Honeywell

VideoBloX NetCPU Matrix Switching System

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 a 1/2U size module 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 Ethernet and video trunks. A 1024x25 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 matrices. Modules are 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

VideoBloX fits applications where a robust embedded controller is required. It provides a simple interface for third-party control, for example access control or, PLC. Its high density, compact design occupies smaller rack space making it well suited for installations with limited space and operating environments such as retail outlets, correctional facilities and airports. Fewer interconnects are required, thus saving material and labour 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 1024x25 line sequence engine for custom event handling
- Powerful on-screen 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 RS232, RS422 or LAN

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SPECIFICATIONS

Central Processing Unit (CPU)

The VideoBloX embedded CPU is the main system processor and contains the operating programme 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 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 6000 alarm inputs and 1000 outputs received from GPIO. 1024 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.

NetCPU Front

NetCPU Back

Chassis with Video Input, Output Modules and Chassis Interlinking Modules

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 (254mm). 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.

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 LEDs 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.

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 16 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 three Honeywell and five other manufacturers' PTZ protocols. The GPIO also has a unique 'user defined protocol' that allows the end user to programme 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 utilising 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.

SPECIFICATIONS

Audio Input/Output Modules

Audio inputs are received through the 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 utilising 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 Plus Keyboard

The UltraKey Plus is a programmable joystick controller with a colour touch screen LCD that can easily be configured with hundreds of menus and accessed dynamically using both hard key and soft key selections.

Multiple control interface options are available including RS232, RS485, RS422 and Ethernet, with Power over Ethernet (PoE). And the UltraKey Plus has a web browser that can be used to configure basic parameters and upgrade firmware. It offers unsurpassed control of any function within the video management system for any market.

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.

SPECIFICATIONS

### 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 on a PC that is required for system configuration and editing only. It doesn't have to be permanently connected to the NetCPU.

The system utilises a 32-bit, ODBC-compliant, Borland Paradox 7.0 database manager. Data is organised 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.
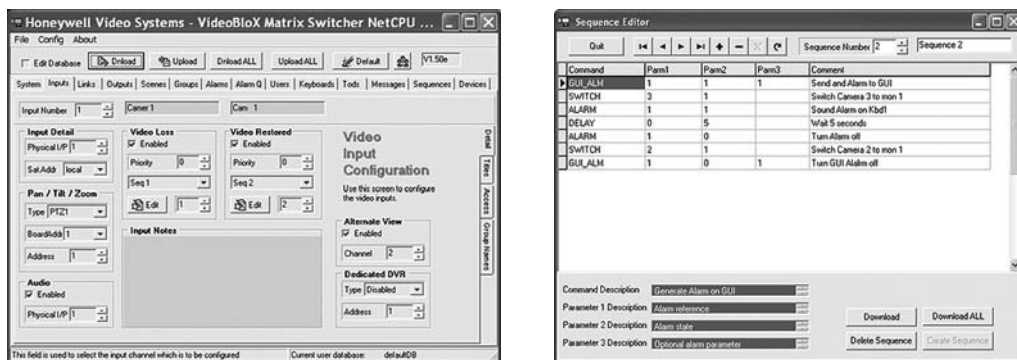
VideoBloX Graphical User Interface (VideoNetGUI)

This graphical software allows for rapid camera selection from area maps. It also allows for control of PTZ and CCTV peripherals. It alerts operators instantly to alarms and displays the alarm location.
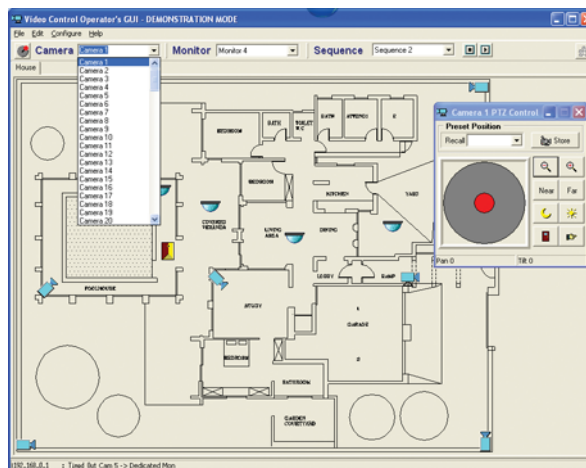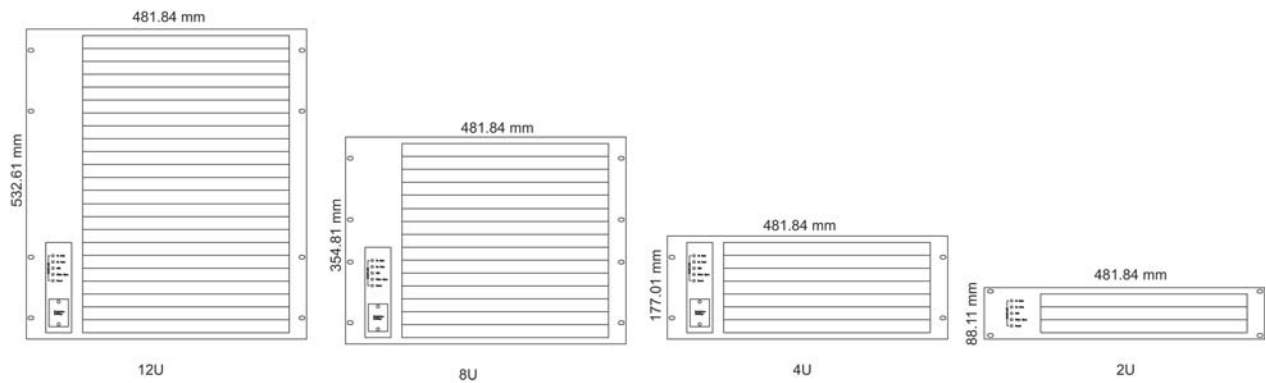
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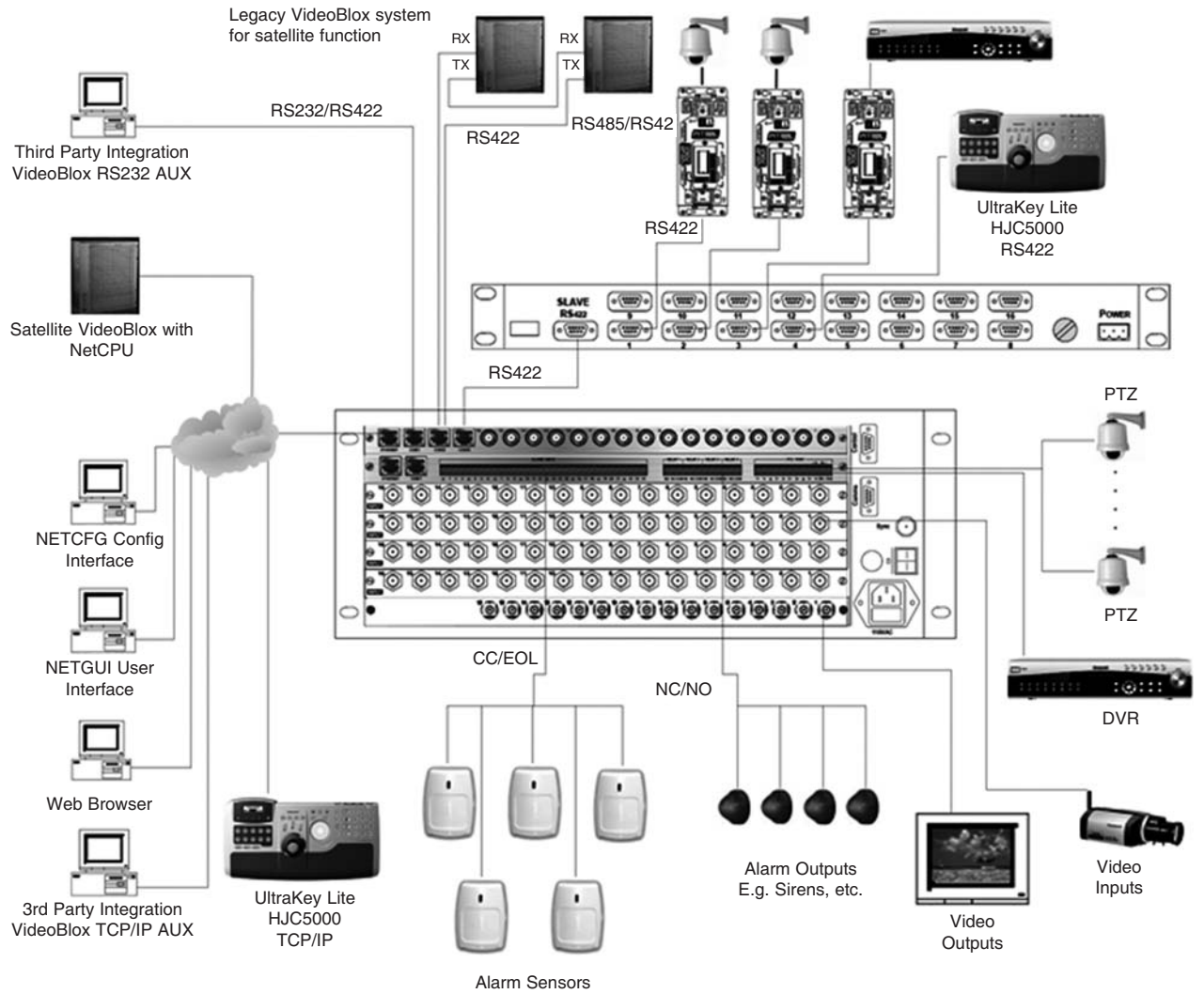| Operational	
Video Inputs	16 BNC or RJ45 for UTP option
Bandwidth*	20 MHz @ -3 dB
Frequency Response*	12.1 @ ±0.5 dB
Differential. Gain*	0.35%
Differential. Phase*	0.78%
Luminance Non Linearity*	0.48%
Crosstalk*	-62.8 dB @ 3.58 MHz
Gain*	99.9%
Tilt*	0.94%
Signal to Noise Ratio (EIA)*	-70.3 dB
Switching 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: 6.8 Kgs 4U Chassis: 13.6 Kgs 8U Chassis: 27.2 Kgs 12U Chassis: 40.8 Kgs

Environmental	
Temperature	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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Honeywell

SYSTEM DIAGRAM

Legacy VideoBlox system for satellite function

RX   RX
TX   TX

RS232/RS422

Third Party Integration
VideoBlox RS232 AUX

RS422

RS485/RS42

RS422

UltraKey Lite
HJC5000
RS422

Satellite VideoBlox with
NetCPU

RS422

SLAVE
RS422

POWER

RS422

PTZ

NETCFG Config
Interface

NETGUI User
Interface

Web Browser

3rd Party Integration
VideoBlox TCP/IP AUX

UltraKey Lite
HJC5000
TCP/IP

CC/EOL

NC/NO

Alarm Outputs
E.g. Sirens, etc.

PTZ

DVR

Video
Inputs

Video
Outputs

Alarm Sensors

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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. Accessory kit included (CD with CFG software and Documentation, RJ45 to DB9F, RJ45 to DB9M, 3 x RJ45 Network cable 2M, Quick start guide)
HVBNETGUI	VideoBloX Windows 2000/XP/7 Graphical User Interface Software (one required per work station)

Chassis

HVB12UX (PAL)	VideoBloX Chassis - 12U, supports 23 modules, maximum size is 336 inputs by 32 outputs or 304 inputs by 64 outputs.
HVB8UX (PAL)	VideoBloX Chassis - 8U, supports 15 modules, maximum size is 208 inputs by 32 outputs or 176 inputs by 64 outputs.
HVB4UX (PAL)	VideoBloX Chassis - 4U, supports 7 modules, maximum size is 80 inputs by 32 outputs or 48 inputs by 64 outputs.
HVB2UX	VideoBloX Chassis - 2U, supports 3 modules, maximum size is 32 inputs by 16 outputs. Includes 24 VAC 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
HVBM16UTC	Video Input Module - 16 inputs into 16 outputs with UTC function, use with HVBNET16TO
HVBM32UTC	Video Input Module - 16 inputs into 32 outputs with UTC function, use with HVBNET16TO
HVBM64UTC	Video Input Module - 16 inputs into 64 outputs with UTC function, use with HVBNET16TO
HVB16TPTX	Video Input Module - 16 BNC inputs with active UTP transmitters on RJ45 looping outputs
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
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 without titles and BNC terminals

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 – 200 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.
HJK7000	Programmable joystick keyboard with colour touch screen includes 100-240 VAC power supply, RJ45 to DB9F (RS232), RJ45 to DB9M (RS422), RJ45 network cable, RJ11 4x6 ribbon cable.

Alarm Inputs/Outputs

HVBI2C16I	16 Alarm Input unit - For use with dry contact points
HVBI2C16O	16 Output 1A/channel - total max. 8A
HVBGPIO	General Purpose Input Output board and protocol translator. 24 Alarms (EOL or CC), 4 relays (rating1A@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
HVB422FT16	RS422 Data Port Expander/Repeater 16 channel, rack mountable, excludes power supply
HVBPIT44	RS422 to RS422 converter to be used for 3rd party product, excludes power supply

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

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