

A - MIDI IMPLEMENTATION

Appendix A-1

MIDI Implementation Chart

Soundcraft
Model 328XD

MIDI Implementation Chart

Date: 08.10.00
Version 1.00

Function	Transmitted	Recognised	Remarks
Basic Default Channel Changed	1 1-16	1 1-16	*1
Mode Default Messages Altered	x x *****	x x	*2
Note Number :True voice	0-127 *****	x	*3
Velocity Note ON Note OFF	x x	x x	
After- :Key touch :Channel	x x	x x	
Pitch Bender	x	x	
0-127	0	0	*4
Control Change			
Program Change :True Number	0-125 1-100, 1-26	0-125	*5
System Exclusive	0	0	
MIDI Timecode	0	0	
MIDI Machine Control	0	0	
System :Song pos	x	x	
:Song sel	x	x	
Common :Tune	x	x	
System :Clock	x	x	
Realtime :Commands	x	x	
:Local ON/OFF	x	x	
Aux :All Notes OFF	x	x	
Messages:Active Sense	x	x	
:Reset	x	x	
Notes	*1 : Channel used for snapshot recall when OMNI OFF *2 : Default state is OMNI ON. POLY/MONO ignored *3 : NOTE ON transmitted by transport controls *4 : See dynamic automation data charts *5 : 0-99 : Snapshot recall 1-100 100-125 : User Setup recall 1-26		

Mode 1 : OMNI ON, POLY
Mode 3 : OMNI OFF, POLY

Mode 2 : OMNI ON, MONO o : YES
Mode 3 : OMNI OFF, MONO x : NO

Appendix A-2

MIDI Automation Specifications

The tables below outline the MIDI Channels, Continuous Controller Id's and associated ranges of the automatable parameters of the 328XD.

TABLE 1: SURFACE CONTROLS

MIDI Channel	CC# ID	Function	328 Channel	Range
1	0	Level	Mix	0-127 (00H-7FH)
	1-32		Channels 1-32	
	33, 34		Stereo 1, 2	
	35, 36		FX Return 1, 2	
	37-44		Groups 1-8	
	45-48		Aux Master 1-4	
	49, 50		FX Master 1, 2	
	65-96	Mute	Channels 1-32	0-1 (00H-01H)
	97, 98		Stereo 1, 2	
	99, 100		FX Return 1, 2	
	101-108		Groups 1-8	
	109-112		Aux Master 1-4	
	113, 114		FX Master 1, 2	
2	1-32	Pan	Channels 1-32	0-64 (00H-40H)
	33, 34		Stereo 1, 2	
	35, 36		FX Return 1, 2	
	65-96	Route to Mix	Channels 1-32	0-1 (00H-01H)
	97, 98		Stereo 1, 2	
	99, 100		FX Return 1, 2	
3	101-108	Route to Mix	Groups 1-8	0-1 (00H-01H)
	1-32		Channels 1-32	
	33, 34		Stereo 1, 2	
	35, 36	Aux 1 Send	FX Return 1, 2	0-71 (00H-47H)
	41-72		Channels 1-32	
	73, 74	Aux 2 Send	Stereo 1, 2	0-71 (00H-47H)
	75, 76		FX Return 1, 2	
	81-112	FX 1 Send	Channels 1-32	0-71 (00H-47H)
	113, 114		Stereo 1, 2	
	115, 116		FX Return 1, 2	
4	1-32	Aux 3 Send	Channels 1-32	0-71 (00H-47H)
	33, 34		Stereo 1, 2	
	35, 36		FX Return 1, 2	
	41-72	Aux 4 Send	Channels 1-32	0-71 (00H-47H)
	73, 74		Stereo 1, 2	
	75, 76		FX Return 1, 2	
	81-112	FX 2 Send	Channels 1-32	0-127 (00H-7FH)
	113, 114		Stereo 1, 2	
	115, 116		FX Return 1, 2	
	117-120	Pre/Post	Aux Send 1-4	0-1 (00H-01H)
	121, 122		FX Send 1, 2	
5	1-32	EQ Lo Gain	Channels 1-32	0-62 (00H-3EH)
	33, 34		Stereo 1, 2	
	35, 36		FX Return 1, 2	
	41-72	EQ Lo Freq	Channels 1-32	0-51 (00H-33H)
	73, 74		Stereo 1, 2	
	75, 76		FX Return 1, 2	
	81-112	EQ Lo Q	Channels 1-32	3-59 (03H-3BH)
	113, 114		Stereo 1, 2	
	115, 116		FX Return 1, 2	
6	1-32	EQ Mid Gain	Channels 1-32	0-62 (00H-3EH)
	33, 34		Stereo 1, 2	
	35, 36		FX Return 1, 2	

TABLE 1: SURFACE CONTROLS CONTINUED

MIDI Channel	CC# ID	Function	328 Channel	Range
6	41-72	EQ Mid Freq	Channels 1-32	0-63 (00H-3FH)
	73, 74		Stereo 1, 2	
	75, 76		FX Return 1, 2	
	81-112	EQ Mid Q	Channels 1-32	7-55 (07H-37H)
	113, 114		Stereo 1, 2	
	115, 116		FX Return 1, 2	
7	1-32	EQ Hi Gain	Channels 1-32	0-62 (00H-3EH)
	33, 34		Stereo 1, 2	
	35, 36		FX Return 1, 2	
	41-72	EQ Hi Freq	Channels 1-32	0-51 (00H-33H)
	73, 74		Stereo 1, 2	
	75, 76		FX Return 1, 2	
	81-112	EQ Hi Q	Channels 1-32	3-59 (03H-3BH)
	113, 114		Stereo 1, 2	
	115, 116		FX Return 1, 2	
8	1-32	Route Gp 1	Channels 1-32	0-1 (00H-01H)
	33, 34		Stereo 1, 2	
	35, 36		FX Return 1, 2	
	65-96	Route Gp 2	Channels 1-32	0-1 (00H-01H)
	97, 98		Stereo 1, 2	
9	99, 100	Route Gp 3	FX Return 1, 2	0-1 (00H-01H)
	1-32		Channels 1-32	
	33, 34		Stereo 1, 2	
	35, 36	Route Gp 4	FX Return 1, 2	0-1 (00H-01H)
	65-96		Channels 1-32	
10	97, 98	Route Gp 5	Stereo 1, 2	0-1 (00H-01H)
	99, 100		FX Return 1, 2	
	1-32		Channels 1-32	
	33, 34	Route Gp 6	Stereo 1, 2	0-1 (00H-01H)
	35, 36		FX Return 1, 2	
11	65-96	Route Gp 7	Channels 1-32	0-1 (00H-01H)
	97, 98		Stereo 1, 2	
	99, 100		FX Return 1, 2	
	101-116	Route Gp 8	Channels 1-32	0-1 (00H-01H)
			Stereo 1, 2	
13	0	Compressor Bypass	Channels 1-16	0-1 (00H-01H)
	1-32		Mix	
	33, 34		Channels 1-32	
	35, 36		Stereo 1, 2	
	37-44		FX Return 1, 2	
	64	Gate Bypass	Groups 1-8	0-1 (00H-01H)
	65-96		Mix	
	97, 98		Channels 1-32	
	99, 100		Stereo 1, 2	
	101-108		FX Return 1, 2	
14	0	Clear Solo	Groups 1-8	0-1 (00H-01H)
	1-32		Mix	
	33, 34		Channels 1-32	
	35, 36		Stereo 1, 2	
	37-44		FX Return 1, 2	
	45-48	Solo	Groups 1-8	0-1 (00H-01H)
	49, 50		Aux Master 1-4	
	65-96		FX Master 1, 2	
	97, 98		Channels 1-32	
	99, 100		Stereo 1, 2	
15	101-116	SIP Safe	FX 1, 2	0-1 (00H-01H)
			Channels 1-16	
	1-32	Record Arm	Channels 1-32	0-1 (00H-01H)
	37-44		Groups 1-8	
	65-96	Channel Link	Channels 1-32	0-1 (00H-01H)
16	97-98		Stereo 1, 2	
	101-116	Phase	Tape Channels 17-32	1-75 (01H-4BH)
			Channels 1-32	
	1-32	Tape Trim	Channels 1-32	0-1 (00H-01H)
	33, 34		Stereo 1, 2	
17	35, 36	EQ In/Out	FX 1, 2	0-1 (00H-01H)
			Channels 1-32	

TABLE 2: INTERNAL FX AND DYNAMICS MENUS

MIDI Channel	CC# ID	FX / Dynamics Processor	Parameter	Range
12	0	FX Unit 1	Algorithm	1-8 (01H-08H) * ¹
	1		FX Level	0-127 (00H-7FH)
	2		Mid Decay	3-63 (03H-3FH)
	3		Bass Multiply	3-67 (03H-43H)
	4		HF Cutoff	3-63 (03H-3FH)
	5		Size	3-63 (03H-3FH)
	6		Predelay	0-127 (00H-7FH)
	7		Predelay FB	0-127 (00H-7FH)
	8		Diffusion	0-127 (00H-7FH)
	9		Reflect Level	0-127 (00H-7FH)
	10		Reflect Delay	0-127 (00H-7FH)
	11		Negative FB	0-127 (00H-7FH)
	12		Flanger Depth	0-127 (00H-7FH)
	13		R Delay FB	0-127 (00H-7FH)
	14		R Delay Time	0-127 (00H-7FH)
	15		L Delay FB	0-127 (00H-7FH)
	16		L Delay Time	0-127 (00H-7FH)
	17		Shape	3-31 (03H-1FH)
	18		Chorus Rate	3-62 (03H-3FH)
	19		Group Delay	0-127 (00H-7FH)
	20		Resonance FB	1-127 (01H-7FH)
	21		Resonance Tuning	0-127 (00H-7FH)
	22		LF Cutoff	0-127 (00H-7FH)
	23		Shimmer	3-62 (03H-3FH)
	24		Richness	3-62 (03H-3FH)
	25		Slope	1-62 (01H-3FH)
	26		Inverse Size	1-62 (01H-3FH)
	27		Gate Time	1-62 (01H-3FH)
	28		Gate Slope	1-62 (01H-3FH)
	29		Chorus FB	0-127 (00H-7FH)
	30		Delay 1	0-119 (00H-77H)
	31		Delay 2 Spread	0-127 (00H-7FH)
	32		Delay 3 Spread	0-127 (00H-7FH)
	64	FX Unit 2	Algorithm	1-8 (01H-08H) * ¹
	65		FX Level	0-127 (00H-7FH)
	66		Mid Decay	3-63 (03H-3FH)
	67		Bass Multiply	3-67 (03H-43H)
	68		HF Cutoff	3-63 (03H-3FH)
	69		Size	3-63 (03H-3FH)
	70		Predelay	0-127 (00H-7FH)
	71		Predelay FB	0-127 (00H-7FH)
	72		Diffusion	0-127 (00H-7FH)
	73		Reflect Level	0-127 (00H-7FH)
	74		Reflect Delay	0-127 (00H-7FH)
	75		Negative FB	0-127 (00H-7FH)
	76		Flanger Depth	0-127 (00H-7FH)
	77		R Delay FB	0-127 (00H-7FH)
	78		R Delay Time	0-127 (00H-7FH)
	79		L Delay FB	0-127 (00H-7FH)
	80		L Delay Time	0-127 (00H-7FH)
	81		Shape	3-31 (03H-1FH)
	82		Chorus Rate	3-62 (03H-3FH)
	83		Group Delay	0-127 (00H-7FH)
	84		Resonance FB	1-127 (01H-7FH)
	85		Resonance Tuning	0-127 (00H-7FH)
	86		LF Cutoff	0-127 (00H-7FH)
	87		Shimmer	3-62 (03H-3FH)
	88		Richness	3-62 (03H-3FH)
	89		Slope	1-62 (01H-3FH)
	90		Inverse Size	1-62 (01H-3FH)
	91		Gate Time	1-62 (01H-3FH)
	92		Gate Slope	1-62 (01H-3FH)
	93		Chorus FB	0-127 (00H-7FH)
	94		Delay 1	0-120 (00H-77H)
	95		Delay 2 Spread	0-127 (00H-7FH)
	96		Delay 3 Spread	0-127 (00H-7FH)

*1 The FX algorithms relate to the Continuous Controller values as follows:

- | | | | |
|---|-----------------|---|----------------|
| 1 | Hall Reverb | 5 | Resonator |
| 2 | Plate Reverb | 6 | Inverse Reverb |
| 3 | Flanger | 7 | Gate |
| 4 | Multi Tap Delay | 8 | Chorus |

Appendix A-3 System Exclusive Implementation

DIGITAL 328XD SYSTEM EXCLUSIVE FORMAT

IMPLEMENTATION OUTLINE

Device ID request To allow a remote source to instruct any connected console(s) to return their set MIDI System Exclusive Device ID, enabling the remote source to communicate with the console(s) correctly

Bulk Dump Request To allow a remote source to instruct the console to dump requested locations of user stored memory (Snapshots / User Setups / Presets)

Controller Dump Request To allow a remote source to instruct the console to dump automation data / MIDI controller fader settings as MIDI controller values

Clock Source Configuration To allow a remote source to instruct the console to switch wordclock source
To provide a warning to a remote source when external clock sync is lost

Automation Setup To allow a remote source to enable / disable automation

Automation Mode To allow a remote source to set the automation mode

AES/EBU Setup To allow a remote source to set the AES/EBU input and output routing

S/PDIF Setup To allow a remote source to set the S/PDIF input and output routing

Auxiliary Optical Output To allow a remote source to configure the auxiliary optical output source

Factory Default Recall To allow a remote source to return a console to the state in which it left the factory, retaining any stored Effects or MIDI Controller Presets, Snapshots and User Setups

328XD SYSTEM EXCLUSIVE HEADER DEFINITION

The 328XD system exclusive message format is:

Exclusive status:	F0H
Manufacturer ID:	39H
Model ID:	03H
Device ID (dev):	01H - 7FH
Specific instructions (see below)	...
EOX:	F7H

A remote request to the console is defined as: F0H, 39H, 03H, dev, **00H**, ... , F7H

The response from the 328XD to a request or Local control from the 328XD is defined as: F0H, 39H, 03H, dev, **01H**, ... , F7H

Byte 6 of the sysex string determines the following:

01H:	Bulk Dump Request
02H:	Controller DumpRequest
03H:	Clock Source Configuration
04H:	Automation Setup
05H:	AES/EBU Setup
06H:	S/PDIF Setup
07H:	Auxiliary Optical Output

Special case request messages include:

Device ID request:	Byte 4 omitted
Factory Default recall:	11H inserted after byte 2 (Soundcraft manufacturer ID)

The user definable device ID (1-127 / 01H-7FH) setting is in the 328XD User Options menu. A device ID of 1-127 is selectable.

A remote request will be deemed invalid by the 328XD if the request cannot be performed or is out of range. Appropriate validity responses are transmitted by the console from the MIDI Out port, as defined in the Specific Instructions section below.

SPECIFIC INSTRUCTIONS

DEVICE ID REQUEST

Purpose: To request the setting of the 328XD MIDI System Exclusive Device ID

Remote request: F0H, 39H, 03H, 00H, F7H [328XD Rx]

328XD Response: F0H, 39H, 03H, aa, F7H [328XD Tx]

aa = 01H - 7FH Device ID 1-127

BULK DUMP REQUEST

Purpose: To request a snapshot / setup / preset to be dumped from the 328XD

Remote request: F0H, 39H, 03H, dev, 00H, aa, bb, cc, F7H [328XD Rx]

aa = 01H MIDI System Exclusive dump request

bb = 00H - 08H Type of memory (Table 1)

cc = 00H - 7DH Memory location (Table 1)

Table 1

bb	Type of memory	cc
00H	All data	xxH
01H	All Snapshots / User Setups	xxH
02H	One Snapshot / User Setup	00H-7DH (1-126)
03H	All Lexicon presets	xxH
04H	Not used *	
05H	All MIDI controller presets	XxH
06H	One Lexicon preset	00H-64H (1-100)
07H	Not used *	
08H	One MIDI controller preset	00H-3FH (1-64)

328XD Response: F0H, 39H, 03H, dev, 01H, aa, bb, cc, dd, F7H [328XD Tx]

aa = 01H MIDI System Exclusive dump request received

bb = 00H - 08H Type of memory (Table 1)

cc = 00H - 7DH Memory location (Table 1)

dd = 00H - 01H Invalid / valid request

FOLLOWED IMMEDIATELY BY MIDI SYSTEM EXCLUSIVE DUMP AS REQUESTED

A System Exclusive dump request message will be deemed invalid if the location requested is empty (see Table 1)

*1: A request for these unused memory locations will return an invalid request message

CONTROLLER DUMP REQUEST

Purpose: To request a dump of all automatable parameters' associated MIDI CC values

Remote request: F0H, 39H, 03H, dev, 00H, aa, bb, F7H [328XD Rx]

aa = 02H MIDI dump of automatable parameters' MIDI CC values request

bb = 00H - 01H Automation data / MIDI controller bank values

328XD Response: F0H, 39H, 03H, dev, 01H, aa, bb, F7H [328XD Tx]

aa = 02H MIDI dump of automatable parameters' MIDI CC values request received

bb = 00H - 01H Automation data / MIDI controller bank values

FOLLOWED IMMEDIATELY BY DUMP OF AUTOMATABLE PARAMETERS' / MIDI CONTROLLERS' ASSOCIATED MIDI CONTINUOUS CONTROLLER VALUES AS REQUESTED

CLOCK SOURCE CONFIGURATION

Purpose: To configure the 328XD Clock Source Sel menu from a remote source

Remote request: F0H, 39H, 03H, dev, 00H, aa, bb, F7 [328XD Rx]

aa = 03H Set clock source

bb = 00H-06H Clock source (Table 2)

Table 2

bb	Clock source
00H	Internal: 48kHz
01H	internal: 44.1kHz
02H	External: Wordclock
03H	External: AES/EBU
04H	External: Superclock
05H	External: ADAT 1
06H	External: ADAT 2

328XD Response: F0H, 39H, 03H, dev, 01H, aa, bb, cc, F7H [328XD Tx]

aa = 03H Set clock source request received

bb = 00H-06H Clock source (Table 2)

cc = 00H-01H Valid / invalid request

A System Exclusive dump request message will be deemed invalid if the console determines that the requested clock source is not present. In this instance, the 328XD will transmit a valid clock source message for the internal sample rate to which the console has reverted immediately after the invalid clock string.

THE 328XD WILL ALSO TRANSMIT THE RELEVANT RESPONSE STRING WHEN THE SETTING IS ALTERS MANUALLY FROM WITHIN THE CONSOLE MENU

AUTOMATION SETUP

Purpose: To enable / disable automation from a remote source

Remote Request: F0H, 39H, 03H, dev, 00H, aa, bb, cc, F7H [328XD Rx]

aa = 04H Set automation configuration

bb = 00H Automation enable / disable

cc = 00H - 01H Dynauto Off / On

328XD Response: F0H, 39H, 03H, dev, 01H, aa, bb, cc, dd, F7H [328XD Tx]

aa = 04H Set automation configuration request received

bb = 00H Automation enable / disable

cc = 00H - 01H Dynauto Off / On

dd = 00H - 01H Valid / invalid request

THE 328XD WILL ALSO TRANSMIT THE RELEVANT RESPONSE STRING WHEN THE SETTING IS ALTERS MANUALLY FROM WITHIN THE CONSOLE MENU

AUTOMATION MODE

Purpose: To configure the automation mode from a remote source

Remote Request: F0H, 39H, 03H, dev, 00h, aa, bb, cc, F7H [328XD Rx]

aa = 04H Set automation configuration

bb = 01H Automation mode

cc = 00H - 04H Set automation mode (Table 3)

Table 3

bb	Automation Mode
00H	Read only
01H	Write only
02H	Update
03H	Read/Write
04H	Controller

328XD Response: F0H, 39H, 03H, dev, 01H, aa, bb, cc, dd, F7H [328XD Tx]

aa = 04H Set automation configuration request received

bb = 01H Automation mode

cc = 00H - 04H Automation mode set (Table 3)

dd = 00H - 01H Valid / invalid request

THE 328XD WILL ALSO TRANSMIT THE RELEVANT RESPONSE STRING WHEN THE SETTING IS ALTERED MANUALLY FROM WITHIN THE CONSOLE MENU

AES/EBU SETUP

Purpose: To set the AES/EBU input and output configuration from a remote source

Remote Request: F0H, 39H, 03H, dev, 00H, aa, bb, cc, F7H [328XD Rx]

aa = 05H Set AES/EBU configuration

bb = 00H - 01H Set input / output

cc = 00H - 09H Destination / source (Table 4)

Table 4

bb	cc	Destination / Source
	00H	NOWHERE
	01H	STE 1
00H	02H	STE 2
	03H	FX 1
	04H	FX 2
	05H	2TRK
	00H	NOWHERE
	01H	MIX
	02H	AUX 1/2
	03H	AUX 3/4
01H	04H	FX 1/2
	05H	GRP 1/2
	06H	GRP 3/4
	07H	GRP 5/6
	08H	GRP 7/8
	09H	C/RM

328XD Response: F0H, 39H, 03H, dev, 01H, aa, bb, cc, dd, F7H [328XD Tx]

aa = 05H Set AES/EBU configuration request received

bb = 00H - 01H Input / output

cc = 00H - 09H Destination / source (Table 4)

dd = 00H - 01H Valid / invalid request

AN INVALID REQUEST WILL BE TRANSMITTED IF THE REQUESTED DESTINATION IS UNAVAILABLE

THE 328XD WILL ALSO TRANSMIT THE RELEVANT VALID RESPONSE STRING WHEN THE SETTING IS ALTERED MANUALLY FROM WITHIN THE CONSOLE MENU

S/PDIF SETUP

Purpose: To configure the S/PDIF input and output configuration from a remote source

Remote Request: F0H 39H, 03H, dev, 00H, aa, bb, cc, F7H [328XD Rx]

aa = 06H Set S/PDIF configuration

bb = 00H - 01H Set input / output

cc = 00H - 09H Destination / source (Table 5)

Table 5

bb	cc	Destination / Source
	00H	NOWHERE
	01H	STE 1
00H	02H	STE 2
	03H	FX 1
	04H	FX 2
	05H	2TRK
	00H	NOWHERE
	01H	MIX
	02H	AUX 1/2
	03H	AUX 3/4
01H	04H	FX 1/2
	05H	GRP 1/2
	06H	GRP 3/4
	07H	GRP 5/6
	08H	GRP 7/8
	09H	C/RM

328XD Response: F0H, 39H, 03H, dev, 01H, aa, bb, cc, dd, F7H [328XD Tx]

aa = 06H Set S/PDIF configuration request received

bb = 00H - 01H Input / output

cc = 00H - 09H Destination / source (Table 5)

dd = 00H - 01H Valid / invalid request

AN INVALID REQUEST WILL BE TRANSMITTED IF THE REQUESTED DESTINATION IS UNAVAILABLE

THE 328XD WILL ALSO TRANSMIT THE RELEVANT VALID RESPONSE STRING WHEN THE SETTING IS ALTERED MANUALLY FROM WITHIN THE CONSOLE MENU

AUXILIARY OPTICAL OUTPUT

Purpose: To configure the auxiliary optical output from a remote source

Remote Request: F0H, 39H, 03H, dev, 00H, aa, bb, F7H [328XD Rx]

aa = 07H Set auxiliary optical output

bb = 00H - 02H Set output source: 00H: AUX/MIX
01H: GROUP
02H: S/PDIF

328XD Response: F0H, 39H, 03H, dev, 01H, aa, bb, cc, F7H [328XD Tx]

aa = 07H Set auxiliary optical output request received

bb = 00H - 02H Output source set: 00H: AUX/MIX
01H: GROUP
02H: S/PDIF

cc = 00H - 01H Valid / invalid request

THE 328XD WILL ALSO TRANSMIT THE RELEVANT RESPONSE STRING WHEN THE SETTING IS ALTERED MANUALLY FROM WITHIN THE CONSOLE MENU

FACTORY DEFAULT RECALL

Purpose: To enable a remote source to reset the console to its factory default settings

Remote Request: F0H, 39H, 03H, dev, 00H, aa, F7H [328XD Rx]

aa = 08H Recall Factory Default settings

328XD Response: F0H, 39H, 03H, dev, 01H, aa, F7H [328XD Tx]

aa = 08H Factory Default settings recalled

THE 328XD WILL NOT TRANSMIT THE RELEVANT RESPONSE STRING WHEN THE FACTORY DEFAULT SETTINGS ARE RESTORED TO THE CONSOLE BY RECALLING USER SETUP 27