Overview
The following information will guide the installer through simple set up and programming for Serial control of a Binary B-100 / B-300 Series HDMatrix Switcher.

Please read through the entire document before attempting to control via RS-232.

Should 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
Before you begin the setup of the HDMatrix for RS-232 control make sure the following items are at hand.

- B-100-HDMatrix or B-300-HDMatrix with the proper firmware version
  See Firmware Version section for details.
- Home Automation System or other control device
- Owner’s Manual for the Home Automation System
- B-100-HDMatrix or B-300-HDMatrix Owner’s Manual
- Cable to connect the switcher to the Home Automation System
- List of the functions that you intend to program into the Home Automation System
- Knowledge of this document and the Control Device 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™ HDMatrix receives control data on pin 2 (Rxd – Data Receive) and transmits control data on pin 3 (TxD - Data Transmit). The connection cable between the HD MATRIX 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.

In addition to the RS232 DB9, the 8x8 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 Home Automation Systems control port.

- Baud Rate : 9600 bps
- Data Bit : 8 bits
- Parity : None
- Stop Bit : 1 bit

---

<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>
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

Example | Command | Response |
--- | --- | --- |
Select Input 3 on Output 1 | 0103<CR> | o01i03 |
Select Input 2 on Output 3 | 0302<CR> | o03i02 |
Note: Command structure must be Output followed by Input.

Next/Previous Input Selection

Example | Command | Response |
--- | --- | --- |
Select the next Input on Output 1 | 01+<CR> | o01i04 |
Select the Previous Input on Output 1 | 01-<CR> | o01i03 |

Turn Outputs On and Off

Example | Command | Response |
--- | --- | --- |
Turn Output 1 Off | 0100<CR> | o01i00 |
Turn Output 1 On | 01L<CR> | o01i03 |
### Turn Switcher On or Off

```
Command (01=On / 00=Off)
```

```
00 <CR>
```

End Character

### Operation | Command | Example Status
--- | --- | ---
System On | 01<CR> | p01
System Off | 00<CR> | p00

### 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

**Command | Function**
--- | ---
STMAP | Request Input to Output Mapping

**Response**

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

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

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>
</tr>
</thead>
<tbody>
<tr>
<td>o01i01</td>
<td>o01i01</td>
</tr>
<tr>
<td>o02i02</td>
<td>o02i02</td>
</tr>
<tr>
<td>o03i03</td>
<td>o03i03</td>
</tr>
<tr>
<td>o04i04</td>
<td>o04i04</td>
</tr>
<tr>
<td>o05i05</td>
<td></td>
</tr>
<tr>
<td>o06i06</td>
<td></td>
</tr>
<tr>
<td>o07i07</td>
<td></td>
</tr>
<tr>
<td>o08i08</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: 1080i Stereo
I/O: All Outputs set to Input 1