

MIDI Solutions

PROFESSIONAL SERIES

F8

8-INPUT MIDI FOOTSWITCH CONTROLLER

OPERATING INSTRUCTIONS

MIDI Solutions F8 Operating Instructions M224-109

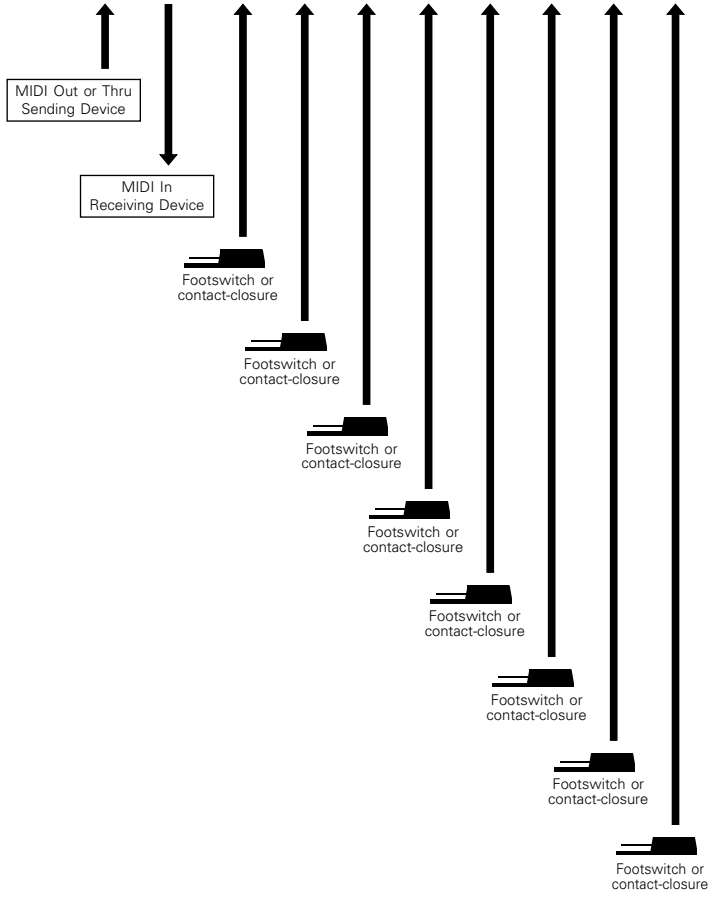
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INTRODUCTION

Congratulations on your purchase of the MIDI Solutions F8 8-input MIDI Footswitch Controller. The MIDI Solutions F8 generates pre-programmed MIDI messages from eight 1/4" phone jack contact closure inputs and merges these messages with incoming MIDI messages. It is also possible to program the footswitch inputs to control transpose, channelize, or MIDI clock tempo functions. All programmed settings of the F8 are retained in non-volatile memory. The F8 is MIDI-powered and requires no batteries or power supply to operate. The polarity of each footswitch input is determined automatically on power-up, or can be forced normally-open or normally-closed.



CONNECTIONS

To program the F8, connect the **In** of the F8 to the MIDI Out of the device being used to program it. This is the only connection necessary when programming the unit (the MIDI Out and Fsw1-8 may be left disconnected). The F8 retains its settings once programmed, so it may then be inserted anywhere in your MIDI setup. Connect the footswitches or any momentary contact closures (from tip to sleeve of standard 1/4" phone jacks) into the footswitch inputs (**Fsw1-8**). Connect the **In** of the F8 to the MIDI Out or Thru of the sending MIDI device. Connect the **Out** of the F8 to the MIDI In of the receiving MIDI device. It is recommended that the number of MIDI Solutions products chained together between any two MIDI devices be limited to five.

OPERATION

Please insure that the footswitches are plugged into the unit before power-up, as their polarities are stored at this time (if auto-polarity selected - see p. 6). The F8'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 footswitches causes the F8 to perform its programmed functions as described on the following pages.

PROGRAMMING

The F8 is programmed by sending it MIDI System Exclusive programming messages from a device capable of creating System Exclusive messages, such as a computer-based MIDI sequencer. These messages are described in detail on the following pages. For decimal to hexadecimal conversions, see the chart on page 10. Upon receipt of a System Exclusive message, the MIDI indicator LED flashes rapidly for about one second to indicate that the setting has been stored. Ensure that the LED completes its flashing after receiving each programming message before sending it subsequent messages. Settings are retained in non-volatile memory until reprogrammed with new settings.

PROGRAMMING COMMANDS

Device Parameters

The F8 has three parameters which are in effect regardless of the selected function. These parameters are *MIDI Echo*, *Footswitch Toggle*, and *Auto Polarity*.

When MIDI Echo is ON, all incoming MIDI information received by the F8 is echoed to the MIDI output. When MIDI Echo is OFF, only the messages generated by the F8 are sent to the MIDI output. When Toggle is OFF, the footswitch performs the *depress operation* when it is *depressed*, and the *release operation* when it is *released*. When Toggle is ON, the footswitch toggles between the *depress operation* and the *release operation* each time the footswitch is depressed (nothing is done on release of the footswitch). When Auto Polarity is ON, the F8 determines the polarity of each input based on the state of each footswitch on power-up. When Auto Polarity is OFF, the polarity of each input is forced according to the Polarity settings.

► To program these parameters, send the unit the following System Exclusive programming messages:

F0 00 00 50 24 00 01 aa F7 (all values in Hexadecimal)

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

F0 00 00 50 24 00 02 ii bb cc dd F7 (all values in Hexadecimal)

ii = footswitch input (00 for Fsw1 through to 07 for Fsw8)

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

Auto Polarity: OFF: **cc** = 00, ON: **cc** = 01

Polarity: NORMALLY OPEN: **dd** = 00, NORMALLY CLOSED: **dd** = 01

(**dd** ignored if **cc**=01)

Example: To program the F8 to echo incoming MIDI messages to the MIDI output send it the following command: F0 00 00 50 24 00 01 **01** F7

To program Fsw8 to toggle ON and force the polarity to NORMALLY OPEN, send the F8 the following message: F0 00 00 50 24 00 02 **07 01 00 00** F7

Simulate Footswitch Closure

► To cause the F8 to generate programmed settings for any footswitch input without physically depressing or releasing the footswitch, send it the following System Exclusive programming message:

F0 00 00 50 24 10 ii aa F7 (all values in Hexadecimal)

ii = footswitch input (00 for Fsw1 through to 07 for Fsw8)

Simulate: RELEASE: **aa** = 00, DEPRESSION: **aa** = 01

Example: To cause the F8 to simulate the release operation of Fsw5, send it the following message: F0 00 00 50 24 10 **04 00** F7

Note-On

- ▶ To program the F8 to generate a Note-On message when a footswitch is depressed, send it the following message:

F0 00 00 50 24 01 ii nn vv cc (nn vv) F7 (all values in Hexadecimal)

ii = footswitch input (00 for Fsw1 through to 07 for Fsw8)

nn = Note# vv = ON velocity cc = MIDI channel (see p. 11)

(nn vv) = additional notes and velocities (up to 8 notes total)

Note-Offs are sent on release of the footswitch

- Example:** To program Fsw6 of the F8 to send out a middle C, (Note #60 = 3C Hex) at a velocity of 64 (40 Hex) on channel 5, send it the following command:

F0 00 00 50 24 01 05 3C 40 04 F7

- ▶ To program the F8 to generate a Note-On only (with no corresponding Note-Off sent on release of the footswitch), replace the **01** above with a **11**:

F0 00 00 50 24 11 ii nn vv cc (nn vv) F7 (all values in Hexadecimal)

- ▶ To program the F8 to generate a Note-On followed by a Note-Off after a timed duration (regardless of when the footswitch is released), replace the **01** above with: **21** for an exact duration, **31** for a minimum duration, or **41** for a maximum duration. The duration time is specified by **tt** in 8 ms increments:

F0 00 00 50 24 (21, 31, or 41) ii tt nn vv cc (nn vv) F7 (values in Hex)

(the maximum value of **tt** is 7F, corresponding to 1016 ms)

Control Change

- ▶ To program the F8 to generate a Control Change message when a footswitch is depressed, send it the following System Exclusive message:

F0 00 00 50 24 02 ii nn vv cc (nn vv) F7 (all values in Hexadecimal)

ii = footswitch input (00 for Fsw1 through to 07 for Fsw8)

nn = Control Change# vv = value cc = MIDI channel (see p. 11)

(nn vv) = additional CC#s and values (up to 8 CC#s total)

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

- Example:** To program Fsw 5 of the F8 to send out full volume (Control Change #7) on all channels, send it the following: **F0 00 00 50 24 02 04 07 7F 7F F7**

- ▶ To program the F8 to generate a CC message at the programmed value only (with no corresponding CC value of zero sent on release of the footswitch), replace the **02** above with a **12**:

F0 00 00 50 24 12 ii nn vv cc (nn vv) F7 (all values in Hexadecimal)

- ▶ To program the F8 to generate a CC message followed by a zero value after a timed duration (regardless of when the footswitch is released), replace the **02** above with: **22** for an exact duration, **32** for a minimum duration, or **42** for a maximum duration. The duration time is specified by **tt** in 8ms increments:

F0 00 00 50 24 (22, 32, or 42) ii tt nn vv cc (nn vv) F7 (values in Hex)

(the maximum value of **tt** is 7F, corresponding to 1016 ms)

Pitch Bend

- ▶ To program the F8 to generate a Pitch Bend message when a footswitch is depressed, send it the following System Exclusive message:

F0 00 00 50 24 03 ii ll mm cc F7 (all values in Hexadecimal)

ii = footswitch input (00 for Fsw1 through to 07 for Fsw8)

ll = LSB value mm = MSB value

cc = MIDI channel (see p. 11)

(Pitch Bend is reset on release of the footswitch)

- Example:** To program Fsw1 of the F8 to send out a pitch change of +1 semitone (to receiving synth set to full octave pitch bend range) on channel 12, send it the following command: **F0 00 00 50 24 03 00 2B 45 0B F7**

- ▶ To program the F8 to generate a Pitch Bend message at the programmed value only (with no corresponding value of zero sent on release of the footswitch), replace the **03** above with a **13**:

F0 00 00 50 24 13 ii ll mm cc F7 (all values in Hexadecimal)

Program Change

- ▶ To program the F8 to generate a Program Change message when a footswitch is depressed, send it the following System Exclusive message:

F0 00 00 50 24 04 ii pp cc F7 (all values in Hexadecimal)

ii = footswitch input (00 for Fsw1 through to 07 for Fsw8)

pp = Program# cc = MIDI channel (see p. 11)

- Example:** To program Fsw2 of the F8 to send out the first program change to all MIDI channels, send it the following: **F0 00 00 50 24 04 01 00 7F F7**

Start/Stop

- ▶ To program the F8 to send out Start when the footswitch is depressed and Stop when it is released, send it the following System Exclusive programming message:

F0 00 00 50 24 05 ii F7 (all values in Hexadecimal)

ii = footswitch input (00 for Fsw1 through to 07 for Fsw8)

- To program the F8 to toggle between Start and Stop each time the footswitch is depressed, set the Footswitch Toggle parameter to Toggle ON (see p. 6).

Program INC/DEC

- ▶ Any two inputs of the F8 may be programmed to provide an INC/DEC Program Change function. One input is programmed as an increment input and the other as a decrement input. The inputs are programmed as follows:

INC input: F0 00 00 50 24 07 ii 01 cc F7 (all values in Hexadecimal)
DEC input: F0 00 00 50 24 07 ii 00 cc F7 (all values in Hexadecimal)
ii = footswitch input (00 for Fsw1 through to 07 for Fsw8)
cc = MIDI channel (see p. 11)

Example: To program Fsw5 and Fsw6 to act as INC/DEC inputs respectively, on MIDI channel 16, send the F8 the following:

F0 00 00 50 24 07 **04** 01 **0F** F7

F0 00 00 50 24 07 **05** 00 **0F** F7

System Exclusive

► To program the F8 to send out a System Exclusive message when the footswitch is depressed, send it the following:

F0 00 00 50 24 06 ii 01 F7, F0 ... F7 (20 bytes max.)

where **F0 ... F7** is the user-defined Sys. Ex. message

ii = footswitch input (00 for Fsw1 through to 07 for Fsw8)

► To program the F8 to send out a System Exclusive message when the footswitch is released, send it the following:

F0 00 00 50 24 06 ii 00 F7, F0 ... F7 (20 bytes max.)

where **F0 ... F7** is the user-defined Sys. Ex. message

ii = footswitch input (00 for Fsw1 through to 07 for Fsw8)

Example: To program Fsw4 of the F8 to send out 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 24 06 **03 01** F7 **F0 7F 7F 06 02 F7**

F0 00 00 50 24 06 **03 00** F7 **F0 7F 7F 06 01 F7**

Rechannelize

► To program an input of the F8 to rechannelize incoming MIDI data, send it the following System Exclusive programming message:

F0 00 00 50 24 09 ii cc (pp) F7 (all values in Hexadecimal)

ii = footswitch input (00 for Fsw1 through to 07 for Fsw8)

cc = incoming MIDI channel to rechannelize(see p. 11)

pp = preset channel (optional, see p. 11)

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. If no notes are received by the F8 during this period, the outgoing MIDI channel is set to the preset **pp**.

Example Operation: Once the F8 has been programmed with the message **F0 00 00 50 24 09 00 00 F7**, then to rechannelize to channel 2 depress Fsw1, hit any 2 keys, and release Fsw1. All channel 1 messages will now be rechannelized to channel 2.

Transpose

- ▶ To program an input of the F8 to transpose incoming note messages, send it the following System Exclusive programming message:

F0 00 00 50 24 0A ii cc F7 (all values in Hexadecimal)

ii = footswitch input (00 for Fsw1 through to 07 for Fsw8)

cc = MIDI channel (see p. 11)

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: Once the F8 has been programmed with the message **F0 00 00 50 24 0A 00 00 F7**, then to transpose channel 1 up by a major third depress Fsw1, hit E above middle C, and release Fsw1. All incoming notes on channel 1 will now be transposed up by a major third.

Tempo Tap

- ▶ To program an input of the F8 as a tempo tap input, send it the following System Exclusive programming message:

F0 00 00 50 24 0B ii F7 (all values in Hexadecimal)

ii = footswitch input (00 for Fsw1 through to 07 for Fsw8)

In tempo tap mode, the F8 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 an input of the F8 to filter Note-on messages on a selected MIDI channel, send it the following System Exclusive message:

F0 00 00 50 24 0C ii cc F7 (all values in Hexadecimal)

ii = footswitch input (00 for Fsw1 through to 07 for Fsw8)

cc = MIDI channel (see p. 11)

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.

Clear Settings

- ▶ To clear all of the F8's settings, send it the following System Exclusive programming message:

F0 00 00 50 24 00 00 F7 (all values in Hexadecimal)

MIDI CHANNEL TABLE

cc must be set according to the following table:

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

MIDI CONTROL CHANGE TABLE

Decimal	Hex	Control Function	Decimal	Hex	Control Function
0	00H	Bank Select	80-83	50-53H	General Purpose Controllers (#s 5-8)
1	01H	Modulation wheel or lever	84	54H	Portamento Control
2	02H	Breath Controller	85-90	55-5AH	Undefined
3	03H	Undefined	91	5BH	Effects 1 Depth (formerly External Effects Depth)
4	04H	Foot controller	92	5CH	Effects 2 Depth (formerly Tremolo Depth)
5	05H	Portamento time	93	5DH	Effects 3 Depth (formerly Chorus Depth)
6	06H	Data entry MSB	94	5EH	Effects 4 Depth (formerly Celeste (Detune) Depth)
7	07H	Channel Volume	95	5FH	Effects 5 Depth (formerly Phaser Depth)
8	08H	Balance	96,97	60H,61H	Data increment, Data decrement
9	09H	Undefined	98,99	62H,63H	Non-Registered Parameter Number LSB, MSB
10	0AH	Pan	100,101	64H,65H	Registered Parameter Number LSB, MSB
11	0BH	Expression Controller	102-119	66-77H	Undefined
12-13	0C-0DH	Effect Controls 1-2	120-127	78-7FH	Reserved for Channel Mode Messages
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)			

Dec/Hex		HEXADECIMAL CONVERSION TABLE															
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		

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