

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 424M 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 protect your small router investment well into the future, with 1080p 50/60 support and Dolby E and DVB-ASI compliance.

HD/SD

SMPTE 292M 1.485 Gb/s and 1.483 Gb/s HD models are equally clean, equally robust, and very affordable. Many applications do not require 3 Gb/s data rates, making these re-clocking routers a perfect fit for HD and SD facilities. All HD and SD Compact routers are now available without reclockers.

SD

SMPTE 259M SD models are the affordable solution for 270 Mb/s and DVB-ASI operation. They provide noninverting operation with any input to any output, with switching on the frame boundary, ensuring Dolby interoperability, even with embedded audio.

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 12M 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

KEY FEATURES

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
- HD/SD
- 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, 16x16, 16x4, 16x2, 8x8

Comprehensive Range

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



3G/HD/SD and SDI/AES Compact routers here

3G/HD/SD Digital Video

8x8 - 16x4 - 16x16 - 32x4 - 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
CR3204-3GIG	32x4 3G/HD/SD serial digital video router, 2 RU
CR3232-3GIG	32x32 3G/HD/SD serial digital video router, 2 RU

HD/SD Digital Video

8x8 - 16x4 - 16x16 - 32x4 - 32x32



KEY FEATURES

- Supports both SD and HD rates
- 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
- Non-reclocking versions available

ORDERING

CR0808-HD	8x8 HD serial digital video router, 1 RU
CR1604-HD	16x4 HD serial digital video router, 1 RU
CR1616-HD	16x16 HD serial digital video router, 1 RU
CR3204-HD	32x4 HD serial digital video router, 2 RU
CR3232-HD	32x32 HD serial digital video router, 2 RU
CR0808-HD-NR	8x8 HD serial digital video router, 1 RU, non-reclocked
CR1604-HD-NR	16x4 HD serial digital video router, 1 RU, non-reclocked
CR1616-HD-NR	16x16 HD serial digital video router, 1 RU, non-reclocked
CR3204-HD-NR	32x4 HD serial digital video router, 2 RU, non-reclocked
CR3232-HD-NR	32x32 HD serial digital video router, 2 RU, non-reclocked

SD Digital Video

8x8 - 16x4 - 16x16 - 32x4 - 32x32



KEY FEATURES

- Supports SD rates
- 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
- Non-reclocking versions available

ORDERING

CR0808-SD	8x8 SD serial digital video router, 1 RU
CR1604-SD	16x4 SD serial digital video router, 1 RU
CR1616-SD	16x16 SD serial digital video router, 1 RU
CR3204-SD	32x4 SD serial digital video router, 2 RU
CR3232-SD	32x32 SD serial digital video router, 2 RU
CR0808-SD-NR	8x8 SD serial digital video router, 1 RU, non-reclocked
CR1604-SD-NR	16x4 SD serial digital video router, 1 RU, non-reclocked
CR1616-SD-NR	16x16 SD serial digital video router, 1 RU, non-reclocked
CR3204-SD-NR	32x4 SD serial digital video router, 2 RU, non-reclocked
CR3232-SD-NR	32x32 SD serial digital video router, 2 RU, non-reclocked

AES Digital Audio

8x8 - 16x4 - 16x16 - 32x4 - 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

CR0808-AES	8x8 async/sync AES digital audio router, 1 RU 75Ω
CR1604-AES	16x4 async/sync AES digital audio router, 1 RU 75Ω
CR1616-AES	16x16 async/sync AES digital audio router, 1 RU 75Ω
CR3204-AES	32x4 async/sync AES digital audio router, 2 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

8x8 - 16x4 - 16x16 - 32x4 - 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

- CR0808-AV 8x8 analog video router, composite 1 RU
- CR1604-AV 16x4 analog video router, composite 1 RU
- CR1616-AV 16x16 analog video router, composite 1 RU
- CR3204-AV 32x4 analog video router, composite 2 RU
- CR3232-AV 32x32 analog video router, composite 2 RU

Stereo Analog Audio

8x8 - 16x4 - 16x16 - 32x4 - 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

- CR0808-AA 8x8 analog audio router, 1 RU
- CR1604-AA 16x4 analog audio router, 1 RU
- CR1616-AA 16x16 analog audio router, 1 RU
- CR3204-AA 32x4 analog audio router, 2 RU
- CR3232-AA 32x32 analog audio router, 2 RU

Machine Control

16 or 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

- CR16-PR 16 port machine control router with patented dynamic routing, 1 RU
- 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 (CP's) are sold separately
- Local control panels or remote control panels
- Remote control panels are programmable

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

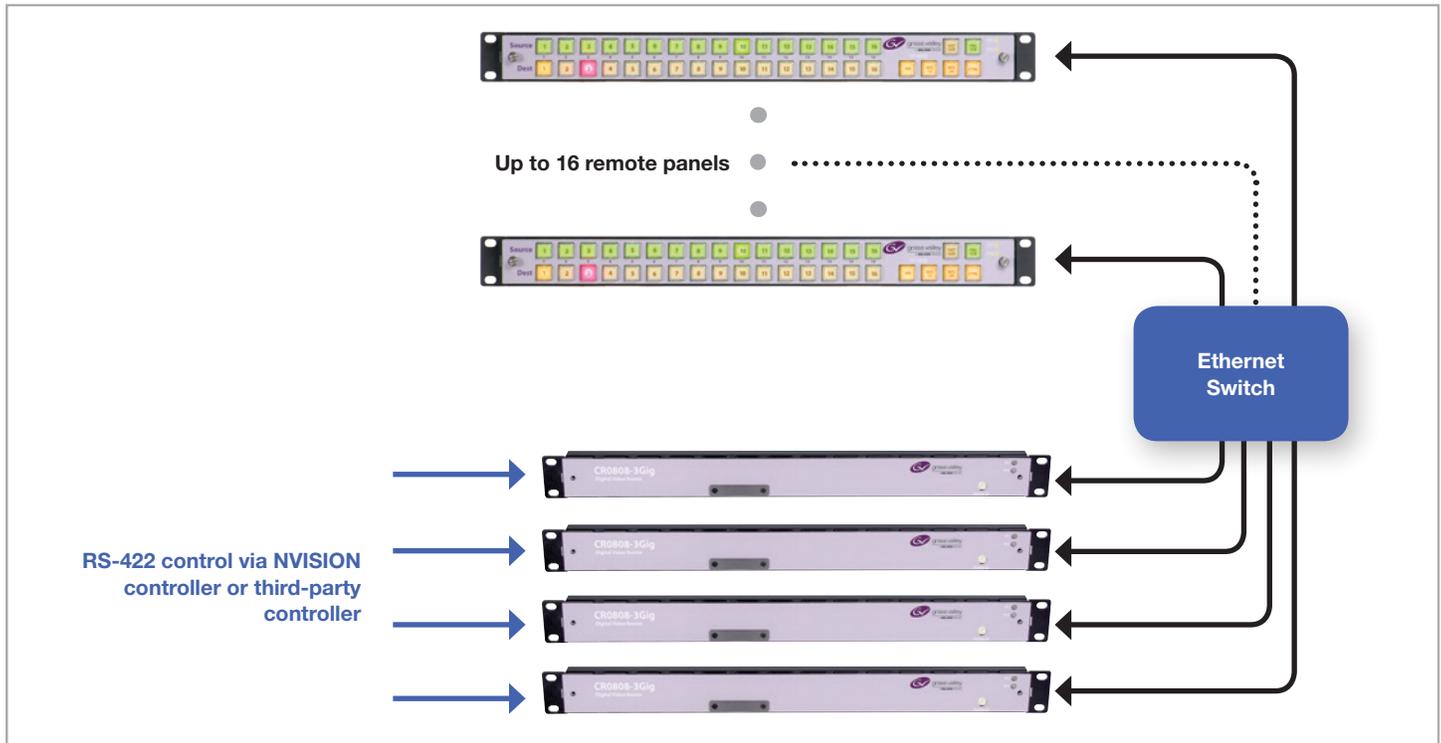
Power Supply

- CRPS1 Redundant power supply for compact routers and remote panels

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

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.



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.



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)
 12W nominal (16x16 port machine)
 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 207M, 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 20kΩ, 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

SD Inputs/Outputs

Type: Standard definition serial digital video

Standard: SMPTE 259M

Data rate: Auto reclocking at 270 Mb/s or auto bypass with pass-through from 19 Mb/s to 360 Mb/s

Note: Inputs do not reclock

Connector: BNC

Impedance: 75Ω

Cable equalization: 350m (1,148 ft.) Belden 1694A, 200m (656 ft.) Belden 1855A, or equivalent cable, at 270 Mb/s

Router path: Non-inverting

I/O return loss: >15 dB, 5 to 540 MHz

Output level: 800 mVp-p ±10 %

Output rise/fall time: 600 ps +10 %

Output overshoot: ≤10% of amplitude max

Output alignment jitter: ≤0.2 Ulpp from 1.0 kHz to 27 MHz

Output timing jitter: ≤0.2 Ulpp from 10 Hz to 1.0 kHz

SD and HD Inputs/Outputs

Type: High definition serial digital video

Standard: SMPTE 259M, 344M and 292M

Data rate: Auto reclocking at 270 Mb/s and 1.483 and 1.485 Gb/s or auto bypass with pass-through from 19 Mb/s to 1.5 Gb/s

Note: Inputs do not reclock

Connector: BNC

Impedance: 75Ω

Cable equalization: 150m (492 ft.) Belden 1694A, 85m (278 ft.) Belden 1855A, or equivalent cable, at 1.5 Gb/s

Router path: Non-inverting

Output level: 800 mVp-p ±10 %

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

Output rise/fall time: ≤270 ps

Output overshoot: ≤10 % of amplitude max

Output alignment jitter: ≤0.2 Ulpp from 100 kHz to 150 MHz

Output timing jitter: ≤1.0 Ulpp from 10 Hz to 100 kHz

3G/HD/SD Inputs/Outputs

Type: High definition serial digital video

Standard: SMPTE 259M-C, 292M and 424M

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
 >40 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 dB ±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 207M

Connector: RJ45

Data rates: Up to 1 Mb/s

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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
CR3204-3GIG	32x4 single link 3G HD serial digital video router, 2 RU
CR3232-3GIG	32x32 single link 3G HD serial digital video router, 2 RU
CR0808-HD	8x8 HD serial digital video router, 1 RU
CR1604-HD	16x4 HD serial digital video router, 1 RU
CR1616-HD	16x16 HD serial digital video router, 1 RU
CR3204-HD	32x4 HD serial digital video router, 2 RU
CR3232-HD	32x32 HD serial digital video router, 2 RU
CR0808-HD-NR	8x8 HD serial digital video router, 1 RU, non-reclocked
CR1604-HD-NR	16x4 HD serial digital video router, 1 RU, non-reclocked
CR1616-HD-NR	16x16 HD serial digital video router, 1 RU, non-reclocked
CR3204-HD-NR	32x4 HD serial digital video router, 2 RU, non-reclocked
CR3232-HD-NR	32x32 HD serial digital video router, 2 RU, non-reclocked
CR0808-SD	8x8 SD serial digital video router, 1 RU
CR1604-SD	16 x4 SD serial digital video router, 1 RU
CR1616-SD	16x16 SD serial digital video router, 1 RU
CR3204-SD	32x4 SD serial digital video router, 2 RU
CR3232-SD	32x32 SD serial digital video router, 2 RU
CR0808-SD-NR	8x8 SD serial digital video router, 1 RU, non-reclocked
CR1604-SD-NR	16x4 SD serial digital video router, 1 RU, non-reclocked
CR1616-SD-NR	16x16 SD serial digital video router, 1 RU, non-reclocked
CR3204-SD-NR	32x4 SD serial digital video router, 2 RU, non-reclocked
CR3232-SD-NR	32x32 SD serial digital video router, 2 RU, non-reclocked

Analog Video Routers

CR0808-AV	8x8 analog video router, composite 1 RU
CR1604-AV	16x4 analog video router, composite 1 RU
CR1616-AV	16x16 analog video router, composite 1 RU
CR3204-AV	32x4 analog video router, composite 2 RU
CR3232-AV	32x32 analog video router, composite 2 RU

Digital Audio Routers

CR0808-AES	8x8 async/sync AES digital audio router, 1 RU 75Ω
CR1604-AES	16x4 async/sync AES digital audio router, 1 RU 75Ω
CR1616-AES	16x16 async/sync AES digital audio router, 1 RU 75Ω
CR3204-AES	32x4 async/sync AES digital audio router, 2 RU 75Ω
CR3232-AES	32x32 async/sync AES digital audio router, 2 RU 75Ω

Analog Audio Routers

CR0808-AA	8x8 analog audio router, 1 RU
CR1604-AA	16x4 analog audio router, 1 RU
CR1616-AA	16x16 analog audio router, 1 RU
CR3204-AA	32x4 analog audio router, 2 RU
CR3232-AA	32x32 analog audio router, 2 RU

Machine Control Routers

CR16-PR	16 port machine control router with patented dynamic routing, 1 RU
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
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