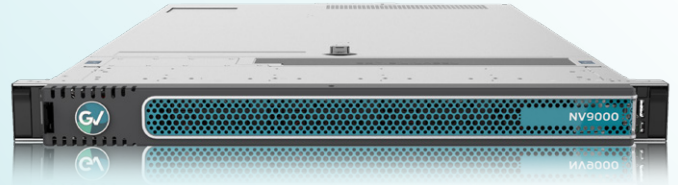


NV9000 Control System



Powerful personalized control solution for demanding workflows.

The NV9000 router control system from Grass Valley offers efficient baseband control paradigms that help operators execute signal routing quickly and error-free from a highly resilient router controller platform.

The NV9000 panel series includes a wide range of highly adapted panels for superior control. The panel range includes informative and easy to use LCD relegendable panels, multideestination panels, multimode button per source panels, destination/source (XY) panels, and the powerful RCP-200 smart panel. The Grass Valley panel series is the most comprehensive line of panels meticulously designed to optimize various workflows for the fastest and least error-prone operations, as well as providing multiple options that accommodate cost and restricted space requirements. Connected via Ethernet, these panels not only complement the NV9000 control system, but work equally well with our new GV Convergent SDN control systems.

1 RU enterprise-grade controllers, the NV9000-HW range offer outstanding robustness, and extremely flexible control to address different facility workflows, even in the most complex facilities.

With outstanding durability and performance, the NV9000 protects your investment over its long life. The controllers also offer highly effective bridging with legacy third-party routers and their control systems for an easier transition to a next-generation routing switcher.

A high level of integration with multiviewers and signal processing, as well as production switchers, master control switchers and tally systems, contributes to productive facility operations.

The Most Advanced Control System

Powerful Control Hardware

Grass Valley offers enterprise-class NV9000 controllers:

- The NV9000-HW controllers are 1 RU servers designed for maximum network and router/panel capacity for complex, multirouter/multicontrol system applications

Dual redundancy options for the controllers provide hot-standby, mirrored redundancy with live router event logging for continuous, fail-safe operation in the most demanding environments.

Instant Recall Of "System Snapshots"

To improve productivity in production control rooms, the controllers allow saving and recalling of "system snapshots," which capture the current NV9000 configuration, as well as the current state of the crosspoint image in all the routers in the system. This allows an operator to save configurations for specific productions, and then instantly re-load them when they are required for the next production.

Key Features

Flexible routing system architectures

- Scalable from small to very large systems
- Supports up to 400 control panels and up to 64 routers per system controller
- Virtual panels provide control from any network PC
- Centralized or distributed router architectures connect via Ethernet

Simplified configuration

- Dynamic changes without system restart for many parameters
- Offline configuration as well as data import and export
- Powerful relational database management so configuration data only needs to be entered once
- Source and destination device aliasing supports multiple name sets

Flexible, Versatile Architecture

Grass Valley NVISION routers offer outstanding control flexibility, and can be configured for centralized or distributed operations. In essence, the system can be readily adapted for different workflows and administration requirements.

The NV9000 control system leverages the power of the Grass Valley Hybrid Routing architecture that offers the convenience of integrated audio processing and simplified cable management with no compromises on reliability.

Wide selection of control panels

- XY, multidestination, multimode, LCD relegendable
- Hardware and software versions

Facility-wide router integration

- Rich integration across a facility, with multiviewers, signal processing, production switchers, master control switchers, audio consoles and tally systems – including third-party equipment
- SNMP support

Legacy router integration

- Control system allows simpler, incremental path to 3G/HD routing from third-party legacy router infrastructure, with phased transition to NV9000 control

Powered by COTS

- Built on Microsoft Windows 10 operating system, provides security and management tools that are familiar to IT managers, including Windows Defender and the latest Microsoft service packs
- Streamlined code base for faster system response times and additional performance stability
- Uses generic COTS (commercial off-the-shelf) server from Dell, pre-packaged with all the required Grass Valley software, hardware and licenses to deliver high-performance baseband broadcast routing control

Advanced Tally Management

The NV9000 control system offers advanced tally management with production switchers and monitor wall systems in control rooms. The system also provides rich integration with third-party tally controllers.

Advanced Tie-Line Management

The system can be configured for very large systems, with up to 400 control panels and up to 64 routers per system controller. Complex interactions with multiple routers can be configured using advanced multi-hop, tie-line management abilities.

Advanced Relegendable NV9000 Control Panels

A wide array of control panels is available to address the workflow requirements of different operator positions, including software panels, hardware panels, and new relegendable LCD panels. These panels can all be mixed-and-matched to suit individual station requirements.

NV9000 Router Controllers

NV9000-HW-PRI

1 RU single system controller configuration

NV9000-HW-SEC

1 RU secondary system controller configuration, (redundancy upgrade for a NV9000-HW-PRI single system controller system)

NV9000-HW-DUAL

2 x 1 RU dual redundant system controller configuration

NV9000-HW-CO

3 x 1 RU dual redundant system controller configuration with NV9700 remote diagnostic and changeover panel

The Grass Valley NV9000 router controllers are configured to meet the requirements of the largest and most demanding multirouter, multinet network gridded broadcast facilities. Featuring six TCP/IP Ethernet ports per controller, the NV9000 controllers can support up to 400 control panels and up to 64 routers, and the system can be expanded by adding additional router controllers, either as redundant units or router expansion controllers.

The NV9000 router controllers are equipped with redundant power supplies, and speed-controlled fans. Front access hard drive for fast repair.

The NV9000 system controllers are available as a single 1 RU controller, or as dual, 2 RU redundant control package (order model NV9000-HW-DUAL). With both controllers running, one acts as a primary, and the second as a backup. Both are kept updated with current router status at all times.

Remote diagnostic and change-over panel

Physical:

- 1 RU panel

Functional:

- Monitor health and status of redundant NV9000-HW-PRI system controllers
- Visual and audible notification of a system fault
- Interface with third-party facility alarm and monitoring systems

Best use:

- Mission critical routing control systems requiring redundancy and health monitoring



Router Status Monitoring with Web Suite

The Web Suite software tool provides a real-time overview of your routing statuses. It can track statuses of up to 2,048 destinations over 32 levels. Based on HTML5, Web Suite can be run on any compliant browser with makes it very convenient for troubleshooting over your mobile devices or from anywhere with a simple network access. Web Suite is the perfect tool to monitor your complex routing system with tie-lines and resource management functionality.

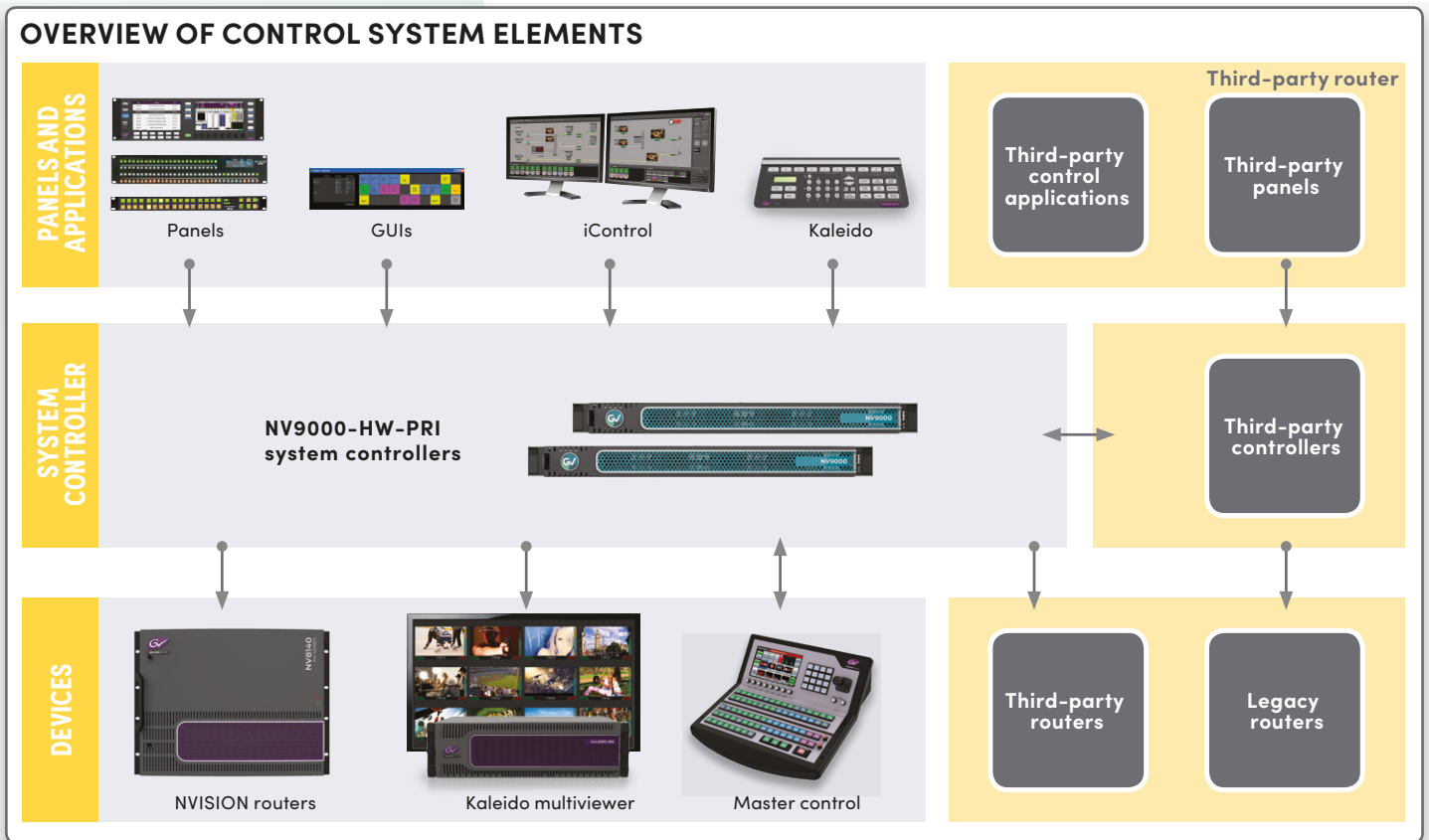
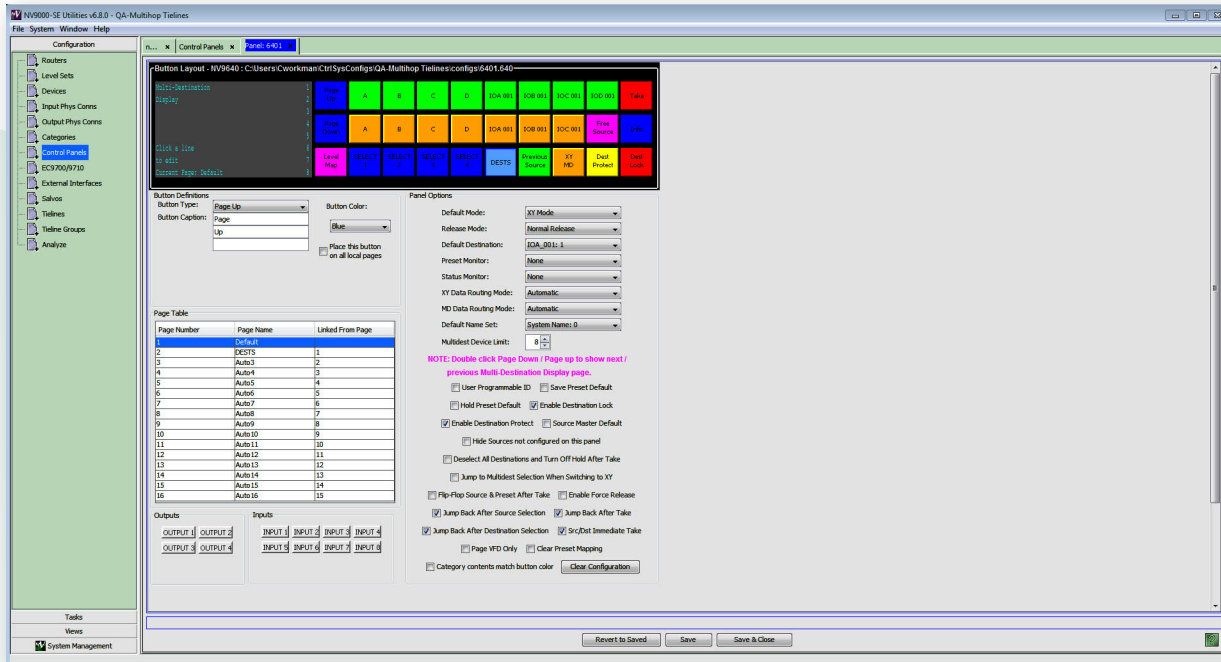
Primary Matrix Control

TieLine Management and Release Control

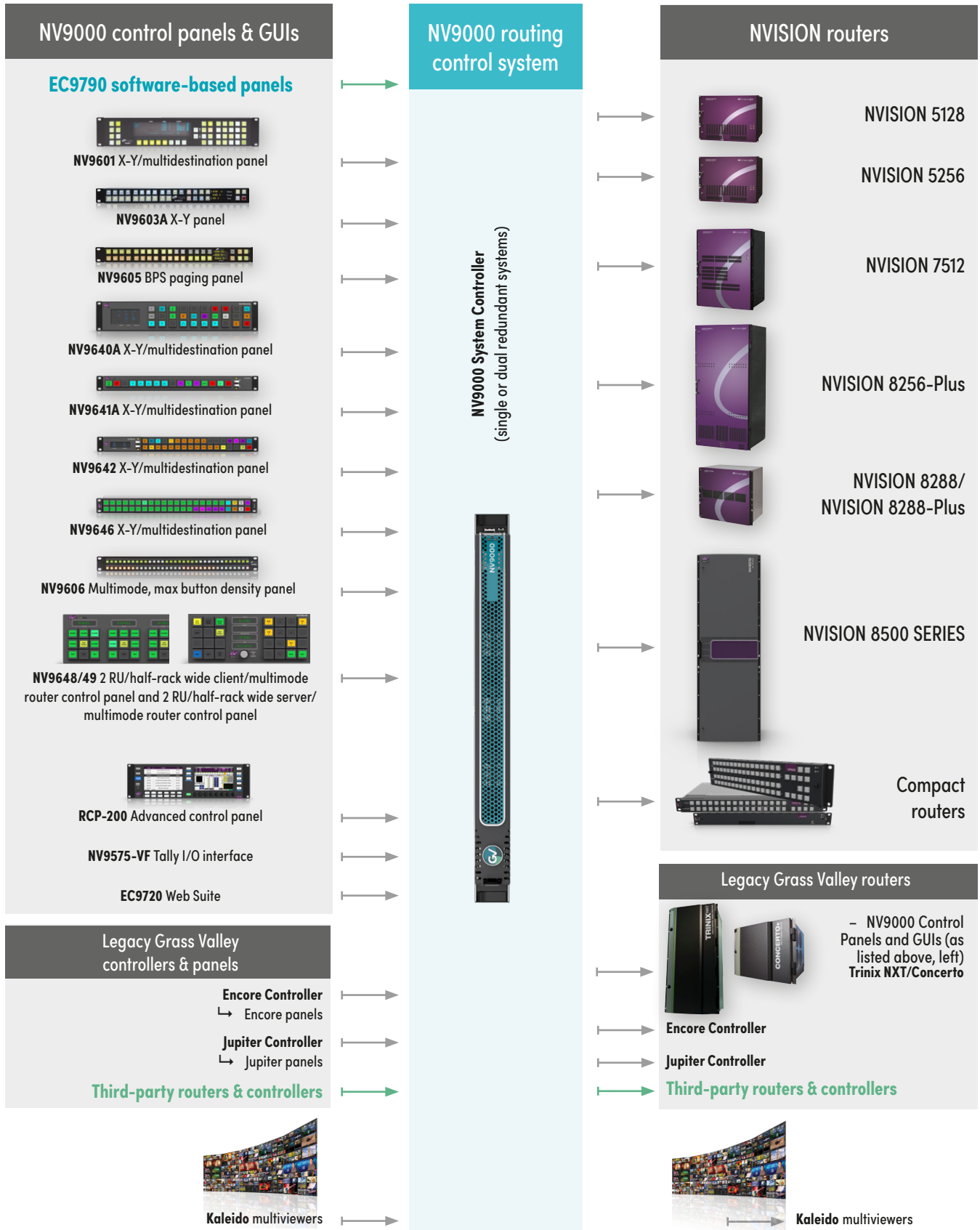
New Bulk Routing

Router Control System

NV9000 software includes a comprehensive configuration utility for the NV9000 router control system which offers efficient building and management of router configuration data. The software uses a powerful relational database that effectively manages small and large system configurations. Because you can work on a configuration offline, you don't have to be connected to the controller to prepare configurations. The software is simple and allows fast configuration of multiple controller instances in parallel.



The NV9000 is a complete and agnostic router control system that fully supports any of the NVISION control panels and all legacy NVISION routers, as well as interfacing with the most popular routers and control systems in the market.



Feature Summary: Router System Controller

- Ethernet control of NVISION routers
- Virtual levels, level sets
- Category/index/suffix device selection
- User IDs, Panel naming
- Free source
- Sophisticated machine control router support
- Source master
- Broadcast
- Manual/Semi-automatic/Automatic
- Lock/Protect/Release/Force Release
- Chop
- System salvos
- Local salvos
- Multiple source devices on a port
- Logging
- Source device aliasing
- Serial control on NVISION routers
- Third-party router control
- ES-BUS and Pro-Bel interfaces
- TCP/IP and NVISION serial protocol interfaces
- Support for NV9660 and the QMOC
- Control and status GUIs
- GPI interfaces
- PIN number access control
- Multidestination control surfaces
- Previous source
- Optional Tie-line support
- Multiple destinations on a port
- Virtual crosspoints
- Remote monitoring and SNMP
- Persistent logs
- Dynamic device renaming
- Maximum number of routers: 64
- Maximum number of physical levels: 250
- Maximum number of virtual levels: 512
- Maximum number of devices: 32,768
- Maximum router size: Supports maximum NVISION matrix size
- Maximum number of system salvos: 255
- Number of commands per system salvo: 2,048
- Maximum number of panels: 400
- Kaleido multiviewer integration
- Imagestore IS750 integration
- Imagestore-Modular integration
- TCP/IP network ports: 6 per controller
- Serial ports: 1 port, optionally expandable via Ethernet to 16 with EC9421 or 32 with EC9423 or via option card to 8 serial ports with the EC9420
- USB ports: 1 front, 2 rear
- Size:
 - 1 RU single, 2 RU redundant, 3 RU if using optional NV9700
 - Depth: 600 mm (24 in.)
- Power consumption (nominal): Dual 550W redundant PSUs
- Voltage input: 90-250 VAC / 50/60 Hz
- Weight: 14 kg (30 lbs.) per controller



The NV9000 control system is an advanced platform for routing control. Different configurations of the system controllers are available to address a broad range of requirements with regards to features, function and redundancy. NV9000-HW-PRI uses a single 1 RU system controller; NV9000-HW-DUAL uses a pair of 1 RU system controllers to offer full redundancy. NV9000-HW-CO includes a pair of system controllers, RS-485 port cards, NV9700 remote diagnostic and change-over panel, as well as all cables required to connect the included components together.

All system controllers are rack mounted and come with redundant power supplies. Customers must supply all monitors, keyboards or mice to be connected to the system controller platforms. All software preloaded, including drivers, to control any Grass Valley routers including NVISION series, Trinitix and Apex as well as including drivers to interface with Encore, Jupiter and SMS-7000 controllers and Snell (Pro-Bel) systems.

Optional software is available to control Philips/BTS, Utah Scientific, Horizon, Pesa, Sony, ISIS, and Datatek systems.

Third-party interfaces are available for SNMP, Snell (Pro-Bel) and SMS-MCPU Bridge. Other core system options include tie-line management software and remote diagnostics software.

Controllers

NV9000-HW-PRI

1 RU single system controller configuration, includes Dell server, all software and licenses for all GV protocols, and 6 x 1G NICs plus iDRAC

NV9000-HW-SEC

1 RU secondary system controller configuration, (redundancy upgrade for a NV9000-HW-PRI single system controller system), includes Dell server, all software and licenses for all GV protocols, and 6 x 1G NICs plus iDRAC

NV9000-HW-DUAL

2 x 1 RU dual redundant system controller configuration, includes 2 x Dell servers, all software and licenses for all GV protocols, and 6 x 1G NICs plus iDRAC in each server. Equivalent to 1x NV9000-HW-PRI + 1x NV9000-HW-SEC

NV9000-HW-CO

3 x 1 RU dual redundant system controller configuration with NV9700 remote diagnostic and changeover panel, includes 2 x Dell servers, all software and licenses for all GV protocols, and 6 x 1G NICs plus iDRAC plus RS-485 interface card in each server. Equivalent to 1x NV9000-HW-DUAL + 1x NV9700 + 2x EC9426

Core System Options – Hardware

SB0256-00

NV965/NV967 PRIMARY module (Windows 10 replacement for FR0040-30)

SB0257-00

NV965/NV967 SECONDARY module (Windows 10 replacement for FR0040-30)

SB0258-00

NV965/NV967 Logging drive (Windows 10 replacement for FR0040-30)

SB0256-10

NV965/NV967 PRIMARY module (Windows 10 replacement for FR0040-40)

SB0257-10

NV965/NV967 SECONDARY module (Windows 10 replacement for FR0040-40)

SB0258-10

NV965/NV967 Logging drive (Windows 10 replacement for FR0040-40)

EC9412

Additional 10/100Base-T card for NV960 controller

EC9414

Additional 10/100Base-T dual NIC card for NV960 controller

EC9417

Additional 10/100/1000Base-T quad NIC card for NV960 series (FR0040-4X)

EC9425

Spare power supply for NV960 controller

EC9420

EIA-485 8-port card for NV960 controller

EC9421

EIA-485 16-port card for NV960 controllers

EC9426

EIA-485 8-port card for NV9000 (FR0040-40)

EC9415

24-port Ethernet switch

EC9422

Y cable to support EIA-485 functionality for EC9420

EC9423

EIA-485 32-port device for NV960 controllers

EC9424

Y cable to support EIA-485 functionality for EC9421 and EC9423

NV9500

Enhanced node controller I/F

Core System Option – Software

EC9549

NP service for NV9000

EC9720

Web suite option for NV9000

EC9407

Multihop tie-line management software

EC9620

NV9000 – 64-bit multihop tie-line license

EC9513

Remote diagnostics software (includes modem)

EC9790

NV9000 – 5 client JAVA GUI license

Third-party Router and Controller Routing Interface Protocols

EC9520

Philips router interface

EC9521

Utah router interface

EC9522

Horizon router interface

EC9524

Pro-Bel router interface

EC9525

Sony router interface

EC9527

Pesa serial router interface

EC9529

ISIS router interface

EC9530

Datatek router interface

EC9532

Sierra video router interface

EC9533

Euphonix router interface

EC9534

Nexus/Stagetek router interface

EC9538

Sony ROT-16 interface

Ordering (cont.)

Automation/External Interface Protocols

EC9526

Serial control interface, ESBUS protocol

EC9528

Serial control interface, Pro-Bel protocol via SW-P-02

Windows 10 64-bit Third-party Router and Controller Routing Interface Protocols

EC9620

NV9000 – 64-bit multihop tie-line license

EC9621

NV9000 – 64-bit Jupiter (ESBUS) RTR license

EC9622

NV9000 – 64-bit Utah-RCP1 RTR license

EC9623

NV9000 – 64-bit Horizon RTR license

EC9624

NV9000 – 64-bit Encore RTR license

EC9625

NV9000 – 64-bit Probel RTR license

EC9626

NV9000 – 64-bit Sony RTR license

EC9627

NV9000 – 64-bit Jupiter (ESBUS) EXT IF license

EC9628

NV9000 – 64-bit Pesa RTR license

EC9629

NV9000 – 64-bit Probel EXT IF license

EC9630

NV9000 – 64-bit ISIS RTR license

EC9631

NV9000 – 64-bit DataTek RTR license

EC9632

NV9000 – 64-bit Sierra Video RTR license

EC9633

NV9000 – 64-bit EUPHONIX RTR license

EC9634

NV9000 – 64-bit NEXUS/STAGETEC RTR license

EC9636

NV9000 – 64-bit SONY ROT 16 license

EC9640

NV9000 – 64-bit Panasonic RTR license

EC9641

NV9000 – 64-bit NP EXT IF license

EC9650

NV9000 – 64-bit Tieline license

Windows 10 Upgrade Options

EC9644

NV9000 Windows 10 Upgrade FR0040-30
STANDALONE

EC9645

NV9000 Windows 10 Upgrade FR0040-30
REDUNDANT

EC9646

NV9000 Windows 10 Upgrade FR0040-40
STANDALONE

EC9647

NV9000 Windows 10 Upgrade FR0040-40
REDUNDANT

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