QuickStart Guide

CR Series Compact Routers
and Accessories

Product Summary

You will have received one or more routers, control panels, remote panel modules, power supplies, and a CD that includes documentation and software. See Figure 1.

The CR Series Compact Router family includes 1RU and 2RU routers, control panels, and remote panel modules.

The product family includes HD, SD, "3Gig," and analog video routers. It includes AES and analog audio routers and machine control routers (a.k.a. port routers).

The 1RU control panels and routers include several sizes: 16×16, 16×4, 16×2, 8×8, and 32×1. The 2RU control panels and routers include 2 format: 32×32, and 32×4. The 2RU control panels and routers also include the new 64×64 routers and control panel.

The product family includes "clean and quiet" (CQX) routers. These 1RU HD, SD, and 3Gig routers provide smooth transitions in video and audio with selectable transition types and rates. A CQX control panel corresponds to the CQX routers and provides transition controls in addition to source and destination selection buttons.

The product names indicates their size and type. For example, CR3204-AES indicates a Compact Router having 32 AES inputs and 4 AES outputs.

Similarly, a CP1602 is a Control Panel that lets you switch 16 sources to 2 destinations.
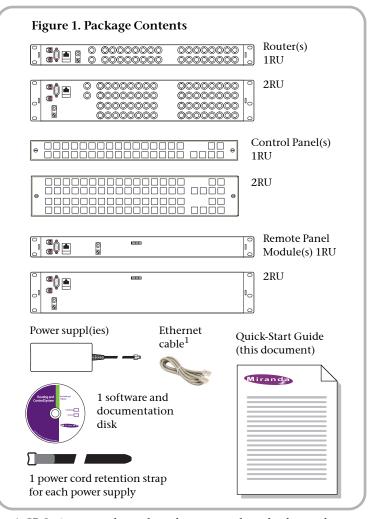
"RP" means Remote Panel module.

A CR16-PR is a 16-port Port Router (machine control router).

See *Product Set*, on page 10, for a complete list.

The 16×16 routers can switch any of 16 inputs to any of 16 outputs. The 8×8 routers can switch any of 8 inputs to any of 8 outputs. The 32×32 routers can switch any of 32 inputs to any of 32 outputs. The 16×4 router switches 16 inputs to 4 outputs. The 32×4 routers switch 32 inputs to 4 outputs. All the router matrices are fully non-blocking.

The 64×64 routers can switch any of 64 inputs to any of 64 outputs. The 64×64 routers include a 3Gig router and an AES router. A CP6464 panel can be used to control the signals of the 64×64 routers.

The CQX routers can switch 16 inputs to either of 2 "clean and quiet" outputs or to 6 normal outputs. In addition, the CQX routers have 2 bypass inputs that can provide video to the 2 clean and quiet outputs if power fails or is disconnected from the router.

The machine control routers are bidirectional, point-to-point routers, transmitting serial data under RS-422, up to 1 Mb/s. All other compact routers are unidirectional, X/Y routers.

Figure 1. Package Contents

Router(s) 1RU

2RU

Control Panel(s) 1RU

2RU

Remote Panel Module(s) 1RU

2RU

Power suppl(ies)

Ethernet cable[1]

Quick-Start Guide (this document)

1 software and documentation disk

1 power cord retention strap for each power supply

A CR Series control panel can be mounted on the front of a router or a remote panel module and provides direct visual and tactile control of the router. However, any of the routers can also operate without a control panel under control of an automation system.

The CR Series routers can be connected on an Ethernet network or used with the NV9000 Router Control System.

A CR Series "remote panel module" is a device upon which a control panel can mount. That panel is then called a "remote panel" because it can be used at a distance from the routers.

The remote panel module also relays commands to a network of routers and receives the status of the routers.

A network also allows "local" or "captive" control panels. Captive control panels are those that mount on a router.

The CR Series also includes configuration software that allows you to make the most of your compact router system, and button legend templates in several formats.

1 Ethernet cable for CR6400 routers only.

Routers

All CR Series routers except machine control routers have connectors for bi-level or tri-level video reference (sync) signal and will switch according to SMPTE RP168-2002.

We recommend using a video reference. The video reference is loop-through: you can pass the video reference on to other routers or terminate the reference at any point.

Each router has two power inputs for redundancy, a grounding lug, an RS-485/422 automation port, and an Ethernet port.

Each *analog audio* router has DB25 connectors for I/O. See Figure 7. Each *machine control* router has RJ-45 connectors for I/O. See Figure 8. Each 64×64 router has DIN 1.0/2.3 coax connectors for I/O. See Figure 9. All o*ther* routers have 75Ω BNC connectors for I/O. See Figure 6.

Each router saves its current state (crosspoint connections, locks, etc.) in non-volatile memory.

"3Gig" Video Routers

The 3Gig video routers (including the CR6464-3Gig) support 2.97 Gb/s operation and several SWB and SD data rates. They support DVB-ASI.

HD Video Routers

The HD routers are "SWB" (super wide band) routers. They support a wide range of SD and HD serial data rates. They support DVB-ASI.

The HD routers are available in less expensive non-reclocking models, such as the CR1616-HD-NR. However, the reclocking models give better performance and can driver longer cable runs.

SD Video Routers

The SD routers support a wide range of SD serial data rates. They support DVB-ASI.

The SD routers are available in less expensive non-reclocking models, such as the CR3204-SD-NR. However, the reclocking models give better performance in noisy environments.

AES Audio Routers

The AES routers (including the CR6464-AES) support AE3id audio. The AES routers will switch in sync with a video reference if one is available and will free-run if no reference is available. If a video reference is not present, the router is asynchronous and it passes input signals straight through without any processing.

Analog Video Routers

The analog video routers switch NTSC (525i) and PAL (625i) formats.

Analog Audio Routers

The analog audio routers switch analog audio signals. They pass the signal straight through and do no internal processing.

The CR1616-AA switches 16 stereo pairs. The CR0808-AA switches 16 stereo pairs. The CR3232-AA switches 32 stereo pairs. The CR1604-AA switches 16 input pairs to 4 output pairs. The CR3204-AA switches 32 input pairs to 4 output pairs. The analog routers do not perform mono switching.

Machine Control Routers

The CR16-PR and CR32-PR routers (a.k.a. port routers) switch machine control streams or serial data streams up to 1 Mb/s.

The CR16-PR has 16 ports and the CR32-PR has 32. The ports are bidirectional, RS-422. Connections are point-to-point.

Machine control ports can be configured in several ways. Software is required for port configuration.

CQX Routers

There are 3 "clean and quiet" (CQX) routers that switch 3Gig, HD, and SD video, respectively, with smooth transitions in video and audio.

The 3Gig router switches signals at either SMPTE 425 level A (HD progressive) or SMPT 425 level B (2 HD interlaced signals in one stream).

These routers support 4 selectable transition types: cut, V-fade, cut-fade, and fade-cut. They support 3 selectable transition rates: slow (3 seconds), medium (2 seconds), and fast (1 second).

A CQX router has 2 "clean and quiet" outputs and 6 normal outputs. Internally there is a two-channel mixer that combines 2 of the router's 16 inputs for each clean and quiet channel.

Two bypass inputs can feed the clean and quiet outputs if power is disconnected from the router.

Software

CRSC (the Compact Router System Configurator) is a relatively small software tool that helps you create efficient, more easily used router networks. It configures both routers and remote panel modules. It is used for both "CRSC networks" and NV9000 networks.

Operating Modes

CR Series routers can be used in 5 general modes:

- A stand-alone router, with an attached control panel.
- A stand-alone network of routers and remote panels.
- A "CRSC" network of routers and remote panels.
- An NV9000 network: one or more compact routers controlled by an NV9000 router control system. The NV9000

system may also include also routers, CR Series remote panels, and NV96*xx* control panels.

- A CQX router and a CQX control panel.

▲ A CR6464-3Gig or CR6464-AES cannot (yet) operate in a CRSC network or an NV9000 network.

These modes determine the behavior of CR Series products and affect the meaning of CR Series features.

For example, routers and control panels in a CRSC network are highly configurable. In other modes, they are not configurable. There are many other significant differences.
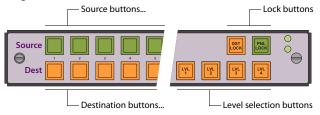
Control Panels

These are the available control panels.

CP1616 CP1604 CP1602 CP0808 CP3201
CP3232 CP3204 CP1602-CQX

An additional panel, the CP6464, exists. It mounts on, and applies to, only the 64×64 routers.

This diagram shows the factory-default buttons of a 1RU control panel:

The factory defaults apply to stand-alone routers. In CRSC networks or NV9000 networks, the button functions are configurable.

The factory default has 2 lock buttons at the top right:

- Destination Lock. Prevents accidental re-routing of one or more destinations.
- Panel Lock. Protects accidental use of the entire panel.

In a stand-alone system, control panels have source buttons, destination buttons, lock buttons, and level buttons, as shown above. The numbered buttons on a control panel correspond to the numbering of the connectors at the rear of a router (of the same size).

In a CRSC network, any button (except the lock buttons) can be configured as a source, destination, salvo, or level button.

(Salvos under CRSC are executable lists of low-level "takes.")

In an NV9000 network, *any* button can be configured as a source, destination, salvo, or "previous source" button.

(Salvos under NV9000 are lists of NV9000 commands and are defined in NV9000-SE Utilities.)

In a stand-alone system, the 4 function buttons just below the lock buttons are *level selection* buttons. Routers are assigned levels from 1 to 4. A control panel in the network illuminates level buttons for each router in the network. Users may select any or all of the levels at any time.

In CRSC networks and NV9000 networks, levels are router partitions. Up to 8 levels can be defined. Under CRSC, level selection is governed by 3 panel configuration modes: standard mode, enhanced mode with "hold," and enhanced mode without "hold." Under NV9000, takes are all-level and are subject to level-set rules.

In a CRSC networks and NV9000 networks, control panels route signals between "devices." Devices are configured as sets of related inputs or outputs.

In a stand-alone system, control panels switch *inputs* and *outputs* only, either on a single level or multiple levels.

A stand-alone router requires a control panel (or automation). A stand-alone network of routers requires either captive panels or remote panels.

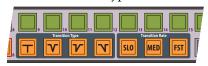A CRSC network requires remote panel(s) but allows the presence of captive panels.

An NV9000 router control system does not require CR Series control panels but can include them, in which case they are configured in NV9000-SE Utilities.

CQX Panel

The CQX panel has 2 CQ output buttons and 6 normal (or auxiliary) output buttons:

It has 4 transition type buttons and 3 transition rate buttons:

It has two lock buttons (not shown here) as do other panels. The remaining 5 buttons are undefined.

Remote Panel Modules

CR Series remote panel modules (RP16, RP32) resemble CR Series routers in size and form, but they have only communication connections and no I/O. A remote panel module controls routers in the network. In a CRSC network, the remote panel module is the "intelligence" of the network.

A compact router network may have several remote panels and several routers of mixed type. The number of routers and panels supported depends on the system and on available throughput.

Software

CRSC is a relatively small software tool that helps you create efficient, more easily used router networks. It configures both routers and remote panel modules. It is used to configure "CRSC networks" and to set up remote panels for NV9000 networks.

CRSC allows the following.

- View and control the IP addresses of devices in the network.
- Create router partitions (i.e., levels).
- Completely configure remote panels.
- Monitor router crosspoints.
- Update firmware.
- View and clear locks.
- Setup remote panels for NV9000.

CRSC is required if you wish to configure machine control router ports.

Installation

Software and Documentation

Insert the supplied CD (SB0033) in your CD drive. It will autoplay in a few seconds. On the first screen you see, click 'CR Series Routing Products'.

The CR Series screen displays:

You can choose from 4 options at any time:

- Install *CRSC*.
- Obtain documentation.
- Open a button template.
- Browse the CD.

To install the *CRSC* software, click 'Install CRSC' and follow the simple steps when the installer appears. The installation process takes less than a minute. Optionally, place a "shortcut" on your PC desktop.

Rotary Switches

Every router and every remote panel module has a 16-position rotary switch labeled 'Frame ID'. CQX routers have an additional rotary switch labeled 'Mode'.

The 'Frame ID' rotary switch is used in stand-alone networks and NV9000 networks (1) to set the device's IP address and (2) for routers, to set the router's level.

Position 0 is at the right.

FRAME ID

It is used in CRSC networks, NV9000 networks, or CQX (sub)networks to set a device's *initial* IP address. You can use CRSC to change IP addresses (and levels) to more suitable values once the routers and remote panel modules are in the network. After initial setup, the rotary switch can be ignored.

Use a small screwdriver to make adjustments. Turn the switch so that the arrow points to the setting number. The numbers are in hexadecimal, where the letters A–F represent the numbers 10–15. (You might need to remove a control panel from the router or remote panel module to access the rotary switch.)

After you make an adjustment, turn the power to the router (or remote panel module) on again.

If you set the rotary switch to position 0, the router or remote panel module to reset to its factory default settings when you cycle power. When you set the rotary switch to a non-zero position, it retains its settings.

We recommend always setting a device to a non-zero position while it is in use. Although it is possible to use device with a zero switch setting, if you lose or remove power, it will reset and lose its configuration.

Stand-Alone Routers

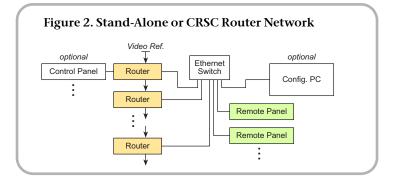For a single router, you may set the rotary switch on the router to any *non-zero* position.

Stand-Alone Networks

You may have up to 4 routers and up to 16 remote panel modules in a stand-alone network.

Set the rotary switches as follows.

For **routers**, the rotary switch sets both the router's IP address and the router's level. For each router, choose a switch position from 1 to 4:

Level (1–4) = switch setting.
Subnet *address* = switch setting + 100.

Figure 2. Stand-Alone or CRSC Router Network

The IP address is 192.168.2.*address*. Thus, subnet addresses for routers range from 101 to 104 and correspond to router levels 1–4. Each router's rotary switch setting must be unique.

The switch settings of **remote panel modules** must also be distinct. For each remote panel module, choose a switch position from 0 to F:

Subnet *address* = switch setting + 50.

The IP address is 192.168.2.*address*. Thus, subnet addresses for remote panel modules range from 50 to 65.

▲ Routes and remote panels with switch position 0 will reset to the factory default if power is removed.

CR6464 Networks

The 64×64 routers, the CR6464-3Gig and the CR6464-AES, at first release are larger routers, but limited in scope.

You can create a network of up to four 64×64 routers, without any remote panels. Each router may have a captive control panel, although just one captive panel is sufficient.

The networked 64×64 routers function as a stand-alone network, except that remote panels may not be used.

Each router in the network is considered a distinct level.

CRSC Networks

▲ A CRSC network may not include any 64×64 routers.

You may have up to 8 *levels* (but a maximum of 4 routers) and up to 16 remote panel modules in a CRSC network.

You can have multiple independent CRSC networks. CRSC can detect (and manage) them if your configuration PC has suitable network connections. Multiple networks are then called subnets. CRSC handles one subnet at a time.

Set the rotary switches as follows.

For **routers**, the rotary switch *initially* sets the router's IP address. For each router, choose a switch position from 1 to F:

Default level = switch setting.
Default Subnet *address* = switch setting + 100.

The default IP address is 192.168.2.*address*. Thus, default subnet addresses for routers range from 100 to 115. Each router's rotary switch setting must be unique in that range.

Once the routers are established on the network, you can use CRSC software to override their IP addresses and assign levels, eliminating the dependence on the rotary switch position.
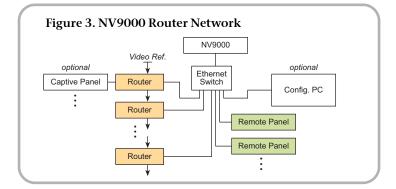
The switch settings of **remote panel modules** must also be distinct initially. For each remote panel module, choose a switch position from 0 to F:

Default subnet *address* = switch setting + 50.

The default IP address is 192.168.2.*address*. Thus, subnet addresses for remote panel modules range from 50 to 65.

You can use CRSC software to reassign the IP addresses of remote panel modules too.

▲ Routers and remote panels with switch position 0 will reset to the factory default if power is removed.
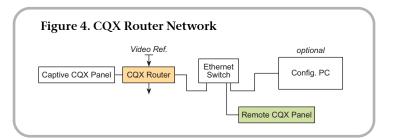

Figure 3. NV9000 Router Network

Router Control System

You must also use CRSC to designate IP addresses for an NV9000 or NV915 network.Set up the IP addresses and levels as you would for a CRSC network.

Then use CRSC to enable any remote panels for operation under NV9000. It is recommended that you configure the remote panels for DHCP.

The number of compact routers or remote panels in your

Figure 4. CQX Router Network

NV9000 is limited only by throughput.

CQX System

A CQX router network is restricted to one CQX router. One captive CQX panel or one remote CQX panel (or both) is allowed. The network can be connected to a configuration PC running CRSC.

You can create more than one CQX subnet.

▲ Transition type and rate buttons on a remote CQX panel have no effect on the CQX router. Use a captive panel to change transition type or rate.

Mode

CQX routers have a 16-position 'Mode' rotary switch that governs the video rate of the router.

Set this switch according to the following table:

Setting	Rate
0	1080i, 59.94 or 60; 1080p, 29.97 or 30; 1080psf, 29.97 or 30
1	1080i, 50; 1080p, 25; 1080psf, 25
2	525i, 59.94
3	625i, 50
4	720p, 59.94 or 60
5	720p, 50
6	1080p, 59.94 or 60
7	1080p, 50
8	2 × 1080i, 59.94 or 60
9	2 × 1080i, 50
A	720p, 29.97 or 30
B	720p, 25
C	720p, 23.98 or 24
D	1080p, 23.98 or 24; 1080psf, 23.98 or 24
E	*reserved*
F	*reserved*

Frame ID

The 16-position Frame ID switch sets the router's default IP address. For any CQX router, choose a switch position from 1 to 4:

Subnet *address* = switch setting + 200.

The default IP address is 192.168.2.*address*. Thus, subnet addresses for routers range from 201 to 204.

The switch settings of a remote panel module (if you have one) must be non-zero:

Subnet *address* = switch setting + 50.

The IP address is 192.168.2.*address*. Thus, subnet addresses for remote panel modules range from 51 to 65.

▲ The CQX router and the remote panel with switch position 0 will reset to the factory default if power is removed.

Networked PC

Configuration software is optional in some cases, unless you have machine control routers to configure or you wish to build a CRSC network or an NV9000 network.
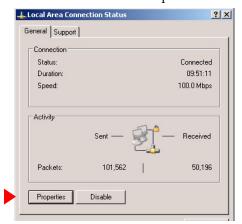
If you will be using CRSC, your PC must be assigned an IP address on the same subnet as your routers and remote panel modules.

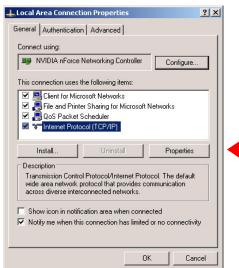Follow these steps to configure your PC's IP address:

1) Launch 'Settings>Network Connections' from your PC's Start menu. The following window appears:
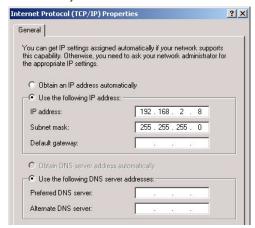

2) Double-click 'Local Area Connection'. Then, choose the 'General' tab and click 'Properties'.

3) Select 'Internet Protocol (TCP/IP)'. Click 'Properties' again:

4) Select 'Use the following IP address' and enter the IP address for your PC. Use the default subnet mask.

The subnet mask should usually be 255.255.255.0. Any IP address will suffice as long as it is not the same as the address of any router or remote panel module. We recommend you avoid the ranges 100–115 and 50–65.

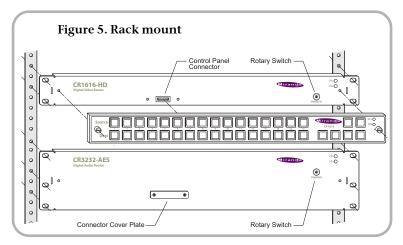Leave the DNS fields blank. Advanced users may use different subnet forms.

5) Click OK to finish.

Control Panels

Attach a control panel to a router or remote panel module by placing the control panel in position, mating the connectors on the two pieces. This requires only minimal force. Then, tighten the knurled screws so the assembly is secure. See Figure 5.

▲ A 1RU control panel cannot connect to a 2RU device and vice versa.

Routers and remote panel modules ship with a cover plate over the control panel connector. You must remove the cover plate before mounting the control panel. We recommend that you leave the cover plate in place if you do not plan to use a control panel.

Figure 5. Rack mount

You can install button legends at this (or any) time. Button legend templates are included on your CD. See *Button Legends* on page 9.
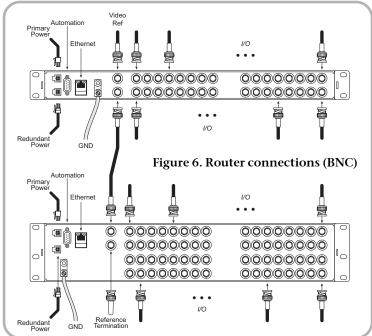
Rack Mounting

Place the router (or router assembly) in the rack where you want it, aligning the screw holes with holes in your rack frame. Secure the router using your screws, nuts, and washers, as required. See Figure 5.
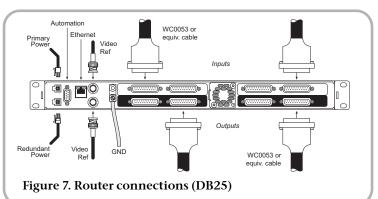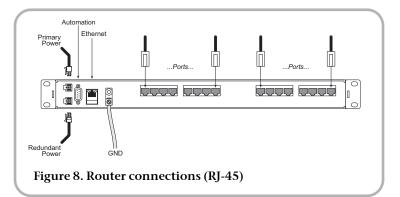
Mount remote panel modules the same way.

For the 1RU routers (or remote panel modules), the mounting holes are spaced 1.25″ (31.75 mm) vertically and allow approximately 1/8″ (3 mm) of play horizontally.

For the 2RU routers (or remote panel modules), the 3 mounting holes on each side are spaced 1.25″ (31.75 mm) and 1.75″ (44.45 mm) (overall, 3.0″ or 76.2 mm) vertically and also allow approximately 1/8″ (3 mm) of play horizontally.

▲ Because the routers are small, you might not have enough space to reach behind the router and make I/O connections. In that case, make I/O connections first and save mounting until last.

Figure 6. Router connections (BNC)

Figure 7. Router connections (DB25)

Figure 8. Router connections (RJ-45)

Automation Port

If you intend to use the router in an automation system, connect the 9-pin serial port to a serial port of your system. Contact Grass Valley for more information about automation.

The communication protocol is RS-422 or RS-485 for routers and is not available for remote panel modules.

I/O Cables, Video Reference Cable

▲ The 64×64 routers are of modular construction and have DIN 1.0/2.3 I/O connectors. Setup for the 64×64 routers is different from the other routers. See Connections for 64×64 Routers, following.

The analog audio routers have DB25 connectors. The machine control routers have RJ-45 connectors. The other routers have BNC connector. See figures 6, 7, and 8.

▲ If your routers are in an NV9000 router control system, the configuration you create for your NV9000 system will include your device connections.

Connect the video reference input. (Doing this is optional, but recommended.) This connection is loop-through, non-terminating. Be sure to terminate the output of the last connector in the series with a 75Ω BNC terminator. See Figure 6.

▲ The AES routers require a reference to operate in synchronous mode. SDI routers require a reference to perform switches in accordance with SMPTE RP168.

▲ The machine control routers do not have video reference connectors.

In stand-alone networks, devices that send and receive signals on multiple levels should be connected to the *same* input or output on all the routers that service those levels. Otherwise, multi-level operations will produce unwanted results.

In a CRSC network, there is no such restriction. Connections are made on the basis of router levels and panel design. (The connections you will make are actually defined during panel configuration.)

Making the connections for analog audio might require custom cabling (because of the DB25 connectors). Making the connections for machine control routers might also require custom cabling because most controlled "machines" use DE9 connectors.

Ethernet Connections

If you have a router network, connect the router to your Ethernet switch using CAT5 Ethernet cable (with RJ-45 connectors).

Similarly connect your remote panel modules to your Ethernet switch.

Similarly connect your configuration PC to your Ethernet switch if you intend to use CRSC (or NV9000-SE Utilities).

Power and Ground

Connect the grounding lug to earth ground. Use copper cable from 14–6 AWG. See figures 6, 7, or 8.

(There is no on-off switch. Each router requires at least one power supply and one AC outlet for each power supply.)

Control panels receive power from the router or remote panel module on which they are mounted.

For the 64×64 Routers

Use caution when connecting power. Each power supply provides 48 VDC at over 3 A. The ring at the end of the connector

is ground. It is very easy to short power to the ring or to the metal router frame. Therefore, *always* plug the power supply connector into the router frame before you connect the power supply to AC power.

For All Other Routers

Plug the 4-pin connectors of your power supplies into PS1 or PS2, or both. Insert the AC plugs into an AC wall socket or other source of AC power.
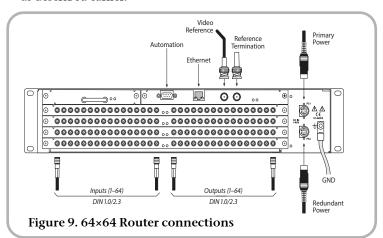
Connections for 64×64 Routers

The 64×64 routers (CR6464-3Gig and CR6464-AES) are modular in construction: they have 4 I/O card slots into which you may insert up to 4 I/O cards.

The routers also have removable control cards and crosspoint cards, and a removable fan unit. It should never be necessary to remove these modules unless you are instructed to do so by a Grass Valley technician.

The router switches AES audio if it is populated with one or more AES cards. The router switches video if it is populated with one or more 3Gig cards (the label on the front of the router notwithstanding). You must not mix I/O cards in the router frame. (The router is considered "unidentified" if it has no I/O cards.)

As you face the rear of the router, its 64 inputs are in a group at the left and its 64 outputs are in a group at the right. Connect your I/O devices to the router using DIN 1.0/2.3 cables.

Make video reference, Ethernet, and automation connections as described earlier.

Figure 9. 64×64 Router connections

Configuration

For many stand-alone routers with a control panel, or for a stand-alone network of routers, there is *very little* to configure, beyond setting the rotary switches. Machine control routers are the exception: you must use CRSC to set the port types according to the equipment you have connected to the ports.

For compact routers in a NV9000 system, the configuration is defined in the NV9000 system. There are many options to

consider. Refer to your User's Guide or contact Grass Valley for information regarding router control systems or automation.

Rotary Switches

As directed under *Installation*, set each router's 16-position 'Frame ID' rotary switch (on the front face of the router) to a non-zero position. Also set each remote panel module's rotary switch as directed under *Installation.*

For CQX routers, also set the 'Mode' rotary switch as directed under *Installation*.

Button Legends

You may customize your control panel buttons with your own button legends. Create your own legends using a publishing or graphics program. You can use the button legend templates supplied on the CD. The button legends should be no larger than 0.40″ × 0.40″ (about 1 cm × 1 cm). The buttons in the templates are 0.375″ square.

Print your legends on clear plastic in an array and cut them apart with scissors or a straight edge and blade. The clear plastic button caps are easy to remove. Simply pull them off using finger pressure, insert the new legend in the cap, and replace the cap.

Startup

To start a router or remote panel module, apply power through a power supply to PS1 or PS2. If you are using two power supplies for redundancy, connect one to PS1 and the other to PS2. Then plug the power suppl(ies) into AC power outlet(s).

If you have connected your routers and remote panel modules to a power bus, toggle its on/off switch.

At power-up, the router or remote panel module restores its previous operational state, unless its rotary switch is at position 0. In that case, the device reverts to its factory-default state.

If you want to use CRSC, you may launch it or terminate it at any time. Typically, you double-click a desktop icon to launch the software.

Control panels (attached to routers or remote panel modules) restart with their Panel Lock button bright red. Simply press the Panel Lock button to clear the lock.

CRSC

▲ CRSC requires that routers and remote panel modules be updated with CRSC-compatible firmware. If you want to create a CRSC network, you should perform a firmware update before proceeding.

The *CRSC User's Guide* is moderately long and the software is complex and requires careful study.

To launch *CRSC*, double-click the application or a shortcut to the application, or choose

    Programs > NVISION > Compact Router System Configurator

from the Windows Start menu.

The default pathname for the application is

    C:\Program Files\NVision\Compact Router System Configu-
    rator\CrConfigurator.jar

After launching *CRSC*, click 'CR Series Ethernet Settings' to scan your network for routers and remote panel modules.

Other Topics

Mixed Router Types

Compact routers come in different sizes and types. A network can include a mix of different routers.

When a control panel is attached to a remote panel module in a network of mixed router types, the number of source buttons may differ from the number of inputs on a particular router.

In a stand-alone or NV9000 network, if there are more remote source buttons than router inputs, the extra source buttons do nothing for that router. If there are fewer source buttons than inputs, the extra inputs cannot be controlled from that control panel.

The same holds true for destination buttons and outputs.

That condition is *not* true for CRSC networks. Source (and destination) buttons control *assigned* router inputs (and outputs).

The result of a machine control take is different from the result of a video or audio take. Operators should be aware of the difference. Refer to the appropriate user's guide for details.

The CQX routers cannot be mixed with other router types on a router network. Only one CQX router is permitted on any subnet.

The 64×64 routers cannot be mixed (yet) on a network with routers of other types.

Cabling

Note: The SDI routers feature active cable equalization that allows SD signal recovery up to 400 m, HD signal recovery up to 150 m using Belden 1694A cable, and "3Gig" signal recovery up to 100 m.

Networks require a customer-supplied Ethernet switch and Ethernet cables. However, the CR6400 routers each ship with a shielded Ethernet cable.

Product Set

The CR Series Compact Router family includes 1RU and 2RU routers, control panels, and remote panel modules.

1RU Routers	
CR1616-3Gig	16×16, "3Gig" video
CR1616-HD	16×16, HD video
CR1616-HD-NR	16×16, HD video, non-reclocking
CR1616-SD	16×16, SD video
CR1616-SD-NR	16×16, SD video, non-reclocking
CR1616-AES	16×16, AES3id audio
CR1616-AV	16×16, Analog video
CR1616-AA	16×16, Analog audio
CR16-PR	16-Port Machine Control

CR1602-3Gig-CQX	16×2, "3Gig" video, "clean and quiet"
CR1602-HD-CQX	16×2, HD video, "clean and quiet"
CR1602-SD-CQX	16×2, SD video, "clean and quiet"

CR1604-3Gig	16×4, "3Gig" video
CR1604-HD	16×4, HD-SDI video
CR1604-HD-NR	16×4, HD-SDI video, non-reclocking
CR1604-SD	16×4, SD-SDI video
CR1604-SD-NR	16×4, SD-SDI video, non-reclocking
CR1604-AES	16×4, AES3id audio
CR1604-AV	16×4, Analog video
CR1604-AA	16×4, Analog audio

CR0808-3Gig	8×8, "3Gig" video
CR0808-HD	8×8, HD-SDI video
CR0808-HD-NR	8×8, HD-SDI video, non-reclocking
CR0808-SD	8×8, SD-SDI video
CR0808-SD-NR	8×8, SD-SDI video, non-reclocking
CR0808-AES	8×8, AES3id audio
CR0808-AV	8×8, Analog video
CR0808-AA	8×8, Analog audio

2RU Routers	
CR3232-3Gig	32×32, "3Gig" video
CR3232-HD	32×32, HD video
CR3232-HD-NR	32×32, HD video, non-reclocking
CR3232-SD	32×32, SD video
CR3232-SD-NR	32×32, SD video, non-reclocking
CR3232-AES	32×32, AES3id audio
CR3232-AV	32×32, Analog video
CR3232-AA	32×32, Analog audio
CR32-PR	32-Port Machine Control

CR3204-3Gig	32×4, "3Gig" video
CR3204-HD	32×4, HD video
CR3204-HD-NR	32×4, HD video, non-reclocking
CR3204-SD	32×4, SD video
CR3204-SD-NR	32×4, SD video, non-reclocking
CR3204-AES	32×4, AES3id audio
CR3204-AV	32×4, Analog video
CR3204-AA	32×4, Analog audio

CR6464-3Gig	64×64, "3Gig" video
CR6464-AES	64×64, AES3id audio

Remote Panel Modules		Corresponding Control Panels
RP16	1RU	CP1616, CP1604, CP1602, CP3201, CP0808,
RP32	2RU	CP3232, CP3204

These are the available control panels.

Panel	Size	Inputs	Outputs	Function Buttons
CP1616	1 RU	16	16	6
CP1604	1 RU	16	4	6
CP1602	1 RU	16	2	6
CP0808	1 RU	8	8	6
CP3201	1 RU	32	1	6
CP3232	2 RU	32	32	12
CP3204	2 RU	32	4	12
CP1602-CQX	1 RU	16	2 CQ, 6 aux	7 transition, 2 lock, 5 undefined
CP6464	2 RU	64	64	12

Contact Information

Contact Grass Valley if you need information about NVISION router control systems or third-party automation systems.