

MIDI Implementation

Model: SP-303
Date: Jan 10, 2001
Version: 1.00

When used as a rhythm sound module, Note Numbers 5FH-7FH (95-127) are received.

* For instructions on using the unit as a rhythm sound module, refer to "Using the SP-303 as a Rhythm Sound Module" in the Owner's Manual (p. 58).

1. RECOGNIZED RECEIVE DATA

■ CHANNEL VOICE MESSAGE

● Note On/Off

○ Note On

Status	Second	Third
9nH	mmH	llH

n = MIDI Channel No.: 00H - 0FH (ch.1 - ch.16)
mm = Note No.: 00H - 7FH (0 - 127)
ll = Velocity: 01H - 7FH (1 - 127)

○ Note Off

Status	Second	Third
8nH	mmH	llH
9nH	mmH	00H

n = MIDI Channel No.: 00H - 0FH (ch.1 - ch.16)
mm = Note No.: 00H - 7FH (0 - 127)
ll = Velocity: 00H - 7FH (0 - 127)

Received over the channels set with MIDI Channel.

* For instructions on setting MIDI channels, refer to "How to Change the MIDI Channel" in the Owner's Manual (p. 53).

At the factory settings, Note Numbers 23H-43H (35-67) are received.

* For instructions on restoring the MIDI settings to the values set at the factory, refer to "Restoring the MIDI Settings to the Factory Settings" in the Owner's Manual (p. 58).

Pad Number	Note Number
Pad EXT SOURCE	35 (23H)
Pad A1	36 (24H)
Pad A2	37 (25H)
Pad A3	38 (26H)
Pad A4	39 (27H)
Pad A5	40 (28H)
Pad A6	41 (29H)
Pad A7	42 (2AH)
Pad A8	43 (2BH)
Pad B1	44 (2CH)
Pad B2	45 (2DH)
Pad B3	46 (2EH)
Pad B4	47 (2FH)
Pad B5	48 (30H)
Pad B6	49 (31H)
Pad B7	50 (32H)
Pad B8	51 (33H)
Pad C1	52 (34H)
Pad C2	53 (35H)
Pad C3	54 (36H)
Pad C4	55 (37H)
Pad C5	56 (38H)
Pad C6	57 (39H)
Pad C7	58 (3AH)
Pad C8	59 (3BH)
Pad D1	60 (3CH)
Pad D2	61 (3DH)
Pad D3	62 (3EH)
Pad D4	63 (3FH)
Pad D5	64 (40H)
Pad D6	65 (41H)
Pad D7	66 (42H)
Pad D8	67 (43H)

Pad Number	Note Number
Pad EXT SOURCE	95 (5FH)
Pad A1	96 (60H)
Pad A2	97 (61H)
Pad A3	98 (62H)
Pad A4	99 (63H)
Pad A5	100 (64H)
Pad A6	101 (65H)
Pad A7	102 (66H)
Pad A8	103 (67H)
Pad B1	104 (68H)
Pad B2	105 (69H)
Pad B3	106 (6AH)
Pad B4	107 (6BH)
Pad B5	108 (6CH)
Pad B6	109 (6DH)
Pad B7	110 (6EH)
Pad B8	111 (6FH)
Pad C1	112 (70H)
Pad C2	113 (71H)
Pad C3	114 (72H)
Pad C4	115 (73H)
Pad C5	116 (74H)
Pad C6	117 (75H)
Pad C7	118 (76H)
Pad C8	119 (77H)
Pad D1	120 (78H)
Pad D2	121 (79H)
Pad D3	122 (7AH)
Pad D4	123 (7BH)
Pad D5	124 (7CH)
Pad D6	125 (7DH)
Pad D7	126 (7EH)
Pad D8	127 (7FH)

■ CHANNEL MODE MESSAGE

● AllSound Off (Controller Number 120)

Status	Second	Third
BnH	78H	00H

n = MIDI Channel No.: 00H - 0FH (ch.1 - ch.16)

Received over the MIDI channel set with MIDI Channel. It causes all sounds to stop sounding.

* For instructions on setting MIDI channels, refer to "How to Change the MIDI Channel" in the Owner's Manual (p. 53).

■ System Common Message

● Song Position Pointer

Status	Second	Third
F2H	mmH	nnH

nn, mm = Song Position Point: 00H 00H - 7FH 7FH

When the MIDI Sync mode is set to "AUTO SYNC," this is received if the pattern is stopped. It sets the position from which the pattern is to be performed. If the Song Position Pointer is at a point beyond the length of the pattern, then the Song Position Pointer is set at the point where the pattern ends and the remaining patterns begin.

* For instructions on making the MIDI Sync mode settings, refer to "Using the SP-303 With a MIDI Sequencer (Tempo Sync)" in the Owner's Manual (p. 54).

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SYSTEM REALTIME MESSAGE

* For instructions on making the MIDI Sync mode settings in the following material, refer to "Using the SP-303 With a MIDI Sequencer (Tempo Sync)" in the Owner's Manual (p. 54).

Timing Clock

Status

F8H

Received while MIDI Sync mode is set to "AUTO SYNC" or "TEMPO SYNC," this controls the performance tempo of the pattern.

Start

Status

FAH

Received while MIDI Sync mode is set to "AUTO SYNC," this starts the performance of the pattern.

Continue

Status

FBH

Received while MIDI Sync mode is set to "AUTO SYNC," this starts the performance of the pattern.

Stop

Status

FCH

Received while MIDI Sync mode is set to "AUTO SYNC," this starts the performance of the pattern.

2. TRANSMITTED DATA

The SP-303 has no MIDI OUT connector, so no data is transmitted.

3. Supplementary material

Decimal/Hexadecimal table

(hexadecimal values are indicated by a following "H")

MIDI uses 7-bit hexadecimal values to indicate data values and the address and size of exclusive messages. The following table shows the correspondence between decimal and hexadecimal numbers.

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

D: decimal

H: hexadecimal

- * Decimal expressions such as used for MIDI channel, Bank Select, and Program Change will be the value 1 greater than the decimal value given in the above table.
- * Since each MIDI byte carries 7 significant data bits, each byte can express a maximum of 128 different values. Data for which higher resolution is required must be transmitted using two or more bytes. For example a value indicated as a two-byte value of aa bbH would have a value of $aa \times 128 + bb$.
- * For a signed number (+/-), 00H = -64, 40H = +/-0, and 7FH = +63. I.e., the decimal equivalent will be 64 less than the decimal value given in the above table. For a two-byte signed number, 00 00H = -8192, 40 00H = +/-0, and 7F 7FH = +8191. For example the decimal expression of aa bbH would be $aa \text{ bbH} - 40 \text{ 00H} = (aa \times 128 + bb - 64 \times 128)$.
- * Hexadecimal notation in two 4-bit units is used for data indicated as 'nibbled'. The nibbled two-byte value of 0a 0b H would be $a \times 16 + b$.

<Example1>

What is the decimal equivalent of 5AH?

From the above table, 5AH = 90.

<Example2>

What is the decimal equivalent of the 7-bit hexadecimal values 12 34H?

From the above table, 12H = 18 and 34H = 52

Thus, $18 \times 128 + 52 = 2356$

<Example3>

What is the decimal equivalent of the nibbled expression 0A 03 09 0DH?

From the above table, 0AH = 10, 03H = 3, 09H = 9, 0DH = 13

Thus, the result is $((10 \times 16 + 3) \times 16 + 9) \times 16 + 13 = 41885$

<Example4>

What is the nibbled equivalent of the decimal number 1258?

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16 ) 1258
    ) 78...10
16 )   4...14
    )   0... 4
    
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From the above table, 0=00H, 4=04H, 14=0EH, 10=0AH

Thus the result is 00 04 0E 0AH