

**Honeywell**

**HVB16M64TP**  
**HVB16M64ATP**

**Video Input Module**

**Installation Instructions**

## History

Issue	Date	Revisions
1.00	Aug. 2006	Initial Release

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## FCC COMPLIANCE STATEMENT

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**Note** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

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**Caution** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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## CANADIAN COMPLIANCE STATEMENT

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This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la Classe B est conforme à la norme NMB-003 du Canada.



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**Caution** Users of the product are responsible for checking and complying with all federal, state, and local laws and statutes concerning the monitoring and recording of video and audio signals. Honeywell Video Systems shall not be held responsible for the use of this product in violation of current laws and statutes.

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## IMPORTANT SAFEGUARDS

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1. **READ INSTRUCTIONS** - All safety and operating instructions should be read before the unit is operated.
2. **RETAIN INSTRUCTIONS** - The safety and operating instructions should be retained for future reference.
3. **HEED WARNINGS** - All warnings on the unit and in the operating instructions should be adhered to.
4. **FOLLOW INSTRUCTIONS** - All operating and use instructions should be followed.
5. **CLEANING** - Unplug the unit from the outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
6. **ATTACHMENTS** - Do not use attachments not recommended by the product manufacturer as they may result in the risk of fire, electric shock, or injury to persons.
7. **WATER AND MOISTURE** - Do not use this unit near water or in an unprotected outdoor installation, or any area which is classified as a wet location.
8. **ACCESSORIES** - Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult and serious damage to the equipment. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions and should use a mounting accessory recommended by the manufacturer. Wall or shelf mounting should follow the manufacturer's instructions and should use a mounting kit approved by the manufacturer.
9. A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.
10. **VENTILATION** - Slots and openings in the cabinet and the back or bottom are provided for ventilation and to ensure reliable operation of the equipment and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. Equipment should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation, such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
11. **POWER SOURCES** - This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your facility, consult your product dealer or local power company.
12. **GROUNDING OR POLARIZATION** - The unit must be connected to a good earth ground.
13. **OVERLOADING** - Do not overload outlets and extension cords as this can result in a risk of fire or electric shock.
14. **POWER-CORD PROTECTION** - Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords and plugs, convenience receptacles, and the point where they exit from the monitor.
15. **OBJECT AND LIQUID ENTRY** - Never push objects of any kind into this unit through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the unit.

16. **SERVICING** - Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
17. **DAMAGE REQUIRING SERVICE** - Unplug the unit from the outlet and refer servicing to qualified service personnel under the following conditions:
  - a. When the power-supply cord or plug is damaged.
  - b. If liquid has been spilled, or objects have fallen into the unit.
  - c. If the unit has been exposed to rain or water.
  - d. If the unit does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of any controls may result in damage and will often require extensive work by a qualified technician to restore the unit to its normal operation.
  - e. If the unit has been dropped or the enclosure has been damaged.
  - f. When the unit exhibits a distinct change in performance - this indicates a need for service.
18. **REPLACEMENT PARTS** - When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.
19. **SAFETY CHECK** - Upon completion of any service or repairs to this unit, ask the service technician to perform safety checks to determine that the unit is in proper operating condition.
20. **LIGHTNING AND POWER LINE SURGES** - For added protection of this unit during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the cable system. This will prevent damage to the unit due to lightning and power-line surges.
21. **HEAT** - The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.
22. **INSTALLATION** - Do not install the unit in an extremely hot or humid location, or in a place subject to dust or mechanical vibration. The unit is not designed to be waterproof. Exposure to rain or water may damage the unit.
23. **WALL OR CEILING MOUNTING** - The product should be mounted to a wall or ceiling only as recommended by the manufacturer

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## EXPLANATION OF GRAPHICAL SYMBOLS

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**Caution** The exclamation point within an equilateral triangle advises the user that failure to take or avoid a specified action could result in loss of data or damage to the equipment.

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**WARNING!** The exclamation point within an octagon advises users that failure to take or avoid a specified action could result in physical injury to a person or irreversible damage to the equipment.

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## WARNINGS

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**WARNING!** To reduce the risk of fire or electric shock, do not expose this product to rain or moisture.

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**WARNING!** Do not insert any metallic object through the ventilation grills.

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**WARNING!** This unit must be properly grounded to a good earth ground. Non-observance of this practice may result in a static electricity build-up that may result in an electric shock when external connections are touched.

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# INTRODUCTION

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## PRODUCT DESCRIPTION

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Unshielded Twisted Pair cabling is a proven installation method that can reduce the cost of a CCTV system and provide high immunity to interference from noise generating equipment. Honeywell's HVB16M64TP video input module with built in active UTP receiver, allows for direct connection to UTP cabling via a simple RJ45 connector.

The Video Input Modules provide the source of the video for the VideoBloX Cross Point Matrix Switch. Installed in the matrix chassis, each occupying only a single 1/2U slot, they are position independent and can be removed while the switch is powered on. Fabricated from stainless steel, the faceplate and rear termination panels provide both a sophisticated look and improved grounding to reduce static problems. Manufactured from the highest quality components and utilizing surface mount technology, the modules provide near broadcast quality video with minimum degradation. Advanced circuitry provides protection against over-voltage and on-board power supplies provide uniform power and evenly distributed heat dissipation.

Video Input Modules with UTP have capacity for 16 video inputs connected to (4) RJ45 plugs - (16) BNC outputs allow the video signal to be looped through for connection to other devices such as monitors, DVRs or Enterprise DVRs.

The front panel includes power and communication diagnostic LEDs for the module and individual Video Present LED's for each channel. A switch for each channel allows for selection of short (1,500 ft / 500 meters) or long (3,000 ft / 1,000 meters) distance applications. A gain adjustment potentiometer provides fine adjustment of the video signal. The modules are available as 16 inputs switched into 64 outputs.

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## PACKAGE CONTENTS

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- HVB16M64TP including main board and rear panel (terminal) with BNC Outputs
- or**
- HVB16M64ATP including main board and rear panel (terminal) with IDC connector, ribbon coaxial cable output

INTRODUCTION

**Notes:**

# INSTALLATION

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## DIP SWITCH SETTINGS

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The HVB16M64TP has three 8-position DIP switches for configuring the module.

**Table 2-1 DIP Switch Settings**

SW1.1	A0	Input Address
SW1.2	A1	
SW1.3	A2	
SW1.4	A3	
SW1.5	A4	
SW1.6	A5	
SW1.7	A6	
SW1.8	A7	
SW2.1	A8	Input Address
SW2.2	A9	
SW2.3	A10	
SW2.4	B0	Output Address
SW2.5	B1	
SW2.6	B2	
SW2.7	B3	
SW2.8	B4	
SW3.1	Future Use	
SW3.2		
SW3.3	On: Function A	
SW3.4	On: Function B	
SW3.5	On: Function C	

**Table 2-1 DIP Switch Settings**

SW3.6	On: Switch 1 to 1
SW3.7	On: Test Mode
SW3.8	Future Use

DIP Switches S1 (1-8) and S2 (1-3) define the card's address in a binary format and is set to represent the camera range. For cameras 1-16 set the address to 1, cameras 17-32 set to 2, etc.

DIP Switch S2 (4-8) sets the monitor group in binary format. Example: all off = card is in a chassis for monitors 1-64. S2, 4 on = card is in a chassis for monitors 65-128.

DIP Switch S3 (1-2 & 8) not used, set to off.

DIP Switch S3 (3-5) Only switch 3 has been implemented. When switch 3 is on will mute reply's back to the CPU. Used for systems that have 2 or more input cards with the same address (e.g. systems with more than 64 outputs).

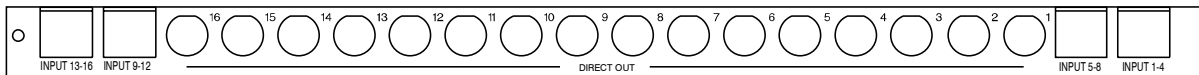
S3 (6) is used for testing to switch 16 cameras to the outputs. If the address is 1, camera 1-16 will be switched to monitors 1-16. If the address is 2, cameras 1-16 will be switched to monitors 17-32, etc.

S3 (7) is a test mode that will randomly switch cameras to monitors. Used by manufacturing.

## HVB16M64TP REAR PANEL

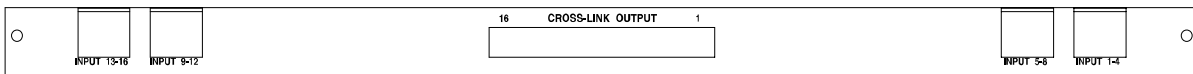
There are two types of rear panels available:

1. Model HVB16M64TP provides four unshielded twisted pair RJ45 connectors for video inputs and 16 BNC connectors for video outputs. The BNC connectors are for connecting to other devices such as a monitor or DVR using a coaxial cable with BNC connectors on both ends.



**Figure 2-1 Model HVB16M64TP Rear Panel**

2. Model HVB16M64ATP provides four unshielded twisted pair RJ45 connectors for video inputs and an IDC connector for video outputs. The IDC connector is for connecting to other inputs or devices using a 16-position coaxial looping cable such as the HVB16COAX, HVB16COAX2M, or equivalent 75 ohm coaxial ribbon cables.



**Figure 2-2 Model HVB16M64ATP Rear Panel**

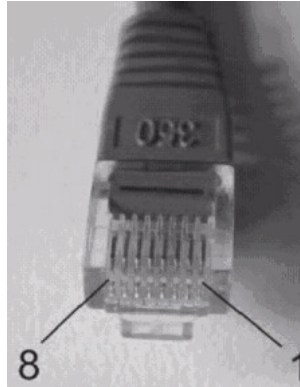
**Table 2-2 Rear Panel Connections**

Connector	Description
Input 1 - 4 (RJ45 Plug) Input 5-8(RJ45 Plug): Input 9-12 (RJ45 Plug): Input 13-16 (RJ45 Plug):	Connect using UTP (unshielded twisted pair) Standard CAT5 Straight-Through Ethernet Cable  Input 1-4: Camera 1 = Pins 5 & 4 Camera 2 = Pins 3 & 6 Camera 3 = Pins 7 & 8 Camera 4 = Pins 1 & 2  Input 5-8: Camera 5 = Pins 5 & 4 Camera 6 = Pins 3 & 6 Camera 7 = Pins 7 & 8 Camera 8 = Pins 1 & 2  Input 9-12 Camera 9 = Pins 5 & 4 Camera 10 = Pins 3 & 6 Camera 11 = Pins 7 & 8 Camera 12 = Pins 1 & 2  Input 13-16: Camera 13 = Pins 5 & 4 Camera 14 = Pins 3 & 6 Camera 15 = Pins 7 & 8 Camera 16 = Pins 1 & 2
Direct Out 1-16 (BNC Connector)	Video Outputs 1-16: Connect using coaxial cable with BNC connectors installed.
Cross-Link Output	Connect using 75 ohm coaxial ribbon cable.

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## RJ45 PIN CONNECTIONS

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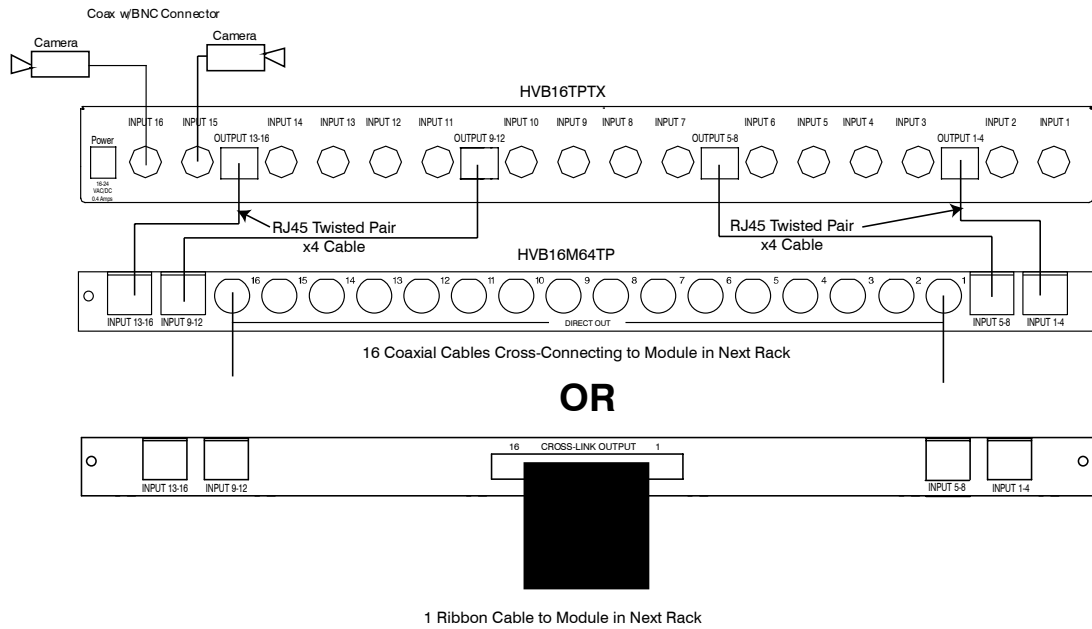
**Figure 2-3 RJ45 Plug Connector (Shown with Tab Underneath)**

**Table 2-3 RJ45 Pin-Outs**

Pin	Function
1	Video In Channel 4 (+)
2	Video In Channel 4 (-)
3	Video In Channel 2 (+)
4	Video In Channel 1 (-)
5	Video In Channel 1 (+)
6	Video In Channel 2 (-)
7	Video In Channel 3 (+)
8	Video In Channel 3 (-)

## SYSTEM BLOCK DIAGRAM

The following illustration provides a typical system block diagram.



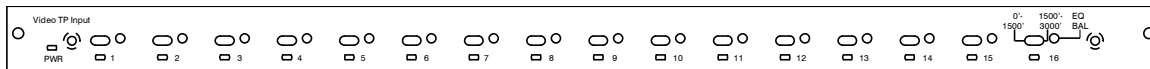
**Note** The direct outputs from the BNCs or the IDC connector is optional for connecting video to other devices. Connection to them is not necessary for system operation.

**Figure 2-4. HVB16M64TP or HVB16M64ATP System Diagram**

## CONTROLS AND OPERATION

### HVB16M64TP and HVB16M64ATP FRONT PANEL

The front panel is the same for both models.



**Figure 3-1 HVB16M64TP and HVB16M64ATP FRONT PANEL**

**Table 3-1 Front Panel Controls**

Control	Description
PWR	LED lights when power is applied to unit.
2-Position Switch	Cable Lengths Each Video Input Left = 0-500M (0-1500 Ft) Right = 500-1000M (1500-3000 Ft)
EQ BAL (screwdriver adjustment)	Each Video Input This level should be set such that the input signal is amplified to provide 2 volts (0.6V sync and 1.4V peak white) on the backplane when the backplane is terminated into an output card. If the output card is calibrated, the input level is set so the resulting video output is 1-volt (0.3V sync and 0.7V peak white) when terminated into a 75 ohm load.

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## OPERATION

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After DIP switches are set, equipment connections made, and power is applied to the unit, operation is automatic. The video signal received at the RJ45 video input connector is converted for output on the appropriate video output connector (BNC or Ribbon Cable Connector). For example, the video connected at RJ45 Input 1 is outputted at BNC Connector Output 1 or Output 1 on the coaxial ribbon cable.

## SPECIFICATIONS

**Table 4-1 HVB16M64TP and HVB16M64ATP Specifications**

Cable Distances:	0-3000 feet UTP (CAT4/CAT5/CAT6); coaxial
Frequency Compensation:	Switchable for cable lengths 0-1500 and 1500-3000
Input Impedance:	100 Ohms
Method:	Active electronic balanced
Bandwidth	5Hz to 5Mz +/-3db
Differential Gain Error	2%
Differential Phase Error	1%
Distortion	<72db @ 5MHz
Power Consumption	5 Watts
Connection Style	Balanced video out via RJ45Direct in video via BNC
Rack Height	1/2 U (0.875")
Operating Temperature	32° to 104°F (0° to 40°C)

SPECIFICATIONS

Notes:



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