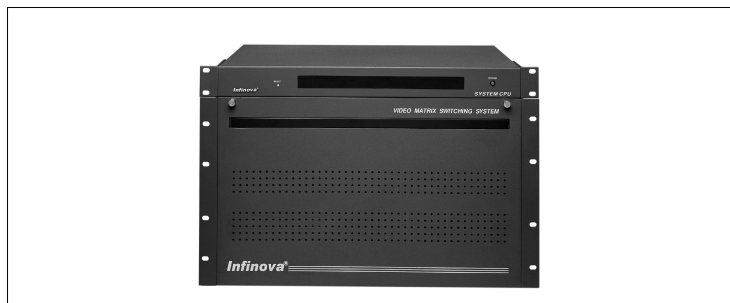


Networkable Video Matrix Switcher for high Camera and Monitor count combinations



ORDERING INFORMATION

V2040N-YYYY x ZZZ	120V/60Hz version with Networking capability, pre-configured matrix switching system including switcher bays, external CPU, input modules and output modules. YYYY x ZZZ specifies numbers of video inputs (in multiples of 16) and video outputs (in multiples of 4). For example, V2040N-1024 x 128 is a matrix with 1024 video inputs and 128 video outputs and networking capability is provided
V2040N-YYYYL x ZZZ	120 VAC / 60 Hz version with Networking and Video Looping capability
V2040NX-YYYY x ZZZ	230 VAC / 50 Hz version with Networking capability
V2040NX-YYYYL x ZZZ	230 VAC / 50 Hz version with Networking and Video Looping capability

ACCESSORIES

V2901	High density bay, including power supply module (120 VAC)
V2902	High density bay, bi-level, including power supply module (120 VAC)
V2901X	High density bay, including power supply module (230 VAC)
V2902X	High density bay, bi-level, including power supply module (230 VAC)
V2903DB	Data buffer module inter-bay connection
V2903DBVL	Data buffer with video loss detection (each for 256 video inputs and reducing one output), preconfigured
V2903DBVL-K	Data buffer with video loss detection (each for 256 video inputs and reducing one output), field conversion
V2903VI-1	Video input module (back card included), single bay
V2903VI-2	Video input module (back card included), two bays
V2903VIC	Video input card (without back card)
V2903VIB-1	Back card for video input module, single bay
V2903VIB-2	Back card for video input module, two bays
V2923CN	External CPU for V2040N Ethernet networkable switcher (NTSC / 120 VAC)
V2903PS	Power supply module (120 VAC)
V2903SPS-1	250W switch power supply module
V2924HS	Standalone hot switch for dual CPU operation, for V2040 switcher (120 VAC)
V2923CNX	External CPU for V2040N Ethernet networkable switcher (PAL / 230 VAC)
V2903PSX	Power supply module (230 VAC)
V2924HSX	Standalone hot switch for dual CPU operation, for V2040 switcher (230 VAC)
V2903VI-3	Video input module (back card included), level 2
V2903VI-4	Video input module (back card included), higher level
V2903VO-1	Video output module (back card included), single slot

DESCRIPTION

Infinova's V2040 video matrix switcher features comprehensive functions for any security surveillance system. They have pre-configuration to assure the highest level of reliability, and open architecture for ease of installation, operation and expansion. The V2040 series represents the peak of video matrix switching technology while remaining a highly cost effective solution. Utilizing microprocessor technology, the V2040 series can provide automated electronic surveillance or it can allow a single user to control an entire CCTV system of up to 1024 video inputs by 128 video outputs. In an automated environment, the user can pre-define up to 64 system tours, 64 salvos, 35 event timers, 5 alarm display modes and 3 alarm clearance modes to be performed separately on individual monitors. For maximum security, an available video-looping module provides an extension of the original video for output to a DVR or other recording device. The V2040 series communicates with controllers or PCs via either RS-232 data or TCP/IP protocols. An entire system of up to 64 nodes can be networked and controlled from one main station via TCP/IP protocols. In order to allow for Ethernet control and networking the V2040N comes with an external CPU. Infinova's V2040N series is also compatible with Infinova's smaller-scale networking video matrix switchers, including V2011N, V2015N and V2020N. An optional CPU featuring an integrated network video server for video over IP is also available. Windows-based system setup software simplifies the initial setup procedure as well as ongoing maintenance of system parameters. Available GUI software further simplifies the system operation by the utilization of an on-screen system keyboard which is a fully functional representation of Infinova's V2117. Users can be defined at different levels of administration to further enhance the security of the system.

FEATURES

- Up to 1024 video inputs by 128 video outputs
- TCP/IP network able up to 64 nodes; compatible with other TCP/IP network able switchers, V2011N, V2015N, and V2020N
- External CPU with optional "Hot Switch"
- Video over IP with PTZ controls (optional)
- Scalable high density architecture for easy expansion
- Windows-based multimedia management software
- Control of fixed or variable speed pan/tilt and dome cameras operating on Manchester, or RS-485 PTZ protocols.
- Available Internal video loss detection and video looping
- 10 flexible RS-232 ports, expandable to 40 using V2405-4
- 1 Ethernet port
- 64 tours, 64 salvos and 35 event timers
- Automatic alarm call-up, up to 1,024 alarm inputs
- Alarm transferred via Ethernet to remote Ethernet Matrix or computer
- 5 alarm display modes and 3 clearance methods
- Up to 64 switcher nodes can be inter-connected in one network
- Internal system partition including input-to-output display; keyboard-to-input display; keyboard-to-input control

ACCESSORIES

V2903VO-2	Video output module (back card included), double slots
V2903VIB-3	Back card for video input module, level 2
V2903VIB-4	Back card for video input module, higher level
V2903VOC	Video output card (without back card)
V2903VOB-1	Back card for video output, single slot
V2903VOB-2	Back card for video output, double slots

SPECIFICATIONS

Video

Video Input: 75 Ohm BNC, 1.0 V p-p Composite
 Maximum Inputs: 1,024
 Video Output: 75 Ohm BNC, 1.0 V p-p Composite
 Maximum Video Outputs: 128
 Amplitude-Frequency Characteristics: $\pm 1.0\text{dB}$ (5.8 MHz)
 Differential gain: $< 1.0\%$ (typical)
 Differential phase: $< 1.5^\circ$ (typical)
 S/N Ratio: $\geq 60\text{ dB}$ (typical)

Cross Talk

Adjacent channels: PAL: 55 dB (4.43 MHz)
 NTSC: 55 dB (3.58 MHz)
 Input to Input: PAL: 70 dB (4.43 MHz)
 NTSC: 70 dB (3.58 MHz)
 Return loss (input/output): $> 40\text{ dB}$
 DC level: 0V or 400mV

General

Bandwidth: 5Hz ~ 8 MHz
 Switching Speed: 20 ms (typical)
 Non-Volatile Memory: for a minimum of 5 years
 On-screen Display Items: video input number, date/time, video input titles (maximum characters 16) and monitor status

Keyboard Connections

Communication Protocol: RS-232 or Ethernet
 RS232 Ports: 10 (expandable to 40)
 Connection Type: 8-pin RJ-45 connector

BNC Connection

High-Speed Data Line: 2 BNC Connectors
 External Sync Input/Output: BNC Connectors
 Programming Monitor: BNC connector

Ethernet Connection

Data Interface: TCP/IP; IEEE 802.3 Compliant
 Connection Type: RJ-45
 Data Rate: 10/100 Mbps

Power Supply

Input Voltage: 120 VAC / 60Hz; 230 VAC / 50Hz
 Power Requirements: 60 W

Mechanical

Dimensions (HxWxD): 10.5" x 19.0" x 18.0"
 (266 mm x 483 mm x 457 mm)
 Package Size (HxWxD): 16.5" x 27.0" x 25.0"
 (419 mm x 686 mm x 635 mm)
 Unit Weight: 61.7 lbs. (28 kg)
 CPU Dimensions (HxWxD): 1.8" x 19.0" x 10.8"
 (44 mm x 482 mm x 275 mm)
 CPU Package Size (HxWxD): 5" x 22.0" x 15.5"
 (127 mm x 559 mm x 394 mm)
 CPU Weight: 6.6 lbs. (3 kg)
 CPU Shipping Weight: 8.5 lbs. (3.85 kg)
 Mounting: Rack mount
 Color: Black

Environmental

Temperature: 32° F ~ 140° F (0° C ~ 60° C)
 Humidity: 0~90% RH (non-condensing)

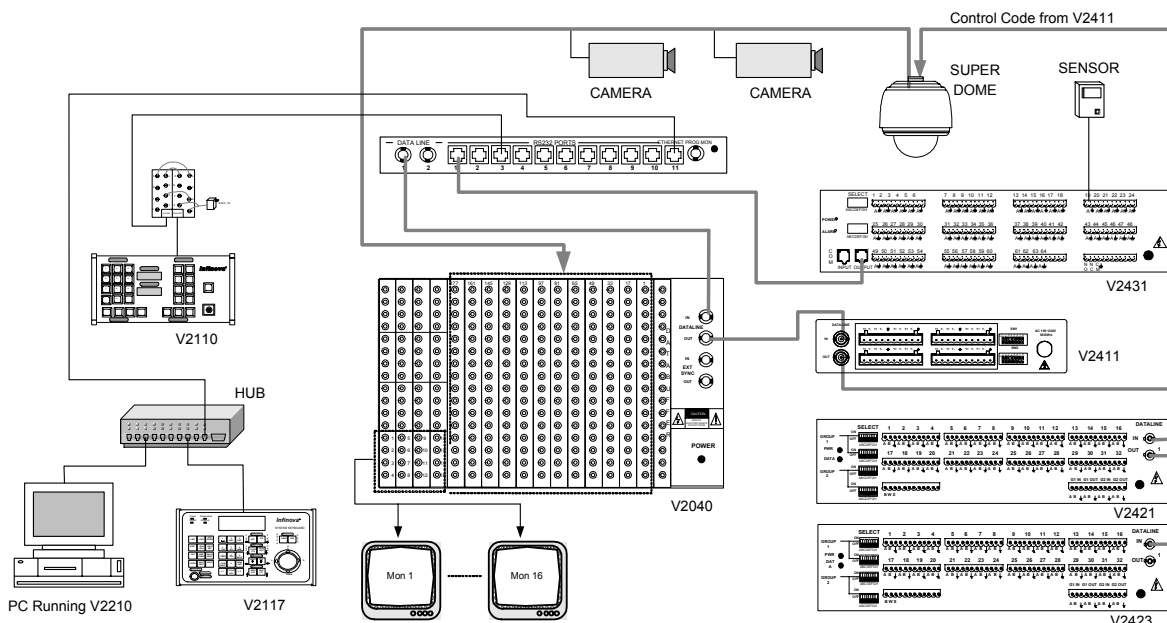
Certifications

CE V2040N, V2040NX
 ISO 9001:2000

Compliance

FCC Part 15 Class B V2040N, V2040NX
 UL Listed V2040N, V2040NX
 cUL Listed V2040N, V2040NX

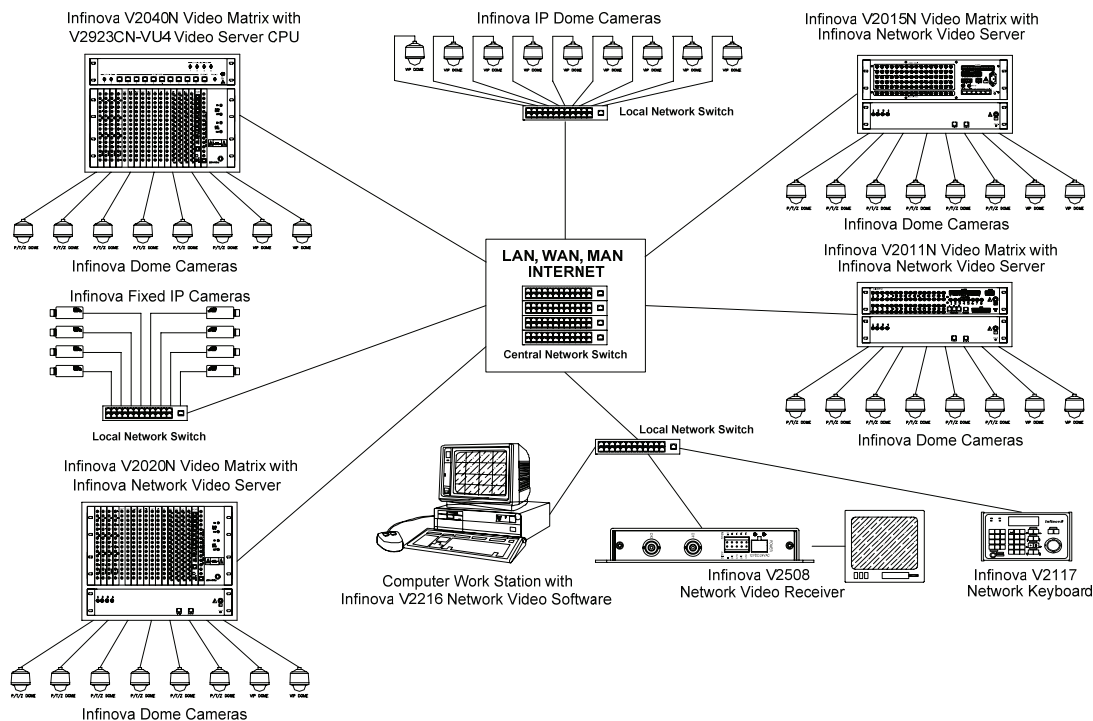
TYPICAL SYSTEM CONNECTIONS



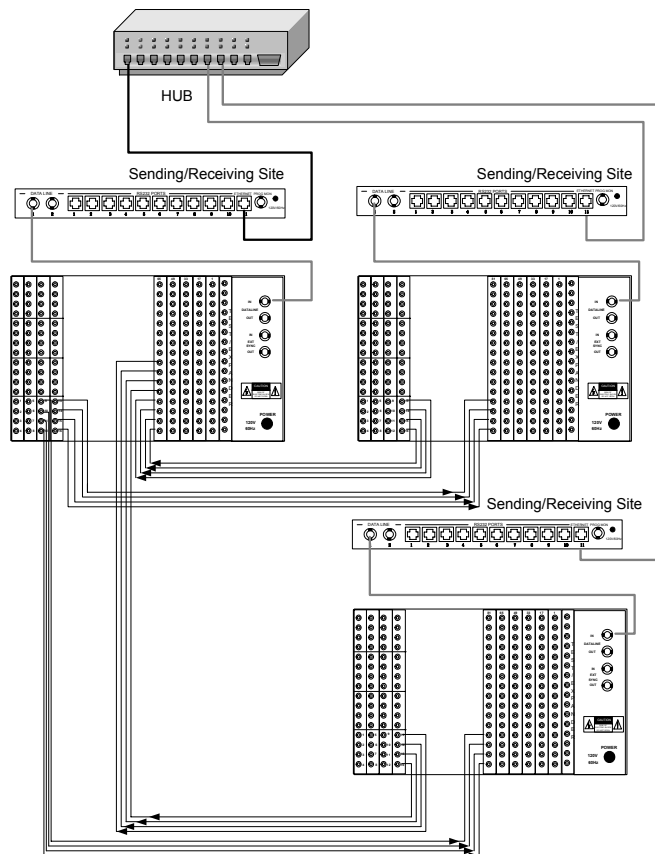
SYSTEM ACCESSORIES

V2117 System Keyboard	Full system programming and control Communicates with matrix switching systems via RS-232 or Ethernet LED displays of camera and monitor Direct control of Dome/PTZ via Manchester, RS-422, or RS-485 outputs Fixed and variable speed joystick
V2110 Operator Keyboard	4-Digit LED displays of camera and monitor Fixed and variable speed joystick Monitor tour programming and control Alarm Control Communicates with all Infinova matrix switching systems via RS-232
V2405-4 Port Expander	Expands each RS-232 port on the system's CPU into four RS-232 ports
V2411 V2411U Code Converter/Distributor	Convert 1 HSDL input into up to 16 Infinova RS-485 outputs Convert 1 HSDL input into up to 16 RS-422/RS-485 outputs (3rd party protocols)
V2431 Alarm Interface Unit	64 Alarm inputs (normally open or normally closed contacts) Multiple units can be cascaded on 1 RS-232 data stream Automatic alarm call-up and video switching Compatible with products from leading manufacturers
V2432 3 rd Party Alarm Firmware	Integrates 3rd party systems such as alarm, access controls, and smart buildings ASCII code interface
V2422 Alarm Follower	Provides 2 groups of 16 (32) Double Pole Form-A relays Relays follow alarm call-up Manually or automatically activates accessories such as DVR intensive recording Multiple units can be cascaded for system expansion
V2421 Switch Follower	Provides 2 groups of 16 (32) Double Pole Form-A relays Relays follow switching of camera to monitor Manually or automatically activates accessories such as intercoms or lighting Multiple units can be cascaded for system expansion
V2423 Auxiliary Follower	Provides 2 groups of 16 (32) Double Pole Form-A relays Relays respond to activation of linked camera auxiliary command Manually or automatically activates auxiliary accessories Multiple units can be cascaded for system expansion
V2210 User Interface Software	Windows-based Graphical User Interface Complete system control using on-screen keyboard Live video windows (with video capture card) E-maps control menus and icons, password encryption and login Convenient arming/disarming
V2923SW System Set-up Software	Windows based Upload and download setup data for easy system configuration

APPLICATION DIAGRAM HYBRID ANALOG AND VIDEO OVER IP NETWORKS - CAMERAS AND MATRIX SWITCHERS



NETWORK CONNECTION



V2040 Video Matrix Networking Features

- Up to 64 nodes can be connected to one network, each with an input/output capacity up to 1024x128
- Networking for large and small-scale systems including the V2011N, V2015N, and V2020N
- Compatible with Infinova IP video encoders for PTZ controllable video over IP
- Priority levels can be assigned to restrict operator access to equipment throughout the network
- An optional redundant CPU and Hot Switch can provide instant switchover in the event of primary CPU failure, with no loss of information or functionality
- Full hot-swap capability of all system cards

V2040 Video Matrix Networking System Description

By utilizing TCP/IP protocols for communication via a LAN/WAN, Infinova networking matrix switchers are uniquely equipped to satisfy the needs of large-scale systems that require multiple controlling nodes. The network can also include smaller-scale matrix switchers, such as the V2011N, V2015N, and V2020N that may be fully networked with the V2040N. The V2040 Matrix Switcher features open-architecture design, providing highly flexible, system expansion capabilities.

The V2040N Networking Matrix System is comprised of two parts: a V2040 video matrix switch that performs all local video switching functions; and an external CPU that stores system configuration information, and acts as a gateway for multiple system nodes to communicate via the network.

In a network configuration, each matrix switch is referred to as a node. Up to 64 nodes can be networked, with each node providing either network or local control, while retaining all of the original features of the local matrix. To identify network nodes, each CPU is allocated a unique IP address.

By utilizing a redundant CPU and a hot-switch, network CPU's can be configured with standby capabilities. The redundant CPU is constantly updated with all changes that are made to the main CPU. In the event of a primary CPU failure, the system will automatically switch all functions to the backup CPU without losing any stored information or capability.

V2040 configuration software provides:

- User Administration
- Network Configuration
- Event Programming
- Auxiliary Equipment Set-up
- System Partitioning Set-up
- Salvo/Tour Set-up
- Alarm Processing Configuration