**Overview**

The following information will guide the installer through simple set up and programming for serial control of a B-500-MTRX-230 HDBaseT Matrix Switchers.

Please read the entire document before any RS-232 setup.

If you have any questions about serial control after reading this document, please contact SnapAV: Technical Support.

**Contacting Technical Support**

Phone:  (866) 838-5052    (704) 909-5229
Email:   TechSupport@SnapAV.com

**Before Beginning**

Make sure the following items are close at hand for setup:

- B-500-MTRX-230 Matrix Switcher
- Automation system with serial output
- Automation system documentation
- B-500-MTRX-230 Owner’s Manual
- Serial cables and adapters for connection between controller and matrix
- List of the functions to program into the automation system
- Knowledge of this document and the automation system being used.

**Firmware Version**

The information contained in this document is intended for switchers with the latest version of firmware. Please verify that you have the latest version of firmware for each switcher in the system.

If the firmware version of the switcher is below the version listed here, it is recommended that it is updated.

Firmware Version:  1.0.0

**Determining Firmware Version**

To determine the firmware of the switcher use the programming software available on the SnapAV site.
RS232 Port Configuration

The Binary™ HDBaseT Matrix Switcher receives control data on pin 2 (RxD – Data Receive) and transmits control data on pin 3 (TxD - Data Transmit) of the DB9 serial port at the back of the switcher. The connection cable between the switcher and the automation system will need to be configured so that pin2 (RxD) on the HD MATRIX is connected to the Automation Systems Txd pin, and pin3 (TxD) on the HD MATRIX is connected to the Automation Systems Rxd (Receive Data) pin. See below for details.

Configuration for the Automation System control ports can vary. Refer to the documentation for the automation system you are using to ensure proper connection and configuration.

<table>
<thead>
<tr>
<th>Pin</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>RxD (Data Receive)</td>
</tr>
<tr>
<td>3</td>
<td>TxD (Data Transmit)</td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
</tr>
</tbody>
</table>

In addition to the RS232 DB9, the 8x8, 8x16, and 16x16 switchers add an Ethernet port that can be used to control the device using Telnet Protocol. This port follows 568 A/B standards, please refer to these standards when creating wiring.

Serial Communications Format

Set the serial communications to the following format on the automation system control port.

- Baud Rate : 9600 bps
- Data Bit : 8 bits
- Parity : None
- Stop Bit : 1 bit
Output/Input Commands

The commands for the switcher are sent and received in ASCII format. With a few exceptions, the commands for control and feedback are the output and input being controlled.

Direct Output/Input Selection

```
01 03 <CR>
```

- End Character
- Input (2 digits)
- Output (2 Digits)

<table>
<thead>
<tr>
<th>Example</th>
<th>Command</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select Input 3 on Output 1</td>
<td>0103&lt;CR&gt;</td>
<td>o01i03</td>
</tr>
<tr>
<td>Select Input 2 on Output 3</td>
<td>0302&lt;CR&gt;</td>
<td>o03i02</td>
</tr>
</tbody>
</table>

*Note: Command structure must be Output followed by Input.*

Next/Previous Input Selection

```
01 + <CR>
```

- End Character
- Command (+ = Next / - = Previous)
- Output (2 digits)

<table>
<thead>
<tr>
<th>Example</th>
<th>Command</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select the next Input on Output 1</td>
<td>01&lt;CR&gt;</td>
<td>o01i04</td>
</tr>
<tr>
<td>Select the Previous Input on Output 1</td>
<td>01&lt;CR&gt;</td>
<td>o01i03</td>
</tr>
</tbody>
</table>

Turn Outputs On and Off

```
01 00 <CR>
```

- End Character
- Command (L=On / 00=Off)
- Output (2 digits)

<table>
<thead>
<tr>
<th>Operation</th>
<th>Command</th>
<th>Example Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turn Output 1 Off</td>
<td>0100&lt;CR&gt;</td>
<td>o01i00</td>
</tr>
<tr>
<td>Turn Output 1 On</td>
<td>01L&lt;CR&gt;</td>
<td>o01i03</td>
</tr>
</tbody>
</table>
**Turn Switcher On or Off**

```
00 <CR>
```

End Character

Command (01=On / 00=Off)

---

<table>
<thead>
<tr>
<th>Operation</th>
<th>Command</th>
<th>Example Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>System On</td>
<td>01&lt;CR&gt;</td>
<td>p01</td>
</tr>
<tr>
<td>System Off</td>
<td>00&lt;CR&gt;</td>
<td>p00</td>
</tr>
</tbody>
</table>

---

**Output/Input Command Response**

Whenever a serial or IR command is sent, a string identifying the state of the switcher is returned. At the end of response line the system sends a <CR> and <LF>.

**Output/Input Status**

```
o 01 i 03 <CR><LF>
```

- Identifier (o=Output)
- Identifier (i=Input)
- Output (2 Digits)
- Input (2 Digits)
- Carriage Return
- Line Feed
Status Commands

Input to Output Mapping

<table>
<thead>
<tr>
<th>Command</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>STMAP</td>
<td>Request Input to Output Mapping</td>
</tr>
</tbody>
</table>

Response

```
o 01 i 03<CR><LF>
```

When returned the response will list all outputs and their associated input for the available number on inputs on the switcher.

<table>
<thead>
<tr>
<th>4x4 Switcher Example</th>
<th>8x8 Switcher Example</th>
<th>8x16/16x16 Switcher Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>o01i01</td>
<td>o01i01</td>
<td>o01i01</td>
</tr>
<tr>
<td>o02i02</td>
<td>o02i02</td>
<td>o02i02</td>
</tr>
<tr>
<td>o03i03</td>
<td>o03i03</td>
<td>o03i03</td>
</tr>
<tr>
<td>o04i04</td>
<td>o04i04</td>
<td>o04i04</td>
</tr>
<tr>
<td>o05i05</td>
<td>o05i05</td>
<td>o05i05</td>
</tr>
<tr>
<td>o06i06</td>
<td>o06i06</td>
<td>o06i06</td>
</tr>
<tr>
<td>o07i07</td>
<td>o07i07</td>
<td>o07i07</td>
</tr>
<tr>
<td>o08i08</td>
<td>o08i08</td>
<td></td>
</tr>
<tr>
<td>o09i02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o10i03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o11i05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o12i01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o13i01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o14i0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o15i05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o16i08</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Firmware Version**

<table>
<thead>
<tr>
<th>Command</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>VR</td>
<td>Request Firmware Version</td>
</tr>
</tbody>
</table>

**Response**

```
FW: B100. 4x4. 0.00.1
```

- **Product Series (B100 or B300)**
- **Identifier (FW=Firmware)**
- **Product Model (4x4 or 8x8)**

**Example**

```
FW:B100.4x4.0.00.1
```

**IP Address (8x8 Only)**

<table>
<thead>
<tr>
<th>Command</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP</td>
<td>Request IP Address</td>
</tr>
</tbody>
</table>

**Response**

```
192.168.1.21
```

**Example**

```
192.168.1.21
```

**Factory Defaults**

<table>
<thead>
<tr>
<th>Command</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>FASET</td>
<td>Reset Switcher to Factory Settings</td>
</tr>
</tbody>
</table>

**Response**

```
Set to Default Value
```

**Example**

```
Set to Factory Value
```

**Factory Values:**

- **EDIDs:** 1080p 24 bit, 2ch Stereo (embedded EDID #2)
- **I/O:** All Outputs set to Input 1