UT260-102 UNDER TABLE 4X1 HDMI SWITCHER   User's Guide

Welcome!

Everyone at Altinex greatly appreciates your purchase of the UT260-102. We are confident that you will find it to be reliable and easy to use. If you need support, please do not hesitate to call us at 714-990-2300.

At Altinex, we are committed to developing unique and state of the art Signal Management Solutions® for demanding audiovisual installations. Welcome to the Altinex family of satisfied customers around the world!

1. Precautions and Safety Warnings

- These instructions are to ensure the reliable operation of your UT260-102 and to prevent fire and shock hazards. Please read them carefully and heed all warnings.

1.1 General

- Qualified ALTINEX service personnel or their authorized representatives must perform all service.

1.2 Installation Precautions

- To prevent fire or shock, do not expose this unit to water or moisture. Do not place the UT260-102 in direct sunlight, near heaters or heat-radiating appliances, or near any liquid. Exposure to direct sunlight, smoke, or steam can harm internal components.

- Handle carefully; dropping or jarring can cause damage.

- Do not pull any cables that are attached to the UT260-102.

1.3 Cleaning

- Clean with a dry cloth only. Never use strong detergents or solvents such as alcohol or thinner.

1.4 FCC Notice

- This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

- This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 2 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions found herein, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

- Any changes or modifications to the unit not expressly approved by ALTINEX, Inc. could void the user's authority to operate the equipment.

2. Installation Procedures

Note: Download and read the entire online manual to become familiar with the UT260-102 and for detailed information.

Step 1:   The enclosure mounts under the table using the mounting brackets included.

Step 2:   Connect input cables from the sources.

Step 3.   Connect the digital output directly to the HDTV. If there is at least one input signal present, an image appears on the TV.

Step 4.   Apply power to the unit using the power adapter provided.

Step 5.   The UT260-102 is ready for use. Auto-switch is one of the default configuration settings. If a signal is removed, the switcher automatically switches to another input if a signal is present.

Step 6.   The UT260-102 may be controlled using RS232 commands from a controller, or using simple momentary push button switches wired to the terminal block on the rear panel. See the full user guide for details.

On the rear terminal block, there are input select controls, output LED controls, and RS232 control pins.

The input select controls are activated using a momentary contact closure to ground to between each input pin and ground. The LED output pins drive LEDs to indicate a signal is present (flashing) or active on the output (solid), same as front panel LEDs. The RS232 controls can be used to control or configure the UT260-102.

See the top label of the UT260-102 for details, or refer to the complete online manual.
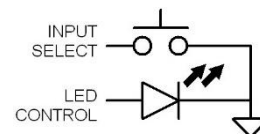
3. Warranty and Return Policies

Please visit the ALTINEX website at www.altinex.com for details on warranty and return policies. In the case of a unit needing repair, please complete a RMA (return material authorization) form located on the bottom left hand corner of the Altinex homepage. Once completed, please email the form to support@altinex.com.

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4. Technical Specifications

Specifications are subject to change due to design improvements. Please see www.altinex.com for up to date information.

Features/Description	UT260-102
Input Connectors	
Digital Video + Audio	HDMI F, Type A (2)
VGA Video	15-pin HD F (1)
Analog Audio	3.5 mm F (1)
DisplayPort Video	DP F (1)
Power	DC Jack 2.5 mm F (1)
Output Connectors	
Digital Video + Audio	HDMI F, Type A (1)
Analog Audio (audio matches HDMI out)	3.5 mm F (1)
Compatibility	
Digital Signal types	HDMI 2.0/DP 1.2
Signal resolution	Resolutions up to 1080p
VGA	VESA up to 1920x1080
Accessories Included	
Power Supply	5V/2A Power Adapter (1)
Mounting Brackets	Right Angle (2)
Terminal Blocks	6 position, 3.5 mm (2)

Table 1. UT260-102 General

Mechanical	UT260-102
Material	Steel
Color	Black
Height	1.14 in. (29 mm)
Width	4.06 in. (103 mm)
Length	7.48 in. (190 mm)
Weight	1.3 lb. (0.57 kg)
T° Operating	10°C-40°C
Humidity	60% RH non-condensing
MTBF (calc.)	38,000 hrs.

Table 2. UT260-102 Mechanical

Electrical	UT260-102
Video Input Signals	
Digital Video + Audio	HDMI Standard
VGA video sync	1.0 Vp-p max. TTL +/-
DisplayPort	DisplayPort 1.2
Audio Input Signals	
Analog Audio	1.2 Vp-p max.
Video Output Signals	
Digital Video + Audio	HDMI Standard
Audio Output Signals	
Analog Audio	1.0 Vp-p nominal
Power	
+5V	650 mA, 3.25 W

Table 3. UT260-102 Electrical

HDMI, the HDMI Logo, and High Definition Multimedia Interfaces are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.
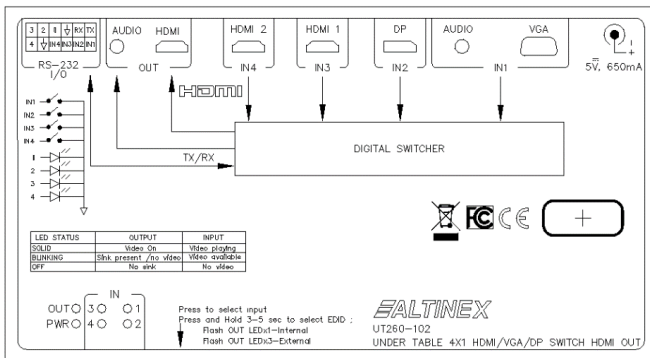
5. About Your UT260-102

- Multi-format inputs for VGA/DP/2 HDMI
- Supports HDMI 2.0 with 4K@30Hz or 4K@60Hz 4:2:0
- HDCP compliant
- Optional internal EDID or live EDID
- RS232/Button/Contact closure for switching
- Auto/Manual switching mode
- Analog audio de-embedded at the output
- Output mute function
- Power standby mode

The UT260-102 is a multi-format switcher with HDMI, VGA, and Display Port inputs to an HDMI output with analog audio de-embedded. It supports RS232 and Contact Closure for remote control. The switcher is HDCP compliant and supports a default internal EDID or live EDID from the display.

The switcher may be used in auto-switch mode, controlled manually using contact closure switcher, or controlled via a controller using RS232 commands. The auto-switch feature automatically tells the switcher to connect the newest input to the output display. This feature works great in many applications and eliminates the need for external hardware or controls.

The contact closure switching uses momentary contact closures to select among the four inputs. In addition to the contact closure input controls, the switcher provides LED driver outputs that can be used to control LEDs either built-in to the momentary switch or part of a user control interface.

The RS232 control provides input select control as well as other advanced features like video output mute and EDID select. The RS232 interface is also used to configure the switcher if the default settings are not exactly what is required by the application.

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6. Application Diagrams

Diagram 1: Typical Setup

TNP128
Tilt'N Plug JR.
Hybrid A/D Tabletop
Interconnect box

CB415-006
VGA + Audio cable

DELL

CB470-006
HDMI cable

Network cable

Laptop

PS provided
with UT260-102

UT260-102
4X1 2XHDMI/VGA/DP
SWITCH - HDMI OUT

VGA +
Audio cable

RS-232

DP cable

Lenovo

Contact Closure
with LED

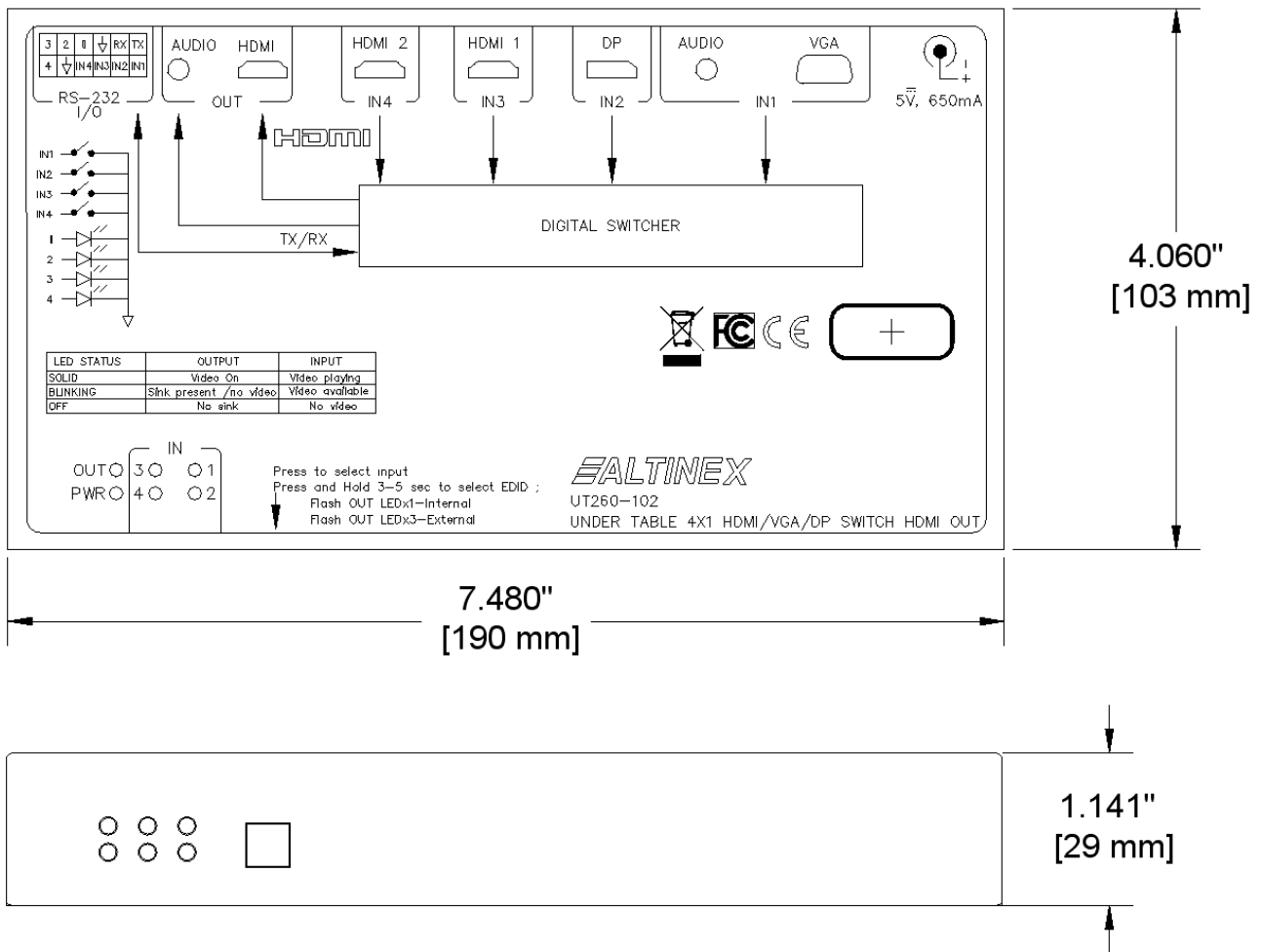HDMI
cable

Speakers

Audio
Amplifier

DVD

HDMI
cable

Display
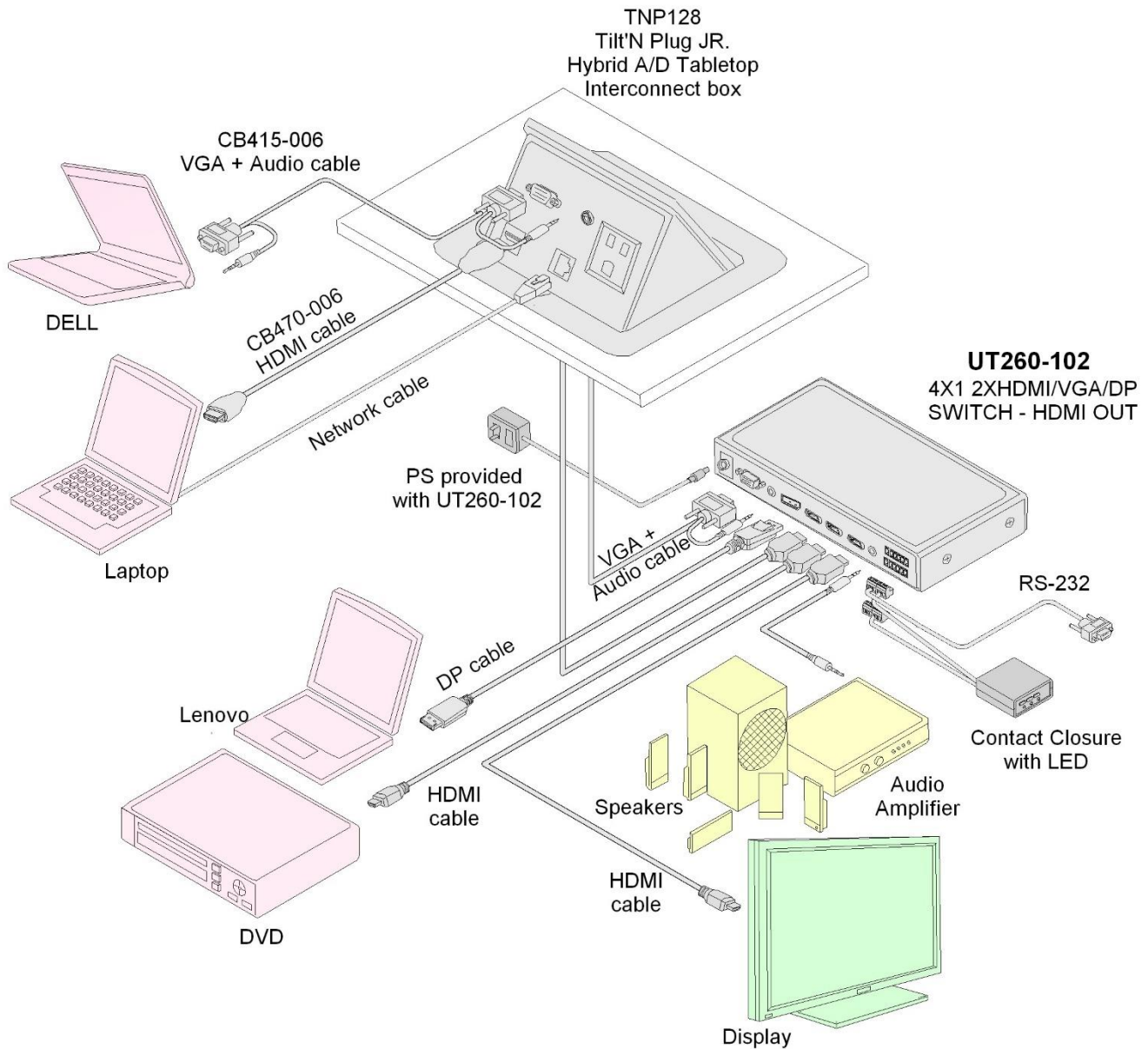
Diagram 2: Dimensions
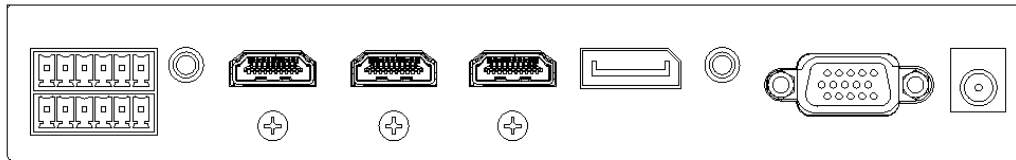
Diagram 3: Rear Panel Wiring

Terminal Block - Rear View

In1 In2 In3 In4 G 4

Tx Rx G 1 2 3

RS-232 Configuration/Control

DB9 pin 2, PC Receive

DB9 pin 3, PC Transmit

DB9 pin 5, Ground
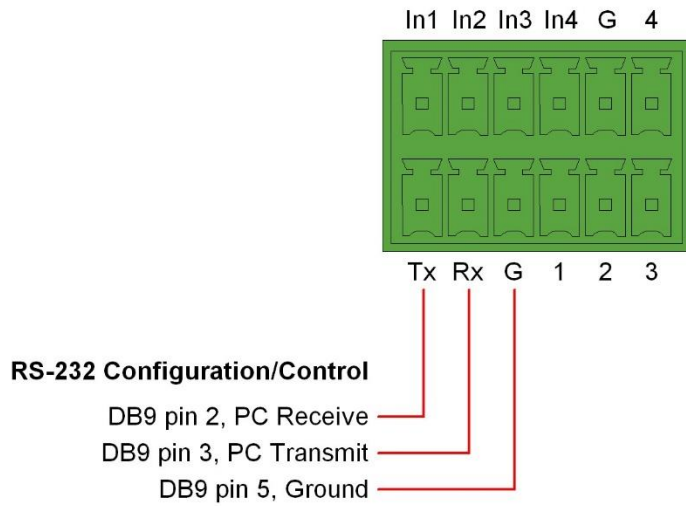
Terminal Block Connectors
(provided with UT260-102)

Contact Closure Wiring

In 1
In 2
In 3
In 4

1
2
3
4

G

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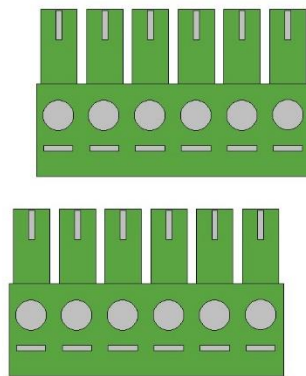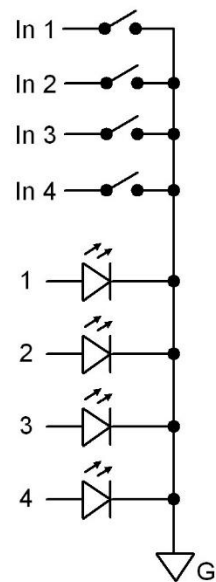
7. Operation

Users connect their device (phone, laptop, etc.) to one of the input connectors/cables above the table surface. Their video input is automatically routed to the HDMI output where it is displayed on the external display. Auto-switch is the default configuration, but may also be disabled for use with contact closures or a control system.

7.1 LED Indicators

The front panel has four LEDs representing the four inputs. The LEDs are off if there is no signal present, flashing if a signal is present but not selected, and solid if an input signal is present and displayed on the output HDMI connector. The rear panel LED outputs function the same as those on the front panel. The POWER LED is on and solid red when power is applied. The OUT LED is off when there is no display connected to the HDMI output, it flashes if a display is connected but there is no signal present on the output of the UT260-102, and solid when both signal and display are present.

7.2 Input Selection

7.2.1 Auto-switch

By default, the UT260-102 is configured with auto-switch enabled. In auto-switch mode, the switcher automatically selects the last signal connected and displays its video on the output. When an active input signal is removed, the switcher automatically switches to the next available input in the following order of priority: HDMI-A, HDMI-B, DisplayPort, and finally VGA. Auto-switch can be disable and priorities changed using the RS232 connection to reconfigure the switcher defaults.

7.2.2 Input Select Contact Closures

The switcher rear panel terminal block connectors allow the switcher to be controlled manually. Momentary switches can allow users to select their video at will during a presentation. See Diagram 3 for wiring details.

7.2.3 RS232 Control

A controller may also be used to control the switcher using the RS232 commands in the next section. RS232 protocols can be used to control the switcher or alter its default configuration.

7.3 RS-232 Control

The UT260-102 has many advanced remote-control capabilities accessible through standard RS-232 communication. Control may be accomplished through a computer, control system, or any device capable of RS-232 communication.

If the computer/controller in use does not have a DB9 connector for serial communication, use a USB to serial adapter.

7.3.1 RS-232 Serial Port Settings

In order to configure the switcher or to control it using RS232 communication, make sure the communication software is set for the following:

       Baud Rate...........9600

       Data Bits 8

       Stop Bits 1

       Parity...................None

       Flow ....None

The baud rate may be changed depending on the user requirements. See the Description of Commands section for details.

7.3.2 RS-232 Interface

The control commands for the UT260-102 are in a simple ASCII character format and must include a carriage return 0x0D at the end of the command string.

7.3.3 Feedback from Switcher

Feedback from the switcher is enclosed in parentheses "(…)" and displays the new settings of the switcher.

7.4 Description of Commands

Each command consists of either an ampersand or question mark, following by a command/query and finally a carriage return.

       Example: ? R <cr>

              ?   = Query

              R   = Function (route)

              <cr>   = carriage return (0x0D)

Important: Commands must be sent in one contiguous group without delay. For example, if you type the characters by hand, the switcher will most likely not recognize the command. Type the commands and then paste them to a terminal window, or use a controller to send the commands as a single block.
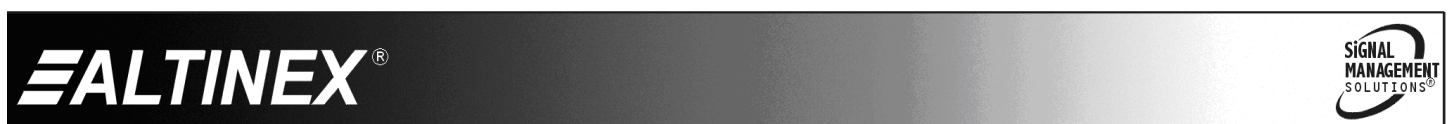
COMMANDS

1. **&Rx**   Route Video

   This command is used to route one of the four inputs to the switcher's HDMI output.

   Command Format: &Rx + <cr>

   x = Input
      VA = VGA
      DP = DisplayPort
      HA = HDMI A
      HB = HDMI B

   Example:

   Route the VGA input to the switcher output by sending the following command:

   &RVA<cr>

   The switcher returns feedback:

   (VGA Active)

2. **?R**   Query Active Input

   This command returns the active video input.

   Command Format: ?R + <cr>

   Example:

   Query which input is currently displayed on the output by sending the following command:

   &R <cr>

   The switcher returns feedback:

   (HDMI-A is Active)

3. **&Bx,y,z**   Configure RS232 Port

   This command sets the RS232 port configuration; baud rate, parity, and data bits. Note that there is no query command for the RS232 port's configuration.

   Command Format: &Bx,y,z + <cr>

   x = Baud rate (2400, 4800, 9600, 14400, 19200, 38400, 56000, or 115200)

   y = Data bits (8 or 9)

   z = Parity (N=none, O=odd, E=even)

   Example:

   Set the switcher's RS232 port operation for 115200 baud, 8 data bits, and no parity by sending the following command:

   &B115200,8,N <cr>

   The switcher returns feedback:

   (BR:115200,8,N) After this feedback, all other communication must be made using the new baud rate and configuration.

4. **&VMx**   Video Mute

   This command enables and disables the output video form the switcher.

   Command Format: &VMx + <cr>

   x = Mute (0=Video disabled, 1=Video enabled)

   Example:

   Disable the output video by sending the following command:

   &VM0 <cr>

   The switcher returns feedback:

   (Output Mute On)

5. **&FM**   Firmware Version

   This command returns the current firmware version of the switcher.

   Command Format: &FM + <cr>

   Example:

   Read the switcher firmware by sending the following command:

   &FM <cr>

   The switcher returns feedback:

   (FV:1.1.1)

6. **?SM**   Query Mode

   This command returns the current switching mode of the switcher.

   Command Format: ?SM + <cr>

   Example:

   Read the switcher mode by sending the following command:

   ?SM <cr>

   The switcher returns feedback:

   (Auto Mode)

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7. **&SMx**   Set Switching Mode

This command sets the switching mode of the switcher to either automatic or manual.

Command Format: &SMx + <cr>

x   =   Mode (A=auto, M=manual)

Example:

Set the switcher mode to automatic by sending the following command:

&SMA <cr>

The switcher returns feedback:

(Auto Mode)

8. **?SPP**   Query Priorities

This command reads the input priorities.

Command Format: ?SPP + <cr>

Example:

Query the switcher for input priorities by sending the following command:

?SPP <cr>

The switcher returns feedback:

(Priority [HA,HB,DP,VA])   *default*

9. **&SPP[a,b,c,d]**   Set Priorities

This command sets the input priorities.

Command Format: &SPP[a,b,c,d] + <cr>

a   =   Highest priority input

b   =   Priority #2

c   =   Priority #3

d   =   Lowest priority input

Example:

Set the input priorities in descending order of HDMI-A, HDMI-B, DisplayPort, and VGA by sending the following command:

&SPP[DP,VA,HB,HA] <cr>

The switcher returns feedback:

(Priority [DP,VA,HB,HA])

10. **&FR**   Factory Reset

This command resets all settings to their factory defaults.

Command Format: &FR + <cr>

Example:

Query the switcher for input priorities by sending the following command:

?SPP <cr>

The switcher returns feedback:

(Restore the factory Settings)

Factory settings include:

```
Mode  ..............Auto Mode
RS232  ............9600,N,8
Priorities  .........HA,HB,DP,VA
VGA EDID  ......Internal
DP EDID..........External
HDMI EDID......External
```

11. **?EDID**   Query EDID

This command returns the EDID settings of the switcher inputs.

Command Format: ?EDID + <cr>

Example:

Read the switcher EDID settings by sending the following command:

?EDID <cr>

The switcher returns feedback:

(EDID:internal, VGA)

(EDID:external, DP)

(EDID:external, HDMI)

12. **&EDIDx,y** Select EDID

This command sets the EDID source for the inputs.

Command Format: &EDIDx,y + <cr>

x = Type (def=default, ext=external, int=internal)

y = Input (VGA, DP, or HDMI)

Example:

Set the VGA input to use the internal EDID by sending the following command:

&EDIDint,VGA <cr>

The switcher returns feedback:

(EDID: internal, VGA)

The table below shows how to achieve all possible combinations of internal and external EDID settings. Each command shown must be transmitted with a carriage return.

VG	DP	HD	SEND 1	SEND 2	SEND 3
ext	ext	ext	&EDIDext,ALL	n/a	n/a
ext	ext	int	&EDIDext,ALL	&EDIDint,HDMI	n/a
ext	int	ext	&EDIDext,ALL	&EDIDint,DP	n/a
ext	int	int	&EDIDext,ALL	&EDIDint,DP	&EDIDint,HDMI
int	ext	ext	&EDIDdef,ALL	n/a	n/a
int	ext	int	&EDIDdef,ALL	&EDIDint,HDMI	n/a
int	int	ext	&EDIDint,ALL	&EDIDext,HDMI	n/a
int	int	int	&EDIDint,ALL	n/a	n/a

7.5. Summary of Commands

1) &Rx   Route Video

2) ?R   Query Active Input

3) &Bx,y,z   Configure RS232 Port

4) &VMx   Video Mute

5) &FM   Firmware Version

6) ?SM   Query Mode

7) &SMx   Set Switching Mode

8) ?SPP   Query Priorities

9) &SPP[a,b,c,d]   Set Priorities

10) &FR   Factory Reset

11) ?EDID   Query EDID

12) &EDIDx,y   Select internal/external EDID

8. Troubleshooting Guide

We have carefully tested and have found no problems in the supplied UT260-102. However, we would like to offer suggestions for the following:

Switcher	
Symptom	**Resolution**
No Audio with VGA Input	1. Make sure the VGA audio source is connected to the 3.5 mm audio input on the switcher. 2. Check the audio source to make sure the audio is playing and that the volume is turned up to a reasonable level.
Poor Output Image	1. Verify the cable between the switcher output and the display is a genuine HDMI cable. 2. Troubleshoot with a lower gauge shorter distance HDMI cable.
RS232 Commands Not Recognized	1. Make sure to send all the characters in a single burst using PASTE or programming a controller button. Typing the characters individually results in the switcher not recognizing the individual characters as a whole command.
System Failure	1. Please call the ALTINEX Customer Service Department at (714) 990-2300 to have the unit repaired.

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