S4K Matrix RS232 Control Protocol

Document Conventions & Definitions

All commands are shown in ASCII and are not case sensitive

Angle brackets (and anything within them) <> represent 1 byte of data.

Port Configuration

These are the settings that are required for successful communication with a S4K matrix.

Baud Rate: 9600
Data Bits: 8
Parity: None
Stop Bits: 1

Command Structure

The general structure of commands to be sent to the matrix is detailed below:

<command>< ><data><;>

The format is:

1) Command
2) Space
3) Data
4) ;

<command>	Command byte
< >	Space (ASCII 20)
<data>	Data bytes associated with the above command byte.
<;>	End byte

On receipt of a valid data packet the matrix will either respond with an ACK

<SB5645>< ><00><;> for a 4x4 matrix

<SB5688>< ><00><;> for an 8x8 matrix

<SB5669>< ><00><;> for a 16x16 matrix

or a valid packet containing the requested data.

Establishing communication

Before the matrix will accept commands a link first needs to be established, when this is achieved the IR and Ethernet is disabled:

```
<LINK>< ><01><;>
```

Will establish the link whilst:

```
<LINK>< ><00><;>
```

Will terminate the link

Commands

Item	Command	Description
1	Link	Establish or disable data link between controller and device
2	Power	Set/Check the status of Power
3	Output[dd]	Set/Check the state of single outputs
4	ActiveSource	Check the status of an Input for a signal present
5	OutputAll	Set/Check the state of all outputs
6	Memory	Save the current matrix configuration to memory
7	Recall	Recall a saved matrix configuration from memory
8	Recall[mm]	Check the data of memory address
9	Lock	Set/Check the status of Lock
10	EDID	Set/Check EDID (HDMI only)
11	Audio	Set/Check Audio(Only product with Audio function)

1. ***Link*** – *establishing or terminating communication with the matrix*

Function	Command	Response	Description
Leave	Link 00;	SB5688 00;	Leave
		SB5688 01;	Unknown Command
Link	Link 01;	SB5688 00;	Link
		SB5688 01;	Unknown Command
Check Link Condition	Link ?;	Link 00;	System Leave
		Link 01;	System Link

2. ***Power*** *– controlling and checking status of the power*

Function	Command	Response	Description
Power OFF	Power 00;	SB5688 00;	Power OFF
		SB5688 01;	Unknown Command
Power ON	Power 01;	SB5688 00;	Power ON
		SB5688 01;	Unknown Command
Check Status	Power ?;	Power 00;	Power OFF
		Power 01;	Power ON

3. ***Output[dd]*** *– individual output control and status*

Function	Command	Variables
OFF destination	OUTPUTxx 00;	xx = Output Channel

Command Example	Response	Description
OUTPUT04 00;	SB5688 00;	Output 4 is OFF
	SB5688 01;	Unknown Command

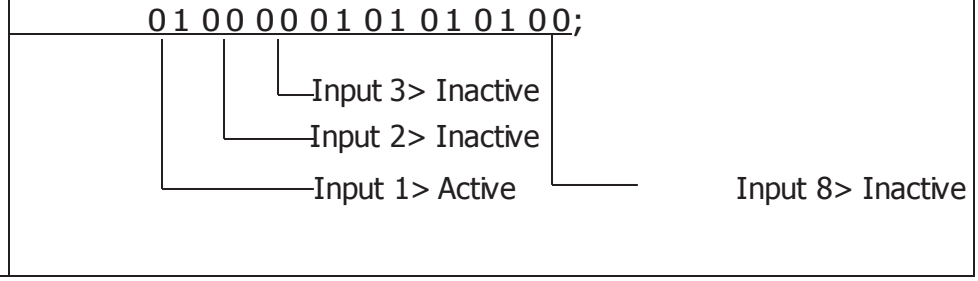
Function	Command	Variables
Set channel status	OUTPUTxx yy;	xx = Output Channel yy = Input Channel

Command Example	Response	Description
OUTPUT02 04;	SB5688 00;	Set output 2 to input 4
	SB5688 01;	Unknown Command

Function	Command	Variables
Check Output status	OUTPUTxx ?;	xx = Output Channel

Command Example	Response	Description
OUTPUT04 ?;	Output04 01;	Output 4 to input 1
	Output04 02;	Output 4 to input 2
	Output04 03;	Output 4 to input 3
	Output04 04;	Output 4 to input 4
	Output04 05;	Output 4 to input 5
	Output04 06;	Output 4 to input 6
	Output04 07;	Output 4 to input 7
	Output04 08;	Output 4 to input 8

4. *Activesource – queries presence of source*

Function	Command Example	Response	Description
Check the status of a signal presence on an Input port	ACTIVESOURCE ?;	ActiveSource 0100000101010100;	Each position indicates which source is active or inactive 01 = Active 00 = Inactive
For Example:			

Note: this does not validate if the signal is within proper format (ex: 1VPP Video), only that one is present and active.

5. *OutputAll* – *control all outputs and get status*

Function	Command	Response	Description
OFF all output	OUTPUTALL 00;	SB5688 00;	OFF all output
		SB5688 01;	Unknown Command

Function	Command	Variables
Set all outputs to one source	OUTPUTALL xx;	xx = Source number

Command Example	Response	Description
OUTPUTALL 02;	SB5688 00;	Set all output to Source 2
	SB5688 01;	Unknown Command

Function	Command Example	Response	Description
Check the status of all outputs	OUTPUTALL ?;	OutputALL 0307050502010804;	Each position indicates which source is connect to which output.
For Example:	03 07 05 05 02 01 08 04 Input 5> Output 3 Input 7> Output 2 Input 3> Output 1		

6. ***Memory*** *– save current matrix status*

Function	Command	Variables
Save current matrix configuration to memory address	MEMORY xx;	xx = Memory address *See 7. Recall for all available

Command Example	Response	Description
MEMORY 0F;	SB5688 00;	Save at memory address 16
	SB5688 01;	Unknown Command

7. **Recall** – *recall saved status*

Function	Command	Variables
Recall a saved configuration from memory	RECALL xx;	xx = Memory Location

XX	Location		
00	1	4x4 Destination	8x8 Destination Row
01	2		
02	3		
03	4		
04	5		
05	6		
06	7		
07	8		
08	9	4x4	8x8 Source Row
09	10		
0A	11		
0B	12		
0C	13		
0D	14		
0E	15		
0F	16		

Command Example	Response	Description
RECALL 07;	SB5688 00;	Recall a saved from memory 08
	SB5688 01;	Unknown Command

*8. **Recall[mm]** – check saved data*

Function	Command	Variables
Check the data of memory address	RECALLxx ?;	xx = Memory Location

Command Example	Response	Description
RECALL00 ?;	RECALL00 0102030405060708; Note : "RECALL00" means recall from the memory address 1. "0102030405060708" is the input numbers that is connected to output 1-8, see left side discription.	Output1=01 so the output1 to input1
		Output2=02 so the output2 to input2
		Output3=03 so the output3 to input3
		Output4=04 so the output4 to input4
		Output5=05 so the output5 to input5
		Output6=06 so the output6 to input6
		Output7=07 so the output7 to input7
		Output8=08 so the output8 to input8
RECALL0F ?;	RECALL0F 0102030405060708; Note : "RECALL0F" means recall from the memory address 16. "0102030405060708" is the input numbers that is connected to output 1-8, see left side discription.	Output1=01 so the output1 to input1
		Output2=02 so the output2 to input2
		Output3=03 so the output3 to input3
		Output4=04 so the output4 to input4
		Output5=05 so the output5 to input5
		Output6=06 so the output6 to input6
		Output7=07 so the output7 to input7
		Output8=08 so the output8 to input8

9. ***Lock*** *– Lock and unlock unit*

Function	Command	Response	Description
Unlock	LOCK 00;	SB5688 00;	Unlock
		SB5688 01;	Unknown Command
Lock	LOCK 01;	SB5688 00;	Lock
		SB5688 01;	Unknown Command
Check the status of lock	LOCK ?;	Lock 00;	System Unlock
		Lock 01;	System Lock

10. ***EDID*** *– set and check EDID*

Function	Command	Response	Description
Set EDID	EDID 00;	SB5688 00;	Set EDID to FSS
		SB5688 01;	Unknown Command
	EDID 01;	SB5688 00;	Set EDID to H24-3D
		SB5688 01;	Unknown Command
	EDID 02;	SB5688 00;	Set EDID to H24M-3D
		SB5688 01;	Unknown Command
	EDID 03;	SB5688 00;	Set EDID to H36-3D
		SB5688 01;	Unknown Command
	EDID 04;	SB5688 00;	Set EDID to H36-3D-M
		SB5688 01;	Unknown Command
	EDID 05;	SB5688 00;	Set EDID to DVI-D 1280x1024
		SB5688 01;	Unknown Command
	EDID 06;	SB5688 00;	Set EDID to DVI-D 1920x1200
		SB5688 01;	Unknown Command
	EDID 07;	SB5688 00;	Set EDID to Auto
		SB5688 01;	Unknow Command

Function	Command	Response	Description
Check the Status of EDID	EDID ?;	EDID 00;	FSS Mode
		EDID 01;	H24-3D
		EDID 02;	H24M-3D
		EDID 03;	H36-3D
		EDID 04;	H36-3D-M
		EDID 05;	DVI-D 1280x1024
		EDID 06;	DVI-D 1920x1200
		EDID 07;	Auto

When issuing EDID commands, you need to incorporate a minimum of a 5 second delay before issue additional commands. When changing EDID settings, the switcher does asoft-reboot to implement the new EDID format.

11. Audio *– set and check audio*

Function	Command	Variables
Set Volume Value	Volumexx yy;	xx = Output Channel yy = Volume Value

Command Example	Response	Description
Volume02 30;	SB8804 00;	Set output 2's volume vale to 30
	SB8804 01;	Unknown Command

Function	Command	Variables
Check Volume Value	Volumexx ?;	xx = Output Channel

Command Example	Response	Description
Volume04 ?;	Volume04 50;	Volume value of output 4 is 50
	Volume04 25;	Volume value of output 4 is 25
	Output04 70;	Volume value of output 4 is 70

