

4K HDR HDMI Matrix Switcher - 4x4  
B-660-MTRX-4X4

**BINARY**

**API COMMAND SET**  
V2.0.0



FC CE

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# 1. Overview

The following information will guide the installer through the set-up and programming for controlling a B-660-MTRX-4X4 via RS-232 serial. Read through these instructions thoroughly before starting the process to ensure that all parameters and commands are correctly executed.

## 1.1. Before You Begin

Ensure that the following items are on hand before proceeding.

- B-660-MTRX-4X4 Matrix Switcher with Latest Firmware Installed.....
- RS-232 Serial or IP Controller .....
- Documentation for the RS-232 Control System.....
- Cables and Adapters to Connect to the Control System.....
- List of Functions to Program into the Controller .....

# 2. RS-232 Port Communication

## 2.1. RS-232 Port Configuration

This matrix uses a RJ45 connector with defined pins for RS-232 serial communication, this allows for using standard category or other standard cable to connect the matrix to a controller or PC. If using a pre-built adapter ensure that the pins match Diagram 1 on the matrix side and the pins on the controlling device for the other side. Refer to the documentation for the control device being used for proper construction of the cable or selection of a port adapter.

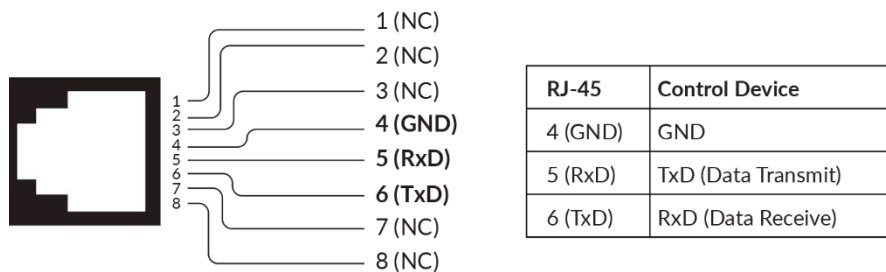


Diagram 1: RS-232 Port Pinout

## 2.2. RS-232 Communication Format

The following settings are default to the matrix and must be used when connecting.

Parameter	Value
Baud Rate	115200 bps
Data Bits	8 bits
Parity	None
Stop Bits	1 bit
Flow Control	None

# 3. Command Structure

Commands for this matrix are structured in a [Command] [Parameter(s)]<CR>LF> format. All commands and responses are case sensitive and should be entered as defined in the commands listed below.

Syntax: [Command] [In/out][Parameter]<CR>LF>

Example Command for selecting Input 1 (source) on Output 2 (display):

SET SW in1 out2<CR>LF>

## 4. Command Table

### 4.1. Input and Output Switching

IDX	Function	Command	Example
1	Switch Input for Output	<p><b>Command:</b> SET SW in out&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> SW in out&lt;CR&gt;&lt;LF&gt;</p> <p><b>Parameter:</b> in = {in1, in2, in3, in4, in0}; out = {out1, out2, out3, out4};</p> <p><b>Description:</b> SW is short for Switch Switch one input source for one output sink Default: one to one match</p>	<p><b>Command:</b> SET SW in1 out2&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> SW in1 out2&lt;CR&gt;&lt;LF&gt;</p> <p><b>Description:</b> Switch input 1 for hdmi output 2</p>
2	Get which input mapping to the chosen Output	<p><b>Command:</b> GET MP out&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> MP in out&lt;CR&gt;&lt;LF&gt;</p> <p><b>Parameter:</b> in = {in1, in2, in3, in4}; out = {out1, out2, out3, out4};</p> <p><b>Description:</b> MP is short for mapping Get which input mapping to the chosen output</p>	<p><b>Command:</b> GET MP out1&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> MP in1 out1&lt;CR&gt;&lt;LF&gt;</p> <p><b>Description:</b> Get which input mapping to output 1</p>
3	Switch chosen input for all outputs	<p><b>Command:</b> SET SW in all&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> SW in all &lt;CR&gt;&lt;LF&gt;</p> <p><b>Parameter:</b> in = {in1, in2, in3, in4}; all = {all};</p> <p><b>Description:</b> SW is short for Switch Switch one input source for all outputs</p>	<p><b>Command:</b> SET SW in1 all &lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> SW in1 all&lt;CR&gt;&lt;LF&gt;</p> <p><b>Description:</b> Switch input1 for all output sink</p>
4	Get which output mapping to all inputs	<p><b>Command:</b> GET MP all&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> MP in out1&lt;CR&gt;&lt;LF&gt; MP in out2&lt;CR&gt;&lt;LF&gt; MP in out3&lt;CR&gt;&lt;LF&gt; MP in out4&lt;CR&gt;&lt;LF&gt;</p> <p><b>Parameter:</b> in = {in1, in2, in3, in4}; all = {all};</p> <p><b>Description:</b> MP is short for mapping Get which input mapping to all outputs</p>	<p><b>Command:</b> GET MP all &lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> MP in1 out1&lt;CR&gt;&lt;LF&gt; MP in2 out2&lt;CR&gt;&lt;LF&gt; MP in2 out3&lt;CR&gt;&lt;LF&gt; MP in4 out4&lt;CR&gt;&lt;LF&gt;</p> <p><b>Description:</b> in1 goes to out1 in2 goes to out2, out3 in4 goes to out4</p>

## 4.2. CEC Control

IDX	Function	Command	Example
5	Set CEC POWER ON/OFF	<p><b>Command:</b> SET CEC_PWR out prm&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> CEC_PWR out prm&lt;CR&gt;&lt;LF&gt;</p> <p><b>Parameter:</b> prm = {on, off} ; out = {out1, out2, out3, out4};</p> <p><b>Description:</b> Set sink power on or off</p>	<p><b>Command:</b> SET CEC_PWR out1 on&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> CEC_PWR out1 on&lt;CR&gt;&lt;LF&gt;</p> <p><b>Description:</b> Set sink hdmi output 1 power on</p>
6	Set CEC AUTO POWER ON/OFF	<p><b>Command:</b> SET AUTOCEC_FN out prm&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> AUTOCEC_FN out prm&lt;CR&gt;&lt;LF&gt;</p> <p><b>Parameter:</b> prm = {on, off} out = {out1, out2, out3, out4};</p> <p><b>Description:</b> Set sink auto power Function ON or OFF</p> <p><b>Default:</b> ON</p>	<p><b>Command:</b> SET AUTOCEC_FN out1 on&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> AUTOCEC_FN out1 on&lt;CR&gt;&lt;LF&gt;</p> <p><b>Description:</b> Set sink hdmi output 1 auto power ON</p>
7	Get CEC AUTO POWER ON/OFF Status	<p><b>Command:</b> GET AUTOCEC_FN out&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> AUTOCEC_FN out prm&lt;CR&gt;&lt;LF&gt;</p> <p><b>Parameter:</b> prm = {on, off} ; out = {out1, out2, out3, out4};</p> <p><b>Description:</b> Get Sink auto power Function ON or OFF Status.</p>	<p><b>Command:</b> GET AUTOCEC_FN out1&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> AUTOCEC_FN out1 on</p> <p><b>Description:</b> Get Sink auto power status, and the status is ON.</p>
8	Set CEC POWER Delay Time	<p><b>Command:</b> SET AUTOCEC_D out prm&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> AUTOCEC_D out prm&lt;CR&gt;&lt;LF&gt;</p> <p><b>Parameter:</b> out = {out1, out2, out3, out4}; prm = {1,2,3...};// according to the actual time counter,1 means 1 minute ,2 means 2 minutes Default wait time is 2 minutes. Max wait time is 30 minutes.</p> <p><b>Description:</b> AUTOCEC_D is short for CEC Auto Power Delay Timing</p>	<p><b>Command:</b> SET AUTOCEC_D out1 2&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> AUTOCEC_D out1 2&lt;CR&gt;&lt;LF&gt;</p> <p><b>Description:</b> when no active signal to out1, 2 minutes later, the unit will auto power off.</p>

9	Get CEC POWER Delay Time Status	<p><b>Command:</b> GET AUTOCEC_D out &lt;CR&gt; &lt;LF&gt;</p> <p><b>Return:</b> AUTOCEC_D out prm&lt;CR&gt; &lt;LF&gt;</p> <p><b>Parameter:</b> out = {out1, out2, out3, out4}; prm = {1,2,3,...,} // according to the actual time counter, 1 means 1 minute, 2 means 2 minutes, etc. Default wait time is 2 minutes. Max wait time is 30 minutes.</p> <p><b>Description:</b> AUTOCEC_D is short for CEC auto Power Delay Timing</p>	<p><b>Command:</b> GET AUTOCEC_D out1 &lt;CR&gt; &lt;LF&gt;</p> <p><b>Return:</b> AUTOCEC_D out1 2 &lt;CR&gt; &lt;LF&gt;</p> <p><b>Description:</b> Get out1 auto power delay time, the result is 2 minutes</p>
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### 4.3. HDCP Configuration

IDX	Function	Command	Example
10	Set Input HDCP support ON/OFF	<p><b>Command:</b> SET HDCP_S in prm&lt;CR&gt; &lt;LF&gt; SET HDCP_S in prm&lt;CR&gt; &lt;LF&gt;</p> <p><b>Return:</b> HDCP_S in prm&lt;CR&gt; &lt;LF&gt;</p> <p><b>Parameter:</b> prm = {on, off} in = {in1, in2, in3, in4}</p> <p><b>Description:</b> HDCP_S will control source hdcp support on or off</p> <p><b>Default:</b> ON</p>	<p><b>Command:</b> SET HDCP_S in1 on&lt;CR&gt; &lt;LF&gt;</p> <p><b>Return:</b> HDCP_S in1 on&lt;CR&gt; &lt;LF&gt;</p> <p><b>Description:</b> Set hdmi input 1 hdcp support on</p>
11	Get Input HDCP support ON/OFF Status	<p><b>Command:</b> GET HDCP_S in &lt;CR&gt; &lt;LF&gt;</p> <p><b>Return:</b> HDCP_S in prm&lt;CR&gt; &lt;LF&gt;</p> <p><b>Parameter:</b> prm = {on, off} in = {in1, in2, in3, in4}</p> <p><b>Description:</b> HDCP_S is short for HDCP support</p>	<p><b>Command:</b> GET HDCP_S in1&lt;CR&gt; &lt;LF&gt;</p> <p><b>Return:</b> HDCP_S in1 on&lt;CR&gt; &lt;LF&gt;</p> <p><b>Description:</b> Get hdmi1 hdcp support on or off status, and the result is on</p>

## 4.4. EDID Configuration

IDX	Function	Command	Example
12	Set Input EDID	<p><b>Command:</b> SET EDID <i>in prm</i>&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> EDID <i>in prm</i>&lt;CR&gt;&lt;LF&gt;</p> <p><b>Parameter:</b> <i>in</i> = {in1, in2, in, in4}; <i>prm</i> = {1 ~ 17}</p> <p>01 : Copy form hdmi output 1 02 : Copy form hdmi output 2 03: Copy form hdmi output 3 04 : Copy form hdmi output 4 05 : Fix 4K@60Hz 7.1CH Encoded Audio With HDR 06 : Fix 4K@60Hz 5.1CH Encoded Audio With HDR 07 : Fix 4K@60Hz 2.0CH PCM audio With HDR 08 : Fix 4K@60Hz 2.0CH PCM audio With SDR 09 : Fix 4K@30Hz 7.1CH Encoded Audio With HDR 10 : Fix 4K@30Hz 5.1CH Encoded Audio With HDR 11 : Fix 4K@30Hz 2.0CH PCM audio With HDR 12 : Fix 4K@30Hz 2.0CH PCM audio With SDR 13 : Fix 1080P@60Hz 7.1CH Encoded Audio With HDR 14 : Fix 1080P@60Hz 5.1CH Encoded Audio With HDR 15 : Fix 1080P@60Hz 2.0CH PCM audio With HDR 16 : Fix 1080P@60Hz 2.0CH PCM audio With SDR 17 :Smart EDID</p> <p><b>Description:</b> Set Input EDID Default:17</p>	<p><b>Command:</b> SET EDID in1 7&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> EDID in1 7&lt;CR&gt;&lt;LF&gt;</p> <p><b>Description:</b> Set in1 with edid 4K@60Hz 4:4:4, 2.0ch, with HDR</p>
13	Get All Input EDID status	<p><b>Command:</b> GET EDID <i>in</i> &lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> EDID <i>in prm</i>&lt;CR&gt;&lt;LF&gt;</p> <p><b>Parameter:</b> <i>in</i> = {all}; <i>prm</i> = {0 ~ 17}</p> <p>01 : Copy form hdmi output 1 02 : Copy form hdmi output 2 03: Copy form hdmi output 3 04 : Copy form hdmi output 4 05 : Fix 4K@60Hz 7.1CH Encoded Audio with HDR 06 : Fix 4K@60Hz 5.1CH Encoded Audio with HDR 07 : Fix 4K@60Hz 2.0CH PCM audio with HDR 08 : Fix 4K@60Hz 2.0CH PCM audio with SDR 09 : Fix 4K@30Hz 7.1CH Encoded Audio with HDR 10 : Fix 4K@30Hz 5.1CH Encoded Audio with HDR 11 : Fix 4K@30Hz 2.0CH PCM audio with HDR 12 : Fix 4K@30Hz 2.0CH PCM audio with SDR 13 : Fix 1080P@60Hz 7.1CH Encoded Audio with HDR 14 : Fix 1080P@60Hz 5.1CH Encoded Audio with HDR 15 : Fix 1080P@60Hz 2.0CH PCM audio with HDR 16 : Fix 1080P@60Hz 2.0CH PCM audio with SDR 17 :Smart EDID</p> <p><b>Description:</b> Get all EDID inputs</p>	<p><b>Command:</b> GET EDID all &lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> EDID in1 11&lt;CR&gt; EDID in2 5&lt;CR&gt; EDID in3 7&lt;CR&gt; EDID in4 8&lt;CR&gt;</p> <p><b>Description:</b> EDID in1 = 4K@30Hz 2.0CH PCM audio with HDR EDID in2 = 4K@60Hz 7.1CH Encoded Audio with HDR EDID in3 = 4K@60Hz 2.0CH PCM audio with HDR EDID in4 = 4K@60Hz 2.0CH PCM audio with SDR</p>

IDX	Function	Command	Example
14	Get one input EDID Status	<p><b>Command:</b> GET EDID in &lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> EDID in prm&lt;CR&gt;&lt;LF&gt;</p> <p><b>Parameter:</b> in = {in1, in2, in3, in4}; prm = {0 ~ 17} 01 : Copy form hdmi output 1 02 : Copy form hdmi output 2 03: Copy form hdmi output 3 04 : Copy form hdmi output 4 05 : Fix 4K@60Hz 7.1CH Encoded Audio with HDR 06 : Fix 4K@60Hz 5.1CH Encoded Audio with HDR 07 : Fix 4K@60Hz 2.0CH PCM audio with HDR 08 : Fix 4K@60Hz 2.0CH PCM audio with SDR 09 : Fix 4K@30Hz 7.1CH Encoded Audio with HDR 10 : Fix 4K@30Hz 5.1CH Encoded Audio with HDR 11 : Fix 4K@30Hz 2.0CH PCM audio with HDR 12 : Fix 4K@30Hz 2.0CH PCM audio with SDR 13 : Fix 1080P@60Hz 7.1CH Encoded Audio with HDR 14 : Fix 1080P@60Hz 5.1CH Encoded Audio with HDR 15 : Fix 1080P@60Hz 2.0CH PCM audio with HDR 16 : Fix 1080P@60Hz 2.0CH PCM audio with SDR 17 :Smart EDID</p> <p><b>Description:</b> Get one input EDID Status</p>	<p><b>Command:</b> GET EDID in1&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> EDID in1 5&lt;CR&gt;&lt;LF&gt;</p> <p><b>Description:</b> Get in1 edid 4K@60Hz 7.1CH Encoded Audio with HDR</p>
15	Set Write Input EDID	<p><b>Command:</b> SET EDID_W in prm1 prm2&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> EDID_W in prm1 prm3&lt;CR&gt;&lt;LF&gt;</p> <p><b>Parameter:</b> in = {in1, in2, in3, in4}; prm1 = {block0, block1}; prm2 = one block of 256 bytes edid ascii data with spaces (hex data need conversion into ASCII code) prm3 = {ok, error}; error : check sum error</p> <p><b>Description:</b> Write EDID content to input.</p>	<p><b>Command:</b> SET EDID_W in1 block0 XX...XX&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> EDID_W in1 block0 ok&lt;CR&gt;&lt;LF&gt;</p> <p><b>Description:</b> write EDID content to input</p>
16	Get Read Output EDID	<p><b>Command:</b> GET EDID_R out&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> EDID_R out prm1 prm2&lt;CR&gt;&lt;LF&gt;</p> <p><b>Parameter:</b> out = {out1, out2, out3, out4}; prm1 = {block0, block1}; prm2 = {one block of 256 bytes edid ascii data with no spaces(hex data need conversion into ASCII code), error, unconnect};</p> <p><b>Description:</b> Read EDID content form output.</p>	<p><b>Command:</b> GET EDID_R out1&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> EDID_R out1 block0 XX...XX&lt;CR&gt;&lt;LF&gt; EDID_R out1 block1 XX...XX&lt;CR&gt;&lt;LF&gt;</p> <p><b>Description:</b> EDID_R out1 block0 XX...XX&lt;CR&gt;&lt;LF&gt; --- Read EDID ok or EDID_R out1 error&lt;CR&gt;&lt;LF&gt; --- Check Sum Error or EDID_R out1 unconnect&lt;CR&gt;&lt;LF&gt; --- Sink unconnected</p>



## 4.5. System Info

IDX	Function	Command	Example
17	Factory reset	<b>Command:</b> RESET<CR><LF> <b>Return:</b> RESET<CR><LF> <b>Description:</b> Factory reset	<b>Command:</b> RESET<CR><LF> <b>Return:</b> RESET<CR><LF> <b>Description:</b> Factory reset all board
18	System Reboot	<b>Command:</b> REBOOT<CR><LF> <b>Return:</b> REBOOT<CR><LF> <b>Description:</b> System Reboot	<b>Command:</b> REBOOT<CR><LF> <b>Return:</b> REBOOT<CR><LF> <b>Description:</b> System Reboot
19	Get selected target firmware version	<b>Command:</b> GET VER<CR><LF> <b>Return:</b> VER prm<CR><LF> <b>Parameter:</b> prm = {...}// according to actual firmware version <b>Description:</b> Get selected target firmware version	<b>Command:</b> GET VER<CR><LF> <b>Return:</b> VER 1.0<CR><LF> <b>Description:</b> Get all module firmware version
20	Get the API list	<b>Command:</b> help<CR><LF> <b>Description:</b> Get the API list	<b>Command:</b> help<CR><LF> <b>Description:</b> Get the API list
21	GET IP address	<b>Command:</b> GET IPADDR<CR><LF> <b>Return:</b> IPADDR xx.xx.xx.xx<CR><LF> <b>Description:</b> GET IP address	<b>Command:</b> GET IPADDR<CR><LF> <b>Return:</b> IPADDR 192.168.11.243<CR><LF>

## 4.6. Audio Mute

IDX	Function	Command	Example
22	Set Audio Output mute	<p><b>Command:</b> SET MUTE out pcm&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> MUTE out pcm&lt;CR&gt;&lt;LF&gt;</p> <p><b>Parameter:</b> pcm = {on, off}; on means mute; off means unmute; out = {hdmaudioout1, hdmaudioout2, spdifaudioout1, spdifaudioout2, audioout1, audioout2};</p> <p><b>Description:</b> Set Audio mute or not mute.</p>	<p><b>Command:</b> SET MUTE hdmaudioout1 on&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> MUTE hdmaudioout1 on&lt;CR&gt;&lt;LF&gt;</p> <p><b>Description:</b> Set hdmaudioout1 mute on</p>
23	Get Audio Output mute status	<p><b>Command:</b> GET MUTE out&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> MUTE out pcm&lt;CR&gt;&lt;LF&gt;</p> <p><b>Parameter:</b> pcm = {on, off}; on means mute; off means unmute out = {hdmaudioout1, hdmaudioout2, spdifaudioout1, spdifaudioout2, audioout1, audioout2, all};</p> <p><b>Description:</b> Get Audio Output mute status</p>	<p><b>Command:</b> GET MUTE hdmaudioout1&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> MUTE hdmaudioout1 pcm&lt;CR&gt;&lt;LF&gt;</p> <p><b>Description:</b> Get Audio Output mute status.</p>

## 4.7. Preset Scenes

IDX	Function	Command	Example
24	Save Preset Scene	<p><b>Command:</b> SAVE PRESET prm&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> PRESET prm&lt;CR&gt;&lt;LF&gt;</p> <p><b>Parameter:</b> prm = {1,2,3}//</p> <p><b>Description:</b> Save Preset Scene</p>	<p><b>Command:</b> SAVE PRESET 1&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> PRESET 1&lt;CR&gt;&lt;LF&gt;</p> <p><b>Description:</b> Save preset scene</p>
25	Restore Preset Scene	<p><b>Command:</b> RESTORE PRESET prm&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> PRESET prm&lt;CR&gt;&lt;LF&gt;</p> <p><b>Parameter:</b> prm = {1,2,3}//</p> <p><b>Description:</b> Restore Preset Scene</p>	<p><b>Command:</b> RESTORE PRESET 1&lt;CR&gt;&lt;LF&gt;</p> <p><b>Return:</b> PRESET 1&lt;CR&gt;&lt;LF&gt;</p> <p><b>Description:</b> Restore preset scene</p>

## 5. SUPPORT

Need Help? Contact Tech Support!

If you need further clarification, please call tech support at 800.838.5052, or email [support@snapav.com](mailto:support@snapav.com). For other information, instructional videos, support documentation, or ideas, visit our website and view your item's product page at [www.snapav.com](http://www.snapav.com).