

# T.WI

## user guide

### The connection

T.WI is connected and powered using a micro USB to USB-A cable (the kind of cable used to charge and connect to most smartphones that are not from the fruit company). Connected to a computer or an iPad (through the Camera connection kit or an OTG adapter), it will show up in your softsynth, DAW or other software capable of receiving MIDI as "Teensy MIDI". With the addition of a MIDI USB host adapter (not included), it can also be connected to hardware synthesizers using DIN MIDI.

### The signal

In its default setup, the T.WI transmits on MIDI channel 1, sending note on/off with a velocity based on initial breath reading, continuous breath data sent as MIDI CC#2 (breath), pitch bend limited to  $\frac{1}{2}$  of full value (suitable for patches with 2 semitones PB range), modulation and glide/portamento (limited to a CC level of 30 and including switching on/off).

This setup will work great with the [Patchman Music wind controller soundbanks](#) that are the reference standard for how wind controller patches should be. If you are making your own patches, follow the guidelines in the Patchman Music [Wind Controller FAQ](#). In cases where your synthesizer will not recognize CC#2, the T.WI can be configured to send a selection of other CC# and/or aftertouch (channel pressure) for the continuous breath data.

### The controls

Unlike the Akai EWI or Casio DH, the T.WI is using a closed air path. This is the way the EWI/EVI inventor Nyle Steiner still makes his own controllers, and with good reason. More info on this can be found in the Steiner [MIDI EVI owner's manual](#). The most important thing you need to know is that you are supposed to let air out by the sides of the mouthpiece when blowing into it.

Breath response can be adjusted by selecting a different curve (see the configuration chapter). The default curve is -2, which will reach mid breath value faster than a linear curve.

Top-side touch pads are the main keys for the note selection. In the fingering chart you will find the most useful fingerings. Bottom-side touch pads (LH thumb) are for going up or down one octave.

Right hand thumb controls the joystick. Moving it up or down will send pitch bend. Moving it to the left will send modulation (CC#1) and moving it to the right will activate (CC#65) and send portamento/glide (CC#5).

## The configuration

To change settings, hold a combination of joystick direction and RH fingering from the settings chart while plugging in the USB. The Teensy onboard LED will flash the setting (in a cryptic way) and then the controller is ready.

Crypto key for the LED flashing: fast flashing is zero, longer flashes counts to a number. First the joystick position is shown. One is up/breath setting. Two is down/midi setting. Three is right, for various toggling settings and for factory setting restore. Four is left/breath response curve selection. Then there is the result of binary combination of the three main RH keys. This counts from zero to seven. If there is another bit, like for midi setting or breath curve, this is controlled by the first pinkie key. This key also controls aftertouch breath on in combination with the breath cc selection. The pinkie keys have their own separate flashes, either zero (four fast flashes) or one (one longer flash).

Example 1: Setting midi channel to number 11, we hold pitch bend down on the joystick and finger the combination from the chart – RH2+RHp1 – while connecting the USB to power. The LED will flash 2 - 2 - 1 - 0. (Midi channel 1 is fingering zero, so two flashes equals the value three. Plus eight from the extra bit equals eleven. Then there's the zero for the RHp2 that is not pressed. After that it's ready to play.

Example 2: Selecting the linear breath response curve. That's joystick left and RH3 at USB plug-in. LED will flash 4 - 4 - 0 - 0.

Example 3: Transpose from C to G. Joystick right and both pinkie keys at plug-in (transpose -7 to F and +2 to G). LED will flash 3 - 0 - 1 - 1. To toggle the setting back to C, do the same procedure again.

Example 4: Send breath cc (#2) and aftertouch in combination. Joystick up and RH2+RHp1 at plug-in. LED will flash 1 - 2 - 1 - 0.

Example 5: "Factory" reset. When you are completely lost in all of this, and your instrument is acting so weird you have no idea what's going on, you can reset to default values by holding joystick right and all the RH keys. LED will flash 3 - 7 - 1 - 1 and then you feel safe and comfy again.

If all this sounds too complicated, it's because it is. You can just use it without changing anything and live your life as you did before all of this happened.

To get an idea what the controller is doing at any given time and have a better chance of having it do what you want it to do, a midi analyzer app for your computer or iPad is very helpful. I'm talking about stuff like MIDI Monitor on Mac or MIDI-OX on Windows. Trust me, you'll need it if you start changing things.

# The fingerings

C	C	C#	C#	D	Bb	Bb	E	F	F#	F#	G	G	G	G#	G#	A	A	A	Bb	Bb
*																				
B	B	B	C	C	C	C	C	C#	C#	C#	D	D	D#	D#	E	F	F#	F#	G	G#
			**/**				**		**	**		**	**	**	**	**	**	**	**	**

\*) RH pinky finger covers both pinky keys  
\*\*) Casio 2nd octave fingering

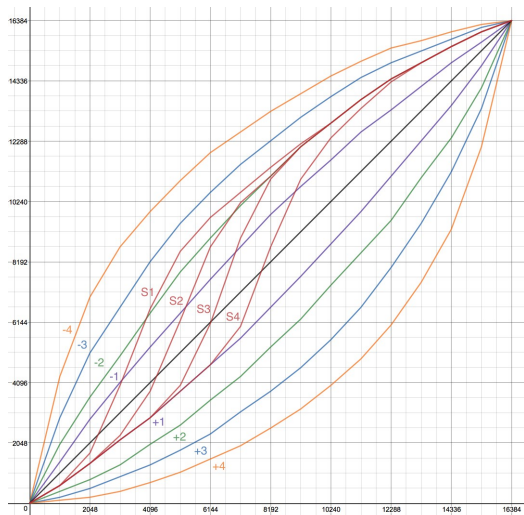
# The settings

BREATH	OFF	AT	CC 1	CC 2	CC 7	CC 11	CC 1+33	CC 2+34	CC 7+39	CURVE	-4	-3	-2	-1	LIN	+1	+2	+3	+4	S1	S2	S3	S4
↑										←													
MIDI CH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	VARIOUS	RESET	GLIDE	PB	MOD	TR+2	TR-7
↓																	→						

To apply settings: unplug USB, hold joystick in arrow direction, finger the RH combo for the wanted setting and plug in USB. When the Teensy LED is done flashing, settings have been applied and saved. Release joystick and play. To change another setting, repeat procedure.

\*) This toggles current setting on/off

# The curves



## **The little things**

There are some more or less useful stuff thrown into the "various" settings department. First of all there is a "factory reset" that will restore all the default settings. That's the "RESET" in the settings chart.

The "GLIDE" selection will toggle glide/portamento on and off. With the glide switched off, nothing will be sent when the joystick is moved to the right.

In cases where the pitch bend range of a synth can't be set lower than 12 semitones (like the Seaboard 5D app), the "PB" toggle setting in the T.WI will switch to sending 1/12 of max PB value.

The "MOD" toggle setting sets the joystick left movement to control CC#74 instead of CC#1. This is useful if you want to control growl on some Patchman sounds, or to control the slide parameter in the Seaboard 5D app.

To transpose the T.WI from C (default) to D, F or G, you use the TR+2 and TR-7 settings. With TR+2 you transpose up to D, with TR-7 you transpose down to F (alto mode), and with both in combination you get a transposition to G. These are also toggle settings.

## **The help**

Should you get stuck or have issues with your controller, assistance is just an email away, and the address is [johan@helgo.net](mailto:johan@helgo.net).