

OPERATING INSTRUCTIONS

MIDI Solutions Relay
Operating Instructions M206

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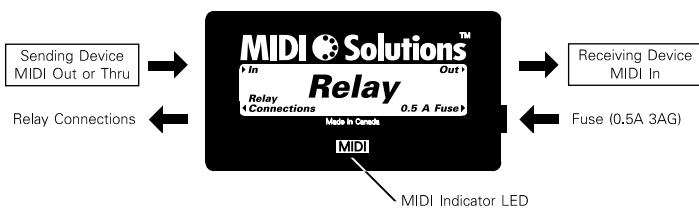
INTRODUCTION

Congratulations on your purchase of the MIDI Solutions Relay. The MIDI Solutions Relay is a MIDI-controlled relay switch that allows a footswitch or contact closure to be placed under MIDI control. The Relay can be programmed to respond to Note, Control Change, Program Change, and System Exclusive messages. Programmed settings are retained in non-volatile memory until cleared or overwritten with new settings. The Relay is MIDI-powered and requires no batteries or power supply to operate.

CONNECTIONS

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

Once the Relay is programmed, it can be inserted anywhere in your MIDI setup. Connect the **In** of the Relay to the MIDI Out or Thru of the sending MIDI device. The **Relay Connections** can be made to a footswitch input or contact closure. The **Out** of the Relay can be connected to the MIDI In of a receiving MIDI device or left disconnected. If the Relay is being connected to a device other than a footswitch input, insure that the switching require-



ments do not exceed the relay ratings on page 27. It is recommended that the number of MIDI Solutions products chained together between any two MIDI devices be limited to five.

OPERATION

The Relay's MIDI Indicator LED will light as soon as the sending device is turned on, and flashes whenever MIDI data passes through the unit. The Relay will respond to MIDI messages according to its programmed settings. All MIDI messages appearing at the MIDI input are sent to the MIDI Out.

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PROGRAMMING

The MIDI messages that the relay responds to are programmed by sending the unit 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.

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Clear Settings

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

F0 00 00 50 06 00 F7 (all values in Hexadecimal)

It is advisable to send the Clear Settings command to the Relay prior to programming the unit to insure that all previous settings are cleared.

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Dump Settings

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

F0 00 00 50 06 10 F7 (all values in Hexadecimal)

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

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Note

To program the Relay to respond to a Note message, send it the following System Exclusive programming message:

F0 00 00 50 06 01 aa bb cc F7 (all values in Hexadecimal)

aa = 00: relay OPEN for Note-ons and Note-offs

aa = 01: relay CLOSED for Note-ons and Note-offs

aa = 02: relay CLOSED for Note-ons, OPEN for Note-offs

aa = 03: relay OPEN for Note-ons, CLOSED for Note-offs

bb = MIDI Note#

cc = MIDI channel (see p. 20)

The Relay will accept up to 10 Note or Controller settings.

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Example: To program the Relay to close when middle C, channel 4 is pressed and open when it is released, set **aa** = 02 (relay CLOSED for Note-ons, OPEN for Note-offs), **bb** = 3C (3C is the Hex value for 60, which is the Note# of middle C), and **cc** = 03 (see table p. 20). These values result in the following System Exclusive programming message:

F0 00 00 50 06 01 02 3C 03 F7

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Control Change

To program the Relay to respond to a Control Change message, send it the following System Exclusive message:

F0 00 00 50 06 02 aa bb cc F7 (all values in Hexadecimal)

aa = 00: Relay OPEN for all control values

aa = 01: Relay CLOSED for all control values

aa = 02: Relay OPEN for 00H - 3FH, CLOSED for 40H - 7FH

aa = 03: Relay CLOSED for 00H - 3FH, OPEN for 40H - 7FH

bb = MIDI Control Change#

cc = MIDI channel (see p. 20)

The Relay will accept up to 10 Note or Controller settings.

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Example: To program the Relay to close during sustain on any channel, set **aa** = 02 (relay CLOSED for Control Change values above 3FH only), **bb** = 40 (40 is the Hex value for 64, which is the Control Change# for Sustain), and **cc** = 7F (see table p. 20). These values result in the following System Exclusive programming message:

F0 00 00 50 06 02 02 40 7F F7

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Program Change

To program the Relay to respond to Program Change messages, send it the following System Exclusive programming message:

F0 00 00 50 06 03 cc pp pp ... pp F7 (all values in Hex)
 cc = MIDI channel
 pp pp ... pp = program numbers for relay to CLOSE
 (other program numbers cause relay to OPEN)
 New Program Change settings overwrite previous settings.

Example: To program the Relay to close during programs 5, 7, and 12 on channel 10, send it the following System Exclusive programming message:

F0 00 00 50 06 03 **09 05 07 0C** F7

If program numbers of the receiving device start at 1 instead of 0, then the following message is sent:

F0 00 00 50 06 03 **09 04 06 0B** F7

System Exclusive

To program the Relay to CLOSE upon receiving a System Exclusive message, send it the following:

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

To program the Relay to OPEN upon receiving a System Exclusive message, send it the following:

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

Example: To program the Relay to CLOSE when the MIDI Machine Control *Play* command (F0 7F 7F 06 02 F7) is received, and OPEN when the *Stop* command (F0 7F 7F 06 01 F7) is received, send it the following:

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

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
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

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		

RELAY CONTACT RATINGS

Relay Contact Ratings

3W 150Vdc 0.5A

Replacement Fuse

0.5A 3AG Fast Acting

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.