Installation Planning Guide

Tektronix

Grass Valley Performer-HD Digital 10x1 Routing Switcher

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Installation Planning Guide
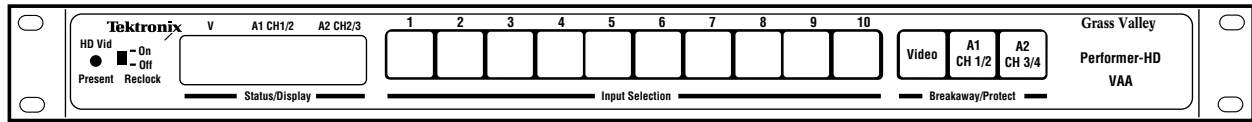
Performer-HD Routing Switcher

Figure 1. Performer-HD Router

Performer-HD has the full functionally of the Performer-SD with the added ability to switch HDTV video signals.

Full bandwidth HDTV video signals are routed through a 10x1 video matrix. The 10 Inputs and 1 Output will switch uncompressed serial digital SMPTE 292M at 1.485 Gbps rate and in bypass (non-reclocking) mode will handle data rates from 10 Mbps to 700 Mbps.

Audio signals are routed through two audio matrices of stereo AES/EBU.

Table 1. Performer-HD Mechanical Specifications

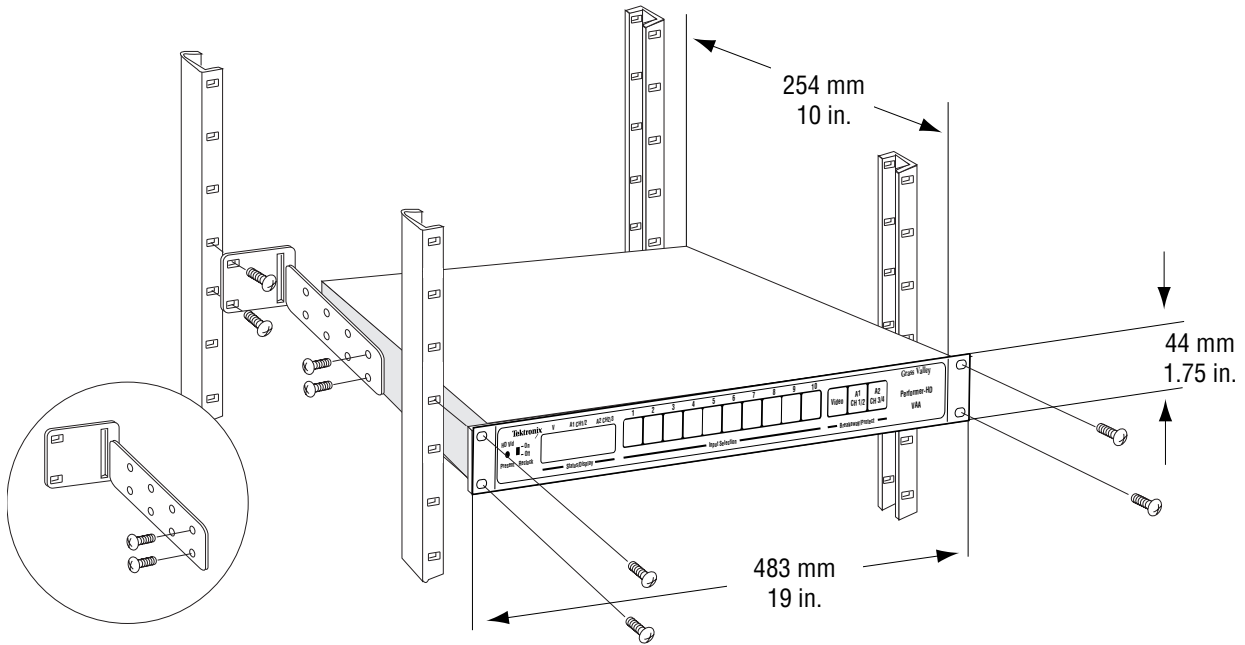| Depth	Width	Height	Weight	Rack Units
254 mm 10 in.	483 mm 19 in.	44 mm 1.75 in.	6.75 kg. 15 lbs.	1

Installation

Figure 2. Rack Installation

Performer-HD is installed in a standard 483 mm (19 in.) equipment rack.
The frame occupies 1 RU (Rack Unit, 44 mm/1.75 in.) of vertical space.
Figure 2 shows how to mount the frame in the rack. The rear rack mounting
bracket is supplied with the frame. Use the mounting bracket to support ca-
ble weight on the back of the Performer-HD.

There are many different rack manufacturers. The size and thread pitch of
mounting screws varies. These screws must be supplied by the rack manu-
facturer or purchased locally.

CAUTION   When installing a Performer-HD router in a rack with other devices keep the
Performer-HD router out of the airflow path of vertically cooled components.
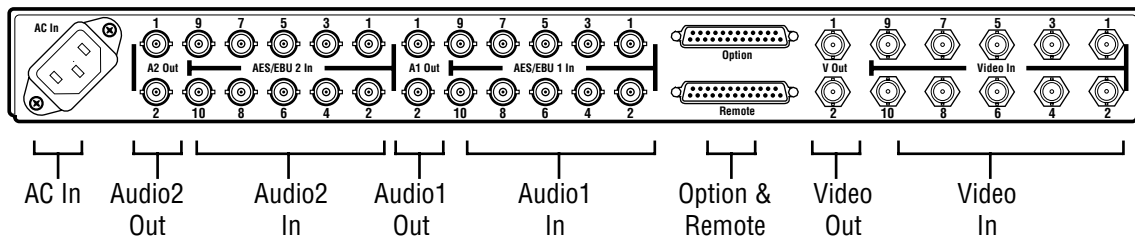
Cabling

Figure 3. Performer-HD Cabling Connections

D Connector Cabling

The **Remote** (25-pin, female D) connector can be used for:

■ Remote control panel (RS485)

■ RS232, RS422 interface

■ External Vertical Interval Strobe
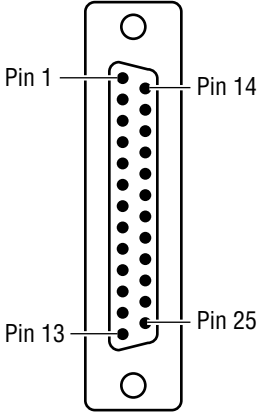
The **Option** (25-pin, female D) connector can be used for:

■ The Tally module option, which allows a custom control panel or Joystick Override to control the Performer-HD. This option also provides tally relay closures which follow the video switching level.

■ A second Remote connection.

Table 2 shows the pin numbering and lists the signal-to-pin number correlation for the **Remote** and **Option** 25-pin female D connectors.

To add a control device, for RS422 or RS485 control, a connecting cable may need to be constructed. Both RS422 and RS485 control require terminating resistors installed at the end of the RS422 or RS485 bus.

Table 2. Remote 25-Pin D Connector Pinouts

Connector	Pin	Remote	Pin	Option
D-25 Female	13	VA (bit A of 4-bit binary video status	1	Switch 1
	25	VB (bit B of 4-bit binary video status	2	Switch 2
	24	VC (bit C of 4-bit binary video status)	3	Switch 3
	23	VD (bit D of 4-bit binary video status)	4	Switch 4
Pin 1 — Pin 14	5	AA (bit A of 4-bit binary audio status)	5	Switch 5
	6	AB (bit B of 4-bit binary audio status)	6	Switch 6
	7	AC (bit C of 4-bit binary audio status)	7	Switch 7
	8	AD (bit D of 4-bit binary audio status)	8	Switch 8
	19	0/[a] (bit O of 5-bit binary source select)	9	Switch 9
	21	A/ (bit A of 5-bit binary source select)	10	Switch 10
Pin 13 — Pin 25	22	B/ (bit B of 5-bit binary source select)	11	Switch V (Video Only)
	9	C/ (bit C of 5-bit binary source select)	12	SwitchA1 (Audio 1 Only)
	20	D/ (bit D of 5-bit binary source select)	13	Switch A2 (Audio 2 Only)
	12	KEY ON/ (active low - any button press)	14	GPI (Switch) Common, +5V
	10	A ONLY/ (active low - audio only select)	15	Tally Relay 1
	11	V ONLY/ (active low - video only select)	16	Tally Relay 2
	1	TX RS422+ (RS485 <+>)	17	Tally Relay 3
	2	TX RS422– (RS485 <->)	18	Tally Relay 4
	14	RX RS422+	19	Tally Relay 5
	15	RX RS422–	20	Tally Relay 6
	3	TX RS232	21	Tally Relay 7
	16	RX RS232	22	Tally Relay 8
	4	VI Strobe	23	Tally Relay 9
	18	Ground (RS485 <S>)	24	Tally Relay 10
	17	≈ +20V DC	25	Tally Common

[a] / = Active Low

Matrix BNC Cabling

Input Sources and output Destinations are cabled using 75 Ohm BNCs. All outputs are duplicated. Any output that is not being used has to be terminated with a 75 Ohm terminator.

Specifications

Table 3. *Performer-HD Specifications*

Matrices	
Serial Digital Video	One 10x1
Audio	Two 10x1 AES/EBU
Video/Data Inputs	
Type	Serial Digital conforming to SMPTE 292M or 10Mbps to 700 Mbps (non-reclock mode)
Impedance	75 Ohm
Quantity	10 Non Looping
Connector	75 Ohm BNC
Return Loss	>15 dB to 1.485 GHz
Cable Equalization	Automatic for up to 100m of Belden 1694A @ 1.485 Gbps
Video/Data Outputs	
Type	Serial Digital conforming to SMPTE 292M or 10Mbps to 700 Mbps (non-reclock mode)
Impedance	75 Ohm
Quantity	1 Dual
Connector	75 Ohm BNC
Return Loss	>15 dB to 1.485 GHz
Audio/Data Inputs	
Type	Serial Digital conforming to standard AES3-1992 (ANSI S4.40-1985)
Impedance	75 Ohm, ±5%, 100KHz to 6MHz (BNC connector)
Quantity	10 per Audio Matrix (20 Total)
Level	400mV <signal level <7Vp-p balanced
Connector Type	Unbalanced 75 ohm BNC
Audio/Data Outputs	
Type	Serial Digital conforming to standard AES3-1992 (ANSI S4.40-1985)
Quantity	1 dual per AES matrix
Level	1.0Vp-p ±10% into 75 Ohm BNC Connector
Connector Type	Unbalanced 75 ohm BNC
Operational Modes/Performance	
Video Path Delay Span	6.60nS +/- 0.5nS, Reclocked. 5.75nS +/- 0.5nS, Non Reclocked
Data Rates Supported	1.485 Mbs reclocked or10Mb/sec to 700Mb/sec non reclocked

Table 3. Performer-HD Specifications

Interface Connectors

Type	RS422 or RS232 25-pin Female D
Quantity	2

Frame Power

Connector Type	IEC Filtered AC connector
Quantity	1
Operational Range	10-240 VAC, 50/60Hz
Frame Power Consumption	≤16W

Environmental

Operating Temperature	0 to 40 degrees Centigrade ambient
Relative Humidity	0 to 90% non-condensing