

MIDI Tap Pro

MIDI Interface / Analyzer

Instruction Manual

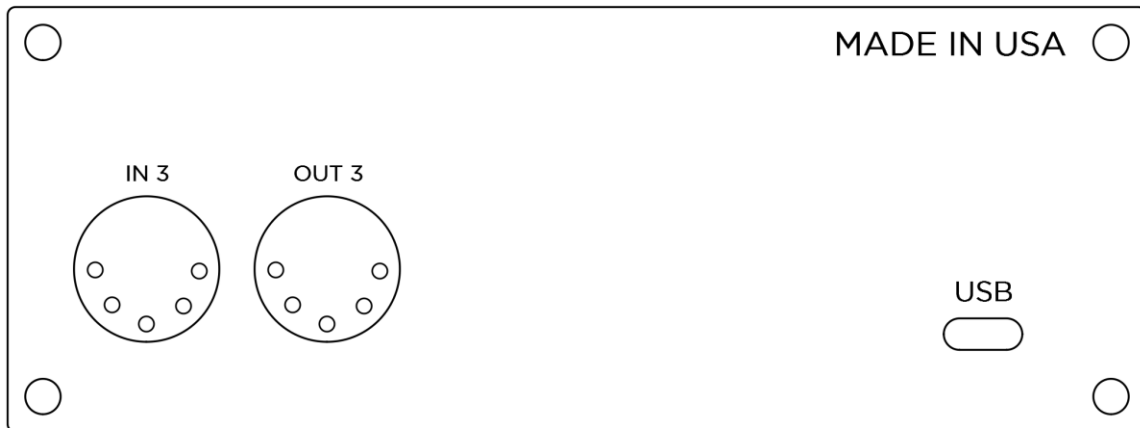
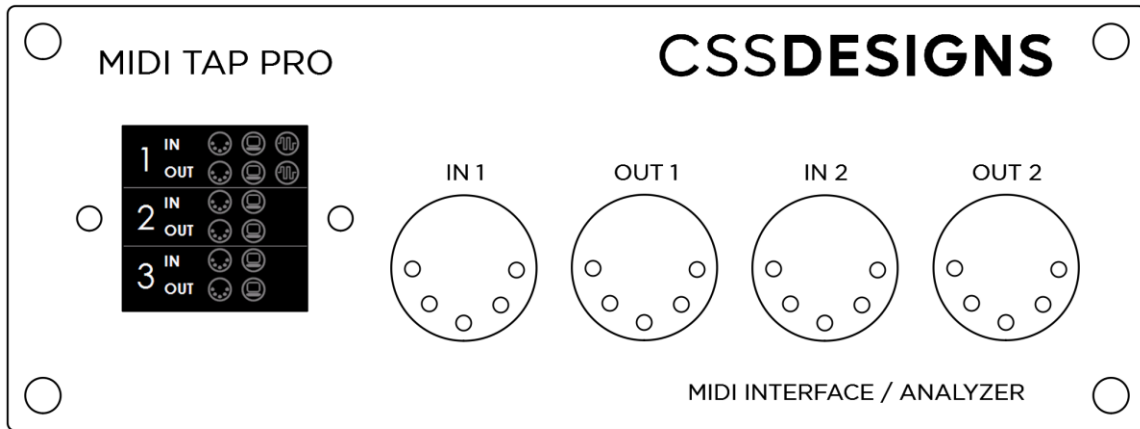


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Specifications

- 3 MIDI port USB 2.0 interface (USB Type C)
- Each MIDI port configurable to pass through
- USB bus powered
- 240 x 240 pixel color display
- Multiple display configurations
- MIDI 1.0
- MIDI 2.0 UMP support
- 4th virtual MIDI port for controlling device using SysEx messages and MIDI 2.0 CI property exchange
- CDC (USB serial port) support for “tapping” into MIDI streams
- No drivers needed for Windows, Mac, and Linux
- Buffer overflow indication

General Operation

Out of the box, the MIDI Tap Pro operates just like other MIDI interfaces. Simply plug in any legacy MIDI device (keyboard, synth, ...) and connect the MIDI Tap Pro to your computer using a USB cable. Any DAW software package will recognize it as MIDI IN/OUT ports for use.

The computer OS and DAW software package will indicate the MIDI Tap Pro has four MIDI ports, even though there are only three physical MIDI ports available. The fourth port is a virtual MIDI port used for controlling the MIDI Tap Pro. Any MIDI traffic sent to that control port will not be routed to an external MIDI port. See the System Exclusive Messages section for valid messages that can be sent to the MIDI Tap Pro virtual MIDI port.

MIDI Tapping

When plugged into a USB port on a computer, the MIDI Tap Pro not only presents itself as a MIDI streaming device, it also presents itself as a CDC communication device (serial port). This virtual serial port can be assigned to any one of the external MIDI ports (by default, port 1).

Using a serial terminal program, it is possible to view the raw MIDI bytes being received by the MIDI Tap Pro. Also, using the serial terminal program, it is possible to write bytes to the MIDI port for transmission.

As a note for software engineers, setting the baud rate is not needed and fixed to 31250 for MIDI. Simply open the port and read/write bytes. Reference source code can be found on our GitHub page:

https://github.com/cssdesignllc/midi_tap_pro_util

MIDI 2.0

The MIDI Tap Pro presents itself as a MIDI 1.0 streaming device, and alternatively, presents itself as a MIDI 2.0 streaming device. What this means is operating systems that do not support MIDI 2.0 will simply use MIDI 1.0 instead.

As the MIDI Tap Pro still communicates with legacy devices, it does not have a complete MIDI 2.0 implementation. For example, the MIDI Tap Pro does not support 2.0 voice messages (larger packets with expanded value ranges). See the table below for more information on what is supported.

Supported MIDI UMP Messages	Details
MIDI 1.0 Channel Voice Messages	MIDI Messages Supported <ul style="list-style-type: none"> • Note Off • Note On • Poly Pressure (Aftertouch) • Controller • Program Change • Channel Pressure • Pitch Bend
System Common	MIDI Messages Supported <ul style="list-style-type: none"> • MIDI Time Code • Song Position Pointer • Song Select • Tune Request • Timing Clock • Start • Continue • Stop • Active Sensing • Reset
UMP Stream Messages	MIDI Messages Supported <ul style="list-style-type: none"> • Endpoint Discovery Message • Endpoint Info Notification Message • Device Identity Notification Message • Endpoint Name Notification • Product Instance Id Notification Message • Stream Configuration Request • Stream Configuration Notification Message • Function Block Discovery Message • Function Block Info Notification • Function Block Name Notification
System Exclusive (7-Bit) Messages	Packet Format Byte 0 = Payload byte 1 Byte 1 = Payload byte 0 Byte 2 = Status / # of bytes Byte 3 = Type / Group Byte 4 = Payload byte 5 Byte 5 = Payload byte 4 Byte 6 = Payload byte 3 Byte 7 = Payload byte 2

Screens

This screens section describes all possible screens that can be shown on the MIDI Tap Pro. See the Set Screen command for assigning the screen.

Three Port Icon

Three Port Icon is the default screen for the MIDI Tap Pro. It is divided into 3 parts each representing a MIDI port. IN icons will light orange when there is inbound activity. OUT icons will light green when there is outbound activity. Any icon will turn red when a bus error or invalid MIDI message occurs.



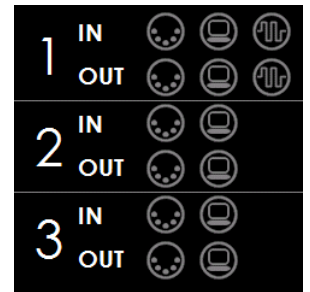
MIDI UART activity icon



USB MIDI activity icon



USB CDC (serial port) activity icon



When MIDI thru is enabled on a MIDI port, the UART icons will draw joined. See the image below:



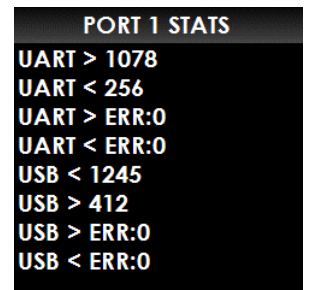
Note: the USB CDC icons will only be drawn on the assigned port (1, 2, or 3). The MIDI Tap Pro can only “tap” a single port at a time. See Set UART for setting this value.

Single Port Stats

Single Port Stats will show basic statistics for a particular port. See the table below for specifics. Statistics are started at power up and will accumulate until power loss or reset through the Reset Stats command.

Statistic	Note
UART >	Total bytes received on MIDI IN port
UART <	Total bytes transmitted on MIDI OUT port
UART > ERR:	Total errors* encountered on MIDI IN port
UART < ERR:	Total errors* encountered on MIDI OUT port
USB <	Total bytes received on MIDI IN USB port
USB >	Total bytes transmitted on MIDI OUT USB port
USB > ERR:	Total errors* encountered on MIDI IN USB port
USB < ERR:	Total errors* encountered on MIDI OUT USB port

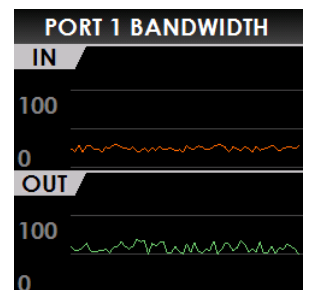
*Errors include bus error or invalid MIDI message.



Single Port Bandwidth

Single Port Bandwidth shows bandwidth for IN and OUT on a specified MIDI port. 100% represents 31250 bits per second.

Data is filled from right to left (right is the more current measurement). The screen displays 30 seconds of data.



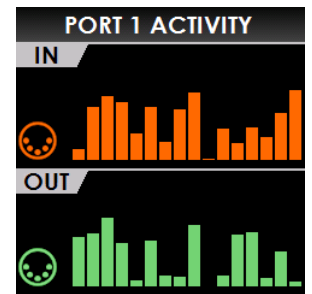
Single Port Activity Bars

Single Port Activity Bars shows IN and OUT channel voice activity on a specified MIDI port. It also shows activity on the MIDI UART icon. Channel 1 bar is on the left. Value 127 represents the top of the bar.

The following MIDI messages will be represented in the bars:

- Note Off
- Note On
- Aftertouch
- Channel Pressure

Other MIDI messages will be represented in the icon indicator.



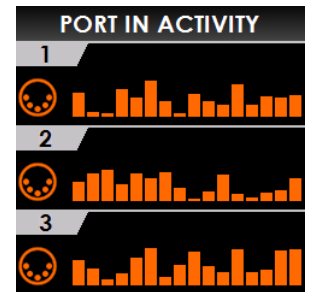
Three Port In Activity Bars

Three Port In Activity Bars shows IN channel voice activity on all MIDI ports. It also shows activity on the MIDI UART icon. Channel 1 bar is on the left. Value 127 represents the top of the bar.

The following MIDI messages will be represented in the bars:

- Note Off
- Note On
- Aftertouch
- Channel Pressure

Other MIDI messages will be represented in the icon indicator.



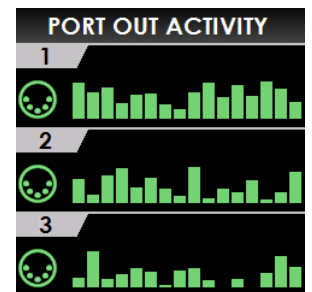
Three Port Out Activity Bars

Three Port Out Activity Bars shows OUT channel voice activity on all MIDI ports. It also shows activity on the MIDI UART icon. Channel 1 bar is on the left. Value 127 represents the top of the bar.

The following MIDI messages will be represented in the bars:

- Note Off
- Note On
- Aftertouch
- Channel Pressure

Other MIDI messages will be represented in the icon indicator.



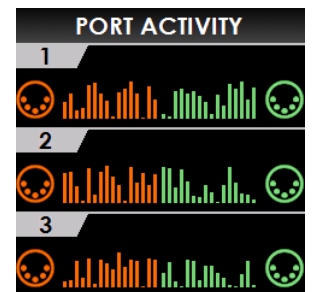
Three Port In Out Activity Bars

Three Port In Out Activity Bars shows IN and OUT channel voice activity on all MIDI ports. It also shows activity on the MIDI UART icon. Channel 1 bar is on the left. Value 127 represents the top of the bar.

The following MIDI messages will be represented in the bars:

- Note Off
- Note On
- Aftertouch
- Channel Pressure

Other MIDI messages will be represented in the icon indicator.



Single Port In Activity Raw

Single Port In Activity Raw shows IN byte value data (hexadecimal) on the specified MIDI port. The most recent byte is shown in the upper left with the second to the right of it and so on (oldest byte shown in the lower right corner).

It is possible to pause the screen using the Screen Pause command. When paused, the screen will not update until resumed.

PORT 1 IN ACTIVITY					
00	54	90	7A	54	90
54	90	7A	54	90	54
90	7A	54	90	54	90
7A	54	90	54	90	7A
54	90	54	90	7A	54
90	54	90	7A	54	90
54	90	7A	54	90	54
90	7A	54	90	54	90
7A	54	90	54	90	7A
54	90	54	90	7A	54

Single Port Out Activity Raw

Single Port Out Activity Raw shows OUT byte value data (hexadecimal) on the specified MIDI port. The most recent byte is shown in the upper left with the second to the right of it and so on (oldest byte shown in the lower right corner).

It is possible to pause the screen using the Screen Pause command. When paused, the screen will not update until resumed.

PORT 1 OUT ACTIVITY					
00	54	90	7A	54	90
54	90	7A	54	90	54
90	7A	54	90	54	90
7A	54	90	54	90	7A
54	90	54	90	7A	54
90	54	90	7A	54	90
54	90	7A	54	90	54
90	7A	54	90	54	90
7A	54	90	54	90	7A
54	90	54	90	7A	54

Single Port In Out Activity Raw

Single Port In Out Activity Raw shows IN and OUT byte value data (hexadecimal) on the specified MIDI port. The most recent byte is shown in the upper left under each port indicator with the second to the right of it and so on.

It is possible to pause the screen using the Screen Pause command. When paused, the screen will not update until resumed.

PORT 1 ACTIVITY					
MIDI IN			MIDI OUT		
00	54	90	00	54	90
7A	54	90	7A	54	90
54	90	7A	54	90	7A
54	90	54	54	90	54
90	7A	54	90	7A	54
90	54	90	90	54	90
7A	54	90	7A	54	90
54	90	7A	54	90	7A
54	90	54	54	90	54

Custom

Custom is a blank screen that can be drawn to using primitive drawing commands (see Draw Rectangle, Draw Line, Draw Text, and Draw Circle). Originally used for testing, we decided to leave it in.

Basic rules:

1. Keep drawing inside the borders of the display
 - a. The display is 240 x 240
 - b. Pixel (0,0) is the upper left corner
 - c. Pixel (239,239) is in the lower right
2. Drawing queue is 50 commands deep, each command takes 2-5 ms to complete depending on system loading (MIDI traffic)

Single Port In MIDI Event

Single Port In MIDI Event shows a textual view of MIDI messages. The top row shows the most recent message. A decimal number shown in “()” represents the channel (0-15). Other payload values are shown in hexadecimal.

It is possible to pause the screen using the Screen Pause command. When paused, the screen will not update until resumed.

The following table shows possible MIDI messages and corresponding MIDI Tap Pro message name.

MIDI Message	MIDI Tap Pro Text
Note Off	NOTE OFF
Note On	NOTE ON
Poly Pressure (Aftertouch)	PLY PRS
Controller	CONTROL
Program Change	PRG CHNG
Channel Pressure	CH PRESR
Pitch Bend	PTCH BND
System Exclusive Start	SYSEX START
Time Code	TIME CODE
Song Position	SONG POS
Song Select	SONG SELECT
Tune Request	TUNE REQUEST
System Exclusive End	SYSEX END
Clock	CLOCK
Start	START
Continue	CONTINUE
Stop	STOP
Sense	SENSE
Reset	Reset

PORT 1 IN EVENTS			
NOTE	OFF	(0)	53 00
NOTE	ON	(0)	53 77
NOTE	OFF	(0)	54 00
NOTE	ON	(0)	54 5F
NOTE	OFF	(2)	55 00
NOTE	ON	(2)	55 4A
NOTE	OFF	(0)	56 00
NOTE	ON	(0)	56 23
NOTE	OFF	(1)	57 00
NOTE	ON	(1)	57 2D

Single Port Out MIDI Event

Single Port Out MIDI Event shows a textual view of MIDI messages. The top row shows the most recent message. A decimal number shown in “()” represents the channel (0-15). Other payload values are shown in hexadecimal.

It is possible to pause the screen using the Screen Pause command. When paused, the screen will not update until resumed.

See Single Port In MIDI Event for MIDI Message information.

PORT 1 OUT EVENTS			
NOTE	OFF	(0)	53 00
NOTE	ON	(0)	53 77
NOTE	OFF	(0)	54 00
NOTE	ON	(0)	54 5F
NOTE	OFF	(2)	55 00
NOTE	ON	(2)	55 4A
NOTE	OFF	(0)	56 00
NOTE	ON	(0)	56 23
NOTE	OFF	(1)	57 00
NOTE	ON	(1)	57 2D

System Exclusive Messages

The MIDI Tap Pro has many features accessible through system exclusive (SysEx) messages on the control port. This section defines the messages in detail. No problem if you are not a software engineer, simply use our open-source Python software found on GitHub: https://github.com/cssdesignllc/midi_tap_pro_setup

Each command listed in this section will be replied to with a reply packet.

Packet Definition

Command Header

Each SysEx message sent to the MIDI Tap Pro starts with the following header.

Byte	Value
SysEx Start	0xF0
CSS Designs Manufacturer ID	0x00
CSS Designs Manufacturer ID	0x02
CSS Designs Manufacturer ID	0x58
Command	?

Reply Header

Each SysEx message sent from the MIDI Tap Pro starts with the following header.

Byte	Value
SysEx Start	0xF0
CSS Designs Manufacturer ID	0x00
CSS Designs Manufacturer ID	0x02
CSS Designs Manufacturer ID	0x58
Command	?
Result Code	?

Result Codes

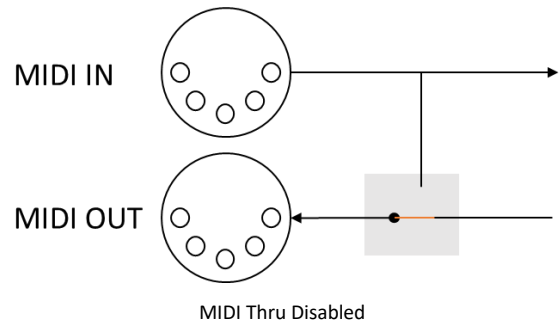
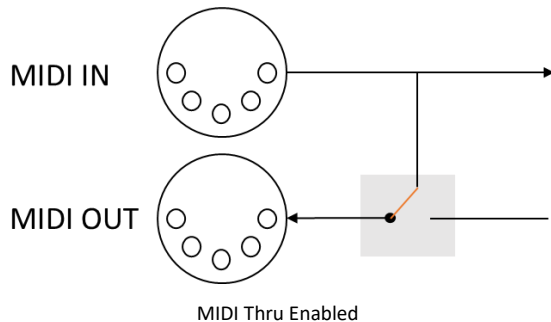
The following table represents possible result codes sent in a reply packet.

Result	Value
Success	0x00
Unknown Command	0x01
Invalid Command Length	0x02
Invalid MIDI Port	0x03
Invalid Value	0x04

Set Thru

Set or clear a specific MIDI port thru. When set, the specified MIDI IN port will pass MIDI traffic directly to the MIDI out port. When cleared, the specified MIDI port will operate normally.

Note: When thru is enabled, the MIDI out port will not be available to send data via USB.



Command Packet

Byte	Value	Notes
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SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Set Thru Command	0x01	
MIDI Port	?	0 = MIDI port 1 1 = MIDI port 2 2 = MIDI port 3
Thru Setting	?	0 = Thru disabled 1 = Thru enabled
SysEx End	0xF7	

Reply Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Set Thru Command	0x01	
Result Code	?	
SysEx End	0xF7	

Set UART

Set UART assigns the MIDI port the USB CDC will “tap” into.

Command Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Set UART Command	0x02	
MIDI Port	?	0 = MIDI port 1 1 = MIDI port 2 2 = MIDI port 3
SysEx End	0xF7	

Reply Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Set UART Command	0x02	
Result Code	?	
SysEx End	0xF7	

Set Screen

Set Screen assigns what is shown on the display. See the Screens section for more information on the screen types.

Command Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Set Screen Command	0x03	
Screen Type	?	0 = Three port icon 1 = Single port stats 2 = Single port bandwidth 3 = Single port activity bars 4 = Three port in activity bars 5 = Three port out activity bars 6 = Three port in/out activity bars 7 = Single port in activity raw 8 = Single port out activity raw 9 = Single port in/out activity raw 10 = custom 11 = Single port in MIDI event 12 = Single port out MIDI event
MIDI Port	?	0 = MIDI port 1 1 = MIDI port 2 2 = MIDI port 3 <i>(this field is ignored for screen types 0, 4, 5, 6, 10)</i>
SysEx End	0xF7	

Reply Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Set Screen Command	0x03	
Result Code	?	
SysEx End	0xF7	

Set Backlight

Set Backlight sets the brightness of the display backlight.

Command Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Set Backlight Command	0x04	
Backlight Brightness	?	Range = 10 – 100 (percent)
SysEx End	0xF7	

Reply Packet

Byte	Value	Notes
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SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Set Backlight Command	0x04	
Result Code	?	
SysEx End	0xF7	

Save Settings

Save Settings persists all settings into internal flash. Do not execute this command on a regular basis as the number of internal flash writes is limited (100,000 writes max).

Command Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Save Settings Command	0x05	
SysEx End	0xF7	

Reply Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Save Settings Command	0x05	
Result Code	?	
SysEx End	0xF7	

Factory Defaults

Set the MIDI Tap Pro to factory defaults. This command is permanent and will configure all settings to their defaults. Do not execute this command on a regular basis as the number of internal flash writes is limited (100,000 writes max).

Command Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Factory Defaults Command	0x06	
SysEx End	0xF7	

Reply Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	

Factory Defaults Command	0x06	
Result Code	?	
SysEx End	0xF7	

Reset Stats

Reset accumulating statistic values. Statistics are started at unit power up and stored in RAM, they are not persisted.

Command Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Reset Stats Command	0x07	
SysEx End	0xF7	

Reply Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Reset Stats Command	0x07	
Result Code	?	
SysEx End	0xF7	

Get Stats

Get all statistic values.

Command Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Get Stats Command	0x08	
SysEx End	0xF7	

Reply Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Get Stats Command	0x08	
Result Code	?	
Payload (array of 32-bit values in nibble format packet LSN first)		112 total bytes when result code success: Value 1 = MIDI in port 1 total bytes Value 2 = MIDI out port 1 total bytes Value 3 = USB in port 1 total bytes Value 4 = USB out port 1 total bytes

		Value 5 = MIDI in port 2 total bytes Value 6 = MIDI out port 2 total bytes Value 7 = USB in port 2 total bytes Value 8 = USB out port 2 total bytes Value 9 = MIDI in port 3 total bytes Value 10 = MIDI out port 3 total bytes Value 11 = USB in port 3 total bytes Value 12 = USB out port 3 total bytes Value 13 = USB CDC in port total bytes Value 14 = USB CDC in port total bytes
SysEx End	0xF7	

Screen Pause

Pause or resume screens that show streaming data. Only valid for raw or event screens.

Command Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Screen Pause Command	0x09	
Pause / Resume	?	0 = Resume screen 1 = Pause screen
SysEx End	0xF7	

Reply Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Screen Pause Command	0x09	
Result Code	?	
SysEx End	0xF7	

Draw Rectangle

Draw a filled rectangle on the display. This command is only available while showing the custom screen.

Command Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Draw Rectangle Command	0x20	
X Location (4 bytes)	?, ?, ?, ?	16-bit value packed in 4 nibbles with LSN first
Y Location (4 bytes)	?, ?, ?, ?	16-bit value packed in 4 nibbles with LSN first
Width (4 bytes)	?, ?, ?, ?	16-bit value packed in 4 nibbles with LSN first
Height (4 bytes)	?, ?, ?, ?	16-bit value packed in 4 nibbles with LSN first

RGB565 Color (4 bytes)	?, ?, ?, ?	16-bit value packed in 4 nibbles with LSN first
SysEx End	0xF7	

Reply Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Draw Rectangle Command	0x20	
Result Code	?	
SysEx End	0xF7	

Draw Line

Draw a single pixel width line on the display. This command is only available while showing the custom screen.

Command Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Draw Line Command	0x21	
X1 Location (4 bytes)	?, ?, ?, ?	16-bit value packed in 4 nibbles with LSN first
Y1 Location (4 bytes)	?, ?, ?, ?	16-bit value packed in 4 nibbles with LSN first
X2 Location (4 bytes)	?, ?, ?, ?	16-bit value packed in 4 nibbles with LSN first
Y2 Location (4 bytes)	?, ?, ?, ?	16-bit value packed in 4 nibbles with LSN first
RGB565 Color (4 bytes)	?, ?, ?, ?	16-bit value packed in 4 nibbles with LSN first
SysEx End	0xF7	

Reply Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Draw Line Command	0x21	
Result Code	?	
SysEx End	0xF7	

Draw Text

Draw a line of text on the display. This command is only available while showing the custom screen.

Command Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Draw Text Command	0x22	

X Location (4 bytes)	?, ?, ?, ?	16-bit value packed in 4 nibbles with LSN first
Y Location (4 bytes)	?, ?, ?, ?	16-bit value packed in 4 nibbles with LSN first
Foreground RGB565 Color (4 bytes)	?, ?, ?, ?	16-bit value packed in 4 nibbles with LSN first
Background RGB565 Color (4 bytes)	?, ?, ?, ?	16-bit value packed in 4 nibbles with LSN first
Text (variable length up to 39 bytes)	?, ?, ...	ASCII characters in range (0x20 – 0x7E)
SysEx End	0xF7	

Reply Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Draw Text Command	0x22	
Result Code	?	
SysEx End	0xF7	

Draw Circle

Draw a filled circle on the display. This command is only available while showing the custom screen.

Command Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Draw Circle Command	0x23	
X Location (4 bytes)	?, ?, ?, ?	16-bit value packed in 4 nibbles with LSN first
Y Location (4 bytes)	?, ?, ?, ?	16-bit value packed in 4 nibbles with LSN first
Radius (4 bytes)	?, ?, ?, ?	16-bit value packed in 4 nibbles with LSN first
RGB565 Color (4 bytes)	?, ?, ?, ?	16-bit value packed in 4 nibbles with LSN first
SysEx End	0xF7	

Reply Packet

Byte	Value	Notes
SysEx Start	0xF0	
CSS Designs Manufacturer ID	0x00	
CSS Designs Manufacturer ID	0x02	
CSS Designs Manufacturer ID	0x58	
Draw Circle Command	0x23	
Result Code	?	
SysEx End	0xF7	

MIDI 2.0 CI

The MIDI Tap Pro supports MIDI 2.0 CI (Compatibility Inquiry) for property exchange. The following table represents the properties available to get and set. This is an alternate means of accessing the settings instead of System Exclusive Messages.

Property	Can Set	Data Type	Details
DeviceInfo	N	JSON	Device information
X-USBCDCMIDIPort	Y	Integer	See: Set UART
X-ScreenType	Y	Integer	See: Set Screen
X-ScreenPort	Y	Integer	See: Set Screen
X-MIDIThru1Enable	Y	Boolean	See: Set Thru
X-MIDIThru2Enable	Y	Boolean	See: Set Thru
X-MIDIThru3Enable	Y	Boolean	See: Set Thru
X-BacklightBrightness	Y	Integer	See: Set Backlight

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FCC Compliance Statement

CAUTION: The manufacturer is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Supplier's Declaration of Conformity
47 CFR § 2.1077 Compliance Information

Product Name: MIDI Tap Pro

Product Model: MIDI Tap Pro

Manufacturer:

CSS Designs

7755 W Lake Pointe Dr

Franklin, WI 53132

contact@cssdesignllc.com

www.cssdesignllc.com

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.

CSS Designs

Franklin, WI 53132

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