# NVISION Compact

**Space and Cost Efficient Utility Routers**

## Audio/video routing innovations that simplify your workflows.

The NVISION Compact range is highly versatile, and ideally suited to utility routing applications. They are available for all core formats, including triple rate 3G/HD/SD, in matrix sizes from 8x8 to 32x32. The Compact Routers also have a built-in controller, eliminating the need for a costly external controller.

### Triple Rate 3G/HD/SD

SMPTE ST 424 3 Gb/s models operate error free, with automatic reclocking data paths for 270 Mb/s, 1.483 Gb/s, 1.485 Gb/s, 2.967 Gb/s and 2.970 Gb/s rates. The 3 Gb/s routers protects your small router investment well into the future, with 1080p 50/60 support and Dolby E and DVB-ASI compliance.

### Analog Video

The analog composite video routers offer exceptional signal path linearity, and are designed to have very low differential gain and low differential phase to ensure no visible signal distortion.

### AES

The NVISION range represents the best in the industry for digital audio routing, with frame accurate digital audio switching. AES routers operate in either synchronous or asynchronous modes, and are Dolby E compliant for phase accurate multichannel audio. Asynchronous routers allow easy interconnections when different audio sample rates are present, as with desktop audio production using 44.1, 48, 96 and 192 kHz audio formats.

### Analog Audio

The analog audio routers offer exceptional audio fidelity with +24 dBu input and output levels, and virtually no crosstalk. They are an ideal solution for SMPTE longitudinal timecode (SMPTE ST 12 LTC).

### Machine Control

The NVISION range's patented Dynamic Port Architecture simplifies machine control with configurable bidirectional data routing. Only NVISION port routers offer this bidirectional capability; other routing vendors require two ports to accomplish the same task. This saves power, rack space, and cabling.

## NVISION Compact Space and Cost Efficient Utility Routers

### Extremely small form factor
- Ultra thin saves rack space
- 1 RU and 2 RU sizes
- Lightweight design
- Non-square router configurations for monitoring applications

### Full line of utility routers
- Future-proof 3G/HD/SD
- Analog video
- AES (sync or async modes)
- Analog audio (can be used for timecode)
- Port
- DVB-ASI compliant
- Dolby E certified

### Robust design
- Robust design for rugged conditions
- Highly reliable power supply over 500,000 hours MTBF
- Optional redundant power supply available
- Range operates with the entire NVISION router range

### Powerful, free configuration tools
- Compact Router System Configurator (CRSC) software provides easy configuration of routers, including salvos and partitioning
- Software also allows programming of remote control panels, and configuration of network settings

### Multiple control capabilities
- Ethernet and serial control
- Local button panel
- Remote control panel
- Graphical User Interface (GUI) panels
- Panel sizes include 32x32, 32x4, 32x1, 16x4, 16x2, 8x8

### Comprehensive Range

| Compact routers | 32x32 | 16x16 | 16x4 | 8x8 |
|---|---|---|---|---|
| 3G/HD/SD | X | X | X | X |
| AES | X | X | | |
| Analog Video | X | X | | |
| Analog Audio | X | X | | |
| Machine Control | 32 ports | | | |

---

## 3G/HD/SD and SDI/AES Compact Routers

### 3G/HD/SD Digital Video
8x8 - 16x4 - 16x16 - 32x32

### KEY FEATURES
- Triple rate 3G/HD/SD
- DVB-ASI compliant
- Router partitioning
- Scalable with the entire NVISION range of routers
- Highly reliable power supply (over 500,000 hours MTBF)
- Optional control panel

### ORDERING
| | |
|---|---|
| CR0808-3GIG | 8x8 3G/HD/SD serial digital video router, 1 RU |
| CR1604-3GIG | 16x4 3G/HD/SD serial digital video router, 1 RU |
| CR1616-3GIG | 16x16 3G/HD/SD serial digital video router, 1 RU |
| CR3232-3GIG | 32x32 3G/HD/SD serial digital video router, 2 RU |

### AES Digital Audio
16x16 - 32x32

### KEY FEATURES
- Unbalanced digital audio (AES-3id)
- Can operate in synchronous or asynchronous modes
- Router partitioning
- Scalable with the entire NVISION range of routers
- Highly reliable power supply (over 500,000 hours MTBF)
- Optional control panel

### ORDERING
| | |
|---|---|
| CR1616-AES | 16x16 async/sync AES digital audio router, 1 RU 75Ω |
| CR3232-AES | 32x32 async/sync AES digital audio router, 2 RU 75Ω |

---

## Composite/stereo Analog and Machine Compact Routers, Remote Control Panels

### Composite Analog Video
16x16 - 32x32



#### KEY FEATURES

- Analog composite video for NTSC and PAL
- Router partitioning
- Scalable with the entire NVISION Series of routers
- Highly reliable power supply (over 500,000 hours MTBF)
- Optional control panel

#### ORDERING

| | |
|---|---|
| CR1616-AV | 16x16 analog video router, composite 1 RU |
| CR3232-AV | 32x32 analog video router, composite 2 RU |

### Stereo Analog Audio
16x16 - 32x32



#### KEY FEATURES

- +24 dBu operating levels
- Can be used to route timecode
- Router partitioning
- Scalable with the entire NVISION Series of routers
- Highly reliable power supply (over 500,000 hours MTBF)
- Optional control panel

#### ORDERING

| | |
|---|---|
| CR1616-AA | 16x16 analog audio router, 1 RU |
| CR3232-AA | 32x32 analog audio router, 2 RU |

### Machine Control
32 ports



#### KEY FEATURES

- Patented dynamic port architecture
- Bidirectional data routing
- RJ45 connectors
- Scalable with the entire NVISION Series of routers
- Highly reliable power supply (over 500,000 hours MTBF)
- Optional control panel

#### ORDERING

| | |
|---|---|
| CR32-PR | 32 port machine control router with patented dynamic routing, 2 RU |

### Router Control Panels
8x8 - 16x2 - 16x4 - 16x16 - 32x1 - 32x2 - 32x4 - 32x32



#### KEY FEATURES

- Control panels (CPs) are sold separately
- Local control panels or remote control panels
- Remote control panels are programmable

| Control panel connectivity | RP16 (1 RU) | RP32 (2 RU) | Router (1 RU) | Router (2 RU) |
|---|---|---|---|---|
| 8x8  1 RU (CP0808) | X | | X | |
| 16x2  1 RU (CP1602) | X | | X | |
| 16x4  1 RU (CP1604) | X | | X | |
| 16x16  1 RU (CP1616) | X | | X | |
| 32x1  1 RU (CP3201) | X | | | |
| 32x4  2 RU (CP3204) | | X | | X |
| 32x32 2 RU (CP3232) | | X | | X |

#### ORDERING

Note: Directly attaches to CR router or remote panel, except for CP3201 which only attaches to a RP16

| | |
|---|---|
| CP0808 | 8x8 button panel 1 RU |
| CP1602 | 16x2 button panel for 1 RU |
| CP1604 | 16x4 button panel for 1 RU |
| CP1616 | 16x16 button panel for 1 RU |
| CP3201 | 32x1 button panel for 1 RU (requires purchase of RP16) |
| CP3204 | 32x4 button panel for 2 RU |
| CP3232 | 32x32 button panel for 2 RU |

**Remote Panel Expansion Kits**

Note: Allows CP panel to operate separately and remotely via Ethernet. CP panel can be programmed using CRSC when mounted to an RP

| | |
|---|---|
| RP16 | Remote panel expansion kit for 1 RU |
| RP32 | Remote panel expansion kit for 2 RU |

**Power Supply**

| | |
|---|---|
| CRPS1 | Redundant power supply for compact routers and remote panels |

## Flexible System Architecture and Control

The NVISION Compact router control panel system is highly scalable, and allows up to four routers to be controlled from up to 16 remote control panels without the use of an external controller. The routers are can be remotely controlled and monitored via a serial connection and over Ethernet, using NVISION protocols or other third-party control software.



**Up to 16 remote panels**

**Ethernet Switch**

**RS-422 control via NVISION controller or third-party controller**
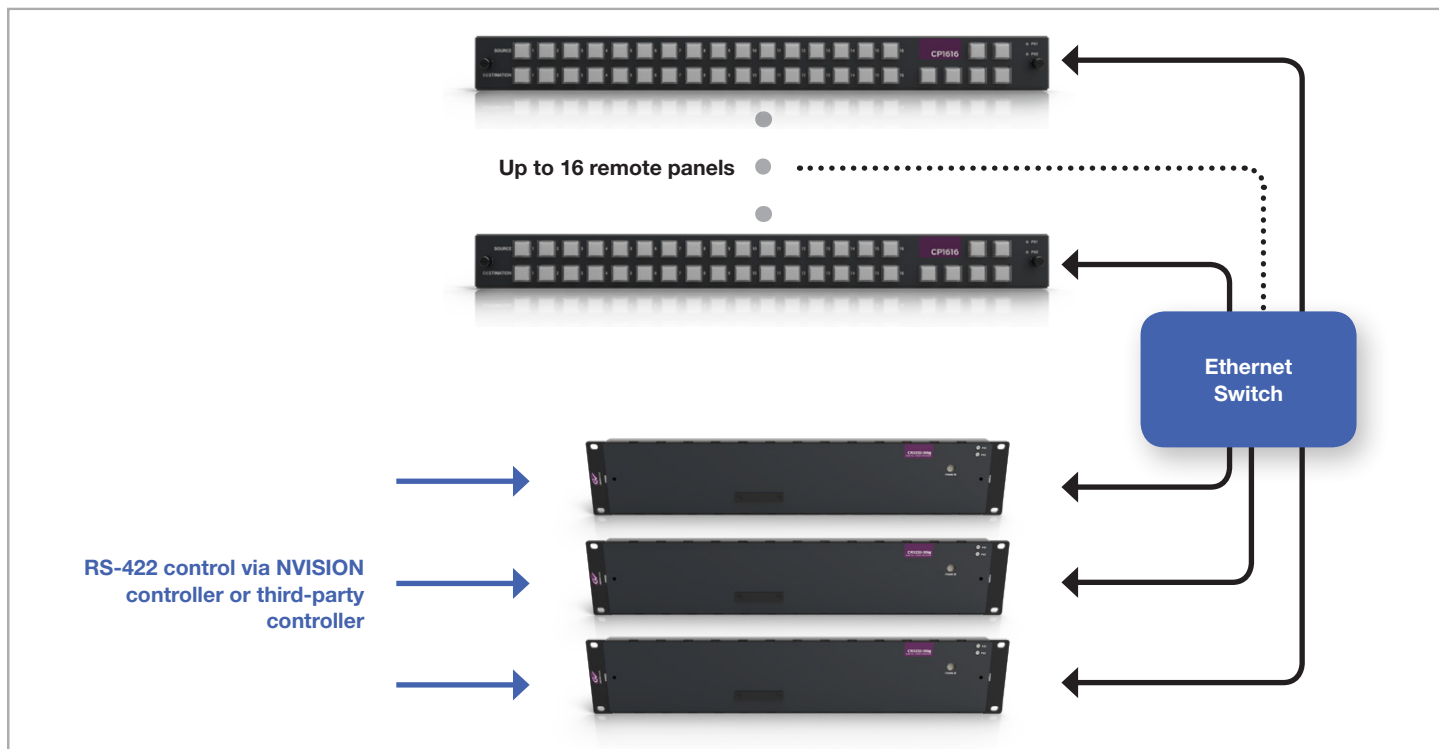
### Integration with NVISION router control system

For the highest level of control flexibility, the NVISION Compact routers can be integrated with the NVISION's router control system. Field proven in hundreds of installations worldwide with millions of hours of continuous operation, the NVISION router control system is the ultimate for mission-critical applications. Designed to grow with your needs, it offers a full complement of user interface options, full redundancy, and an easy-to-use Java-based configuration editor. Its flexible and scalable architecture offers a choice of several core system controllers, and a wide variety of highly configurable hardware and virtual control panels.

## Flexible System Configuration

The NVISION Compact Router System Configurator (CRSC) software is included with every router. This Java-based software provides all the tools and flexibility needed to custom tailor compact router systems to optimize and improve the efficiency of your facility. The software can configure IP settings, partition routers into multiple levels, program remote control panels for device level control, build salvos, and reconfigure large routing networks to meet changing facility workflows. Configurations can be devised offline, and easily uploaded over a network to the system.

### Intuitive help system

Configurator has simple help screens and menus to guide users through each step.
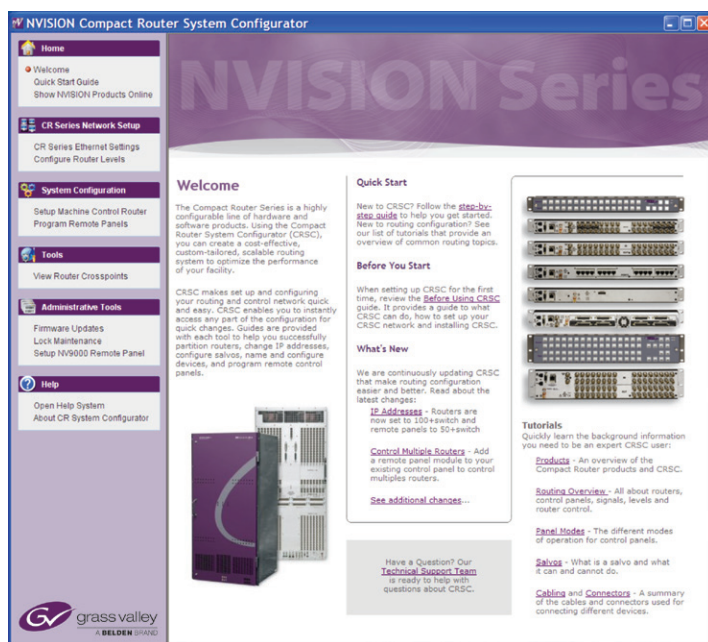
# NVISION Compact Space and Cost Efficient Utility Routers

## SPECIFICATIONS

### Electrical

**AC input:** 90-250 VAC, 50/60 Hz, auto-ranging

**AC fuses:** No user serviceable fuses

**AC connectors:** 2, 12 VDC with external modules

**AC power:** PS0001-00, HB0321-00, 50 W, one IEC 320

**AC power usage:**
20W nominal (16x16 3 Gig, SWB, SD)
35W nominal (32x32 3 Gig, SWB, SD)
6W nominal (16x16 AES)
10W nominal (32x32 AES)
9W nominal (16x16 analog video)
16W nominal (32x32 analog video)
18W nominal (16x16 analog audio)
40W nominal (32x32 analog audio)
22W nominal (32x32 port machine)

**Regulatory compliance:** UL listed and CE compliant

### Mechanical

**Dimensions:**
1 RU for 16x16 (45 mm / 1.75 in.) high
2 RU for 32x32 (89 mm / 3.5 in.) high – 483 mm (19 in.) wide, 35 mm (1.38 in.) deep, without control panel – Exception: analog audio 57 mm (2.25 in.) deep, without control panel

**Weight:** 4.4 kg (2 lbs.) 16x16, 8.8 kg (4 lbs.) 32x32

**Mounting:** EIA 310-C, 19 in (483 mm)

**Grounding terminal:** Cooper, accepts 14-6 AWG

### Serial Control

**Type:** 1 Serial port

**Standard:** SMPTE ST 207, EIA-422, configurable

**Connector:** 1, DE-9

### Ethernet

**Type:** 10/100 Base-T

**Standard:** IEEE 802.3

**Protocol:** NVISION Ethernet protocol

**Connector:** 1, RJ45

### Environmental Specifications

**Operating temperature:** 0 to 40° C (32 to 104° F)

**Relative humidity:** 0 to 90%, non-condensing

### AES3id Inputs/Outputs

**Type:** Unbalanced digital audio

**Standard:** AES3id

**Sample Rate:**
Synchronous 48 kHz
Asynchronous 32 to 192 kHz

**Connector:** BNC

**Impedance:** 75Ω

**Input level:** 200 mV to 3.0 Vp-p

**Output level:** 1 V ±10%

### Analog Audio Inputs/Outputs

**Type:** Analog audio

**Connector:** DB-25

**Impedance:** Input 20 kΩ, output 50Ω, nominal

**Freq. response:** 20 Hz to 100 kHz, <±0.5 dB

**THD + Noise:** <0.005%

**SNR:** >95 dB relative to +24 dBu (20 Hz to 20 kHz)

**Crosstalk:** >85 dB worst case

**Input CMRR:** >75 dB

### Video Reference Input

**Type:** Analog video reference

**Standard:** PAL, NTSC or tri-level sync

**Connector:** Loop through, BNC

**Impedance:** 75Ω or Hi-Z

**Input level:** 0.5 Vp-p to 2.0 Vp-p

**Input return loss:** ≥30 dB to 5 MHz

### 3G/HD/SD Inputs/Outputs

**Type:** High definition serial digital video

**Standard:** SMPTE ST 259-C, SMPTE ST 292 and SMPTE 424

**Data rate:** Auto reclocking at 270 Mb/s and 1.483, 1.485, 2.967, 2.970 Gb/s or auto bypass with pass-through from 19 Mb/s to 3 Gb/s

Note: Inputs do not reclock

**Connector:** BNC

**Impedance:** 75Ω

**Cable equalization (for cables listed or equivalent cable):** 400m (1,312 ft.) Belden 1694A, 250m (820 ft.) Belden 1855A at 270 Mb/s, 150m (492 ft.) Belden 1694A, 100m (328 ft.) Belden 1855A at 1.5 Gb/s, 100m (328 ft.) Belden 1694A, 45m (147 ft.) Belden 1855A at 3 Gb/s

**Router path:** Non-inverting

**Output level:** 800 mVp-p ±10 %

**I/O return loss:** >15 dB, 5 MHz to 1.5 GHz >10 dB, 1.5 GHz to 3 GHz

**Output rise/fall time:** ≤135 ps

**Output overshoot:** ≤10 % of amplitude max

**Output alignment jitter:** ≤0.3 Ulpp from 100 kHz to 300 MHz

**Output timing jitter:** ≤2.0 Ulpp from 10 Hz to 100 kHz

### Analog Video Inputs/Outputs

**Type:** Analog video

**Standard:** NTSC, PAL

**Connector:** BNC

**Impedance:** 75Ω

**Input return loss:**
>45 dB, DC to 6 MHz
>30 dB, 6 MHz to 30 MHz

**Output return loss:**
>45 dB, DC to 6 MHz
>4 0 dB, 6 MHz to 30 MHz

**Input level:** 1 Vp-p, nominal

**Output level:** 1 Vp-p, nominal

**Output DC offset:** 0V ±30mV relative to backporch

**Input range:** ±2 V

**Insertion loss:** 0 dB ±0.1 dB, any input to any output

**Freq. response:** 0 dBr ±0.05 dB, DC to 6 MHz

**Differential gain:** <0.1 %

**Differential phase:** <0.1°

**Tilt:** <0.1 %

**Delay scatter:** < ±65° at sub-carrier (PAL or NTSC) any input to any output

**Noise spectrum:** >60 dB test signal; luminance ramp

**CMRR:** >60 dB at 120 Hz

**Crosstalk:** >65 dB at sub-carrier frequency

**Output to output isolation:** Output Isolation: >90 dB at sub-carrier frequency DC Coupled System

### Port Machine Inputs/Outputs

**Type:** Bidirectional, dynamically configured

**Standard:** EIA-422, ANSI/SMPTE ST 207

**Connector:** RJ45

**Data rates:** Up to 1 Mb/s

## ORDERING

### Digital Video Routers
| | |
|---|---|
| CR0808-3GIG | 8x8 single link 3G HD serial digital video router, 1 RU |
| CR1604-3GIG | 16x4 single link 3G HD serial digital video router, 1 RU |
| CR1616-3GIG | 16x16 single link 3G HD serial digital video router, 1 RU |
| CR3232-3GIG | 32x32 single link 3G HD serial digital video router, 2 RU |

### Analog Video Routers
| | |
|---|---|
| CR1616-AV | 16x16 analog video router, composite 1 RU |
| CR3232-AV | 32x32 analog video router, composite 2 RU |

### Digital Audio Routers
| | |
|---|---|
| CR1616-AES | 16x16 async/sync AES digital audio router, 1 RU 75Ω |
| CR3232-AES | 32x32 async/sync AES digital audio router, 2 RU 75Ω |

### Analog Audio Routers
| | |
|---|---|
| CR1616-AA | 16x16 analog audio router, 1 RU |
| CR3232-AA | 32x32 analog audio router, 2 RU |

### Machine Control Routers
| | |
|---|---|
| CR32-PR | 32 port machine control router with patented dynamic routing, 2 RU Control Panels Note: Directly attaches to CR router or remote panel, except for CP3201 which only attaches to a RP16 |
| CP0808 | 8x8 button panel 1 RU |
| CP1602 | 16x2 button panel for 1 RU |
| CP1604 | 16x4 button panel for 1 RU |
| CP1616 | XY button panel for 1 RU |
| CP3201 | 32x1 button panel for 1 RU (requires purchase of RP16) |
| CP3204 | 32x4 button panel for 2 RU |
| CP3232 | XY button panel for 2 RU |

### Remote Panel Expansion Kits
| | |
|---|---|
| Note: | Allows CP panel to operate separately and remotely via Ethernet. CP panel can be programmed using CRSC when mounted to an RP |
| RP16 | Remote panel expansion kit for 1 RU |
| RP32 | Remote panel expansion kit for 2 RU |

### Power Supply
| | |
|---|---|
| CRPS1 | Redundant power supply for Compact Routers and Remote Panels |