

OWNER'S MANUAL

Congratulations on purchasing **TEMPODE™** by *Molten Voltage*

TEMPODE is a programmable *MIDI Clock Injector* that adds MIDI Clock to an existing stream of MIDI data, or works as a stand-alone device.

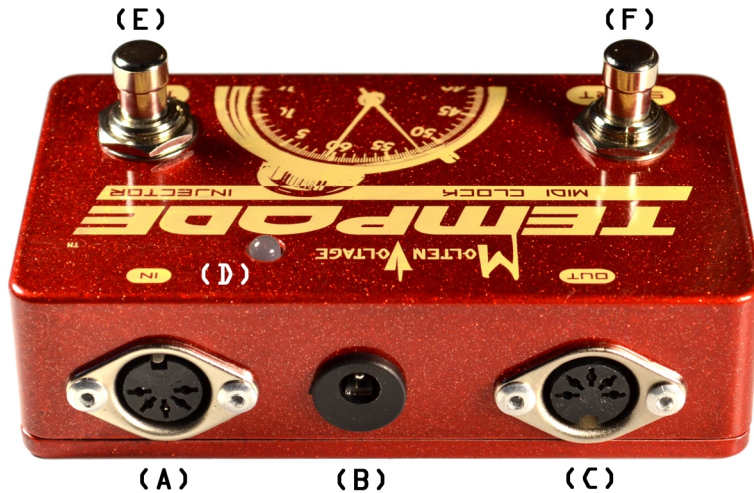
Key Features

- Stand-alone or Inline PedalBoard MIDI Clock generator
- Precision Tap Tempo control
- Stores and recalls tempo for 128 programs
- Simple to program - hold down a button!
- Start/Stop and Tempo can be remotely controlled with MIDI Control Change messages
- Optional MIDI Clock Auto-Start on Program Change
- MIDI Input Filter and Repeater
- Commands other compatible Molten Voltage devices to self-program
- Solid, Professional-Grade construction, including Riveted Steel MIDI Jacks
- Bright, 2-color LED makes it easy to see pedal status at a glance
- Simple, intuitive user interface
- Robust, 128 program storage
- **Compatible with all major MIDI controllers**, including Voodoo Lab Ground Control, Rocktron MIDI Raider, Behringer FCB1010, and many others



CONNECTING

Plug in a separate or isolated 9 volt, 2.1mm, 100mA minimum, **tip negative** DC Power supply into the DC9V jack (B). **Never power TEMPODE using a "daisy chained" power supply that is also connected to audio effects.**



- (A) MIDI IN Jack
- (B) DC Power Jack
- (C) MIDI OUT Jack
- (D) LED Indicator
- (E) Tap Tempo Button
- (F) Start/Stop Button

MIDI OUT

Connect TEMPODE to your MIDI device that will receive MIDI Clock by plugging a standard 5-pin DIN MIDI cable into the MIDI OUT jack (C).

For best results, keep the MIDI output cable length under fifteen (15) feet. If you need more distance, use a MIDI repeater such as MIDI SPLITTY



MIDI Filtering

MIDI Song Select, Program Change, Control Change and Note On data (on any channel) that is received at the MIDI IN jack is repeated at the MIDI OUT jack. All other MIDI data is filtered out.

Note: Units manufactured before October 1, 2014 also filter Note On data.

TEMPODE injects MIDI Clock Data as well as MIDI Start and Stop messages into the filtered data stream.

START/STOP Button

The START/STOP Button (F) is used to start and stop the MIDI Clock data output.

If MIDI Clock is stopped, pressing the START/STOP Button will cause a MIDI Start command to be sent, followed by a constant stream of MIDI Clock data. The Tempo will be reset and synchronized each time the clock is started.

Note: MIDI Start, Stop, and Clock are not channel-specific

If MIDI Clock is running, pressing the START/STOP Button will cause a MIDI Stop command to be sent.

Note: If the tempo has been altered but not saved, stopping then re-starting the same Program does not recall the stored tempo, instead the altered tempo will continue to be used rather than the stored tempo.

*If a different Program is used, and later the previous Program is recalled, the previous Program will recall its stored tempo rather than the altered tempo. **In order to keep an altered tempo, the Program must be saved**, as described below.*

TEMPO LED

TEMPODE uses a two-color Red/Yellow LED (D) to indicate clock status and tempo.

The TEMPO LED always flashes in time with the current tempo at quarter-note intervals. The tempo corresponds to the standard quarter note interval of 24 MIDI Clocks.

When MIDI Clock is being sent, the LED flashes Red. When the clock is stopped, the LED flashes Yellow.

During Tap and Programming modes, the LED flashes as discussed below.

TAP TEMPO Button

The TAP TEMPO Button (E) performs two separate functions, Tempo Control and Program Storage.

Tempo Control

Tempo can be continually adjusted *on-the-fly* with the TAP TEMPO Button, whether or not MIDI Clock is being sent.

Pressing the TAP TEMPO Button two or more times adjusts the tempo to the interval between the last two taps. The new tempo starts right after the second or most recent tap. The time between the last two taps *always* corresponds to the length of a quarter note

Maximum tap interval = 2.5 seconds (24 bpm)

Minimum tap interval = 0.25 seconds (240 bpm)

While MIDI Clock is being sent, the LED flashes red, off. Upon the first tap, and during Tap Mode, the LED will flash red, yellow.

While MIDI Clock is stopped, the LED flashes yellow, off. Upon the first tap, and during Tap Mode, the LED will flash yellow, red.

When Tap Mode ends (2.5 seconds after the last tap), the LED will resume its normal operation.

Note: Tempo changes affect only the current Program and are not stored unless the Program is saved, as described in the next section.

Program Storage

TEMPODE stores the tempo associated with each of the 128 programs.

Holding down the first press of the TAP TEMPO Button for more than 2.5 seconds causes TEMPODE to save the current tempo at the selected Program location.

Once the TAP TEMPO Button has been held long enough, the LED turns solid yellow. Release the button to store the program. TEMPODE will then quickly flash red, off, yellow, off, 8x to let you know the program was successfully stored.

At the time the tempo is stored, TEMPODE simultaneously sends a command to all compatible Molten Voltage devices connected to the MIDI OUT, causing them to self-program and store their settings for the selected Program.

Note: If you tap in a new tempo, you need to wait until you are done tapping and Tap Mode ends (about 2.5 seconds after the last tap) before you can store the new tempo.

A new tempo received via a MIDI Control Change message (described below) can be stored immediately.

Note: MIDI Clock output will stop while Molten Voltage self-program data is sent, and incoming data might be missed. As such, it will usually be necessary to restart drum machines, sequencers, etc. after storing a tempo.

MIDI IN

A master MIDI device which sends Program and/or Control Change messages to TEMPODE can be connected by plugging a standard 5-pin DIN MIDI cable into the MIDI IN jack (A).

Note: TEMPODE responds to discrete Program and Control Change messages, as well as those sent using the "running status" data format.

Program Change Messages

TEMPODE stores the MIDI Clock tempo for 128 Programs. Programs are recalled when a MIDI Program Change message is received on the same MIDI Channel as TEMPODE (1, 15, or both). Channel 15 is the default and primary Molten Voltage channel. *See below for information on Selecting MIDI Channel.*

Note: TEMPODE will ignore Program Changes messages that are not on its same channel.

Upon receipt of a Program Change message the Tempo associated with that Program is recalled. If MIDI Clock is being sent, any new clock speed is used immediately.

Selecting MIDI Channel

TEMPODE offers 6 options for receiving Program Change messages:

MIDI Channel	Auto-start	LED Pattern
Channel 1 only	No	Yellow LED blinking one at a time
Channel 1 only	Yes	Yellow LED blinking two at a time
Channel 15 only	No	Red LED blinking one at a time
Channel 15 only (DEFAULT)	Yes	Red LED blinking two at a time
Channel 1 auto, Channel 15 manual	Yes, No	2 Yellow, 1 Red
Channel 1 manual, Channel 15 auto	No, Yes	2 Red, 1 Yellow

Hold down the START STOP button when powering on to enter MIDI channel select mode. The LED will be off until you release the button. Release the button and the LED will flash in one of six patterns described in the table, *above*.

Press the TAP TEMPO button to cycle through the 6 options. Once you have selected your option, press and release the START STOP again to exit MIDI Channel select mode and store the new setting.

MIDI Clock Auto-Start

If TEMPODE is set for auto-start (*as described above*), receipt of a MIDI Program Change message causes TEMPODE to start sending MIDI Clock, if it was not already doing so. *This is true even the current program number was received again.*

Note: Program Change messages never stop a running clock, they only start it.

If auto-start is not selected, MIDI Program Change messages only load the new tempo. If the clock is not already running, it will not be started. In this situation, it is necessary to manually start the clock using the START STOP Button or via a Control Change message, as described below.

MIDI Filtering

MIDI Song Select, Program Change, Control Change and Note On and Note Off data (on any channel) that is received at the MIDI IN jack is repeated at the MIDI OUT jack. All other MIDI data is filtered out.

Note: Units manufactured before October 1, 2014 also filter Note On data, units manufactured before December 10, 2014 also filter Note Off data. Contact us with any questions.

Control Change Messages

TEMPODE will *only* respond to MIDI Control Change messages on Channels 1 or 15 (default). See *above* for information on *Selecting MIDI Channel*.

Function	Control Change	Values
Start/Stop MIDI Clock	83	64-127 = Start, 0-63 = Stop
Tempo (full range)	11	0-108* Tempo = 24 + (value * 2) (24-240 bpm in even increments)
Tempo (half-range)	82	0-108* Low Range Tempo = 24 + value (24-132 bpm) High Range Tempo = 132 + value (132-240 bpm)
High/Low range for half-range tempo**	81	Low = 0-63, High = 64-127
Tap (units manufactured after March 3, 2015)	80	Any Value.

* Values above these limits will be converted to the limit

** Low Range is the default at startup

Control Change tempo values will override the stored or tapped value (or any current value).

Note: Control Change tempo values will not be stored unless the program is stored, as described above.

Tapping a tempo or receiving a Program Change message will override any Control Change tempo value.

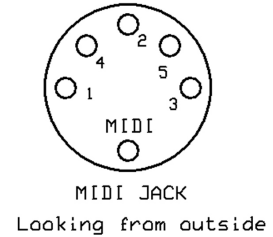
Changing the High/Low Range value will alter the tempo *only* if the last tempo value was a CC82 Tempo (half range) value. If the last value was not, or if the tempo was set via tap or program recall, the range will still be switched, but will not have an effect until a CC82 Tempo (half range) value is received.

MIDI Phantom Power

TEMPODE is designed to receive MIDI Phantom Power at the MIDI IN Jack in the standard MIDI Phantom Power format of **Pin 1 = Ground** and **Pin 3 = 9-15 volts DC**. **Power in any other format will not work and may damage TEMPODE.**

If the DC Power Jack is used, that connection will override the MIDI Phantom Power connection.

Note: Phantom Power is NOT passed through to the MIDI OUT Jack.



Factory Preset Values

120 bpm

MIDI Channel 15 with auto-start.

Related Products

- MIDI SPLITTY - Pedalboard MIDI Splitter/Repeater
- CTL-Sync - Classic Effect Synchronizer
- CV-Sync - Control Voltage Synchronizer
- SIXY - Line 6 Tempo Synchronizer
- MIDI Delaytion - MXR Carbon Copy Controller

Many more available soon!

MIDI IMPLEMENTATION CHART

Function	Filtered	Generated	Recognized	Comment
Note On	X	X	X	Note: Units manufactured before October 1, 2014 filter Note On data.
Note Off	O	X	X	Note: Units manufactured before December 10, 2014 filter Note Off data.
Aftertouch	O	X	X	
Control Change	X	X	O	Only Control Changes 11, 81, 82, and 83 recognized. CC80 as tap for units after March 3, 2015.
Program Change	X	X	O	Only Program Changes on Channels 1, 15, or both (depending on selection) recognized.
Channel Pressure	O	X	X	
Pitch Bend	O	X	X	
System Common	All except Song Select (F3)	X	X	
System Exclusive	O	O	X	Molten Voltage self-program Sysex instruction sent during program save.
System Realtime	O	O	X	Only MIDI Start, Stop, and Clock generated.

O = YES, X = NO

TROUBLESHOOTING

Problem	Solution
TEMPODE will not turn on.	Plug in 9 volt DC, 2,1mm Tip <u>Negative</u> Power Supply.
Clicking or Noise	Use a <i>separate or isolated</i> Power Supply for TEMPODE
MIDI device is not receiving MIDI Clock	Make sure your other MIDI device is configured to receive MIDI Clock. Consult the User's Guide for that device.
TEMPODE not receiving MIDI Program Change messages	Set your MIDI device to send MIDI Program Change messages on the same MIDI Channel as TEMPODE. (see <i>above</i> regarding Selecting MIDI Channel).
MIDI Clock stops	Check Power Supply connection. Replace MIDI cable with one under 15 feet.

General Guidelines

- Keep MIDI cables as short as possible. Long cables cause errors. If you need more length, consider using a MIDI repeater.
- If you are daisy chaining MIDI devices, the total MIDI cable length must be considered if any MIDI devices do not amplify the data signal.

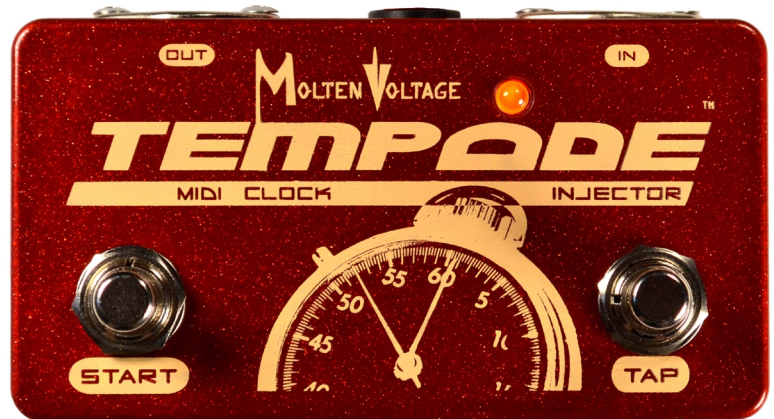
Support

questions@MoltenVoltage.com

Warranty

Molten Voltage is proud of its products and warrants this unit for a period of two (2) years from the date of purchase to be free from defects in materials and workmanship under normal use and service, as long as the unit is used with an approved power supply, and consistent with these instructions.

Contact Service@MoltenVoltage.com regarding repairs. Any user repair attempts void the warranty. **PROOF OF PURCHASE IS REQUIRED FOR WARRANTY REPAIRS.**



Molten Voltage MIDI PedalBoard Devices

Sturdy
Scalable
Simple™

streamline your sound™

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