

SI-24 Communication protocol as a Control Surface rev1.02

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revision

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Here is the MIDI implementation in SI-24 in case of using SI-24 as a control surface for the software application.

*All messages are sent and received on MIDI channel 1.

*All controls simply always send the same message and react equally on incoming messages.

*Mode assignments are done within the software application.

Transmitted:

Continuous controllers:

Fader 1..12	B0 nn dd (nn = 00..0B; dd = 00..7F with 00: bottom, 7F: top)
Master Fader	B0 0C dd (dd = 00..7F with 00: bottom, 7F: top)
Joystick X	B0 0D dd (dd = 00..7F with 00: left, 7F: right)
Joystick Y	B0 0E dd (dd = 00..7F with 00: bottom, 7F: top)
Jog Wheel	B0 0F dd (01..3F: clockwise 1..63, 7F..41: counterclockwise 1..63 - lo 7 bits of 2's complement)
Pan1..12	B0 nn dd (nn = 28..33; dd = 01..3F: clockwise 1..63, 7F..41: counterclockwise 1..63 - lo 7 bits of 2's complement)

Buttons: (dd: 00 = released, 7F = pressed)

Status/Mode 1..12	B0 nn dd (nn = 10..1B)
Select 1..12	B0 nn dd (nn = 1C..27)
EQ 1..4 on/off	B0 nn dd (nn = 34..37)
Plug-In	B0 38 dd
Param Edit	B0 39 dd
Shift	B0 3A dd
Auto-Mix	B0 3B dd
Rec/Play	B0 3C dd

Solo	B0 3D dd
Mute	B0 3E dd
Input	B0 3F dd
Output	B0 40 dd
Bus	B0 41 dd
Track 1-12	B0 42 dd
Track 13-24	B0 43 dd
Digital In Ch 7,8	B0 44 dd
Surround on/off	B0 45 dd
System	B0 46 dd
Locate	B0 47 dd
Short Cut	B0 48 dd
Screen Set	B0 49 dd
0	B0 4A dd
1	B0 4B dd
2	B0 4C dd
3	B0 4D dd
4	B0 4E dd
5	B0 4F dd
6	B0 50 dd
7	B0 51 dd
8	B0 52 dd
9	B0 53 dd
Pause	B0 54 dd
REW	B0 55 dd
FF	B0 56 dd
STOP	B0 57 dd
PLAY	B0 58 dd
REC	B0 59 dd
Fader Touch 1..12	B0 nn dd (nn = 5A..65)
Master Touch	B0 67 dd

Identity Reply **F0 7E 00 06 02 41 ff ff nn nn 00 00 0x yz 7F**
ff ff : family code = 57 01
nn nn :family number = 00 00
0x yz : software revision level(Ver y.zx)

*For example

In case of the following data:

"F0 7E 00 06 02 41 57 01 00 00 00 05 12 F7"

The version number is "1.25"

Received:

Continuous controllers:

Fader 1..12	B0 nn dd (nn = 00..0B; dd = 00..7F with 00: bottom, 7F: top)
Master Fader	B0 0C dd (dd = 00..7F with 00: bottom, 7F: top)

Buttons: (dd: 00 = off, 01 = green, 02 = red, 03 = orange)

All of the following buttons are coincidentally with buttons in transmitted.

Logic must transmit those messages to light a led on SI-24 when receiving the button events.

Status/Mode 1..12	B0 nn dd (nn = 10..1B)
Select 1..12	B0 nn dd (nn = 1C..27)
Plug-In	B0 38 dd
Param Edit	B0 39 dd
*AUTO/MIX	B0 3B dd (off/green/red)
*REC/PLAY	B0 3C dd (off/red)
*SOLO	B0 3D dd (off/red)
*MUTE	B0 3E dd (off/red)
Input	B0 3F dd
Output	B0 40 dd
Bus	B0 41 dd
Track 1-12	B0 42 dd
Track 13-24	B0 43 dd
*DIGITAL IN	B0 44 dd (off/red)
Surround on/off	B0 45 dd
*SYSTEM	B0 46 dd (off/red)
Locate	B0 47 dd
Short Cut	B0 48 dd
Screen Set	B0 49 dd
0	B0 4A dd
1	B0 4B dd
2	B0 4C dd

3	B0 4D dd
4	B0 4E dd
5	B0 4F dd
6	B0 50 dd
7	B0 51 dd
8	B0 52 dd
9	B0 53 dd
PLAY	B0 58 dd (dd: 00 = off, 01 = green)
REC	B0 59 dd (dd: 00 = off, 01 = red)
Identity Request	F0 7E dev 06 01 7F (dev: 00 or 7F)

*Please refer to the attached Control change Map for quick reference.

More explanation of SI-24 operation

CH ASSIGN

INPUT

While this led is on, the SI-24 controls input 1..8 object of the Software. We wish faders of the SI-24 must be stereo-linked if input objects of the Logic are stereo-object.

OUTPUT

While this led is on, the SI-24 controls Output 1..8 object of the Software. We wish faders of the SI-24 are stereo-linked if output objects of the Software are stereo-object.

BUS

While this led is on, the SI-24 controls Bus 1..8 object of the Software.

Tr 1-12

While this led is on, the SI-24 controls Track 1..12 object of the Software.

Tr 13-24

While this led is on, the SI-24 controls Track 13..24 object of the Software.

<Attention>

When receiving the message of above CH ASSIGN, Software ought to transmit all of necessary message for renewing the SI-24 surface such as Faders, leds and so on.

Faders 1..12

These control the Software's faders, and also controlled from the Software.

The SI-24 sends touch-on messages when you touch and move faders of the SI-24, and after you release these faders it sends touch-off messages.

Note that the SI-24 has no touch-sensitive faders. This touch-on/off messages are brought by software of the SI-24 like the CM-Automation motor mix.

<Attention>

In case of Automix playing, Software stops transmitting the fader events while touch -on messages is coming to avoid the difficulties which can not operate faders manually while automix playing.

MASTER fader

This always controls the Software's "Output1-2" level ,which connected to MASTER L-R outs of the SI-24, and also controlled from the Software.

Status mode

Consists of 4 buttons (AUTO-MIX, REC/PLAY, SOLO and MUTE)

This defines the use of Status 1..12 buttons. For example when you press "SOLO" button, "SOLO" button lights and you can use Status 1..12 buttons as Solo button.

<Attention>

When receiving the message of Status mode, Software ought to transmit all of necessary message for renewing the leds of Status 1..12 buttons.

Status 1..12 buttons

Follows are proposition of those behavior on each status mode. The ">" represents pushing a button, and inside "(" represents the color of the led.

SOLO : Off(Off) > On(Red)

MUTE : Off(Off) > On(Red)

REC/PLAY : Off(Off) > PLAY(Green) > REC(Red)

AUTO-MIX : Off(Off) > Read(Green) > Write(Red) > Touch(Orange)

Select 1..12 buttons

Select channel to edit EQ parameters, send levels and plug-in parameters while "EQ/SEND" or "PLUG-IN" buttons are on. We propose that the default selection is select-1 and reset to select-1 after changing the channel assignment. Multiple select will not supported.

Rotary pots 1..12

Follows are conditions and usages.

Default(Both "EQ/SEND" and "PLUG-IN" are off):

Pan controll

"EQ/SEND" is on:(applied to selected channel)

Pot 1	EQ1 Gain
Pot 2	EQ1 Freq
Pot 3	EQ2 Gain
Pot 4	EQ2 Freq
Pot 5	EQ3 Gain
Pot 6	EQ3 Freq
Pot 7	EQ4 Gain
Pot 8	EQ4 Freq
Pot 9	Send 1 level
Pot 10	Send 2 level
Pot 11	Send 3 level
Pot 12	Send 4 level

"PLUG-IN" is on:(applied to selected slot of selected channel)

Pot 1..10	Parameters 1..10
Pot 11	Bypass
Pot 12	scroll parameter page

EQ/SEND button

While this led is on, rotaly pots 1..12 are used to control EQ parameters and send levels control of selected channel. This function turns off when pushing "EQ/SEND" button again or "PLUG-IN" button.

EQ 1..4 ON/OFF

Follows are conditions and usages.

Default(Both "EQ/SEND" and "PLUG-IN" are off) or "EQ/SEND" is on:

EQ 1..4 ON/OFF switch of selected channel

"PLUG-IN" is on:

Plug-in slot 1..4 selector of selected channel(default slot1)

PLUG-IN button

While this led is on, rotary pots 1..12 are used to control plug-in parameters of selected slot of selected channel. This function turns off when pushing "PLUG-IN" button again or "EQ/SEND" button.

Surround on/off

This button determine surround or stereo mode of selected channel.

<Attention>

We believe that PAN or Surround can be selected per CH in Software. If yes, Software ought to transmit Surround ON/OFF message at every time Select 1..12 buttons pressed or it would be ok only when the status has been changed.

Also Software ought to change the status (Pan or Surround) when receiving Surround on/off message from SI-24. In this case it would be great if the pop up windiw for the Surround comes appear automatically.

Joy stick

This joy stick is used as surround panner of selected channel. This is not active while "(Surround) ON/OFF" led is off.

System

This button is used to select the SI-24 system function.

Marker

While this led is on, 10-keys of the SI-24 are used to marker control.

- press [MARKER]
- press [0] to create marker position.
- press one of [1] – [9] to locate to maeker position.
- Locate and press [SHIFT]+[0] to delete marker.

Short cut

While this led is on, 10-keys of the SI-24 are used to MIDI command sender. We need followes commands.

- Save
- Undo
- Scrub
- Cycle

Drop
Hyper Draw : Volume
Hyper Draw : Pan
[Cancel]
[Enter]

Screen set

While this led is on, 10-keys of the SI-24 are used to screen set selector.
10-keys of the SI-24 always correspond to 10-keys of the ASCII keyboard.

DIGITAL IN CH 7/8

Change master word clock to S/PDIF of the SI-24. It might be very useful if the Software automatically change the clock source of the RPC-1 to "R-BUS" while this led is on. (The clock source of the RPC-1 must be "Internal" while this led is off.)

Jog Wheel

This wheel moves the song position.

SHIFT

Notes;

Regarding to the **PLUG-IN** editing.

We would like Software to activate PLUG-IN window automatically when the PLUB-IN button on the SI-24 pressed, and also when the PLUG-IN slot select buttons(EQ ON/OFF buttons) on the SI-24.

We would prefer to save the status of the panel(all of leds) along with song file.

		MSB						
		0	1	2	3	4	5	6
LSB	0	Fader 1	Status 1	Select 5	Pot 9	Output	6	Fader 7 Touch
	1	Fader 2	Status 2	Select 6	Pot 10	Bus	7	Fader 8 Touch
	2	Fader 3	Status 3	Select 7	Pot 11	Trk 1-12	8	Fader 9 Touch
	3	Fader 4	Status 4	Select 8	Pot 12	Trk13-24	9	Fader 10 Touch
	4	Fader 5	Status 5	Select 9	EQ 1 SW	Digital In	Zero	Fader 11 Touch
	5	Fader 6	Status 6	Select 10	EQ 2 SW	Surround On/Off	Rew	Fader 12 Touch
	6	Fader 7	Status 7	Select 11	EQ 3 SW	System	FF	Master Touch
	7	Fader 8	Status 8	Select 12	EQ 4 SW	Locate	Stop	
	8	Fader 9	Status 9	Pot 1	Plug In	Short Cut	Play	
	9	Fader 10	Status 10	Pot 2	Param Edit	Screen Set	Rec	
	A	Fader 11	Status 11	Pot 3	Shift	0	Fader 1 Touch	
	B	Fader 12	Status 12	Pot 4	Auto Mix	1	Fader 2 Touch	
	C	Master	Select 1	Pot 5	Rec/Play	2	Fader 3 Touch	
	D	Joystick X	Select 2	Pot 6	Solo	3	Fader 4 Touch	
	E	Joystick Y	Select 3	Pot 7	Mute	4	Fader 5 Touch	
	F	Jog Wheel	Select 4	Pot 8	Input	5	Fader 6 Touch	
							Modified	
							Newly added	