MIDI Solutions

Footswitch Controller

OPERATING INSTRUCTIONS

MIDI Solutions Footswitch Controller
Operating Instructions M204

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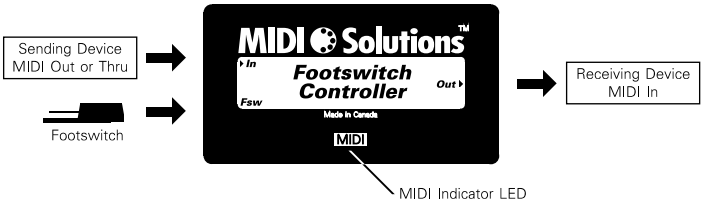
INTRODUCTION

Congratulations on your purchase of the MIDI Solutions Footswitch Controller. The MIDI Solutions Footswitch Controller generates pre-programmed MIDI messages from a footswitch or momentary contact closure connected to its 1/4" phone jack input, and merges these messages with incoming MIDI messages. It can also be programmed to function as a transposer, channelizer, or MIDI clock generator. Programmed settings of the Footswitch Controller are retained in non-volatile memory. The Footswitch Controller is MIDI-powered and requires no batteries or power supply to operate. Footswitch polarity can be forced normally open or closed, or determined automatically on power-up.



CONNECTIONS

To program the Footswitch Controller, connect the **In** of the Footswitch Controller to the MIDI Out of the device that is sending the programming commands. The **Out** and **Fsw** input can be left disconnected during programming. Once the Footswitch Controller is programmed, it can be inserted anywhere in your MIDI setup. Plug a footswitch with a standard 1/4" phone jack into the footswitch input **(Fsw).** Connect the **In** of the Footswitch Controller to the MIDI Out or Thru of the sending MIDI device. Connect the **Out** of the Footswitch Controller to the MIDI In of the receiving MIDI device. The number of MIDI Solutions products connected between any two MIDI devices should be limited to 5.

OPERATION

Ensure that the footswitch is plugged into the unit before power-up, as its polarity is stored at this time if it is operating in auto polarity mode (see p. 10-11). The Footswitch Controller's MIDI Indicator LED will light as soon as the sending device is turned on, and flashes whenever MIDI data passes through the unit. Depressing the footswitch causes the unit to perform its programmed function as described on the following pages.

PROGRAMMING

The function of the Footswitch Controller is programmed by sending it MIDI System Exclusive programming messages from a device capable of creating System Exclusive messages, such as a computer-based sequencer. These messages are described in detail on the following pages. For decimal to hexadecimal conversions, see the chart on page 27. Upon receipt of a System Exclusive programming message, the MIDI indicator LED flashes rapidly for about one second to indicate that the setting has been stored. Settings are retained in non-volatile memory until reprogrammed with new settings.

Device Parameters

The Footswitch Controller has three global parameters that are in effect regardless of the selected function. These parameters are **MIDI Echo**, **Footswitch Toggle**, and **Polarity.**

When **MIDI Echo** is ON, all incoming MIDI information is echoed to the MIDI output. When MIDI Echo is OFF, only the messages generated by the Footswitch Controller are sent to the MIDI output. When **Toggle** is OFF, the Footswitch Controller operates in its normal mode. When Toggle is ON, the footswitch toggles between the depressed operation and the released operation each time the footswitch is tapped. **Polarity** allows you to force the polarity of the footswitch to normally open or closed.

To program the Device Parameters, send the Footswitch Controller the following System Exclusive programming message:

F0 00 00 50 04 00 aa bb (cc) F7 (all values in Hexadecimal)

aa: Echo **aa**=00: Echo OFF **aa**=01: Echo ON

bb: Toggle **bb**=00: Toggle OFF **bb**=01: Toggle ON

cc: Polarity (optional) **cc**=00: polarity forced normally open **cc**=01: polarity forced normally closed **cc** omitted: polarity of the footswitch is automatically determined on power-up

Example: To program the Footswitch Controller for Echo ON, Toggle OFF, and Auto Polarity, send the Footswitch Controller the following System Exclusive programming message:
F0 00 00 50 04 00 **01 00** F7

Note On

To program the Footswitch Controller to generate one or two Note On messages when the footswitch is depressed, send it the following System Exclusive programming message:

F0 00 00 50 04 01 nn vv cc (mm ww) F7 (all values in Hex)

nn = Note# **vv** = ON velocity **cc** = MIDI channel (see p. 24)

mm = 2nd Note# **ww** = 2nd velocity (**mm**, **ww** are optional)

(Note Off messages are sent out on release of the footswitch)

Example: To program the Footswitch Controller to generate a middle C, (Note #60 = 3C Hex) at a velocity of 64 (40 Hex) on channel 5, send it the following System Exclusive programming message: F0 00 00 50 04 01 **3C 40 04** F7

Control Change

To program the Footswitch Controller to generate one or two Control Change messages each time the footswitch is depressed, send it the following System Exclusive programming message:

F0 00 00 50 04 02 nn vv cc (mm ww) F7 (all values in Hex)

nn = Control Change# **vv** = value **cc** = MIDI channel (p. 24)

mm = 2nd CC# **ww** = 2nd value (**mm** and **ww** are optional)

(a CC value of zero is sent out on release of the footswitch)

Example: To program the Footswitch Controller to send out full volume (Control Change #7 at 127) on all channels, send it the following Sys. Ex. message: F0 00 00 50 04 02 **07 7F 7F** F7

Pitch Bend

To program the Footswitch Controller to generate a Pitch Bend message when the footswitch is depressed, send it the following System Exclusive programming message:

F0 00 00 50 04 03 ll mm cc F7 (all values in Hexadecimal)

ll = LSB value **mm** = MSB value

cc = MIDI channel (see p. 24)

(Pitch Bend is reset to zero bend on release of the footswitch)

Example: To program the Footswitch Controller to generate a pitch change of +1 semitone (assuming receiving synth is set to full octave pitch bend range) on channel 1, send it the following System Exclusive message: F0 00 00 50 04 03 **2B 45 00** F7

Program Change

To program the Footswitch Controller to generate a Program Change message when the footswitch is depressed, send it the following System Exclusive programming message:

F0 00 00 50 04 04 pp cc F7 (all values in Hexadecimal)

pp = Program# **cc** = MIDI channel (see p. 24)

Example: To program the Footswitch Controller to call up the first program on each MIDI channel when the footswitch is depressed, send it the following System Exclusive programming message:

F0 00 00 50 04 04 **00 7F** F7

Start/Stop

To program the Footswitch Controller to generate Start when the footswitch is depressed and Stop when it is released, send it the following System Exclusive programming message:

F0 00 00 50 04 05 F7 (all values in Hexadecimal)

To program the Footswitch Controller to toggle between Start and Stop each time the footswitch is depressed, set the Footswitch Toggle parameter to Toggle ON (see p. 10).

Program INC/DEC

Two Footswitch Controllers may be chained together to provide an INC/DEC Program Change function. One unit is programmed as an increment unit and the other as a decrement unit. **The MIDI Out of the decrement unit must be connected to the MIDI In of the increment unit.** The units are programmed as follows:

INC unit: **F0 00 00 50 04 07 01 cc F7 (all values in Hex)**
DEC unit: **F0 00 00 50 04 07 00 cc F7 (all values in Hex)**
cc = MIDI channel (see p. 24)

System Exclusive

To program the Footswitch Controller to generate a System Exclusive message when the footswitch depressed, send it the following:

F0 00 00 50 04 06 01 F7, F0 ... F7 (20 bytes max.)
where **F0 ... F7** is the user-defined Sys. Ex. message

To program the Footswitch Controller to generate a System Exclusive message when the footswitch released, send it the following:

F0 00 00 50 04 06 00 F7, F0 ... F7 (20 bytes max.)
where **F0 ... F7** is the user-defined Sys. Ex. message

Example: To program the Footswitch Controller to generate the MIDI Machine Control *Play* command (F0 7F 7F 06 02 F7) when depressed, and the *Stop* command (F0 7F 7F 06 01 F7) when released, send it the following:

F0 00 00 50 04 06 01 F7, F0 7F 7F 06 02 F7
F0 00 00 50 04 06 00 F7, F0 7F 7F 06 01 F7

Channelize

To program the Footswitch Controller to operate as a MIDI channelizer, send it the following System Exclusive message:

F0 00 00 50 04 09 cc F7 (all values in Hexadecimal)
cc = MIDI channel (see p. 24)

To specify the outgoing channel depress the footswitch, play the number of notes corresponding to the channel to be sent out (these notes are not echoed to MIDI Out), and release the footswitch.

Example operation: To rechannelize all incoming channel information to channel 7 depress the footswitch, hit any 7 keys, and release the footswitch. All incoming channel messages are now rechannelized to channel 7.

Transpose

To program the Footswitch Controller to operate as a transposer, send it the following System Exclusive message:

F0 00 00 50 04 0A cc F7 (all values in Hexadecimal)
cc = MIDI channel (see p. 24)

To specify the transpose interval depress the footswitch, play the note above or below middle C corresponding to the transpose interval (this note is not echoed to MIDI Out), and release the footswitch.

Example operation: To transpose up by a major third depress the footswitch, hit E above middle C, and release the footswitch. All incoming notes will now be transposed up by a major third.

Tempo Tap

To program the Footswitch Controller to operate in tempo tap mode, send it the following System Exclusive message:

F0 00 00 50 04 0B F7 (all values in Hexadecimal)

In tempo tap mode, the Footswitch Controller continuously sends out MIDI timing clocks ($F8) at a tempo corresponding to the most recent taps of the footswitch.

Example: To send out MIDI clocks at 120 bpm, hit the footswitch at 1/2 second intervals.

Note-on Filter

To program the Footswitch Controller to operate as a Note-on filter, send it the following System Exclusive message:

F0 00 00 50 04 0C cc F7 (all values in Hexadecimal)
cc = MIDI channel (see p. 24)

To start filtering Note-on messages depress the footswitch (the All-Notes-Off message is also sent out at this time), to stop filtering release the footswitch. As with all other functions you can also set toggle to ON, allowing you to switch back and forth between the filtering and non-filtering modes each time the footswitch is depressed.

MIDI CHANNEL TABLE

cc must be set according to the following table:

Chan:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	All
cc:	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	7F

MIDI CONTROL CHANGE TABLE

Decimal	Hex	Control Function
0	00H	Bank Select
1	01H	Modulation wheel or lever
2	02H	Breath Controller
3	03H	Undefined
4	04H	Foot controller
5	05H	Portamento time
6	06H	Data entry MSB
7	07H	Channel Volume
8	08H	Balance
9	09H	Undefined
10	0AH	Pan
11	0BH	Expression Controller
12-13	0C-0DH	Effect Controls 1-2
14-15	0E-0FH	Undefined
16-19	10-13H	General Purpose Controllers (#'s 1-4)
20-31	14-1FH	Undefined
32-63	20-3FH	LSB values for 0-31
64	40H	Damper pedal (sustain)
65	41H	Portamento On/Off
66	42H	Sostenuto
67	43H	Soft pedal
68	44H	Legato Fsw (vv=00-3F: Normal, 40-7F: Legato)
69	45H	Hold 2
70	46H	Sound Controller 1 (default: Sound Variation)
71	47H	Sound Controller 2 (default: Timbre/Harmonic Content)
72	48H	Sound Controller 3 (default: Release Time)
73	49H	Sound Controller 4 (default: Attack Time)

74	4AH	Sound Controller 5 (default: Brightness)
75-79	4B-4FH	Sound Controllers 6-10 (no defaults)
80-83	50-53H	General Purpose Controllers (#'s 5-8)
84	54H	Portamento Control
85-90	55-5AH	Undefined
91	5BH	Effects 1 Depth (formerly External Effects Depth)
92	5CH	Effects 2 Depth (formerly Tremolo Depth)
93	5DH	Effects 3 Depth (formerly Chorus Depth)
94	5EH	Effects 4 Depth (formerly Celeste (Detune) Depth)
95	5FH	Effects 5 Depth (formerly Phaser Depth)
96,97	60H,61H	Data increment, Data decrement
98,99	62H,63H	Non-Registered Parameter Number LSB, MSB
100,101	64H,65H	Registered Parameter Number LSB, MSB
102-119	66-77H	Undefined
120-127	78-7FH	Reserved for Channel Mode Messages

HEXADECIMAL CONVERSION TABLE

Dec/Hex		Dec/Hex		Dec/Hex		Dec/Hex		Dec/Hex		Dec/Hex		Dec/Hex	
0	00	16	10	32	20	48	30	64	40	80	50	96	60	112	70
1	01	17	11	33	21	49	31	65	41	81	51	97	61	113	71
2	02	18	12	34	22	50	32	66	42	82	52	98	62	114	72
3	03	19	13	35	23	51	33	67	43	83	53	99	63	115	73
4	04	20	14	36	24	52	34	68	44	84	54	100	64	116	74
5	05	21	15	37	25	53	35	69	45	85	55	101	65	117	75
6	06	22	16	38	26	54	36	70	46	86	56	102	66	118	76
7	07	23	17	39	27	55	37	71	47	87	57	103	67	119	77
8	08	24	18	40	28	56	38	72	48	88	58	104	68	120	78
9	09	25	19	41	29	57	39	73	49	89	59	105	69	121	79
10	0A	26	1A	42	2A	58	3A	74	4A	90	5A	106	6A	122	7A
11	0B	27	1B	43	2B	59	3B	75	4B	91	5B	107	6B	123	7B
12	0C	28	1C	44	2C	60	3C	76	4C	92	5C	108	6C	124	7C
13	0D	29	1D	45	2D	61	3D	77	4D	93	5D	109	6D	125	7D
14	0E	30	1E	46	2E	62	3E	78	4E	94	5E	110	6E	126	7E
15	0F	31	1F	47	2F	63	3F	79	4F	95	5F	111	6F	127	7F

WARRANTY

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