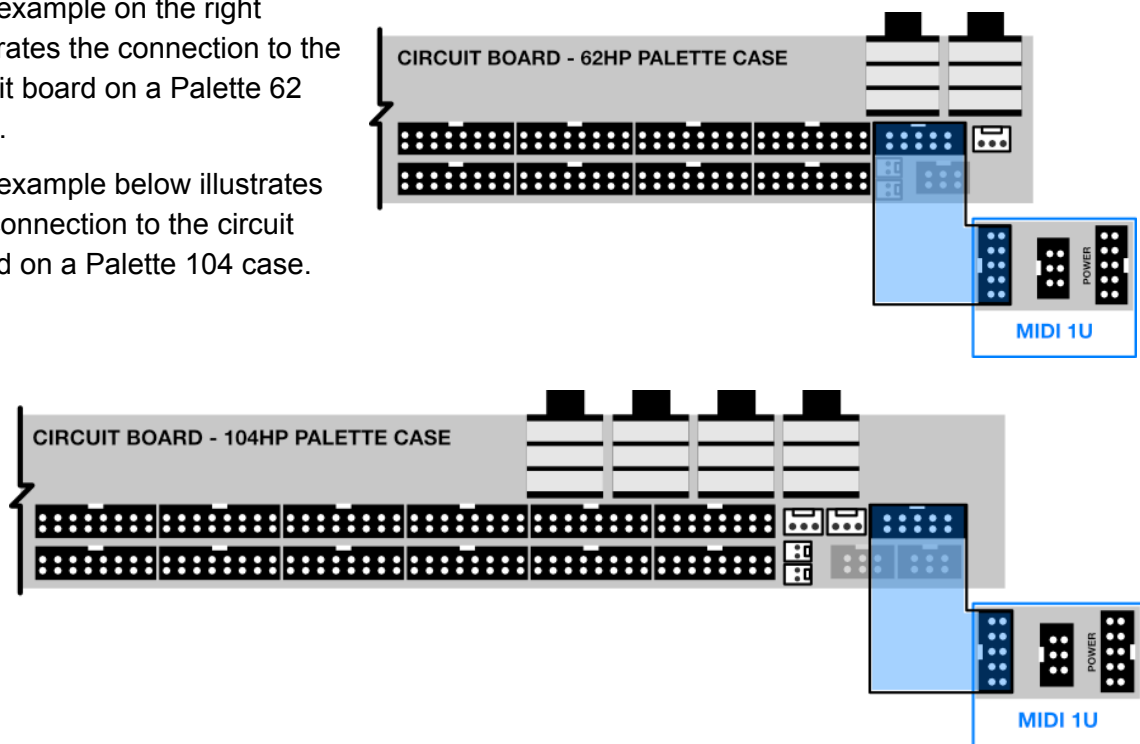
1. Turn off power to the Palette Case.

2. Connect the supplied 10-pin-to-16-pin power cable between the MIDI 1U and one your case's 16-pin power connectors (as discussed previously).

   *IMPORTANT: Be sure to plug power into the MIDI 1U's POWER connector, and not the other 10-pin connector, as illustrated earlier in Installing Your Modules.*

3. Connect one end of the supplied 10-pin to 10-pin ribbon cable to the shrouded 10-pin port on the MIDI 1U module. The connector is keyed, and will fit in only one direction.

4. Connect the other end of the supplied 10-pin-to-10-pin ribbon cable to the shrouded 10-pin port on the Palette Circuit Board. The connector is keyed, and will fit in only one direction.

   The example on the right illustrates the connection to the circuit board on a Palette 62 case.

   

   The example below illustrates the connection to the circuit board on a Palette 104 case.

   

5. Power on the Palette Case.

   The MIDI 1U module will now receive MIDI from the Palette's MIDI IN jacks (both USB and Type-A TRS-MIDI) and convert it to CV. In addition, the Palette's MIDI OUT jack will function as a MIDI Thru — passing along any MIDI data received at its MIDI IN jack.

## Connecting a MIDI Expander 1U

*NOTE: The MIDI Expander 1U Module is not yet available. Once it is, these instructions will be updated accordingly.*

If you use the optional MIDI Expander 1U module, you will need to connect it to both power and to the MIDI 1U module.

1.  Turn off power to your case.

2.  Connect the supplied 10-pin-to-16-pin power cable between the MIDI Expander 1U and one of your case' 16-pin power connectors (as discussed earlier in [Connecting Power to the MIDI 1U](#) ).

3.  Connect one end of the supplied 6-pin to 6-pin ribbon cable to the 6-pin connector on the MIDI 1U module. The connector is keyed, and will fit in only one direction.

4.  Connect the other end of the supplied 6-pin-to-6-pin ribbon cable to the 6-pin connector on the MIDI Expander 1U. The connector is keyed, and will fit in only one direction.

5.  Power on the Case.

# MIDI 1U FRONT PANEL

## Controls

**[1] CLK ÷** button - This button serves two functions.



### NORMAL OPERATION:

In normal operation (i.e., the **LEARN [2]** button is off/unlit), pressing **CLK ÷** sets the clock division of the incoming MIDI clock. Press the **CLK ÷** button repeatedly to cycle through the following divisions of 96:

- /1 (clock out = 24 ppq)
- /3 (clock out = 32nd notes)
- /6 (clock out = 16th notes)
- /12 (clock out = eighth notes)
- /24 (clock out = quarter notes)
- /48 (clock out = half notes)
- /96 (clock out = whole notes)
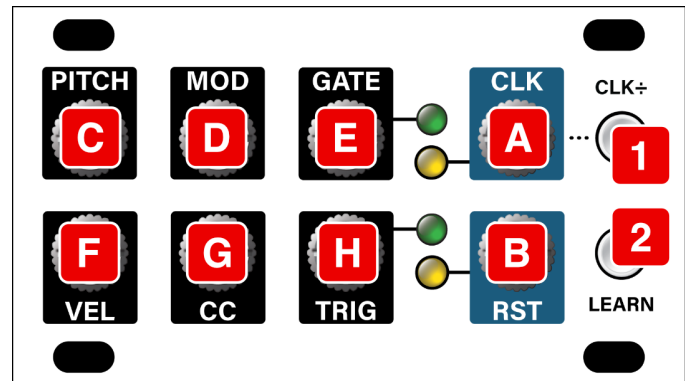
The CLK LED blinks in time with the clock division.

Alternatively, you can use the *Intellijel Config* app to set the desired Clock Division.

### LEARN OPERATION:

When the MIDI 1U is in either LEARN CC+CH mode (*solid blue* **LEARN** button) or in LEARN MOD+CH (*flashing blue* **LEARN** button), then the **CLK ÷** button lights either **solid green**, or it flashes **red**/**green**. Pressing the **CLK ÷** button toggles between the two, and is used to assign a polarity while learning the **CC [G]** or **MOD [D]** assignment.

**GREEN** : If the **CLK ÷** button is **solid green** when learning a **CC** or **MOD** assignment, then the CC or MOD voltage will be unipolar (i.e. CC Values of 0-127 = 0V - 5V).

**RED**/**GREEN** : If the **CLK ÷** button is flashing **red**/**green** when learning a **CC** or **MOD** assignment, then the CC or MOD voltage will be bipolar (i.e. CC Value of 64 = 0V; CC Value of 0 = -5V; CC Value of 127 = +5V).

Alternatively, you can use the *Intellijel Config* app to set the **CC** or **MOD** polarity.

*NOTE: MIDI 1U automatically saves any changes after 2 seconds of MIDI inactivity — ensuring it returns to exactly the same state after a power cycle, and that it does not interfere with time-sensitive operations (such as clock). The buttons flash green when MIDI 1U auto-saves its settings.*

**[2] LEARN** button - Use this button to learn which MIDI channel the MIDI 1U will respond to, as well as the MIDI CC numbers assigned to both the **CC [G]** and **MOD [D]** output jacks.

MIDI 1U automatically saves all learned settings (both buttons flash **green**) after 2 seconds of MIDI inactivity, ensuring it returns to exactly the same state after a power cycle.
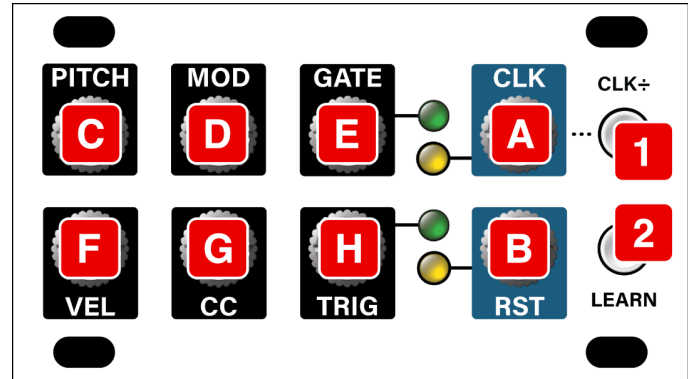
Pressing the button cycles through three states:

> **OFF** : When the LEARN button is off, MIDI 1U is in normal operation and works to convert incoming MIDI data into CV for your eurorack system.

> **SOLID BLUE** : Indicates the MIDI 1U is in LEARN CC+CH mode, meaning the module is awaiting a MIDI message, and that it will use the first message it receives to set both the module's MIDI Receive channel and **CC [G]** jack assignment. In addition, it will set the **CC** jack's polarity based on the status of the **CLK ÷** button, as discussed earlier.

> **FLASHING BLUE** : Indicates the MIDI 1U is in LEARN MOD+CH mode, meaning the module is awaiting a MIDI message, and that it will use the first message it receives to set both the module's MIDI Receive channel and **MOD [D]** jack assignment. In addition, it will set the **MOD** jack's polarity based on the status of the **CLK ÷** button, as discussed earlier.

For more information about using the **LEARN** button, see Configuring MIDI 1U Using the Front Panel, later in this manual.

Alternatively, you can set the MIDI channel, **MOD** and **CC** jack assignments using the *Intellijel Config* app, discussed later.

*DUAL MODE: MIDI 1U offers an alternate, dual channel mode that reconfigures the jacks for 2-channel operation. In this mode, you have independent MIDI control of the pitch, gate and velocity for two different MIDI channels. See Dual Mode for detailed information about enabling the mode, and using the LEARN button within it.*

## Outputs

**[A] CLK** out - Clock output, which transmits a divided MIDI clock pulse with a division set by the **CLK ± [1]** button. The corresponding LED blinks in time with the **CLK** out.

Alternatively, you can use the *Intellijel Config* app to set the desired Clock Division.

**[B] RST** out - Operates as either a RESET output or a RUN output, depending on how it's configured inthe *Intellijel Config* app.

If configured as a RESET output (the factory default), this jack transmits a trigger signal whenever a MIDI reset message is received. The corresponding LED lights whenever a RESET message is sent.

If configured as a RUN output, this jack transmits a run gate that stays high (5V) for as long as the external MIDI clock in is running. Stopping the external MIDI clock sets the gate low (0V). This is useful for starting/stopping any eurorack sequences in sync with an external MIDI sequencer. The corresponding LED lights whenever the RUN gate is high.
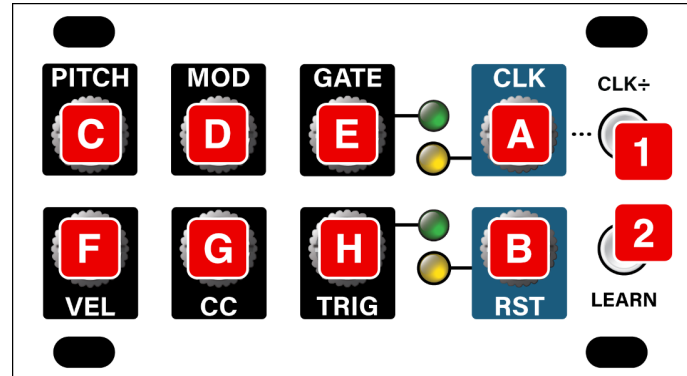
**[C] PITCH** out - 1V/oct CV output with a range of ±5V. The voltage output is determined by the pitch of the MIDI input's last played note and its pitch bend control. Use the *Intellijel Config* app to configure various pitch-related parameters, such as Pitch Bend Range, and Coarse Tuning.

MIDI note 0 (C-2) maps to -5V and note 120 (C8) maps to +5V.

**[D] MOD** out - CV output with a range of either 0-5V or ±5V (depending on the polarity assignment, as set either with **CLK ±** **[1]** button or the *Intellijel Config* app).

By default, this jack outputs a control voltage proportional to the Mod Wheel data (CC #1) transmitted by your MIDI controller. You can override this default using the **LEARN [2]** button, or you can redefine its purpose entirely using the *Intellijel Config* app.

In Dual Mode, this jack outputs CH B's PITCH signal.

**[E] GATE** out - Gate output, which is high (5V) for as long as a note is being held. The corresponding LED lights whenever the GATE out is high.

**[F] VEL** out - CV output with a range of 0 - 5V. The voltage is proportional to the velocity of the MIDI input's last played note.

**[G] CC** out - CV output with a range of either 0-5V or ±5V (depending on the polarity assignment, as set either with **CLK ±** **[1]** button or the *Intellijel Config* app).

By default, this outputs a control voltage proportional to the Breath Controller data (CC #2), transmitted by your MIDI controller. You can override this default using the **LEARN [2]** button, or you can redefine its purpose entirely using the *Intellijel Config* app.

In Dual Mode, this jack outputs CH B's VELOCITY signal.

**[H] TRIG** out - Trigger output, which transmits a trigger signal whenever a MIDI Note On message is received. By default, the Trigger length is 5ms, but you can override this using the *Intellijel Config* app. The corresponding LED lights whenever the TRIGGER out is high.

In Dual Mode, this jack outputs CH B's GATE signal.

# MIDI EXPANDER 1U FRONT PANEL

***This module is not yet available. The manual will be updated and completed when it is.***

The optional MIDI expander has eight user-assignable outputs. Using the *Intellijel Config* app, you can assign each of the eight jacks to generate just about any type of voltage that can be derived from a MIDI signal.
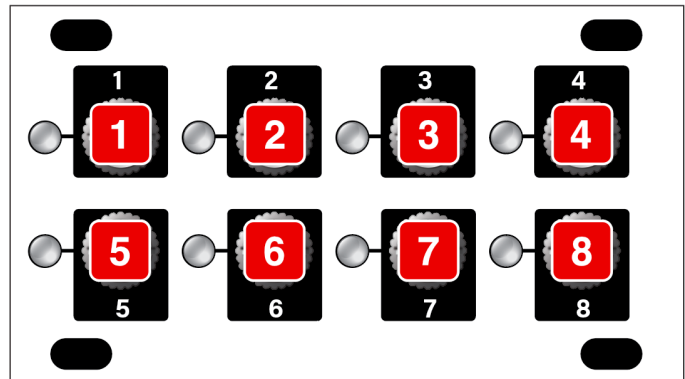
# CONFIGURING MIDI 1U USING THE FRONT PANEL

You can configure the MIDI 1U module using either its front panel or the *Intellijel Config* app (available for download from www.intellijel.com). This section discusses configuration via the front panel. Using the *Intellijel Config* app is discussed later in this manual.

Much of MIDI 1U can be configured via the **LEARN** and **CLK ÷** buttons on its front panel, as outlined here:

## Learn a MIDI Channel

You can set the MIDI 1U's MIDI receive channel using its **LEARN** button. Specifically:

1. If the **LEARN [2]** button is not lit, press it once to enter LEARN CC+CH mode.

   In LEARN CC+CH mode, the **LEARN** button lights solid **blue**, indicating the MIDI 1U is awaiting a MIDI message (and that it's also capable of learning the **CC** jack assignment).

   You can also learn a MIDI Channel if you press the **LEARN** button *twice*, which enters LEARN MOD+CH mode. In LEARN MOD+CH mode, the LEARN button *flashes* **blue**, indicating that MIDI 1U is awaiting a MIDI message (and that it's also capable of learning the **MOD** jack assignment).

2. Send any channel-based MIDI message into the MIDI 1U.

   MIDI 1U will automatically sets itself to the sent message's MIDI channel, and the **LEARN** button will extinguish.

   Additionally, MIDI 1U will automatically save all learned settings (both buttons flash **green**) after 2 seconds of MIDI inactivity, ensuring it returns to exactly the same state after a power cycle.

# Learn the CC Jack Assignment

You can assign a function to the MIDI 1U's **CC [G]** jack using the **LEARN** button. Specifically:

1.  If the **LEARN [2]** button is not lit, press it once to enter LEARN CC+CH mode.

    In LEARN CC+CH mode, the **LEARN** button lights solid **blue**, indicating the MIDI 1U is awaiting a MIDI message (and that it's capable of learning both the MIDI channel and the **CC** jack assignment).

    *NOTE: If you press the **LEARN** button twice, it will flash to indicate you're in LEARN MOD+CH mode, which learns the **MOD [D]** jack assignment, rather than the **CC** jack, as described later.*

2.  Press the **CLK ÷ [1]** button to toggle between having it light *solid green* or having it **flash** *red/green*.

    **GREEN** : If the **CLK ÷** button is **solid green** when learning the **CC** jack assignment, then the MOD voltage will be unipolar (i.e. CC Values of 0-127 = 0V - 5V).

    **RED/GREEN** : If the **CLK ÷** button is flashing **red/green** when learning the **CC** jack assignment, then the MOD voltage will be bipolar (i.e. CC Value of 64 = 0V; CC Value of 0 = -5V; CC Value of 127 = +5V).

3.  Send the MIDI 1U a MIDI message using the MIDI CC number that you want assigned to the MIDI 1U's **CC [G]** jack.

    MIDI 1U will automatically assign its **CC** jack to the CC# sent (also setting its MIDI channel to match); assign the desired polarity to that jack; and extinguish the **LEARN** button.

    For example, if you turn an Expression (CC 11) knob on a MIDI controller assigned to Channel 2, then MIDI 1U will automatically assign itself to respond to CH 2, and it will configure its **CC** out jack to transmit a control voltage based on Expression (CC 11) data from your MIDI source.

    Additionally, MIDI 1U will automatically save all learned settings after 2 seconds of MIDI activity (both buttons flash **green**), ensuring it returns to exactly the same state after a power cycle.

# Learn the MOD Jack Assignment

You can assign a function to the MIDI 1U's **MOD [D]** jack using the **LEARN** button. Specifically:

1.  If the **LEARN [2]** button is not lit, press it <u>twice</u> to enter LEARN CC+CH mode.

    In LEARN MOD+CH mode, the **LEARN** button *flashes blue*, indicating the MIDI 1U is awaiting a MIDI message (and that it's capable of learning both the MIDI channel and the **MOD** jack assignment).

    *NOTE: If you press the **LEARN** button only once, it will light solid blue to indicate you're in LEARN CC+CH mode, which learns the CC [G] jack assignment, rather than the MOD jack, as described previously*.

2.  Press the **CLK ÷ [1]** button to toggle between having it light *solid green* or having it **flash** *red*/*green*.

    **GREEN** : If the **CLK ÷** button is **solid green** when learning the **MOD** jack assignment, then the MOD voltage will be unipolar (i.e. CC Values of 0-127 = 0V - 5V).

    **RED**/**GREEN** : If the **CLK ÷** button is flashing **red**/**green** when learning the **MOD** jack assignment, then the MOD voltage will be bipolar (i.e. CC Value of 64 = 0V; CC Value of 0 = -5V; CC Value of 127 = +5V).

3.  Send the MIDI 1U a MIDI message using the MIDI CC number that you want assigned to the MIDI 1U's **MOD [D]** jack.

    MIDI 1U will automatically assign its **MOD** jack to the CC# sent (also setting its MIDI channel to match); assign the desired polarity to that jack, and extinguish the **LEARN** button.

    For example, if you turn a Portamento Time (CC 5) knob on a MIDI controller assigned to Channel 3, then MIDI 1U will automatically assign itself to respond to CH 3, and it will configure its **MOD** jack to transmit a control voltage based on Portamento Time (CC 5) data from your MIDI source.

    Additionally, MIDI 1U will automatically save all learned settings (both buttons flash **green**) after 2 seconds of MIDI activity, ensuring it returns to exactly the same state after a power cycle.

# Dual Mode

MIDI 1U offers an alternate, dual channel mode that reconfigures the jacks for 2-channel operation. In this mode, you have independent MIDI control of the pitch, gate and velocity for two different MIDI channels (repurposing the **MOD**, **CC** and **TRIG** jacks for **PITCH**, **VEL** and **GATE** jacks, respectively, for CH B). Also, you will need to configure any desired **CLK** division before entering Dual Mode.

**To enter Dual Mode:**

1. Long press (>1.5 sec) the **LEARN** button.

   MIDI 1U reconfigures as a dual channel device, and the jacks take on the functions indicated in the graphic to the right.

   Both the **CLK ÷** and **LEARN** buttons glow **yellow**, indicating the device is in Dual Mode.

**To Learn MIDI Channels:**

1. Press the **LEARN** button to prepare for learning CH A.

   The **LEARN** button will turn **red**, and the **CLK ÷** button will extinguish.

2. Send any channel-based MIDI message into the MIDI 1U.

   CH A automatically sets itself to the sent message's MIDI channel.

   *NOTE: By default, CH A is set to the same MIDI channel used by Normal Mode. So, if you're happy with that selection, you don't need to learn CH A's channel, and can proceed to learning CH B, as described below.*

3. Press the **LEARN** button again to prepare for learning the CH B.

   The **LEARN** button will **flash red**, and the **CLK ÷** button will remain off.

4. Send any channel-based MIDI message into the MIDI 1U.

   CH B automatically sets itself to the sent message's MIDI channel, and the **LEARN** button will stop flashing, and the unit will return to Dual Mode (both buttons lit **yellow**).

   NOTE: MIDI 1U will automatically save any new configuration after 2 seconds of MIDI activity (both buttons flash **green**), ensuring it returns to exactly the same state after a power cycle.
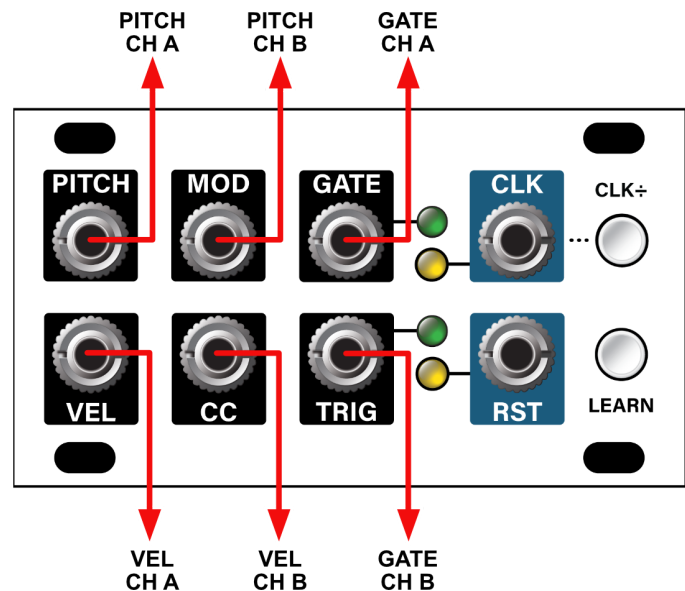
**To exit Dual Mode:**

1. If MIDI 1U is currently in Dual Mode (both button LEDs lit **yellow**), long press (>1.5 sec) the **LEARN** button to revert to Normal Mode.

   MIDI 1U reconfigures back to a single channel device, and restores the **MOD**, **CC** and **TRIG** settings to their previously programmed conditions.

   *NOTE: By default, Normal Mode uses the same MIDI channel as CH A. So, if you changed CH A's setting in Dual Mode, that will be the new MIDI channel assignment in Normal Mode.*

# INTELLIJEL CONFIG APP

You can customize various aspects of the MIDI 1U module using the *Intellijel Config* app (available for both Mac and Windows), which is available to download from the www.intellijel.com website.
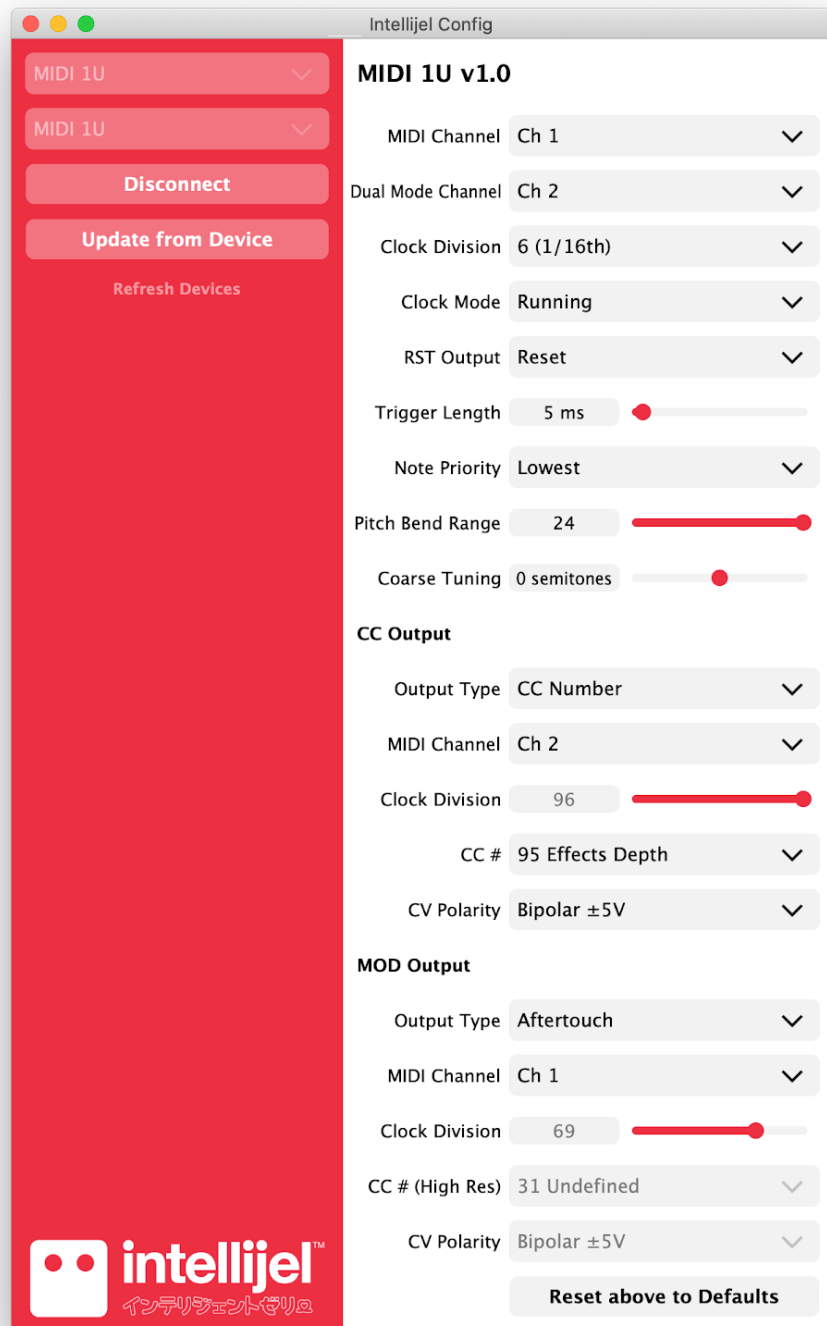
# Configuring the MIDI 1U Module

This section describes how to use the *Intellijel Config* app to configure the MIDI 1U module.

*NOTE: MIDI 1U automatically saves any changes made via the Inteillijel Config app after 2 seconds — ensuring it returns to exactly the same state after a power cycle. The buttons flash* **green** *when MIDI 1U auto-saves its settings.*

## Device Selection Column

The left column is used to select and connect to the desired MIDI device. At the top the name of the connected device and its current firmware version is displayed. Below that are several user-configurable parameters:

| | |
|---|---|
| **MIDI Input** | Select the MIDI Device you want to configure from the drop down MIDI Input list. |
| **MIDI Output** | Select the MIDI Device you want to configure from the drop down MIDI Output list. |
| **Connect Button** | Click to connect to the device selected in the Device Selector menu. Once connected, the button becomes a **Disconnect** button. |
| **Update from Device** | Click to query the device. This is handy if, for example, you use the MIDI 1U's **LEARN** button to configure it while connected to the Intellijel Config app. The Update from Device button repopulates the Config app with the latest settings from the device. |

# MIDI 1U Config Column

The right column is used to configure the various parameters of the MIDI 1U you selected in the left column's MIDI Input and MIDI Output menus. At the top of the menu is the name of the selected device and its current firmware version. Beneath are all the available parameter:

| | | |
|---|---|---|
| **MIDI Channe**l | (1 - 16) | Selects the MIDI channel to which the module responds in Normal (single channel) mode. If MIDI 1U is in <u>Dual Mode</u>, this sets the MIDI channel for CH A. |
| **Dual Mode Channel** | (1-16) | This sets the MIDI channel for CH B. Note that the MIDI 1U must be in <u>Dual Mode</u> in order for this to have an effect. |
| **Clock Division** | | Selects a clock division to apply to the incoming MIDI clock. The divided clock is sent out the **CLK [A]** output. |
| | /1 | clock out = 24 ppq |
| | /3 | clock out = 1/32 notes |
| | /6 | clock out = 1/16 notes |
| | /12 | clock out = 1/8 notes |
| | /24 | clock out = 1/4 notes |
| | /48 | clock out = 1/2 notes |
| | /96 | clock out = whole notes |
| **Clock Mode** | Always | The **CLK [A]** output *always* transmits a clock, even if the incoming MIDI clock is stopped. In this case, it continues to transmit clock using the most recently received clock rate. |
| | Running | The **CLK [A]** output transmits a clock signal only when a MIDI clock is being received (i.e., is *'running'*). |
| **RST Output** | Reset | The **RST [B]** jack transmits a trigger signal whenever a MIDI RESET message is received. This is the factory default. |
| | Run | The **RST [B]** jack transmits a run gate that stays high (5V) for as long as the external MIDI clock is running. Stopping the external MIDI clock sets the gate low (0V). This is useful for starting/stopping any eurorack sequences in sync with an external MIDI sequencer. |
| **Trigger Length** | (1 - 100ms) | Sets the amount of time that the trigger signal (sent from the **TRIG [H]** jack) stays 'high.' The factory default is 5ms. |
| | | *NOTE: This setting applies only to Normal Mode, since the **TRIG** jack is used for CH B's GATE output in <u>Dual Mode</u>).* |

| | | |
|---|---|---|
| **Note Priority** | | Mono synths can play only one note at a time, so if you play more than one note simultaneously (which is quite common when playing legato), the Note Priority selection determines which note is actually heard. |
| | Last | The most recently played (last) note will always override the currently playing note, and is always the note you will hear. |
| | Highest | The highest note currently being held is the note you will hear. Any note you play that is lower will be ignored. Any note you play that is higher will override the previous note. |
| | Lowest | The lowest note currently being held is the note you will hear. Any note you play that is higher will be ignored. Any note you play that is lower will override the previous note. |
| **Pitch Bend Range** | (1 - 24) | Sets the range (in semitones) over which incoming MIDI Pitch Bend messages will bend the **PITCH** output voltage. |
| **Coarse Tuning** | (±24) | Changes overall coarse tuning (in semitones) of the MIDI 1U. This is particularly useful for shifting octaves, and placing 0V at the desired octave (i.e. C0, C1, etc). |

**CC Output Settings:**

Use these settings to configure the source and type of signal sent from the **CC [G]** jack (applies only to Normal Mode, since the **CC** jack is used for CH B's VELOCITY output in Dual Mode).

| | | |
|---|---|---|
| **Output Type** | | Selects the type of voltage sent out the device's **CC [G]** jack. By default, this is a CC Number (the value of which is selected from the **CC Number** menu), however other assignments are possible. Specifically: |
| | CC Number | The device responds to MIDI CC messages on the CC# selected from the **CC Number** menu, and converts them to control voltages, which are sent out the **CC [G]** jack. |
| | CC Num (Hi Res) | The device responds to CC (High Resolution) messages, allowing fine-control of voltages from any external DAW or MIDI Device that's capable of transmitting 14-bit MIDI CC data. |
| | | *NOTE: Ableton Live users who wish to take advantage of MIDI 1U's 14-bit control capabilities can download Intellijel's free "High-Res CC" Max for Live plugin from the Intellijel website.* |
| | Aftertouch | The jack outputs a voltage derived from Channel Aftertouch. |

| | | |
|---|---|---|
| **CC Number** | (0 - 95) | Selects which MIDI CC# is the source of the control voltage sent out the device's **CC [G]** jack. For example, if you select `5 Portamento Time`, then the **CC [G]** out jack will transmit a control voltage based on CC #5 data from your MIDI source. CC #2 (Breath Controller) is the factory default. |
| | | *NOTE: Not every value between 0 and 95 is available. Those that aren't are greyed out. Note also, that if the **Output Type = CC Number (High Resolution)**, then fewer CC sources are available than if **Output Type = CC Number**.* |
| **CV Polarity** | Unipolar | The **CC [G]** jack outputs a unipolar signal ranging from 0V to +5V. MIDI 1U interprets the incoming MIDI CC data as a unipolar signal, meaning a CC value of 0 maps to 0V and a CC value of 127 maps to +5V.  This is the factory default. |
| | Bipolar | The **CC [G]** jack outputs a bipolar signal ranging from -5V to +5V. MIDI 1U interprets the incoming MIDI CC data as a bipolar signal, meaning a CC value of 64 maps to 0V. Values less than 64 map to negative voltages (with a CC value of 0 generating -5V). Values greater than 64 map to positive voltages (with a CC value of 127 generating +5V). |

**MOD Output Settings:**

Use these settings to configure the source and type of signal sent from the **MOD [D]** jack (applies only to Normal Mode, since the **MOD** jack is used for CH B's PITCH output in Dual Mode).

The **MOD Output** parameters are identical to those described for the **CC Output**, above.

**Reset above to Defaults**:

Click this button to reset the MIDI 1U to its factory default settings.

# Configuring the MIDI Expander 1U Module

***The MIDI Expander 1U is not yet available. This manual will be updated when it is.***

Once available, this section will describe how to use the *Intellijel Config* app to customize the jack assignments on a MIDI Expander 1U module.

# SYSTEM RESET

You can restore MIDI 1U to its factory default configuration using either the *Intellijel Config* app or the hardware itself.

**To Reset using the Device:**

1. Power up with Clock Div held down test mode to reset defaults

   The **CLK ±** and **LEARN** buttons will alternately flash pink and teal.

2. Long-press (>1 sec) the **CLK ±** button.

   The **CLK ±** and **LEARN** buttons will briefly flash red, then return to alternately flashing pink and teal.

3. Long-press (>1 sec) the **LEARN** button to return MIDI 1U to normal operation.

**To Reset using the *Intellijel Config* app:**

1. Launch the *Intellijel Config* app on your Mac or Windows computer

2. In the left column, select the desired MIDI 1U device from both the **MIDI Input** and **MIDI Output** drop-down menus.

3. Click **Connect**.

4. At the bottom of the right column, click the **Reset above to Defaults** button.

   Your MIDI 1U is now restored to its factory defaults.

# FIRMWARE UPDATES

Firmware updates, if available, are contained within the latest **Intellijel Firmware Updater** application, which you can download from the product's page on the Intellijel.com website. The application is available in both Macintosh and Windows formats, and will install firmware into your module over USB. Use the drop-down lists at the top of the application to select the product you wish to update, and the firmware version you want to install. Click the **Instructions** button to read specific instructions for updating your module.

If you wish to see what firmware versions are currently installed in your MIDI 1U and MIDI EXPANDER 1U modules, you will need to download and install the Intellijel Config app, which will display the modules' current firmware versions.

**1.0.0.1 (Oct 06, 2020)**

Initial Release

# TECHNICAL SPECIFICATIONS

## MIDI 1U

| Width | 14 hp |
|---|---|
| Maximum Depth | 33 mm |
| Current Draw | 34 mA @ +12V<br>2 mA @ -12V |

## MIDI Expander 1U

| Width | 14 hp |
|---|---|
| Maximum Depth | TBD mm |
| Current Draw | TBD mA @ +12V<br>TBD mA @ -12V |

## MIDI IN Jacks 1U

| Width | 8 hp |
|---|---|
| Maximum Depth | 30 mm |
| Current Draw | None - Passive module |