

VideoBloX NetCPU Matrix Switching System

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EMBEDDED VIDEO MATRIX

Honeywell's VideoBloX matrix system is a robust video and audio full crosspoint matrix switch that is scalable from small to large applications. The matrix is controlled by a powerful cold fire embedded central processor that also has 16 channels of titled output expandable to 64 within the same chassis. Integration to access control and other systems is possible through a simple auxiliary control protocol. Its compact size and rugged chassis are designed to withstand harsh environments and require limited maintenance.

The VideoBloX embedded CPU is programmed using Windows-based configuration software. The system is expandable to 1248x256 on one CPU, and up to 15 systems can be networked together using RS422 or Ethernet and video trunks. A 2048x32 line sequence engine allows for building custom actions based on system events such as alarms, time of day or key presses, or externally triggered through the auxiliary port. The sequence engine allows the use of Flags, IF, ELSE and DO WHILE logic.

Both video and audio switching can be performed in the same chassis, allowing for compact design and simplified configuration for video and audio follower matrix. Modules are small—occupying only 1/2U in rack height—position independent and hot swappable. Matrix inputs can either be traditional BNC or unshielded twisted pair (UTP) (RJ45). UTP inputs further simplify system design by incorporating the active UTP receiver and switching hardware on one 1/2U, 16 channel input board.

Control of PTZ domes, alarm inputs and relay outputs is done through a general purpose input output (GPIO) card in the chassis. The GPIO card further simplifies design and installation, as all field devices can be connected directly to the chassis.

For remote protocol translation and alarm I/O, the multipurpose protocol interface translator (PIT) provides this functionality over RS422. The GPIO card and the PIT can be added to interface with serial devices such as DVRs.

Market Opportunities

The VideoBloX system is a full featured, high capacity, video and audio matrix. VideoBloX fits applications where a robust embedded controller is required. It provides a simple interface for third-party control for access control or Programmable Logic Controller (PLC). Its high density, compact design occupies smaller rack space, making it well suited for installations with limited space and harsh operating environments such as retail outlets, correctional facilities and airports. Fewer interconnects are required, thus saving material and labor costs.

Features

- Stainless steel fabrication
- High density, low profile design
- Audio, video, PTZ data and alarm I/O in the same chassis
- Modules are position independent and "hot-swappable"
- Redundant power supply available
- Multiple chassis may be interlinked to create large systems
- Configuration updates done in real time, without system interruption
- Powerful 2048x32 line sequence engine for custom event handling
- Powerful onscreen diagnostic monitoring tools
- Multi-monitor groups and scenes allow for logical camera selection
- Embedded CPU controller ensures robust and reliable operation
- Multiple system CPUs can be networked together via RS422 or LAN
- Keyboards connect through RS422 or LAN



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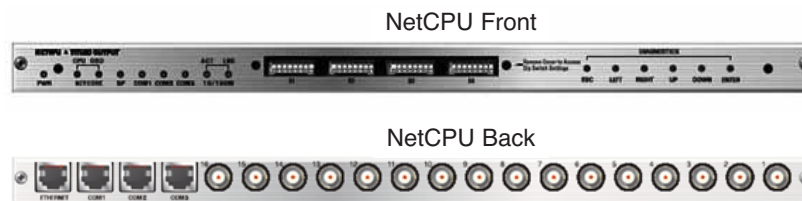
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SPECIFICATIONS

Central Processing Unit (CPU)

The VideoBloX embedded CPU is the main system processor and contains the operating program and the system database in non-volatile memory that can retain critical data for up to one month without power. As well as being the CPU for the matrix, the card has 16 channels of titled output. The CPU allows for 1,248 inputs and 256 outputs on a single CPU with up to 15 CPU nodes. Nodes can be connected over RS422 or LAN/WAN. Up to 32 keyboards and 255 users are supported. PTZ data and alarm I/O is translated to the CPU through the GPIO or PIT module. The NetCPU supports 6,000 alarm inputs, 1,000 outputs received from GPIO. 1,024 messages each with 40 characters wide can be defined and triggered from sequences. The NetCPU contains a web browser that allows the system firmware to be upgraded remotely.

The CPU communicates with peripherals through four rear termination RJ45 terminals. COM ports 1-3 support either RS232, RS485 or RS422 and there is one Ethernet port. COM 1 supports the auxiliary protocol for connection to third party systems, COM 2 supports the VideoBloX satellite protocol for communication to other NetCPU nodes, and COM 3 supports keyboards and PIT devices. The Ethernet port is used for configuration software, network keyboards, GUI software and satellite communications to other NetCPU nodes.



Chassis

Designed specifically to reduce the space required for a matrix switch, the chassis has a high density, low profile format. It will mount in an industry standard 19 inch rack and has a depth of less than 10 inches. The compact design reduces rack size, saves space, limits the amount of interconnection cabling, produces less heat and is easier to install – all of which add up to lower installation and maintenance costs. System chassis are available in 2U, 4U, 8U and 12U sizes and all except the 2U support 64 output channels.

Modules in the chassis are hot swappable and position-independent. Removal of any input/output or interlinking modules is done without disconnecting cables by using the rear termination panels. This greatly reduces maintenance time and interruption of the system.

Multiple chassis can be interlinked, providing the system designer with the flexibility of distributing the system throughout the site or even to remote sites with the appropriate communications network. The chassis includes an internal power supply module (except 2U), which connects to the main power supply. A secondary power supply of 24 VDC can be connected to the chassis and powered from a separate main circuit for power supply redundancy.

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SPECIFICATIONS

Video Input/Output Modules

Composite video is received into the chassis through the 16 channel BNC rear termination panel or, in the case of the UTP input board, through four RJ45s. Three versions of video input boards switch video from the 16 inputs to any one of 16, 32 or 64 output bus channels. Each video input board performs video loss detection and incorporates its own processor and power regulation for true distributed processor architecture.

Each Input card has power and communications LED and the UTP card has LEDs for each video input. UTP input modules have a range selection for 0-1500' and 1500-3000' as well as a gain potentiometer for each input.

The UTC card provides "up the coax" control for Honeywell ACUIX™, ACUIX™ ES, and RapidDomes. Three versions of the UTC card switch video from the 16 inputs to any one of 16, 32 or 64 output bus channels. Similar to the UTP input board, each version of UTC card also performs video loss detection and incorporates its own processor and power regulation.

Additional versions of rear termination allow video to be looped out of the chassis, either using BNCs or an IDC style mini coax cable to a remote rackmount BNC panel.

Video output modules connect 16 of the available 64 output bus channels to monitors or other video receivers. The rear termination consists of 16 BNCs. Video output modules overlay system titling in an 18 line by 44 character array with changeable fonts and multi-language character support. The video output module contains a web browser that allows the system firmware to be upgraded remotely.

Alarm Input/Output, PTZ Data and DVR Control

GPIO Module

The GPIO module fits in the VideoBloX chassis and occupies 1/2U. It has 4 PTZ data ports that are individually selectable between 3 Honeywell and 5 other manufacturer PTZ protocols. The GPIO also has a unique "user defined protocol" that allows the end user to program a protocol that the GPIO may not support.

The GPIO supports 24 (N/O, N/C or EOL) alarm inputs and four relay outputs. The module has an Ethernet port for firmware upgrading and local board configuration. One of the PTZ ports can be configured to control third party devices. This requires the serial control protocol of that device to be added to the NetCPU devices database.

GPIO Front



GPIO Back



Protocol Interface Translator (PIT)

The PIT is a versatile device that provides the capability for interface to high speed PTZs and also converts VideoBloX protocol to that of other manufacturers, enabling retrofit installation to third party equipment. The VideoBloX system supports protocol from Honeywell and up to 25 other manufacturers utilizing RS232/RS485. Simple DIP switch configuration selects a variety of protocols through a DB9 using RS422 format.



The PIT also has an I2C port that allows connection of 16 alarm input and alarm output modules. This allows remote connectivity of up to 255 alarms all transmitted over a single RS422 link. This reduces the need to cable each alarm point back to the matrix.

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Audio Input/Output Modules

Audio inputs are received through RJ45 rear termination panel and receive 16 channels of balanced or unbalanced audio and can switch up to 64 outputs. The audio module has gain adjustment on the front panel, overload (peak) indications, phantom powering option, 20 dB pads to cater for a wide range of input signal levels, and high pass and low pass filter options.

Interlink Input/Output Modules

When larger input size matrices are required; for example, greater than 320x64, multiple VideoBloX chassis can be interlinked utilizing the same NetCPU.

Interlink input cards are located in the chassis containing the output cards and these connect to the remote chassis Interlink output cards. Interconnection uses a UTP cable so cabling is done by CAT5 cable and RJ45s. A standard network patch cable is compatible.

UltraKey Lite Keyboard

The UltraKey Lite is a programmable joystick keyboard controller that provides the operator with full control of the VideoBloX system. Basic functions such as switching video inputs to video outputs, controlling high speed domes and DVRs are all easily performed using the 16 multipurpose function keys. The function keys can be mapped to groups, scenes or sequences for a quick view of selected cameras. Firmware can be upgraded using the web browser.



Connectivity to the NetCPU is either through RS422 or Ethernet.

Data Port Expander (DPE)



The HVB422FT16 is a 1 input/16 output 1U RS422 data distributor. The HVB422C4 is a 1 input/4 output data distributor. The DPE is used to connect multiple devices such as chassis, PITs or keyboards to the NetCPU.

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VideoBloX Configuration Software (VideoNetCFG)

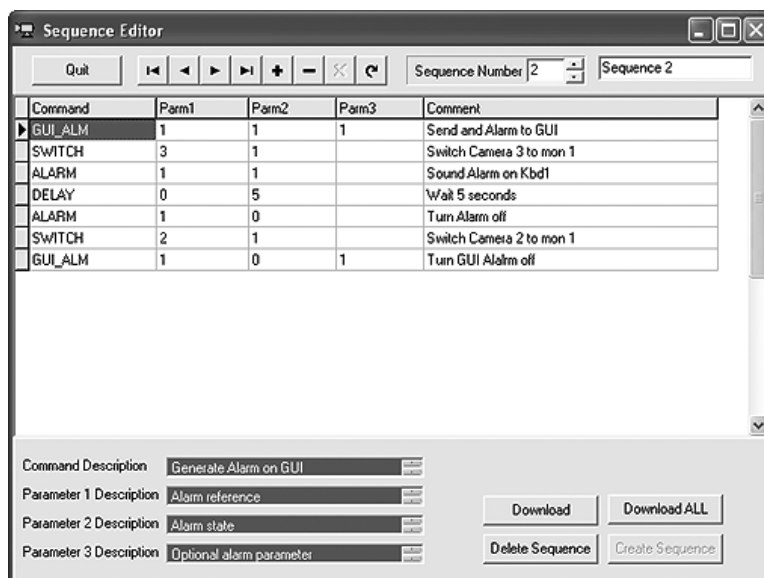
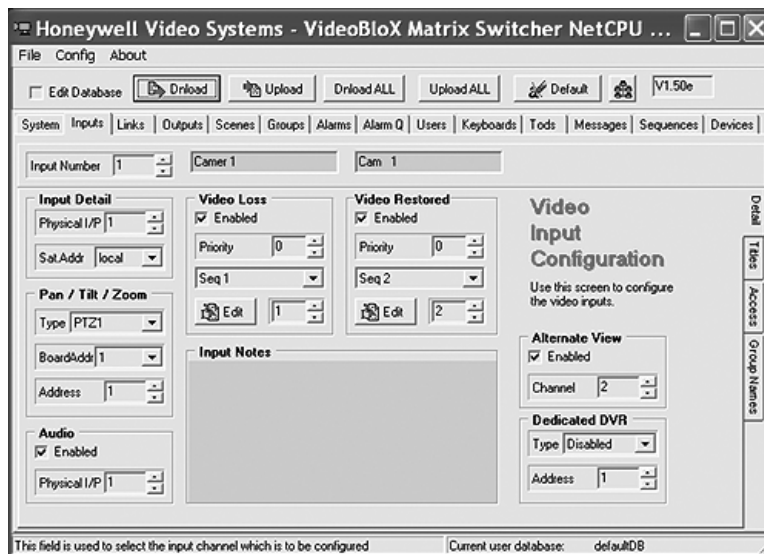
The configuration software is a 32-bit application that is compatible with Windows 95/98/NT/2000/XP, and provides easy-to-use programming for system configuration.

The software is installed in a PC that is only required for system configuration and editing. It does not have to be permanently connected to the NetCPU.

The system utilizes a 32-bit, ODBC-compliant, Borland Paradox 7.0 database manager. Data is organized into tabbed folders, each representing a logical function. Information is entered into named fields or selected from a list of parameters.

Interactive "help" is available to assist the user.

The CFG application connects through the Ethernet port allowing for remote configuration of the NetCPU.



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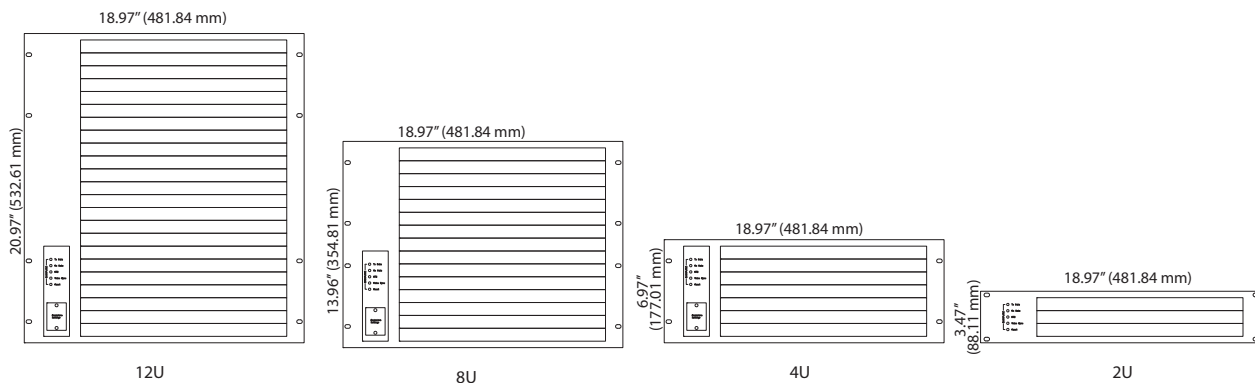
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SPECIFICATIONS

Operational	
Video Inputs	16 BNC or RJ45 for UTP option
Bandwidth*	20 MHz @ -3 dB
Frequency Response*	12.1 @ ±0.5 dB
Differential Gain*	0.35%
Differential Phase*	0.78%
Luminance Non Linearity*	.48%
Crosstalk*	-62.8 dB @ 3.58 MHz
Gain*	99.9%
Tilt*	.94%
Signal to Noise Ratio (EIA)*	-70.3 dB
Switching Time	<0.5 sec
Video Outputs	16 BNC
OSD	16 Lines x 44 characters

* Test condition: 12U chassis, 160x64 BNC input NTSC using 12U, HVBM64, HVBNET16TO

Electrical	
Chassis	110V/50 Hz or 220 VAC/60 Hz
Chassis Redundant	24 VDC (Not supplied)
Power Consumption	2U: 40 VA 4U: 80 VA 8U: 120 VA 12U: 160 VA
Mechanical	
Construction	Chassis: Brushed stainless steel
Dimensions (W x H x D)	See Diagrams
Weight	2U Chassis: 15 lbs (6.8 Kgs) 4U Chassis: 30 lbs (13.6 Kgs) 8U Chassis: 60 lbs (27.2 Kgs) 12U Chassis: 90 lbs (40.8 Kgs)
Environmental	
Temperature	32°F to 104°F (0°C to 40°C)
Relative Humidity	0-80% non-condensing
Regulatory	
Emissions	FCC Part 15, Subpart B, Class A CE: 61000-6-3:2007
Immunity	CE: 50130-4/A2:2003
Safety	CE: EN60065

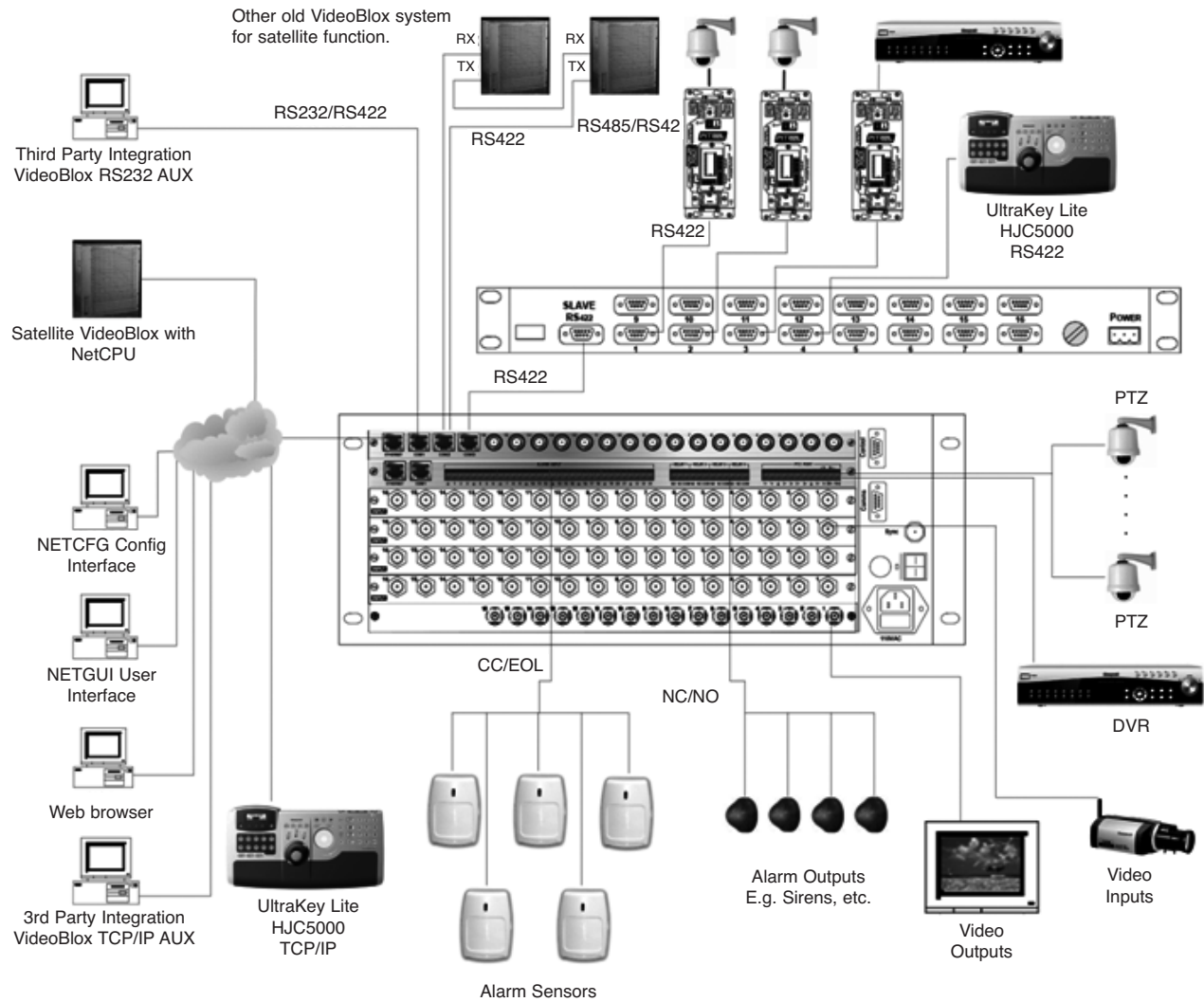


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SYSTEM DIAGRAM



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ORDERING

Ordering	
CPU and Software	
HVBNET16CPU	Embedded CPU Controller for VideoBloX and 16 titled outputs includes CPU module and rear termination. PAL/NTSC DIP switch selectable. Accessories included
WANETCPUACC	Accessories kit, includes CD with CFG software and documentation, RJ45 to DB9F, RJ45 to DB9M, 3 x RJ45 network cable 2M, Quick Start Guide
Chassis	
HVB12U (NTSC) HVB12UX (PAL)	VideoBloX Chassis – 12U, supports 23 modules, maximum size is 336 inputs by 32 outputs or 304 inputs by 64 outputs
HVB8U (NTSC) HVB8UX (PAL)	VideoBloX Chassis – 8U, supports 15 modules, maximum size is 208 inputs by 32 outputs or 176 inputs by 64 outputs
HVB4U (NTSC) HVB4UX (PAL)	VideoBloX Chassis – 4U, supports 7 modules, maximum size is 80 inputs by 32 outputs or 48 inputs by 64 outputs
HVB2U	VideoBloX Chassis – 2U, supports 3 modules, maximum size is 32 inputs by 16 outputs. Requires 18 VAC or 24 VDC power
HVB2U-KT	HVB2U and 24 VDC power supply
Video Input and Output Modules	
HVBM16	Video Input Module – 16 inputs into 16 outputs with BNC terminals – terminating
HVBM32	Video Input Module – 16 inputs into 32 outputs with BNC terminals – terminating
HVBM64	Video Input Module – 16 inputs into 64 outputs with BNC terminals – terminating
HVB16M64ATP	Video Input Module – 16 inputs into 64 outputs with active UTP receivers on RJ45 and IDC ribbon looping output
HVB16M64TP	Video Input Module – 16 inputs into 64 outputs with active UTP receivers on RJ45 and with BNC looping output
HVB16M64Y	Video Input Module – 16 inputs into 64 outputs with IDC ribbon cable input and looping BNC terminal outputs or reverse
HVBM16UTC	Video Input Module – 16 inputs into 16 outputs with “up the coax” PTZ control – BNC terminals terminating
HVBM32UTC	Video Input Module – 16 inputs into 32 outputs with “up the coax” PTZ control – BNC terminals terminating
HVBM64UTC	Video Input Module – 16 inputs into 64 outputs with “up the coax” PTZ control – BNC terminals terminating
HVB16M64B	Crosslink Style “B” rear termination for video output capacity expansion beyond 128 outputs – rear termination only
HVBNET16TO	Video Output Module – 16 outputs with titles with BNC terminals
HVB16O	Video Output Module – 16 outputs with no titles and BNC terminals

Ordering Continued	
Audio Modules	
HVB16AM64	Audio Input Modules – 16 inputs into 64 outputs – RJ45 termination
HVB16AO	Audio Output Module – 16 balanced outputs
Chassis Interlink Modules	
HVB32LKI	Video Interlink Input Module with RJ45 interconnections – 32 Interlinks, for connecting chassis for input expansion
HVB32LKO	Video Interlink Output Module with RJ45 interconnections – 32 Interlinks, for connecting chassis for input expansion
Chassis Accessories	
HVB16MLP	Rear Termination Panel with 16 looping inputs, chassis mount, uses 2 slots
HVB32PATCH	1U x 19” rack mount 32 BNC looping panel, requires 2 HVB16COAX2M or 2 HVB16COAX
HVB16COAX2M	Crosslink ribbon cable – 16 channel video coax interconnect – 79” (200 cm) long. Use with HVB16M64B, HVB16M64Y or HVB32PATCH
HVB16COAX	Crosslink ribbon cable – 16 channel video coax interconnect – 25” (63.5 cm) long. Use with HVB16M64B, HVB16M64Y or HVB32PATCH
HVB2BLANK	Blank Cover Set (front and rear), 2 slots
HVBBLANK	Blank Cover Set (front and rear), 1 slot
Keyboards	
HJC5000	Control keyboard with integral zoom joystick, touch wheel and 20 function keys, includes power supply for all regions. RS422 or Ethernet control
Alarm Inputs/Outputs	
HVB12C16I	16 Alarm Input unit - For use with dry contact points
HVB12C16O	16 output 1A/channel – total max. 8A
HVBGPIO	General purpose input output board and protocol translator 24 Alarms (EOL or CC), 4 relays (rating 1A@50V), 4 RS485 data ports, one port RS422 or RS232 PTZ protocols (Address range): VCL (128), Diamond (128), Intellibus (128), Pelco D (128), Pelco P (32), Panasonic (99), AD (99). No more than 32 PTZ per port is recommended Protocol translation of MAX sub rack data to VideoBloX sub rack data
Data Port Expanders	
HVB232422	Optically isolated RS232 to RS422 converter
HVB422C4	RS422 4 Channel Combiner/Splitter, use to distribute data to keyboards or PIT module, excludes power supply
HVB422C4-KT	HVB422C4 including power supply
HVB422FT16	RS422 Data Port Expander/Repeater 16 channel, rack mountable, excludes power supply
HVB422FT16-KT	HVB422FT16 including power supply

NOTE: Honeywell reserves the right, without notification, to make changes in product design or specifications

Automation and Control Solutions

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