MIDI Solutions

Mapper

OPERATING INSTRUCTIONS

MIDI Solutions Mapper
Operating Instructions M207

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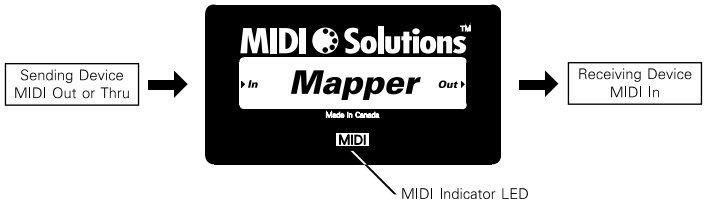
INTRODUCTION

Congratulations on your purchase of the MIDI Solutions Mapper. The MIDI Solutions Mapper maps MIDI messages from one type to another type in real time. Mapping capabilities include Control Change, Program Change, Channel Pressure, Pitch Bend, and Note messages, on all or selected MIDI channels. Up to 10 settings may be stored by the Mapper. Programmed settings are retained indefinitely in non-volatile memory until cleared or overwritten with new settings. The Mapper is MIDI-powered and requires no batteries or power supply to operate.



CONNECTIONS

To program the Mapper, connect the **In** of the Mapper to the MIDI Out of the device that is sending the programming commands. The **Out** can be left disconnected during programming.

Once the Mapper is programmed, it can be inserted anywhere in your MIDI setup. Connect the **In** of the Mapper to the MIDI Out or Thru of the sending MIDI device. Connect the **Out** of the Mapper 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

The Mapper's MIDI Indicator LED will light as soon as the sending device is turned on, and flashes whenever MIDI data passes through the unit. MIDI messages are mapped according to the Mapper's programmed settings as described on the following pages. All unmapped messages are sent unchanged to the MIDI Out.

PROGRAMMING

The mapping functions of the Mapper are 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 25. 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 cleared or overwritten with new settings.

Mapper Setting Priority

The Mapper will accept up to 10 settings. If more than 10 settings are sent to the Mapper, the oldest setting is discarded to make room for the most recent setting. MIDI Solutions Mapper gives the most recent setting priority over all previous settings. For example, if the Mapper is first programmed to map CC#2 to CC#5 *on all channels,* and then programmed to map CC#2 to CC#7 *on channel 3 only,* the result is that incoming CC#2 messages on channel 3 are mapped to CC#7, and CC#2 messages on all other MIDI channels are mapped to CC#5. It is possible for the Mapper to ignore setting priority (see next page).

Clear Settings

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

F0 00 00 50 07 00 F7 (all values in Hexadecimal)

It is advisable to send the Clear Settings message to the Mapper prior to programming it to insure that all previous settings are cleared.

To set up the Mapper to process all of its settings, regardless of priority, send it the following command in place of the above Clear Settings command:

F0 00 00 50 07 00 01 F7 (all values in Hexadecimal)

Dump Settings

To dump all of the Mapper's current settings, send it the following System Exclusive message:

F0 00 00 50 07 10 F7 (all values in Hexadecimal)

Upon receipt of this command the Mapper will dump its current settings to MIDI Out.

Mapper Setting

To program the Mapper to map an input MIDI message to an output MIDI message, send it the following System Exclusive programming message:

F0 00 00 50 07 01 aa nn bb mm cc F7 (all values in Hex)

aa = input MIDI data type
nn = input Control Change#, Note#, or Velocity
bb = output MIDI data type
mm = output Control Change#, Note#, or Velocity
cc = MIDI channel (see p. 19)

The tables on the following pages describe how these values are set.

Input MIDI Data Type

aa and **nn** specify the *input* MIDI data type, as follows:

Input Data Type	aa	nn
Control Change	00	Control Change#
Program Change	01	ignored
Channel Pressure	02	ignored
Pitch Bend	03	ignored
*Note Number	04	Range (number of notes mapped)
Note Velocity	05	Note#

*Range is centered on Note #64. Note values within the range are scaled from 0 to 127. Note values falling above the range are assigned a value of 127, notes falling below a value of 0.

Output MIDI Data Type

bb and **mm** specify the *output* MIDI data type, as follows:

Output Data Type	bb	mm
Control Change	00	Control Change#
Program Change	01	ignored
Channel Pressure	02	ignored
Pitch Bend	03	ignored
Note Number	04	Output Note Velocity
Note Velocity	05	Note#

Example

To program the Mapper to map Channel Pressure to Volume on channel 12, send it the following System Exclusive message:

F0 00 00 50 07 01 **02 00 00 07 0B** F7

In this example **aa** is set to 02 for input MIDI data type Channel Pressure. **nn** may be set to any value since it is ignored (In this case it is set to 00). **bb** is set to 00 for output MIDI data type Control Change. **mm** is set to 07 for CC#7 (See Control Change table on page 21). **cc** is set to 0B for MIDI channel 12.

MIDI CHANNEL TABLE

cc specifies the MIDI channels for which the message is mapped. **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
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	Main volume
8	08H	Balance

9	09H	Undefined
10	0AH	Pan
11	0BH	Expression Controller
12	0CH	Effect Control 1
13	0DH	Effect Control 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	60H	Data increment
97	61H	Data decrement
98	62H	Non-Registered Parameter Number LSB
99	63H	Non-Registered Parameter Number MSB
100	64H	Registered Parameter Number LSB
101	65H	Registered Parameter Number MSB
102-119	66-77H	Undefined
120-127	78-7FH	Reserved for Channel Mode Messages

HEXADECIMAL CONVERSION TABLE

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

MIDI Solutions Inc. warrants this product to be free from defects in material and workmanship for a period of one (1) year from date of purchase. This warranty is void if the product has been damaged by accident, misuse, alteration, unauthorized repairs or other causes not arising out of defects in material or workmanship. Under no circumstances will MIDI Solutions be liable for any loss of profits, benefits, time, interrupted operation, commercial loss, or consequential damages arising out of the use or inability to use the product. MIDI Solutions specifically disclaims any implied warranties of merchantability and fitness for a particular purpose. If the product requires service, a Return Merchandise Authorization (RMA) number must be obtained from MIDI Solutions and the product must be shipped prepaid to a specified Service Center. MIDI Solutions will repair or replace the product at our discretion and will pay return shipping fees. The customer is responsible for any damage or loss sustained during shipment in any direction.