MIDI Implementation

Model: XS-100
Date: Sep. 1, 2025
Version: 1.00

If “MIDI -THRU” is set to ON, all received messages are transmitted.

1. Receive Data

■Channel Voice Messages

●Control Change

Status	2nd byte	3rd byte
BnH	ccH	vvH

n = MIDI Channel number : 0H - FH (ch.1 - ch.16)
cc = Controller number : 01H - 1FH (1 - 31),
: 21H - 3FH (32 - 63),
: 40H - 5FH (64 - 95)
vv = Control value : 00H - 7FH (0 - 127)

* The XS-100 recognizes this message when “MIDI - CC IN” is set to ON
* Only channels that match the value set in "RX CH" are recognized.
* When it is received with the controller number set to “MIDI CC - EXP1” or “MIDI CC - EXP2” , it is processed in 14 bits (MSB and LSB).

Correspondence between Control value and action

Controller	Control value (MSB only)	Action
SW1A / SW2A / SW1B / SW2B / CTL1 / CTL2 / EXP1 SW	0 – 63	Release
	64 – 127	Press
EFX / PITCH / T.DOWN(TUNE DOWN) / DETUNE	0 – 63	OFF
	64 – 127	ON

* The XS-100 ignores control value of LSB

Correspondence between Control value and EXP(EXP1/EXP2) pedal position

Control value (MSB)	Control value (LSB)	EXP pedal position
0	0 – 127	0% (MIN)
1 – 126	0 - 127	((MSB * 128 + LSB) / 16256)%
127	0 – 127	100% (MAX)

* The actual value at the pedal position operates as the maximum value (MAX) of the parameter set in “CTL - EXP1/EXP2”.

●Program Change

Status	2nd byte
CnH	ppH

n = MIDI Channel number : 0H - FH (ch.1 - ch.16)
pp = Program number : 00H - 7FH (prog.1 - prog.128)

* When "MIDI - PC IN" is set to ON, only the channel set by "RX CH" is recognized and "PC IN" is set to OFF, the XS-100 ignores this message.
* Change to the memory number set to #1 - #128 in "PC MAP"
* The #1 - #128 of "PC MAP" is set to OFF, the XS-100 ignores the program number.
* The XS-100 ignores BANK SELECT (controller number 0 and 32) messages.

■System Realtime Message

●Active Sensing

Status
FEH

* After receiving the active sensing, the XS-100 will begin monitoring the interval of all further messages. While monitoring, if the interval between messages exceeds 512 ms, the XS-100 will reset the internal state and stop monitoring the interval of all messages.

■System Exclusive Messages

Status	Data byte	Status
F0H	iiH, ddH, ..., eeH	F7H

F0H : System Exclusive Message status
ii = ID number : An ID number (manufacturer ID) to indicate the manufacturer whose Exclusive message this is. Roland's manufacturer ID is 41H.
ID numbers 7EH is extensions of the MIDI standard; Universal Non-realtime Messages(7EH).
dd,...., ee : 00H - 7FH (0 - 127)
F7H : EOX (End Of Exclusive)

●Universal Non-realtime System Exclusive Messages

○Identity Request Message

Status	Data byte	Status
F0H	7EH, dev, 06H, 01H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
dev	Device ID (dev:10H, 7FH) * 7FH = Broadcast
06H	Sub ID #1 (General Information)
01H	Sub ID #1 (Identity Request)
F7H	EOX (End Of Exclusive)

○Request Data 1 RQ1(11H)

Status	Data byte	Status
F0H	41H, dev, 06H, 02H, 11H, aaH, bbH, ccH, ddH, eeH, ffH, ggH, hhH, sum	F7H

Byte	Explanation
F0H	Exclusive status
41H	ID number (Roland)
dev	Device ID (10H, 7FH) 7FH=Broadcast

06H 02H	Model ID (XS-100)
11H	Command ID (RQ1)
aaH	Address MSB
bbH	Address 2nd byte
ccH	Address 3rd byte
ddH	Address LSB
eeH	Size MSB
ffH	Size 2nd byte
ggH	Size 3rd byte
hhH	Size LSB
sum	Checksum
F7H	EOX (End Of Exclusive)

○Data Set 1 DT1(12H)

Status	Data byte	Status
F0H	41H, dev, 06H, 02H, 12H, aaH bbH ccH, ddH, eeH, ... ffH, sum	F7H

Byte	Explanation
F0H	Exclusive status
41H	ID number (Roland)
dev	Device ID (10H, 7FH) 7FH=Broadcast
06H 02H	Model ID (XS-100)
12H	Command ID(DT1)
aaH	Address MSB
bbH	Address 2nd byte
ccH	Address 3rd byte
ddH	Address LSB
eeH	Data
:	
ffH	Data
sum	Checksum
F7H	EOX (End Of Exclusive)

2, Transmit data

■Channel Voice Messages

●Control Change

○Bank Select (Controller number 0, 32)

Status	2nd byte	3rd byte
BnH	00H	mmH
BnH	20H	llH

n = MIDI Channel number : 0H - FH (ch.1 - ch.16)
mm = Bank number MSB : 00H (fixed value)
ll = Bank number LSB : 00H (fixed value)

* When "MIDI - PC OUT" is set to on, XS-100 transmits on the channel set in "MIDI - TX CH".
* When " MIDI – BANK SEL" is set to "MSB", the Bank Select LSB (controller number 32) messages are not transmitted and when " MIDI – BANK SEL" is set to "OFF", the Bank Select messages are not transmitted.

○Controller number 1 - 31

Status	2nd byte	3rd byte
BnH	ccH	vvH

n = MIDI Channel number : 0H - FH (ch.1 - ch.16)
cc = Controller number : 01H - 1FH (1 - 31),
: 21H - 3FH (33 - 63),
: 40H - 5FH (64 - 95)
vv = Control value : 00H - 7FH (0 - 127)

* When "MIDI - CC OUT" is set to on, the XS-100 transmits on the channel set in "MIDI - TX CH".

Correspondence between action and Control value

Controller	Action	Control value (MSB only)
SW1A / SW2A / SW1B / SW2B / CTL1 / CTL2 / EXP1 SW	Release	0
	Press	127
EFX / PITCH / T.DOWN(TUNE DOWN) / DETUNE	OFF	0
	ON	127

* The XS-100 does not transmit the LSB value.

Correspondence between EXP(EXP1/EXP2) pedal position and Control value

EXP pedal position	Control value (MSB)	Control value (LSB) *1
0% (MIN)	0	0
1% - 99%	*2	*3
100% (MAX)	127	127

*1 Transmitted when the controller number is set to 1–31.
*2 formula : ((position * (16255 - 128) / (99 - 1) + 128) / 128
*3 formula : ((position * (16255 - 128) / (99 - 1) + 128) – MSB value * 128

* The actual value change depends on the "CTL - EXP1/EXP2" setting and the value of the parameter set to "CTL - EXP1/EXP2".

●Program Change

Status	2nd byte
CnH	ppH

n = MIDI Channel number : 0H - FH (ch.1 - ch.16)
pp = Program number : 00H – 1DH (prog.1 - prog.30)

* When "MIDI - PC OUT" is set to on, XS-100 transmits on the channel set in "MIDI - TX CH".

Correspondence between program number and Memory number (Not modifiable)

MEMORY number	Program number
1	Prog. 1(00H)
2	Prog. 2(01H)
	:
29	Prog. 29(1CH)
30	Prog. 30(1DH)

■System Realtime Message

●Active Sensing

Status
FEH

* The XS-100 transmits active sensing at intervals of approximately 256ms.

■System Exclusive Messages

●Universal Non-realtime System Exclusive message

○Identity Reply message

Status	Data byte	Status
F0H	7EH, dev, 06H, 02H, 41H, 02H, 06H, 01H, 00H, r1, r2, r3, r4	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal non-realtime message)
dev	Device ID (dev:10H fixed)
06H	Sub ID #1 (General Information)
02H	Sub ID #2 (Identity Reply)
41H	Manufacturer ID (Roland)
02H 06H	Device family code (XS-100)
01H 00H	Device family member code
r1 r2 r3 r4	Software revision level (00H 00H 00H 00H)
F7H:	EOX (End Of Exclusive)

○Data Set1 DT1(12H)

Status	Data byte	Status
F0H	41H, 10H, 06H, 02H, 12H, aaH, bbH, ccH, ddH, eeH, ... ffH, sum	F7H

Byte	Explanation
F0H	Exclusive status
41H	ID number (Roland)
10H	Device ID (fixed)
06H 02H	Model ID
12H	Command ID(DT1)
aaH	Address MSB
bbH	Address 2nd byte
ccH	Address 3rd byte
ddH	Address LSB
eeH	Data
:	
ffH	Data
sum	Checksum
F7H	EOX (End Of Exclusive)

3. Parameter Address Map

Model ID : 06H 02H Device ID : 10H (fixed)

Start Address	Description
00 00 00 00	SETUP group
10 00 00 00	SYSTEM group
20 00 00 00	MEMORY (TEMPORARY) block
20 10 00 00	MEMORY #1 block
:	:
23 60 00 00	MEMORY #30 block

* SETUP group Offset address

Offset Address	Description
00 00 00	SETUP COM
00 10 00	SETUP SYS

* SYSTEM group Offset address

Offset Address	Description
00 00 00	SYSTEM COM
00 10 00	SYSTEM CTL/CTL PREF
00 20 00	SYSTEM MIDI
00 30 00	SYSTEM PC MAP

* MEMORY block Offset address

Offset Address	Description
00 00 00	MEMORY CTL
00 10 00	MEMORY EFFECT

* SETUP COM Parameter Offset Address

Offset Address		Description	
00 00	000d dddd	Current Memory Number	(0 - 29) 01 – 30

* SETUP SYS Parameter Offset Address

Offset Address		Description	
00 00	0000 000d	DISPLAY MODE	(0 - 1) EFFECT, MEMORY

* SYSTEM COM Parameters Offset Address

Offset Address		Description	
00 00	000d dddd	MEMORY EXTENT MIN (EXT MIN)	(0 - 29) *1 1 - 30
00 01	000d dddd	MEMORY EXTENT MAX (EXT MAX)	(0 - 29) *1 1 - 30
00 02	0000 000d	BYPASS	(0 - 1) ANA, DSP
00 03	0000 000d	EXP1 Pedal hold (EXP1 HOLD)	(0 - 1) OFF, ON
00 04	0000 000d	EXP2 Pedal hold (EXP2 HOLD)	(0 - 1) OFF, ON
00 05	0000 dddd	EXP1 Pedal sw threshold (EXP1 SW THRE)	(0 - 9) 1 - 10
00 06	0000 dddd	DISPLAY Contrast (CONTRAST)	(1 - 10) 1 - 10
00 07	0000 000d	SW MODE	(0 - 1) A, B
00 08	0000 000d	AUTO OFF	(0 - 1) OFF, ON

*1 These parameters must be sent and received in the same system exclusive message and these parameters are ignored if value of EXTENT MIN is greater than value of EXTENT MAX when the XS-100 received DT1 system exclusive message.

* SYSTEM CTL/CTL PREF Parameters Offset Address

Offset Address		Description	
00 00	0000 000d	SW1A Preference (CTL PREF - SW1A)	(0 - 1) MEM, SYS
00 01	0000 000d	SW2A Preference (CTL PREF - SW2A)	(0 - 1) MEM, SYS
00 02	0000 000d	SW1B Preference (CTL PREF - SW1B)	(0 - 1) MEM, SYS
00 03	0000 000d	SW2B Preference (CTL PREF - SW2B)	(0 - 1) MEM, SYS
00 04	0000 000d	EXP1 Preference (CTL PREF - EXP1)	(0 - 1) MEM, SYS
00 05	0000 000d	EXP1 SW Preference (CTL PREF - EXP1 SW)	(0 - 1) MEM, SYS
00 06	0000 000d	CTL1 Preference (CTL PREF - CTL1)	(0 - 1) MEM, SYS
00 07	0000 000d	CTL2 Preference (CTL PREF - CTL2)	(0 - 1) MEM, SYS
00 08	0000 000d	EXP2 Preference (CTL PREF - EXP2)	(0 - 1) MEM, SYS
00 09	00dd dddd	SW1A Function (CTL - SW1A)	(0 - 48) OFF, EFX, EFX:M, P.SHIFT, P.SHIFT:M, P+1OCT, P+1OCT:M, P-1OCT, P-1OCT:M, T.DN, T.DN:M, DTNE, DTNE:M, DIR, DIR:M, M.UP, M.UP(D, M.DN, M.DN(U, M.#1 - M.#30
00 0A	00dd dddd	SW2A Function (CTL - SW2A)	(0 - 48) OFF, EFX, EFX:M, P.SHIFT, P.SHIFT:M, P+1OCT, P+1OCT:M, P-1OCT, P-1OCT:M, T.DN, T.DN:M, DTNE, DTNE:M, DIR, DIR:M, M.UP, M.UP(D, M.DN, M.DN(U, M.#1 - M.#30
00 0B	0000 00dd	SW1+2 Function (CTL - SW1+2)	(0 - 2) OFF, MODE1, MODE2
00 0C	00dd dddd	SW1B Function (CTL - SW1B)	(0 - 48) OFF, EFX, EFX:M, P.SHIFT, P.SHIFT:M, P+1OCT, P+1OCT:M, P-1OCT, P-1OCT:M, T.DN, T.DN:M, DTNE, DTNE:M, DIR, DIR:M, M.UP, M.UP(D, M.DN, M.DN(U, M.#1 - M.#30
00 0D	00dd dddd	SW2B Function (CTL - SW2B)	(0 - 48) OFF, EFX, EFX:M, P.SHIFT, P.SHIFT:M, P+1OCT, P+1OCT:M, P-1OCT, P-1OCT:M, T.DN, T.DN:M, DTNE, DTNE:M, DIR, DIR:M, M.UP, M.UP(D, M.DN, M.DN(U, M.#1 - M.#30
00 0E	0000 0ddd	EXP1 Function (CTL - EXP1)	(0 - 5) OFF, P.SHIFT, DTNE, E.LVL, D.LVL, BAL

00 0F	0000 dddd	EXP1 SW Function (CTL - - SW)	(0 - 14)
			OFF, EFX, EFX:M, P.SHIFT, P.SHIFT:M, P+1OCT, P+1OCT:M, P-1OCT, P-1OCT:M, T.DN, T.DN:M, DTNE, DTNE:M, DIR, DIR:M, M.UP, M.UP(D, M.DN, M.DN(U, M.#1 - M.#30
00 10	00dd dddd	CTL1 Function (CTL - CTL1)	(0 - 49)
			OFF, EFX, EFX:M, P.SHIFT, P.SHIFT:M, P+1OCT, P+1OCT:M, P-1OCT, P-1OCT:M, T.DN, T.DN:M, DTNE, DTNE:M, DIR, DIR:M, SW MODE, M.UP, M.UP(D, M.DN, M.DN(U, M.#1 - M.#30
00 11	00dd dddd	CTL2 Function (CTL - CTL2)	(0 - 49)
			OFF, EFX, EFX:M, P.SHIFT, P.SHIFT:M, P+1OCT, P+1OCT:M, P-1OCT, P-1OCT:M, T.DN, T.DN:M, DTNE, DTNE:M, DIR, DIR:M, SW MODE, M.UP, M.UP(D, M.DN, M.DN(U, M.#1 - M.#30
00 12	0000 0ddd	EXP2 Function (CTL - EXP2)	(0 - 5)
			OFF, P.SHIFT, DTNE, E.LVL, D.LVL, BAL

* SYSTEM MIDI Parameters Offset Address

Offset Address	Description		
00 00	000d dddd	MIDI Tx Channel (MIDI - TX CH)	(0 - 17) Ch.1 - Ch.16, RX, OFF
00 01	000d dddd	MIDI Rx Channel (MIDI - RX CH)	(0 - 16) Ch.1 - Ch.16, OFF
00 02	0000 000d	PC IN sw (MIDI - PC IN)	(0 - 1) OFF, ON
00 03	0000 000d	PC OUT sw (MIDI - PC OUT)	(0 - 1) OFF, ON
00 04	0000 000d	CC IN sw (MIDI - CC IN)	(0 - 1) OFF, ON
00 05	0000 000d	CC OUT sw (MIDI - CC OUT)	(0 - 1) OFF, ON
00 06	0000 00dd	BANK SELECT TX mode (MIDI - BANK SEL)	(0 - 2) M+L(MSB+LSB), MSB, OFF
00 07	0000 000d	MIDI THRU sw (MIDI - THRU)	(0 - 1) OFF, ON
00 08	00dd dddd	SW1A CC# (MIDI CC - SW1A)	(0 - 63) OFF, 1 - 31, 64 - 95
00 09	00dd dddd	SW2A CC# (MIDI CC - SW2A)	(0 - 63) OFF, 1 - 31, 64 - 95
00 0A	00dd dddd	SW1B CC# (MIDI CC - SW1B)	(0 - 63) OFF, 1 - 31, 64 - 95
00 0B	00dd dddd	SW2B CC# (MIDI CC - SW2B)	(0 - 63) OFF, 1 - 31, 64 - 95
00 0C	00dd dddd	EXP1 CC# (MIDI CC - EXP1)	(0 - 63) OFF, 1 - 31, 64 - 95
00 0D	00dd dddd	EXP1 SW CC# (MIDI CC - EXP1 SW)	(0 - 63) OFF, 1 - 31, 64 - 95
00 0E	00dd dddd	CTL1 CC# (MIDI CC - CTL1)	(0 - 63) OFF, 1 - 31, 64 - 95
00 0F	00dd dddd	CTL2 CC# (MIDI CC - CTL2)	(0 - 63) OFF, 1 - 31, 64 - 95
00 10	00dd dddd	EXP2 CC# (MIDI CC - EXP2)	(0 - 63) OFF, 1 - 31, 64 - 95
00 11	00dd dddd	EFFECT SW CC# (MIDI CC - EFX)	(0 - 63) OFF, 1 - 31, 64 - 95
00 12	00dd dddd	PITCH SW CC# (MIDI CC - PITCH)	(0 - 63) OFF, 1 - 31, 64 - 95
00 13	00dd dddd	TUNE DOWN SW CC# (MIDI CC - TUNE.DN)	(0 - 63) OFF, 1 - 31, 64 - 95
00 14	00dd dddd	DETUNE SW CC# (MIDI CC - DETUNE)	(0 - 63) OFF, 1 - 31, 64 - 95

* SYSTEM PC MAP Parameters Offset Address

Offset Address	Description		
00 00	000d dddd	#1	(0 - 30) OFF, M.#1 - M.#30
00 01	000d dddd	#2	(0 - 30) OFF, M.#1 - M.#30
00 02	000d dddd	#3	(0 - 30) OFF, M.#1 - M.#30
00 03	000d dddd	#4	(0 - 30) OFF, M.#1 - M.#30
00 04	000d dddd	#5	(0 - 30) OFF, M.#1 - M.#30
00 05	000d dddd	#6	(0 - 30) OFF, M.#1 - M.#30
00 06	000d dddd	#7	(0 - 30) OFF, M.#1 - M.#30
00 07	000d dddd	#8	(0 - 30) OFF, M.#1 - M.#30
00 08	000d dddd	#9	(0 - 30) OFF, M.#1 - M.#30
00 09	000d dddd	#10	(0 - 30) OFF, M.#1 - M.#30
00 0A	000d dddd	#11	(0 - 30) OFF, M.#1 - M.#30
00 0B	000d dddd	#12	(0 - 30) OFF, M.#1 - M.#30
00 0C	000d dddd	#13	(0 - 30) OFF, M.#1 - M.#30
00 0D	000d dddd	#14	(0 - 30) OFF, M.#1 - M.#30
00 0E	000d dddd	#15	(0 - 30) OFF, M.#1 - M.#30
00 0F	000d dddd	#16	(0 - 30) OFF, M.#1 - M.#30
00 10	000d dddd	#17	(0 - 30) OFF, M.#1 - M.#30
00 11	000d dddd	#18	(0 - 30) OFF, M.#1 - M.#30
00 12	000d dddd	#19	(0 - 30) OFF, M.#1 - M.#30
00 13	000d dddd	#20	(0 - 30) OFF, M.#1 - M.#30
00 14	000d dddd	#21	(0 - 30) OFF, M.#1 - M.#30
00 15	000d dddd	#22	(0 - 30) OFF, M.#1 - M.#30
00 16	000d dddd	#23	(0 - 30) OFF, M.#1 - M.#30
00 17	000d dddd	#24	(0 - 30) OFF, M.#1 - M.#30
00 18	000d dddd	#25	(0 - 30) OFF, M.#1 - M.#30
00 19	000d dddd	#26	(0 - 30) OFF, M.#1 - M.#30
00 1A	000d dddd	#27	(0 - 30) OFF, M.#1 - M.#30
00 1B	000d dddd	#28	(0 - 30) OFF, M.#1 - M.#30
00 1C	000d dddd	#29	(0 - 30) OFF, M.#1 - M.#30
00 1D	000d dddd	#30	(0 - 30) OFF, M.#1 - M.#30
00 1E	000d dddd	#31	(0 - 30) OFF, M.#1 - M.#30
00 1F	000d dddd	#32	(0 - 30) OFF, M.#1 - M.#30
00 20	000d dddd	#33	(0 - 30) OFF, M.#1 - M.#30
00 21	000d dddd	#34	(0 - 30) OFF, M.#1 - M.#30
00 22	000d dddd	#35	(0 - 30) OFF, M.#1 - M.#30
00 23	000d dddd	#36	(0 - 30) OFF, M.#1 - M.#30
00 24	000d dddd	#37	(0 - 30) OFF, M.#1 - M.#30
00 25	000d dddd	#38	(0 - 30) OFF, M.#1 - M.#30
00 26	000d dddd	#39	(0 - 30) OFF, M.#1 - M.#30
00 27	000d dddd	#40	(0 - 30) OFF, M.#1 - M.#30
00 28	000d dddd	#41	(0 - 30)

			OFF, M.#1 - M.#30
00 29	000d dddd	#42	(0 - 30)
			OFF, M.#1 - M.#30
00 2A	000d dddd	#43	(0 - 30)
			OFF, M.#1 - M.#30
00 2B	000d dddd	#44	(0 - 30)
			OFF, M.#1 - M.#30
00 2C	000d dddd	#45	(0 - 30)
			OFF, M.#1 - M.#30
00 2D	000d dddd	#46	(0 - 30)
			OFF, M.#1 - M.#30
00 2E	000d dddd	#47	(0 - 30)
			OFF, M.#1 - M.#30
00 2F	000d dddd	#48	(0 - 30)
			OFF, M.#1 - M.#30
00 30	000d dddd	#49	(0 - 30)
			OFF, M.#1 - M.#30
00 31	000d dddd	#50	(0 - 30)
			OFF, M.#1 - M.#30
00 32	000d dddd	#51	(0 - 30)
			OFF, M.#1 - M.#30
00 33	000d dddd	#52	(0 - 30)
			OFF, M.#1 - M.#30
00 34	000d dddd	#53	(0 - 30)
			OFF, M.#1 - M.#30
00 35	000d dddd	#54	(0 - 30)
			OFF, M.#1 - M.#30
00 36	000d dddd	#55	(0 - 30)
			OFF, M.#1 - M.#30
00 37	000d dddd	#56	(0 - 30)
			OFF, M.#1 - M.#30
00 38	000d dddd	#57	(0 - 30)
			OFF, M.#1 - M.#30
00 39	000d dddd	#58	(0 - 30)
			OFF, M.#1 - M.#30
00 3A	000d dddd	#59	(0 - 30)
			OFF, M.#1 - M.#30
00 3B	000d dddd	#60	(0 - 30)
			OFF, M.#1 - M.#30
00 3C	000d dddd	#61	(0 - 30)
			OFF, M.#1 - M.#30
00 3D	000d dddd	#62	(0 - 30)
			OFF, M.#1 - M.#30
00 3E	000d dddd	#63	(0 - 30)
			OFF, M.#1 - M.#30
00 3F	000d dddd	#64	(0 - 30)
			OFF, M.#1 - M.#30
00 40	000d dddd	#65	(0 - 30)
			OFF, M.#1 - M.#30
00 41	000d dddd	#66	(0 - 30)
			OFF, M.#1 - M.#30
00 42	000d dddd	#67	(0 - 30)
			OFF, M.#1 - M.#30
00 43	000d dddd	#68	(0 - 30)
			OFF, M.#1 - M.#30
00 44	000d dddd	#69	(0 - 30)
			OFF, M.#1 - M.#30
00 45	000d dddd	#70	(0 - 30)
			OFF, M.#1 - M.#30
00 46	000d dddd	#71	(0 - 30)
			OFF, M.#1 - M.#30
00 47	000d dddd	#72	(0 - 30)
			OFF, M.#1 - M.#30
00 48	000d dddd	#73	(0 - 30)
			OFF, M.#1 - M.#30
00 49	000d dddd	#74	(0 - 30)
			OFF, M.#1 - M.#30
00 4A	000d dddd	#75	(0 - 30)
			OFF, M.#1 - M.#30
00 4B	000d dddd	#76	(0 - 30)
			OFF, M.#1 - M.#30
00 4C	000d dddd	#77	(0 - 30)
			OFF, M.#1 - M.#30
00 4D	000d dddd	#78	(0 - 30)
			OFF, M.#1 - M.#30
00 4E	000d dddd	#79	(0 - 30)
			OFF, M.#1 - M.#30
00 4F	000d dddd	#80	(0 - 30)
			OFF, M.#1 - M.#30
00 50	000d dddd	#81	(0 - 30)
			OFF, M.#1 - M.#30
00 51	000d dddd	#82	(0 - 30)
			OFF, M.#1 - M.#30
00 52	000d dddd	#83	(0 - 30)
			OFF, M.#1 - M.#30
00 53	000d dddd	#84	(0 - 30)

			OFF, M.#1 - M.#30
00 54	000d dddd	#85	(0 - 30)
			OFF, M.#1 - M.#30
00 55	000d dddd	#86	(0 - 30)
			OFF, M.#1 - M.#30
00 56	000d dddd	#87	(0 - 30)
			OFF, M.#1 - M.#30
00 57	000d dddd	#88	(0 - 30)
			OFF, M.#1 - M.#30
00 58	000d dddd	#89	(0 - 30)
			OFF, M.#1 - M.#30
00 59	000d dddd	#90	(0 - 30)
			OFF, M.#1 - M.#30
00 5A	000d dddd	#91	(0 - 30)
			OFF, M.#1 - M.#30
00 5B	000d dddd	#92	(0 - 30)
			OFF, M.#1 - M.#30
00 5C	000d dddd	#93	(0 - 30)
			OFF, M.#1 - M.#30
00 5D	000d dddd	#94	(0 - 30)
			OFF, M.#1 - M.#30
00 5E	000d dddd	#95	(0 - 30)
			OFF, M.#1 - M.#30
00 5F	000d dddd	#96	(0 - 30)
			OFF, M.#1 - M.#30
00 60	000d dddd	#97	(0 - 30)
			OFF, M.#1 - M.#30
00 61	000d dddd	#98	(0 - 30)
			OFF, M.#1 - M.#30
00 62	000d dddd	#99	(0 - 30)
			OFF, M.#1 - M.#30
00 63	000d dddd	#100	(0 - 30)
			OFF, M.#1 - M.#30
00 64	000d dddd	#101	(0 - 30)
			OFF, M.#1 - M.#30
00 65	000d dddd	#102	(0 - 30)
			OFF, M.#1 - M.#30
00 66	000d dddd	#103	(0 - 30)
			OFF, M.#1 - M.#30
00 67	000d dddd	#104	(0 - 30)
			OFF, M.#1 - M.#30
00 68	000d dddd	#105	(0 - 30)
			OFF, M.#1 - M.#30
00 69	000d dddd	#106	(0 - 30)
			OFF, M.#1 - M.#30
00 6A	000d dddd	#107	(0 - 30)
			OFF, M.#1 - M.#30
00 6B	000d dddd	#108	(0 - 30)
			OFF, M.#1 - M.#30
00 6C	000d dddd	#109	(0 - 30)
			OFF, M.#1 - M.#30
00 6D	000d dddd	#110	(0 - 30)
			OFF, M.#1 - M.#30
00 6E	000d dddd	#111	(0 - 30)
			OFF, M.#1 - M.#30
00 6F	000d dddd	#112	(0 - 30)
			OFF, M.#1 - M.#30
00 70	000d dddd	#113	(0 - 30)
			OFF, M.#1 - M.#30
00 71	000d dddd	#114	(0 - 30)
			OFF, M.#1 - M.#30
00 72	000d dddd	#115	(0 - 30)
			OFF, M.#1 - M.#30
00 73	000d dddd	#116	(0 - 30)
			OFF, M.#1 - M.#30
00 74	000d dddd	#117	(0 - 30)
			OFF, M.#1 - M.#30
00 75	000d dddd	#118	(0 - 30)
			OFF, M.#1 - M.#30
00 76	000d dddd	#119	(0 - 30)
			OFF, M.#1 - M.#30
00 77	000d dddd	#120	(0 - 30)
			OFF, M.#1 - M.#30
00 78	000d dddd	#121	(0 - 30)
			OFF, M.#1 - M.#30
00 79	000d dddd	#122	(0 - 30)
			OFF, M.#1 - M.#30
00 7A	000d dddd	#123	(0 - 30)
			OFF, M.#1 - M.#30
00 7B	000d dddd	#124	(0 - 30)
			OFF, M.#1 - M.#30
00 7C	000d dddd	#125	(0 - 30)
			OFF, M.#1 - M.#30
00 7D	000d dddd	#126	(0 - 30)
			OFF, M.#1 - M.#30

00 7E	000d dddd	#127	(0 - 30)
			OFF, M.#1 - M.#30
00 7F	000d dddd	#128	(0 - 30)
			OFF, M.#1 - M.#30

* MEMORY CTL Parameters Offset Address

Offset Address	Description		
00 00	00dd dddd	SW1A Function (CTL - SW1A)	(0 - 48)
			OFF, EFX, EFX:M, P.SHIFT, P.SHIFT:M, P+1OCT, P+1OCT:M, P-1OCT, P-1OCT:M, T.DN, T.DN:M, DTNE, DTNE:M, DIR, DIR:M, M.UP, M.UP(D, M.DN, M.DN(U, M.#1 - M.#30
00 01	00dd dddd	SW2A Function (CTL - SW2A)	(0 - 48)
			OFF, EFX, EFX:M, P.SHIFT, P.SHIFT:M, P+1OCT, P+1OCT:M, P-1OCT, P-1OCT:M, T.DN, T.DN:M, DTNE, DTNE:M, DIR, DIR:M, M.UP, M.UP(D, M.DN, M.DN(U, M.#1 - M.#30
00 02	00dd dddd	SW1B Function (CTL - SW1B)	(0 - 48)
			OFF, EFX, EFX:M, P.SHIFT, P.SHIFT:M, P+1OCT, P+1OCT:M, P-1OCT, P-1OCT:M, T.DN, T.DN:M, DTNE, DTNE:M, DIR, DIR:M, M.UP, M.UP(D, M.DN, M.DN(U, M.#1 - M.#30
00 03	00dd dddd	SW2B Function (CTL - SW2B)	(0 - 48)
			OFF, EFX, EFX:M, P.SHIFT, P.SHIFT:M, P+1OCT, P+1OCT:M, P-1OCT, P-1OCT:M, T.DN, T.DN:M, DTNE, DTNE:M, DIR, DIR:M, M.UP, M.UP(D, M.DN, M.DN(U, M.#1 - M.#30
00 04	0000 0ddd	EXP1 Function (CTL - EXP1)	(0 - 5)
			OFF, P.SHIFT, DTNE, E.LVL, D.LVL, BAL
00 05	0000 dddd	EXP1 SW Function (CTL - - SW)	(0 - 14)
			OFF, EFX, EFX:M, P.SHIFT, P.SHIFT:M, P+1OCT, P+1OCT:M, P-1OCT, P-1OCT:M, T.DN, T.DN:M, DTNE, DTNE:M, DIR, DIR:M, M.UP, M.UP(D, M.DN, M.DN(U, M.#1 - M.#30
00 06	00dd dddd	CTL1 Function (CTL - CTL1)	(0 - 49)
			OFF, EFX, EFX:M, P.SHIFT, P.SHIFT:M, P+1OCT, P+1OCT:M, P-1OCT, P-1OCT:M, T.DN, T.DN:M, DTNE, DTNE:M, DIR, DIR:M, SW MODE, M.UP, M.UP(D, M.DN, M.DN(U, M.#1 - M.#30
00 07	00dd dddd	CTL2 Function (CTL - CTL2)	(0 - 49)
			OFF, EFX, EFX:M, P.SHIFT, P.SHIFT:M, P+1OCT, P+1OCT:M, P-1OCT, P-1OCT:M, T.DN, T.DN:M, DTNE, DTNE:M, DIR, DIR:M, SW MODE, M.UP, M.UP(D, M.DN, M.DN(U, M.#1 - M.#30
00 08	0000 0ddd	EXP2 Function (CTL - EXP2)	(0 - 5)
			OFF, P.SHIFT, DTNE, E.LVL, D.LVL, BAL

* MEMORY EFFECT Parameters Offset Address

Offset Address	Description		
00 00	0000 000d	EFFECT SW (EFFECT)	(0 - 1)
			OFF, ON
00 01	0000 000d	PITCH SHIFT SW (P.SHIFT)	(0 - 1)
			OFF, ON
00 02	0ddd dddd	PITCH SHIFT (- SHIFT)	(0 - 96) offset:48
			-4:0 - +4:0 (-48 - +48semitone)
00 03	0000 000d	TUNE DOWN SW (TUNE.DN)	(0 - 1)
			OFF, ON
00 04	0ddd dddd	TUNE DOWN SHIFT (- SHIFT)	(0 - 96) offset:48
			-4:0 - +4:0 (-48 - +48 semitone)
00 05	0000 000d	TUNE DOWN GROUP (- GROUP)	(0 - 1)
			INDIV(individual), EFX
00 06	0000 000d	PEDAL RANGE (P.RANGE)	(0 - 1)
			ABS, REL
00 07	0000 0ddd	PEDAL CURVE (P.CURVE)	(0 - 4)
			SLOW2, SLOW1, NORM, FAST1, FAST2
00 08	0000 dddd	PEDAL RISE TIME (P.RISE)	(1 - 10)
			1 - 10

00 09	0000 dddd	PEDAL FALL TIME (P.FALL)		(1 - 10) 1 – 10
00 0A	0000 000d	DETUNE SW (DETUNE)		(0 - 1) OFF, ON
00 0B	0ddd dddd	DETUNE SHIFT (- SHIFT)	(0 - 100)	offset:50 -50 - +50
00 0C	0ddd dddd	EFFECT LEVEL (E.LEVEL)		(0 - 120) 0 – 120
00 0D	0ddd dddd	DIRECT LEVEL (D.LEVEL)		(0 - 100) 0 – 100
00 0E	0ddd dddd	BALANCE		(0 - 100) 0 – 100
00 0F	0000 000d	UNISON THRU SW (UNI.THRU)		(0 - 1) OFF, ON

4. Supplementary material

●Example of calculating a Checksum

Roland Exclusive messages (RQ1, DT1) are transmitted with a checksum at the end (before F7(EOX)) to make sure that the message was correctly received. The value of the checksum is determined by the address and data (or size) of the transmitted exclusive message.

The checksum is a 7bits lower value in which the sum of the address, the data or size and the checksum itself is zero.
Here is an example of how the checksum is calculated. We will assume that in the exclusive message we are transmitting, the address is aa bb cc ddH and the data or size is ee ff gg hhH.

```
aa + bb + cc + dd + ee + ff + gg + hh = sum
sum ÷ 128 = quotient … remainder
128 − remainder = checksum
  * If the remainder is 0, the checksum is 0.
```

[POLY SHIFTER]
Model XS-100

MIDI Implementation Chart

Date : Sep. 1, 2025
Version : 1.00

Function…		Transmitted	Recognized	Remarks
Basic	Default	1 – 16	1 – 16	Memorized
Channel	Changed	1 – 16, OFF	1 – 16, OFF	(Non-volatile)
Mode	Default	Mode 3	Mode 3	
	Messages	x	x	
	Altered	**********	x	
Note Number		x	x	
	:True voice	**********		
Velocity	Note ON	x	x	
	Note OFF	x	x	
After Touch	Key's	x	x	
	Ch's	x	x	
Pitch Bend		x	x	
Control Change	0, 32	o *1	x	Bank Select (fixed at bank 1)
	1 – 31	o *1	o *1	*2
	33 – 63	o *1	o *1	*2
	64 – 95	o *1	o *1	*2
Program Change		o 0 – 29 *1	o 0 – 127 *1	
	:True Number	**********	0 – 127	
System Exclusive		o	o	*3
System Common	:Song Position	x	x	
	:Song Select	x	x	
	:Tune Request	x	x	
System Real Time	:Clock	x	x	
	:Commands	x	x	
Aux Messages	:All Sounds OFF	x	x	
	:Reset All Controllers	x	x	
	:Local ON/OFF	x	x	
	:All Notes OFF	x	x	
	:Active Sensing	o	o	
	:Reset	x	x	
Notes		*1 Switchable to o or x. *2 Controller number depends on the controller number setting in the "MIDI CC" parameters. *3 Settings, Identity Request, and Identity Reply		

Mode 1 : Omni On, Poly Mode 2 : Omni On, Mono o : Yes
Mode 3 : Omni Off, Poly Mode 4 : Omni Off, Mono x : No