Honeywell

HVBMAXPTZPIT

MAXPRO-Net to PTZ Protocol Translator

User Manual

Document 900.0831 – 09/06 – Rev 1.00

Revisions

Issue	Date	Revisions
1.00	09/06	Initial Release

CONTENTS

FIGURES

TABLES

FCC COMPLIANCE STATEMENT

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.

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

CANADIAN COMPLIANCE STATEMENT

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.

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.

IMPORTANT SAFEGUARDS

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

EXPLANATION OF GRAPHICAL SYMBOLS

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

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.**

WARNINGS

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

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

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.**

INTRODUCTION

The HVBMAXPTZPIT Protocol Interface Translator (PIT) converts Honeywell's Maxpro serial command protocol to Honeywell's VCL and Diamond Maxpro mode and Sensormatic's (AD) PTZ protocol.

The PIT has two serial communications ports. The RS422/RS485 "Slave" port connects to the master controller outputting MAXPRO-Net protocol. An RS232 to RS422 converter is required between the MAXPRO-Net controller and the PIT to convert the MAXPRO-Net data from RS232 to RS422. The RS422/RS485 "Master" port connects to the PTZ devices.

OPERATION

On power up, both the slave channel and the master channel LEDs will be illuminated.

The PIT unit receives serial messages from the MAXPRO-NET controller, via its slave communication port. When a valid message is received, the slave port LED will flash off briefly to indicate message receipt. Only messages addressed to the unit address set up on DIP switch 2 will be received. Should DIP switch 2 be set to zero (all switches off), then messages addressed to any PTZ unit will be received by the PIT. The received PTZ control message will then be translated into the appropriate command, compatible with the PTZ equipment selected by means of DIP switch 3. This message will be transmitted out of the master port to one or more PTZ telemetry receivers/domes. When the message is transmitted, the master port LED flashes off briefly.

If the PTZ protocol supports addressing, the PIT can be set to address zero (broadcast mode) and each PTZ unit on the master communication port set to a unique address. There is no limitation in mixing PTZ units/domes as long as the above requirements are met and there is at least one PIT per translation type.

Should an installation require one or more PIT units for protocol translation, this has no effect on the connection/operation of standard PTZ units, which are compatible with the "native" RS422 protocol generated by the master controller.

The PIT takes care of translating fixed speed commands into variable speed commands, which are automatically ramped from slow to high speed, when the PTZ unit supports variable speed.

SWITCH SETTINGS

To access the configuration switches, the two screws on the top cover of the PIT must be removed. The legend on the cover shows the switches as S1, S2 and S3. Each of these switch groups has 8 individual switches, marked as 1 through 8. Individual switches are referred to by the switch group, followed by the switch number. e.g. S1/8. The switch settings defined in this manual are firmware revision???.

Address Selection

Set switch 2 to the required address of the PIT. This usually matches the camera number in the system. The actual switch setting is the binary representation of the address. Certain protocols allow for the addressing of multiple devices on the master communications port (Broadcast mode). In this case, this DIP switch may be set to address zero, which will pass all received messages through from the slave to the master port. The following table shows the first few PIT addresses:

Table 1 DIP Switch Settings for Address Selection

Address	S2/8	S2/7	S2/6	S2/5	S2/4	S2/3	S2/2	S2/1
0	Off	Off	Off	Off	Off	Off	Off	Off
1	Off	Off	Off	Off	Off	Off	Off	On
2	Off	Off	Off	Off	Off	Off	On	Off
3	Off	Off	Off	Off	Off	Off	On	On
4	Off	Off	Off	Off	Off	On	Off	Off
5	Off	Off	Off	Off	Off	On	Off	On
6	Off	Off	Off	Off	Off	On	On	Off
...								
255	On	On	On	On	On	On	On	On

PTZ Logical Address Ranges

Switch 3, positions 5 and 6, are used to support below PTZ logical address ranges.

Table 2 PTZ Logical Address Ranges

PIT No.	S3/6	S3/5	Logical Address Range
1	Off	Off	1 - 255
2	Off	On	257 - 511
3	On	Off	513 - 767
4	On	On	769 - 1023

Input Baud Rate Selection

Switch 3, positions 7 and 8, are used to set the slave port baud rate as per the following table.

Note The protocol format is 7 bits, even parity, and 1 stop bit:

Table 3 Input Baud Rate Settings

Baud Rate	S3/8	S3/7
1200 baud	Off	Off
9600 Baud	Off	On
19.2K baud	On	Off
57.6K baud	On	On

Input Protocol Selection

Switch 3, positions 1 to 4 are used to set the protocol the PIT expects to receive on its slave communications port. The only protocol available is MAXPRO. Ensure S3/1 to S3/4 are set per the following table.

Table 4 Input Protocol (MAXPRO-Net

SW3/4	SW3/3	SW3/2	SW3/1	Protocol
On	On	Off	On	Maxpro

Output Protocol Selection

Switch 1, positions 1 to 4, are used to set the PTZ protocol the PIT will transmit on its master communications channel.

Table 5 Output Protocol

SW1/4	SW1/3	SW1/2	SW1/1	PTZ Protocol
Off	Off	On	Off	VCL (HD6) (9600 Baud- 8 data bits - No parity -1 stop bit)
On	Off	Off	Off	Maxpro (HD6) (9600 Baud -8 data bit - Even Parity -1 stop bit)
On	Off	On	Off	Sensormatic (AD) (4800 Baud - 8 data bits - No parity - 1 stop bit)

Auto Home Positioning

All PTZ units which support preset positioning may take advantage of auto-homing when used in conjunction with the PIT. To use this feature, switch 1, positions 6 to 7 are used as follows:

Table 6 Auto Home Positioning

Auto Home Time-out	S1/7	S1/6
Auto-homing disabled	Off	Off
15 seconds	Off	On
1 minute	On	Off
3 minutes 45 seconds	On	On

Should an auto-home time-out value be set, the PTZ will automatically be returned to preset position 1 after the expiration of the time-out. The time-out is calculated from the time the PTZ was last moved.

Presets

The valid range for storing and recalling presets is 0-79. Set DIP Switch S1/5 off to store a preset at 0. Set DIP Switch S1/5 on to write protect preset store at preset 0.

PTZ MODE DEVICE SPECIFIC OPERATION

Preset Mapping between 80-99

The following commands have been implemented for all PTZ protocols by recalling a preset command.

Table 7 Mapped PreSet Commands 80 - 86

Preset	Command
80	Run Pattern/Tour 1
81	Run Pattern/Tour 2
82	Run Pattern/Tour 3
83	Program Pattern/Tour 1
84	Program Pattern/Tour 2
85	Program Pattern/Tour 3
86	End programming of current pattern/Tour and store.

Note VCL (HD6)/Maxpro (HD6) patterns/tours - up to 120 seconds each.

Sensormatic (AD) - the dome stores up to a total of 99 movement commands in its memory. The End Program command must be entered if the tour is being stopped before the count down reaches 0 or if the tour is being stopped anywhere in the middle of the presets.

Table 8 Mapped Preset Commands 87-90

Preset	Command
87 - 89	Sensormatic - Clears Tour/Pattern 1 - 3 respectively and resets the dome to Apple Peel pattern. VCL (HD6)/Maxpro (HD6) - Starts VectorScans 1 - 3 respectively.
90	Enter Setup Menu
91	Sensormatic - not used. VCL (HD6)/Maxpro (HD6) - toggles error table display on/off
92	Toggle Auto-Iris on/off

Table 8 Mapped Preset Commands 87-90

Preset	Command
93	Toggle Back Light Compensation (BLC) on/off
94	Toggles between standard operation and Nightshot Mode (color/black & white). Only applicable if camera supports the day/night feature.
95	Sensormatic (AD) - Menu Navigation VCL (HD6)/Maxpro (HD6) - toggles between freeze and unfreeze video. Note: for menu navigation use Iris Open to Enter ad Iris Close to Exit.
96	Sensormatic - Reserved VCL (HD6)/Maxpro (HD6) - invokes the flashback function.
97	Reserved
98	Sensormatic - reset dome (soft reset) VCL (HD6)/Maxpro (HD6) - resets the dome (scan and camera)

VCL (HD6) PTZ Protocol

The PIT supports a maximum of 128 physical camera addresses when the PTZ output protocol is set for VCL (HD6). The PIT supports logical address ranges as shown in the following table.

Table 9 VCL (HD6) PTZ Logical Address Range

S1/5	Logical address range	Physical address range
Off	1-128	1-128
On	129-256	1-128

Maxpro Mode (HD6) Protocol

When in the Maxpro (HD6) mode of operation, only eight (8) cameras may be controlled by a single PIT in broadcast mode. Selection of which group of 8 cameras may be carried out by means of DIP switch S1.

For any address outside of this range, a dedicated PIT per HD6 (Maxpro mode) dome is required.

Table 10 Maxpro Mode (HD6) Addresses

Valid Addresses in Broadcast Mode	S1/7	S1/6	S1/5
Address 1 to 8 inclusive	Off	Off	Off
Address 9 to 16 inclusive	Off	Off	On
Address 17 to 24 inclusive	Off	On	Off
Address 25 to 32 inclusive	Off	On	On
Address 33 to 40 inclusive	On	Off	Off
Address 41 to 48 inclusive	On	Off	On
Address 49 to 56 inclusive	On	On	Off
Address 57 to 64 inclusive	On	On	On

Sensormatic (AD) PTZ Protocol

The PIT supports a maximum of 255 physical camera addresses (1-255) when set to Sensormatic PTZ protocol.

CONNECTIONS

Power Connection

The PIT requires a power source of 9 to 20 VAC, 50/60 Hz, or 10 to 28VDC @ 3VA. When the PIT44 unit is used with an HVB422FT16 or other VideoBloX expansion module, power is derived from the system through Pin 6 (PWR+) of the slave channel via an RS422 communication cable.

Note Pin 6 of the PIT master (output) channel also delivers power (derived from the VideoBloX system) to devices connected to that channel.

Typically, the external power supply is not required. However, if the master channel load is comparatively heavy, the user must disconnect Pin 6 power connection from the slave channel and should use the Honeywell provided +12 VDC power supply 849193-0089. This power supply runs on a 100-240Vac input. It connects to the PIT via the external power connector. If the external devices require a higher voltage, another power supply that does not exceed the PIT power rating can be used.

Caution Pin 6 of the cable between the Master Device and the Slave Channel of the HVBMAXPTZPIT must be disconnected when using the external power supply option to prevent a potential conflict between the two different power sources.

RS422 Slave Channel

Control messages from the MAXPRO-Net control device, which generates the PTZ control information, are received on the Slave RS422 port. The MAXPRO-Net control device outputs RS232 communication so an RS232 to RS422 converter is required between the MAXPRO-Net device and the PIT. The RS422 configuration allows for multiple PITs to be connected on a common communications line. Connections are as follows:

Table 11 RS422 Slave Channel Pin-Outs

Pin Number	Pin Function
1	RS422 Receive data [-] (from MAXPRO-Net)
2	RS422 Receive data [+] (from MAXPRO-Net)
3	RS422 Transmit data [+] (to MAXPRO-Net)

Table 11 RS422 Slave Channel Pin-Outs

Pin Number	Pin Function
4	RS422 Transmit data [-] (to MAXPRO-Net)
5	GND (RS422 Communications common)
6	N/C
7	N/C
8	N/C
9	GND (RS422 Communications common)

Should it be required to operate the PIT in RS485 mode, then the TX pair and the RX pair must be joined together on this connector. i.e. Pin 1 to pin 4 and pin 2 to pin 3.

RS422 Master Channel

Translated control messages, generated by the PIT, are transmitted on this port. The RS422 configuration allows for multiple PTZ receivers to be connected on a common communications line. Connections are as follows:

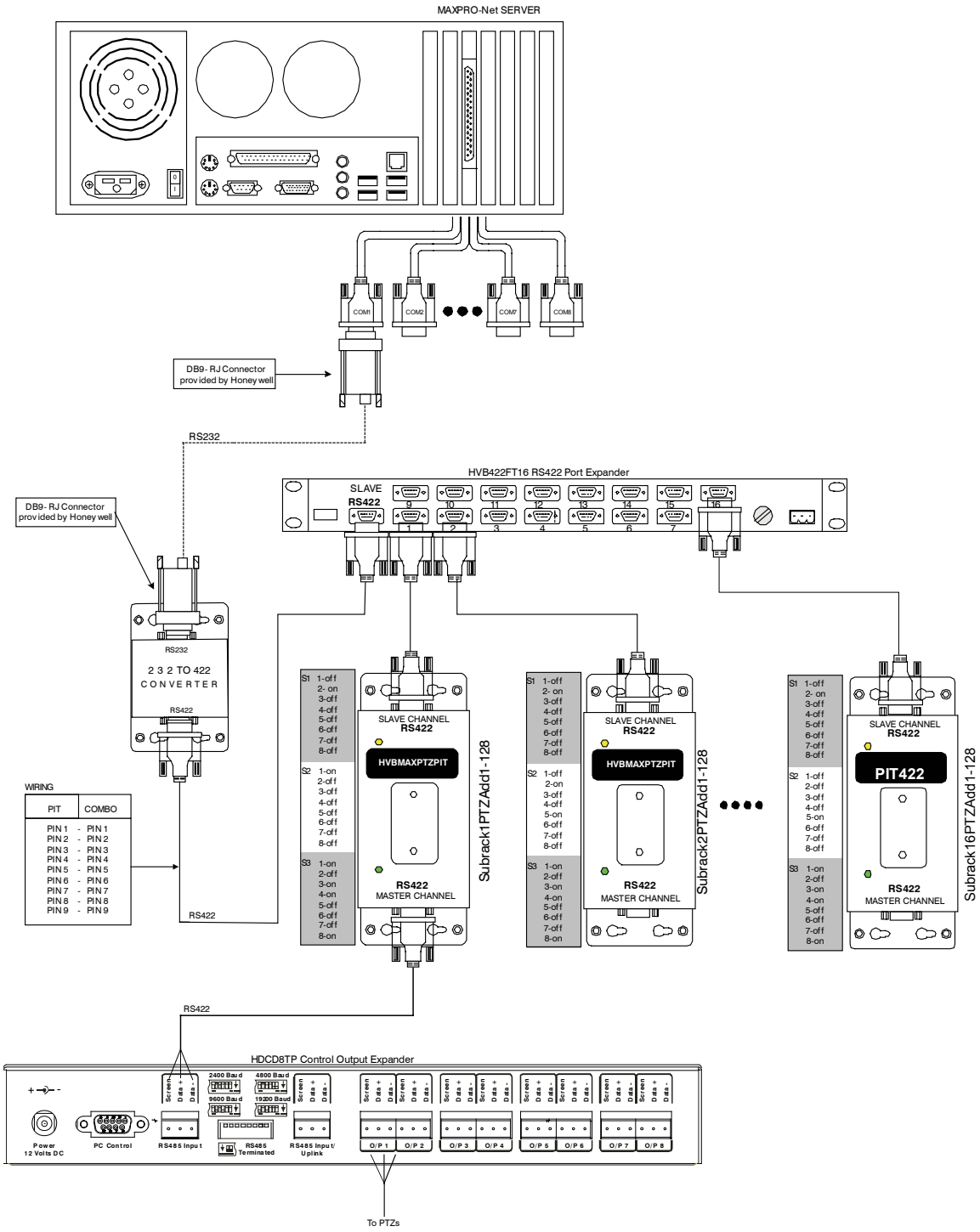
Table 12 RS422 Master Channel

Pin Number	Pin Function
1	RS422 Transmit data [-] (to PTZ RS422 Rx[-])
2	RS422 Transmit data [+] (to PTZ RS422 Rx[+])
3	RS422 Receive data [+] (from PTZ RS422 Tx[+])
4	RS422 Receive data [-] (from PTZ RS422 Tx[-])
5	GND (RS422 Communications common [from PTZ communications common])
6	PWR + (Optional power provided by Aux. Power Supply)
7	N/C
8	N/C
9	GND (RS422 Communications common [from PTZ device communications common])

I2C Expansion Connection

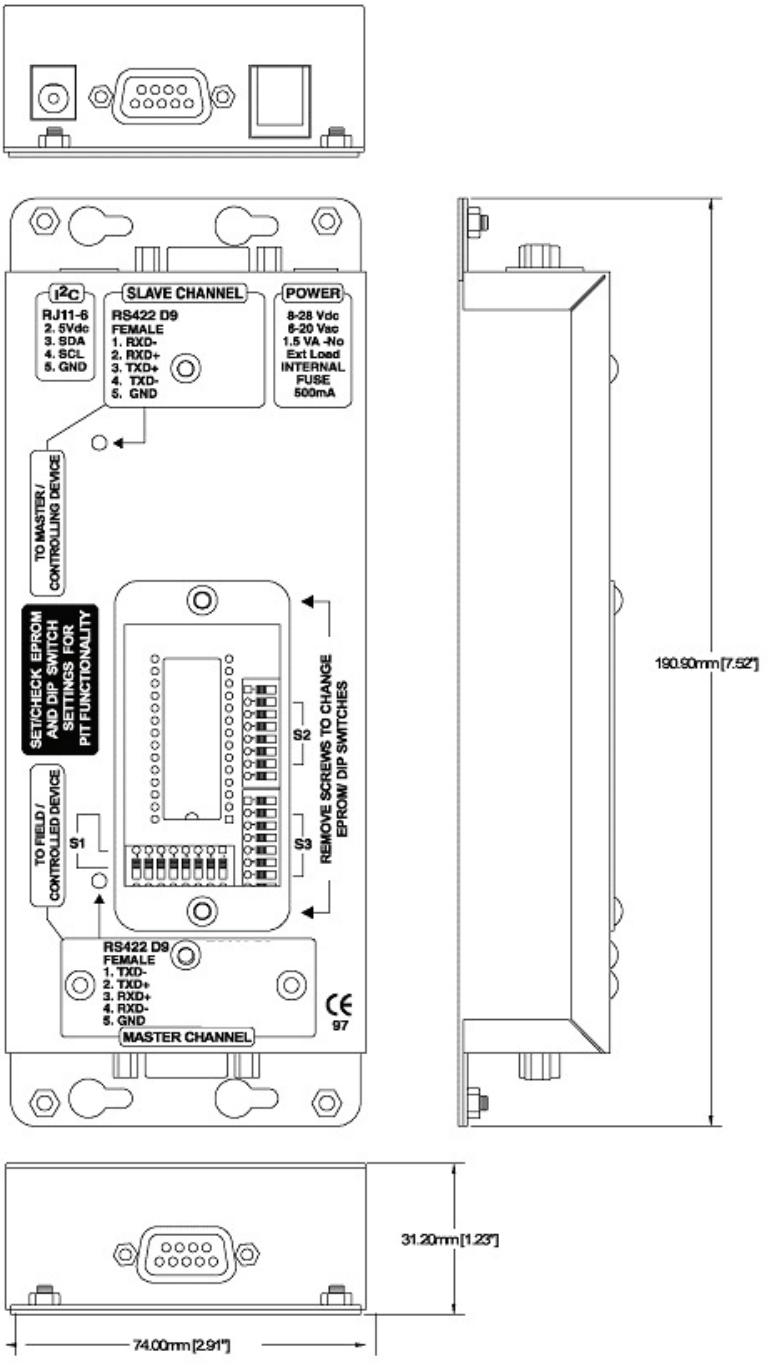
The I2C Expansion Connector is not used.

Figure 1 HVBMAXPTZPIT Typical System Block Diagram.



MECHANICAL

Figure 2 HVBMAXPTZPIT Dimensional Drawing



SPECIFICATIONS

Table 13 HVBMAXPTZPIT Specifications

Power Requirements	10-28V dc or 9-20V ac; 3VA without external load 500mA Fuse
Mechanical	Dimensions: 2.91” (W) x 1.23” (H) x 7.52” (D) [74mm (W) X 31.2 mm (H) X 190.9mm (D)] Weight: 14 oz. (390g) Finish: Brushed stainless steel
Environmental	Operating Temperature: 14 to 122 degree F)-10 to +50 degree C) Storage Temperature: -4 to 149 degree F (-20 to +65 degree C) Humidity: 0 to 95% RH (non-condensing)
Slave Communications Port	Baud Rate: 9600 Baud, 19.2K Baud, 57.6K baud or 115.2K baud Addressing range: Broadcast or 1 to 255 Protocol: MAXPRO-Net Electrical: RS422, can be wired for RS485.
Master Communications Port	Baud Rate: From 1200 Baud to 57.6K baud, dependent on required translation type. Protocol: Honeywell VCL (HD6), Honeywell Maxpro (HD6), or Sensormatic (AD) Electrical: RS422, can be wired for RS485.
Connector Type	RS422 D9 Female Power 2.0mm DC plug I2C 6 position RJ45 (4 fitted)
Functions	Pan, tilt, zoom, focus, iris, 64 position presets store and recall, auxiliary function control.Functions not available on selected translation target device are excluded.
Other	Switch selectable write protection of preset home position. Auto homing selectable, off, 15 sec, 1 min or 3 min 45 Sec.

Honeywell Video Systems (Head Office)
2700 Blankenbaker Pkwy, Suite 150
Louisville, KY 40299, USA
www.honeywellvideo.com
☏ +1.800.796.2288

Honeywell Security Australia Pty Ltd.
Unit 5, Riverside Centre, 24-28 River Road West
Parramatta, NSW 2150, Australia
www.ademco.com.au
☏ +61.2.8837.9300

Honeywell Security Asia Pacific
33/F Tower A, City Center, 100 Zun Yi Road
Shanghai 200051, China
www.security.honeywell.com/cn
☏ +86 21.2527.4568

Honeywell Security Asia
Flat A, 16/F, CDW Building, 388 Castle Peak Road
Tsuen Wan, N.T., Hong Kong
www.security.honeywell.com/hk
☏ +852.2405.2323

Honeywell Security France
Parc Gutenberg, 8, Voie La Cardon
91120, Palaiseau, France
www.honeywell.com/security/fr
☏ +33.01.64.53.80.40

Honeywell Security Italia SpA
Via Treviso 2 / 4
31020 San Vendemiano
Treviso, Italy
www.honeywell.com/security/it
☏ +39.04.38.36.51

Honeywell Security España
Mijancas 1. 3ª Planta
P.Ind. Las Mercedes
28022 Madrid, Spain
www.security.honeywell.com/es
☏ +34.902. 667.800

Honeywell Video Systems Northern Europe
Netwerk 121
1446 WV Purmerend, The Netherlands
www.SecurityHouse.nl
☏ +31.299.410.200

Honeywell Video Systems UK Ltd.
Aston Fields Road, Whitehouse Ind Est
Runcorn, Cheshire, WA7 3DL, UK
www.honeywellvideo.com
☏ +0844 8000 235

Honeywell Security South Africa
Unit 6 Galaxy Park, 17 Galaxy Avenue
Linbro Park, P.O. Box 59904
2100 Kengray, Johannesburg, South Africa
www.honeywell.co.za
☏ +27.11.574.2500

Honeywell Security Deutschland
Johannes-Mauthe-Straße 14
D-72458 Albstadt, Germany
www.honeywell.com/security/de
☏ +49.74 31.8 01.0

Honeywell Security Poland
Chmielewskiego 22a, 70-028
Szczecin, Polska
www.ultrak.pl
☏ +48.91.485.40.60

Honeywell Security Czech Republic
Havránkova 33, Brno
Dolní Heršpice, 619 00, Czech Republic
www.olympo.cz
☏ +420.543.558.111

Honeywell Security Slovakia Republic
Vajnorská 142, 83104 Bratislava
Slovakia
www.olympo.sk
☏ +421.2.444.54.660

Honeywell

www.honeywellvideo.com
+1.800.796.CCTV (North America only)
HVSsupport@honeywell.com

Document 900.0831 09/06 Rev 1.00