Panacea™
Small-Scale Routing

All HD Panacea™ routers now offer 3 Gb/s (1080p) performance!

The affordable, compact Panacea™ routing switcher line is the market leader for small routing applications, offering the largest selection of matrix sizes, options and built-in control features — allowing you to purchase a router tailored to your applications.

FEATURES

- 3 Gb/s (1080p) performance at HD-SDI (1.485 Gb/s) prices
- Flexible matrix partitioning options allow for flexibility and customization
- Available in the widest array of format sizes available — from 8x8 through 32x32 and up to a 256x4 solution
- Available in 1RU or 2RU sizes:
  - Panacea 1RU — single-format matrix options: 16x16, 16x4, 16x1, 8x8 in HD-SDI, SDI, AES, analog video and analog audio
  - Panacea 2RU — dual-format matrix options: 32x32, 32x4, dual 16x16, dual 16x4, dual 8x8 in HD-SDI, SDI, AES, analog video and analog audio
  - Panacea 2RU — mixed-format matrix options: 16x16, 16x4, 16x1 and 8x8 HD-SDI SDI and analog video with analog audio
  - Other mixed formats including HD and SDI with discrete AES available — contact sales for more information
- Comprehensive signal formats include HD-SDI (3 Gb/s), SD-SDI, ASI, analog video, analog audio, AES/EBU balanced and unbalanced and RF
- Choose either integrated universal AC or DC power supplies or external (brick) universal power supplies
- Redundant power supplies, external 1RU and 2RU, integrated 2RU only
- Ethernet communications optional on all Panacea routers except Panacea Lite
- Quiet switching of discrete AES/EBU digital audio option
- Signal diagnosis capabilities (i.e., signal presence, error detection)
- Small frame footprint, only 5.25-in. (13.3 cm) deep
- Control via XY, serial RS-232/422, local control panel, optional remote control panel or direct-to-frame; optional IP/Ethernet/SNMP

Key Benefits

- 3 Gb/s performance
- Flexible matrix sizes from 8x8 to 256x4
- Widest range of formats in the industry
- Control via Ethernet, coaxial XY and serial standard
- Redundant power supplies available
- Small-frame footprint
- Budget-conscious price
- Superior quality

PRODUCT DETAILS

HD/SD-SDI
The Panacea wideband digital multirate routing switcher offers a clear growth path from lower-bit-rate SDI and ASI to high-bandwidth HDTV applications. It routes signals from 3.072 Mb/s to 3 Gb/s.

SD-SDI
From 8x8 to 32x32, the Panacea SDI router switches signals from 3.072 to 540 Mb/s.

Wideband Analog Video
The Panacea wideband analog video router switches standard composite NTSC, PAL, SECAM and analog component video signals, and RF/IF-up to 200 MHz.

Analog Audio
The Panacea analog audio router switches standard stereo and mono analog audio signals, as well as timecode.

AES/EBU Digital Audio
The Panacea AES/EBU routing switcher provides synchronous or synchronous quiet switching for balanced or unbalanced digital audio signals.
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SPECIFICATIONS
Specifications are subject to change without notice.

Frame And Systems

Input
1RU .......................... 1RU portable desktop power supply (rear mount AC power supply module available as an option)
2RU .......................... 2RU portable desktop power supply (rear mount AC power supply module available as an option)
Desktop Power Supply ........ Universal input
1RU .......................... 47 to 63 Hz, 70 W
AC: 100 to 240 VAC
DC: -36 to -72 VDC
2RU .......................... 47 to 63 Hz, 130 W
AC: 100 to 240 VAC
DC: -36 to -72 VDC

Output
Total Power ................. 15 VDC
1RU .......................... 70 W
2RU .......................... 105 W
Performance Temperature ........ 41° to 104° F (5° to 40° C)
Operating Temperature .......... 32° to 122° F (0° to 50° C)

Mechanical
1RU Dimensions (W x H x D) ....... 19 x 5.25 x 1.75 in. (48.3 x 13.3 x 44 cm)
2RU Dimensions (W x H x D) ....... 19 x 5.25 x 3.5 in. (48.3 x 13.3 x 88 cm)
Weight (fully loaded)
1RU .......................... 5 lbs (2.3 kg)
2RU .......................... 7 lbs (3.2 kg)

Indicators
Standard Resource Module ...... Power/alarm LED
Enhanced Resource Module .... Power/alarm LED, data LED
Cooling (only in HD and .... Forced air/convection analog audio)

Input/Output Signals
RS-232/422 Serial .......... DB-9 pin connector
Communication
Alarm/Comm Port ............ 3-pin connector
XY (coaxial communication) ... 75 ohms, BNC
Sync .......................... 75 ohms, BNC
Ethernet ........................ RJ45

Analog Audio

Inputs
Number of Inputs ........... 8, 16 or 32
Signal Type ................ Balanced, analog audio
Impedance ................. High Z (20 k ohms), or low Z (600 ohms)
Low Z analog audio only available in 16x1, 16x16, 32x32 sizes

Outputs
Number of Outputs .......... 1, 4, 16 or 32
Signal Type ................ Balanced, analog audio
Connector .................. DB-25
Maximum Level ............. +28 dBu
DC Output Level ............ ±50 mV maximum
Maximum Cable Length ....... 328 ft (100 m) of Belden 8451 or equivalent
Minimum Load .............. 600 ohms
Impedance ................ 66 ohms

Performance
Gain ........................... Unity, ±0.15 dB
THD+N....................... <0.01% at 28 dBu,
<0.005%, typical
IMD (SMPTE 4:1) ............ <0.005%, +24 dBu, typical
<0.01%, worst case
Crosstalk ........................ >90 dB isolation, 20 Hz to 20 kHz,
all hostile, typical
>85 dB isolation, worst case
Frequency Response ........ <–3 dB to 200 kHz
0.15 dB, 20 Hz to 20 kHz
S/N Ratio ........................ >105 dB ref. to +28 dBu, 20 Hz to 20 kHz

Temperature
Performance Temperature ........ 41° to 104° F (5° to 40° C)
Operating Temperature .......... 32° to 122° F (0° to 50° C)

* THD+N increases as matrix size and/or number of destinations increase. The worst case is a 128x64 stereo system or a 128x128 mono system with all destinations set to a single source. In this worst case, the THD+N is <0.025%, 20 Hz to 20 kHz, +28 dBu, with a High Z load.

Routng Systems // Small Routing

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### Analog Video
**Inputs**
- **Number of Inputs**: 8, 16 or 32
- **Signal Type**: Composite or component analog video or any video or RF signal within the voltage and frequency limits
- **Connector**: 75 ohms BNC per IEC 169-8
- **Signal Coupling**: DC
- **Impedance**: 75 ohms
- **Return Loss**: >45 dB at 5 MHz,
  >35 dB at 20 MHz
  >18 dB at 250 MHz
- **Normal Input Level**: 1 V pk-pk
- **Maximum Level**: 3 V pk-pk centered at 0 V

**Outputs**
- **Number of Outputs**: 1, 4, 8, 16 or 32
- **Signal Type**: Composite, component analog video or any video or RF signal within the voltage and frequency limits
- **Connector**: 75 ohms BNC per IEC 169-8
- **Impedance**: 75 ohms
- **Return Loss**: >45 dB at 5 MHz,
  >35 dB at 20 MHz
  >18 dB at 250 MHz
- **Normal Level**: 1 V pk-pk
- **Maximum Level**: 3 V pk-pk centered at 0 V

**Performance**
- **DC Offset**: <±50 mV
- **Input to Input Gain**: Unity ±0.15 dB
- **Frequency Response**: ±0.1 dB from DC to 20 MHz
  ±0.5 dB from 20 to 50 MHz
  +2 dB to -3 dB from 50 to 200 MHz
- **Crosstalk**: >65 dB, typical
  >60 worst case
- **Differential Gain**: <0.15% at 3.58 and 4.43 MHz
- **Differential Phase**: <0.15° at 3.58 and 4.43 MHz
- **Phase Scatter**: <±1° input to input
- **Signal to Noise**: >65 dB 5 MHz
- **Power Consumption**: 35 W

**Temperature**
- **Performance Temperature**: 41° to 104° F (5° to 40° C)
- **Operating Temperature**: 32° to 122° F (0° to 50° C)

### SDI, HD-SDI
**Inputs**
- **Number of Inputs**: 8, 16 or 32
- **Connector**: 75 W BNC per IEC 169-8
- **Signal Type**: SMPTE 295M, SMPTE 344M and SMPTE 292M signal formats (HS only)
- **Frequency limited**: — 3.072 Mb/s to 3 Gb/s
- **Normal Input Level**: 800 mV pk-pk ±10%
- **Maximum Input Level**: 1200 mV
- **Return Loss**: >-20 dB (5 to 540 MHz)
  >-18 dB (540 MHz to 1.485 GHz)
- **Equalization**: Automatic for all SMPTE-defined data rates
  passthrough for all non-standard clock rates
- **Return Loss**: >-20 dB (5 to 540 MHz)
  >-18 dB (540 MHz to 1.485 GHz)
  >12 dB to 3 Gb/s
- **Jitter**: <0.2 UI @ frequency tested
- **Output Amplitude**: 800 mV pk-pk ±10%
- **Rise and Fall Time**: 270 Mb/s — 400 to 1500 ps
  1.485 Gb/s (HS only) — <270 ps
  3 Gb/s (HS only) — <135ps
- **Overshoot**: <10% of amplitude

**Performance**
- **DC Offset**: 0 ±0.5 V
- **Power Consumption**: 16x16 = 25 W
  32x32 = 50 W
- **Propagation Delay**: 4.5 nS P16 x S (270 Mb/s)
  <13 nS P16 x SR (270 Mb/s)
  5.5 nS P32 x S (270 Mb/s)
  13.5 nS P-2 x SR (270 Mb/s)

**Temperature**
- **Performance Temperature**: 41° to 104° F (5° to 40° C)
- **Operating Temperature**: 32° to 122° F (0° to 50° C)
**AES Audio**

**Inputs**

<table>
<thead>
<tr>
<th>Type</th>
<th>Balanced I/O</th>
<th>Coaxial I/O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qty. (Signals)</td>
<td>32, 16 or 8</td>
<td>32, 16 or 8</td>
</tr>
<tr>
<td>Qty. (Reference)</td>
<td>One, terminated</td>
<td>One, looping</td>
</tr>
<tr>
<td>Connector (Signals)</td>
<td>DB-25</td>
<td>BNC</td>
</tr>
<tr>
<td>Connector (Reference)</td>
<td>Removable terminal strip</td>
<td>BNC</td>
</tr>
<tr>
<td>Impedance</td>
<td>110 ohms</td>
<td>75 ohms</td>
</tr>
<tr>
<td>Return Loss</td>
<td>N/A</td>
<td>&gt;30 dB, 0.1 to 6 MHz</td>
</tr>
<tr>
<td>Signal Amplitude</td>
<td>0.2 V to 7 V pk-pk</td>
<td>0.1 V to 2 V pk-pk</td>
</tr>
</tbody>
</table>

**Outputs**

<table>
<thead>
<tr>
<th>Type</th>
<th>Balanced I/O</th>
<th>Coaxial I/O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qty.</td>
<td>32, 16, 8 or 4 or 1</td>
<td>32, 16 or 4</td>
</tr>
<tr>
<td>Connector</td>
<td>DB-25</td>
<td>BNC</td>
</tr>
<tr>
<td>Impedance</td>
<td>110 ohms</td>
<td>75 ohms</td>
</tr>
<tr>
<td>Return Loss</td>
<td>N/A</td>
<td>&gt;35 dB, 0.1 to 6 MHz</td>
</tr>
<tr>
<td>Signal Amplitude</td>
<td>5 V pk-pk ±1 V into 110 ohms load</td>
<td>1 V pk-pk ±10% into 75 ohms load</td>
</tr>
<tr>
<td>DC Offset</td>
<td>0 V ±50 mV</td>
<td>0 V ±50 mV</td>
</tr>
<tr>
<td>Rise and Fall Time</td>
<td>5 to 30 ns</td>
<td>30 to 44 ns</td>
</tr>
</tbody>
</table>

**Ordering Information**

**Signal Formats**

- S: SDI, non-reclocking
- SR: SDI with reclocking
- HS: HD-SDI (wideband digital multi-rate) non-reclocking
- HSR: HD-SDI (wideband digital multi-rate) with reclocking
- AEB: AES/EBU balanced, digital audio
- AEC: AES/EBU coaxial digital audio
- AEBQ: AES/EBU balanced, digital audio quiet switch
- AECQ: AES/EBU coaxial digital audio quiet switch
- A2: Analog stereo audio
- V: Analog video

**Power Supplies**

- I: Internal AC power supply
- Y: Internal DC power supply
- O: External AC power supply

**Ethernet Connectivity**

- E: Enables Ethernet connectivity

**Performance**

- Propagation Delay: <170 ns, asynchronous mode
- <1.5 AES frames, synchronous or SQS modes
- Intrinsic Jitter: <5 ns
- Switching Type: Asynchronous, synchronous or synchronous quiet switching (SQS)
- AES Frame Rates: 30 to 192 kHz in asynchronous mode
- 32 kHz, 44.1 kHz or 48 kHz in synchronous or SQS mode
- Data Rates: Up to 30 Mb/s, 50% duty cycle, asynchronous mode
- Power Consumption: <20 W

**Temperature**

- Performance Temperature: 41° to 104° F (5° to 40° C)
- Operating Temperature: 32° to 122° F (0° to 50° C)