Honeywell

HDCD8TP

8-Way RS485/RS232 to RS485 Bi-directional Distribution Box

User Manual

HAMU000876 – December 2004 – Rev. B

ISSUE	DATE	REVISIONS
A	August 2004	Initial Release.
B	December 2004	Added application information – PCN 1919

IMPORTANT SAFEGUARDS

Read these notes before attempting to operate the unit

1. Refer all servicing to qualified personnel.

2. These products are for internal use only.

3. These products contain static electricity sensitive devices. Please take appropriate precautions when handling.

4. Handle the unit with care, as improper handling may cause irreparable damage to the precision or sensitive parts within this unit.

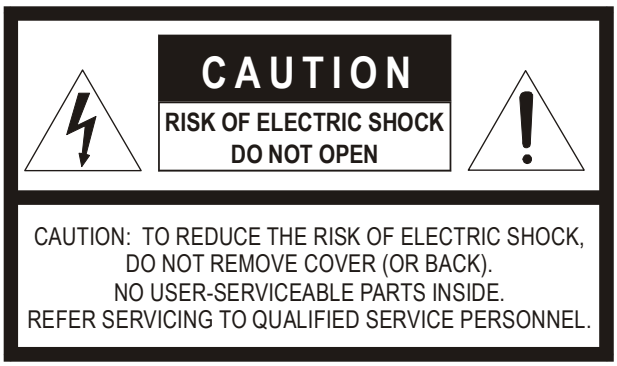
5. This information and our technical advice - whether verbal, in writing, or by way of trials – is given in good faith but without warranty and this also applies where proprietary rights of third parties are involved. Our advice does not release you from your obligation to check its' validity and to test our products' suitability for the intended purpose(s) and use(s). The application, use and installation of our products either in isolation or in conjunction with other products used, provided and/or installed by you on the basis of our technical advice are beyond our control and therefore remain entirely your own responsibility. Ademco Video products are sold in accordance with our General Conditions of Sale and Delivery.

6. ALL DESIGNS AND SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE

EXPLANATION OF GRAPHICAL SYMBOLS

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instruction in the literature accompanying the product.



PURCHASE INFORMATION

Date Purchased:_____

Serial Number: _____

Location Installed:_____

TABLE OF CONTENTS

LIST OF FIGURES

SECTION 1:
INTRODUCTION

1.1 PRODUCT DESCRIPTION

The HDCD8TP is an 8-way bi-directional distribution box with connections for half-duplex RS485 and/or RS232 control. There is an RS485 loop-through connection and RS485 termination links to enable several units to be connected in a daisy-chain wiring configuration. The unit is powered by 12 Volts DC @ 250mA.

This unit provides the user the capability of expanding the number of receivers (e.g. PTZ receivers) in a system. The input to the HDCD8TP can be either an RS485 or RS232 (PC) controller. Each output is capable of transmitting control data via daisy-chain wiring to thirty-two RS485 units. The maximum distance from the output to the last receiver on the daisy-chain is 4000 feet.

This unit can be used to extend the distance for controlling RS485 receivers. If the required distance between an RS232 or RS485 controller and the receiver is greater than 4000 feet, this unit can be installed to extend the distance to a receiver an additional 4000 feet. The RS485 data signal received at the HDCD8TP is regenerated and output at each of the eight outputs.

This unit can also be used for applications that require a “star-wiring” configuration. In a star-wiring configuration, each output on the HDCD8TP is connected to a single receiver. Multiple HDCD8TP units can be daisy-chain wired together to provide the needed number of outputs for each receiver in the system.

There are three LEDs – one indicates power on and the other two indicate data being transmitted to or from the receivers. Refer to Section 2.4 for more detailed information on the operation of the LEDs.

Figure 1: Front Panel

SECTION 2:
CONNECTIONS, SETTINGS, AND INDICATORS

2.1 CONNECTIONS

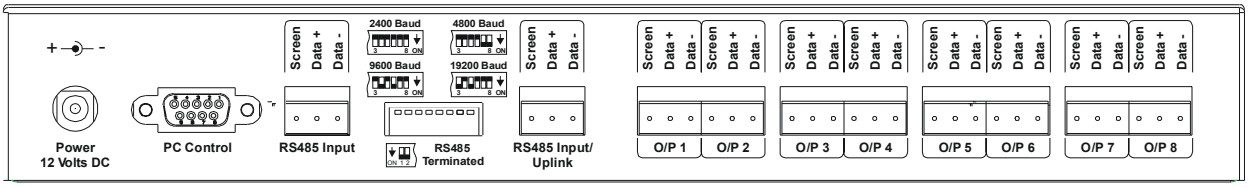
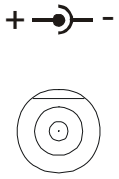


Figure 2: HDCD8TP Rear Panel

2.1.1 POWER CONNECTIONS

The HDCD8TP requires a 12 Volt DC @ 250mA power supply. Connections are shown in Figure 3.



Power
12 Volts DC

2-Pin Connector
(as viewed from the HDCD8TP rear panel)

Figure 3. Power Connector

2.1 CONNECTIONS, CONTINUED

2.1.2 PC Control

The HDCD8TP can be connected to a PC or other RS232 system at the PC Control connector.

RS232 commands inputted at the PC CONTROL connector are converted to RS485 and outputted on all eight (8) RS485 O/P connectors

RS485 replies received on any of the eight (8) O/P connectors are converted to RS232 and then outputted at the PC Control connector. The pin-outs for the 9-pin D connector are shown in Figure 4.

Solder side view of 9-pin D plug

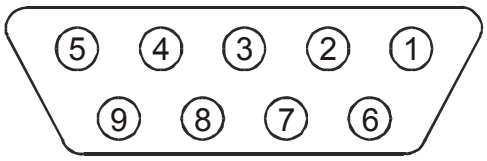


Figure 4: 9-Pin D connector connections (PC Control)

PIN	CONNECTION
1	CD
2	RX DATA
3	TX DATA
4	DTE
5	GND
6	DSR
7	RTS
8	CTS
9	N/C

RX DATA = Data from the receivers going to the transmitter
TX DATA = Data from the transmitter going to the receivers

NOTE: Only the RX DATA, TX DATA, and GND signals are used by the HDCD8TP. The control signals DTR, CD, and DSR are connected together and RTS and CTS are connected together inside the unit.

2.1 CONNECTIONS, CONTINUED

2.1.3 RS485 Input

The HDCD8TP can be connected to an RS485 transmitter such as a controller using the 3-way screw terminal connector. RS485 commands input at the RS485 Input connector are outputted on all eight RS485 outputs (O/P1...O/P8). RS485 data received at any of the eight O/P connectors is outputted as RS485 at the RS485 Input connector.

Transmitter	HDCD8TP RS485 Input
Data +	Data+
Data -	Data –
Cable Shield	Screen

2.1.4 RS485 Input/Uplink

The RS485 Input connector is internally connected to the RS485 Input/Uplink connector to enable HDCD8TPs to be connected in a RS485 daisy- chain wiring configuration. (See Figure 5.) The maximum distance to the last unit in the daisy-chain is 4000 feet.

1st HDCD8TP Termination Off	**2nd HDCD8TP Termination Off**	**3rd HDCD8TP Termination On**
RS485 Input/Uplink Data +	RS485 Input Data+	
RS485 Input/Uplink Data -	RS485 Input Data –	
Screen	Screen	
	RS485 Input/Uplink Data +	RS485 Input Data+
	RS485 Input/Uplink Data -	RS485 Input Data -
	Screen	Screen

2.1.5 O/P Connectors

There are eight (8) O/P connectors. Data input from either the RS232 PC Control connector or the RS485 Input connector is outputted as RS485 data at all eight O/P connectors. Data received at any of the eight O/P connectors is outputted as RS232 data at the PC Control connector and as RS485 at the RS485 Input connector.

2.2 RS485 TERMINATION SETTINGS

The termination of the RS485 data lines (connected at the RS485 Input connector) is controlled using positions 1 and 2 on the 8-position DIP switch located on the rear panel. If the HDCD8TP is the only HDCD8TP connected to the RS485 lines, the termination should be set to the ON position. (Refer to Figure 5.)

Figure 5: RS485 Termination

2.2.1 Daisy-Chain Wiring Configuration

If the unit is connected in a daisy chain wiring configuration with other RS485 equipment, the termination is set to OFF (unterminated) on the first and all the intermediate pieces of equipment and set to ON (terminated) on the last piece of equipment in the chain. (Refer to Figure 6.)

2.2.1 Daisy-Chain Wiring Configuration, Continued

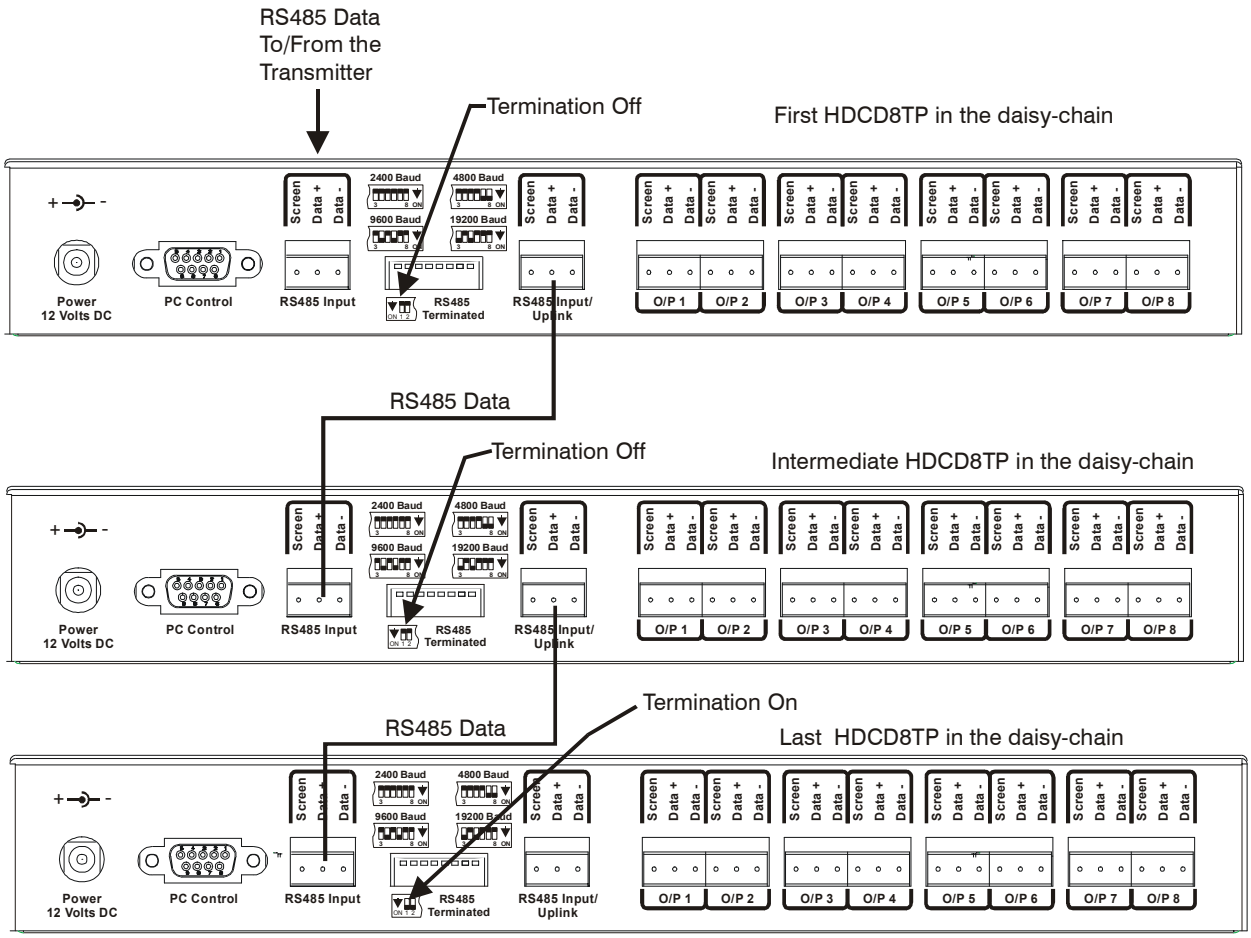


Figure 6: Daisy Chain Wiring Multiple HDCD8TP Units

2.2 RS485 TERMINATION SETTINGS, CONTINUED

2.2.2 Cascade Wiring Configuration

Multiple units can also be wired from any of the RS485 output ports (O/P) to the RS485 Input connector. This wiring configuration is called cascading. If units are connected using a cascade wiring configuration, the termination on all HDCD8TP units are set to ON. (Refer to Figure 7.)

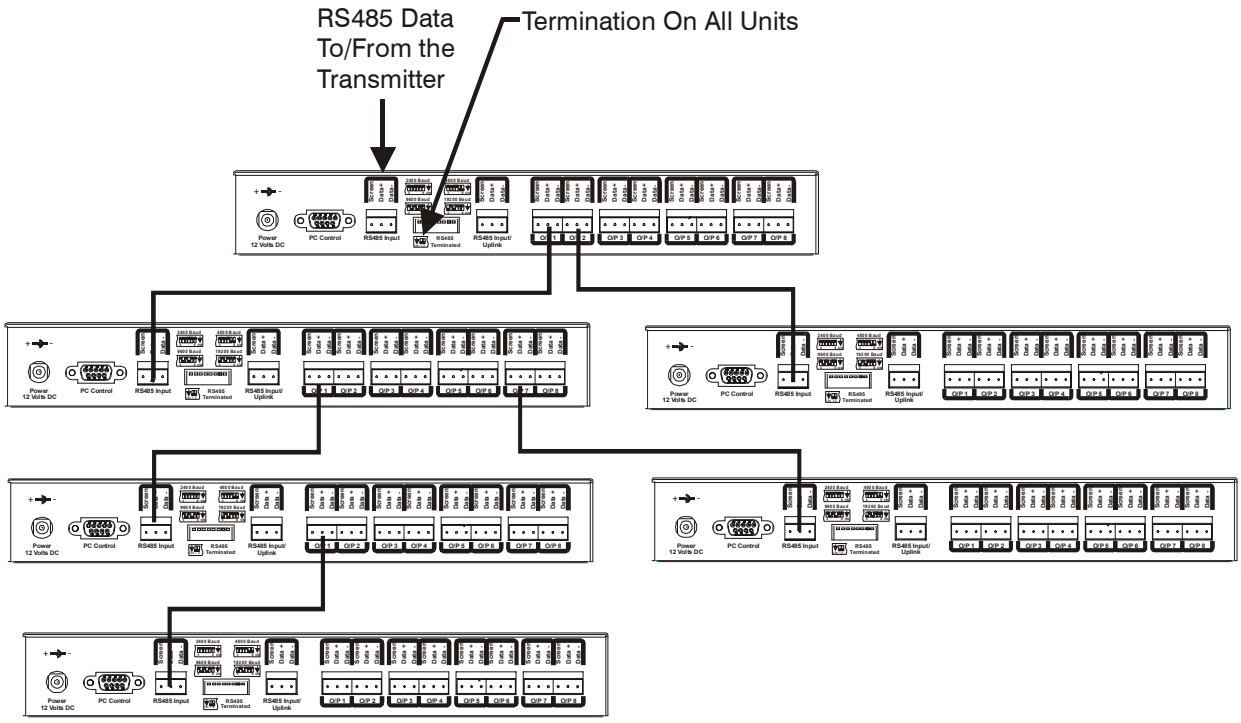


Figure 7. Cascade Wiring Multiple HDCD8TP Units

2.3 BAUD RATE

The communication baud rate is set using switch positions 3 through 8 on the 8-position DIP switch located on the rear panel of the HDCD8TP unit. The baud rate can be set to 2400, 4800, 9600, and 19200. Refer to Figure 8.

CAUTION: The baud rate must be set the same for all equipment connected to the communication ports. Refer to figure 8 for baud rate switch settings.

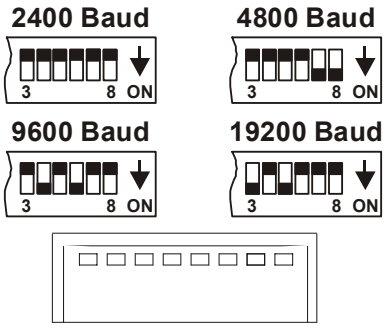


Figure 8. Baud Rate Settings

2.4 FRONT PANEL LEDs

After the unit is installed, there are three LEDs on the front panel of the unit that indicate power on/off and communication to and from other pieces of equipment in the system.

2.4.1 Power

The **Power** indicator lights when power is connected to the HDCD8TP. However, it does not necessarily mean that the power is sufficient to power the HDCD8TP.

2.4.2 Data Out

Data Out flashes when data that was received at an O/P connector is outputted at the RS485 Input and PC CONTROL connectors (i.e., data is being sent to the telemetry transmitter.)

2.4.3 Data In

Data In flashes when data that was received at the RS485 Input or PC Control connector is outputted at the eight O/P connectors (i.e., data is being sent to the telemetry receiver.)

SECTION 3:
SPECIFICATIONS

Operating Voltage	12 Volts DC
Normal Operating Current	70mA
Maximum Operating Current	250mA (when all 8 outputs are short circuited)
Operating Temperature Range	14°F to 122°F (-10°C to 50°C)
Baud Rate	DIP switch selectable: 2400, 4800, 9600, 19200
Data Format	8 bits, no parity, 2 stop bits, half duplex
Data Direction Change Latency	In the range 1.3 ms to 3.8 ms

NOTE: There should be a 4 ms idle when changing the direction of data. In specific applications, this delay can be changed by fitting VR1 and VR2. There is no need to alter these delays for use with RapidView and Honeywell Video Dome products.

Honeywell Video Systems (Head Office)
171 Eileen Way
Syosset, NY 11791, USA
www.honeywellvideo.com
TEL+1-516-921–6704

Honeywell Security Australia Pty Ltd.
Unit 5, Riverside Centre, 24-28 River Road West
Parramatta, NSW 2150, Australia
www.ademco.com.au
TEL +61-2-8837-9300

Honeywell Security Asia Pacific Ltd.
Flat A, 16/F, CDW Building, 388 Castle Peak Road
Tsuen Wan, N.T., Hong Kong
www.ademco.com.hk
TEL +853-2405-2323

Honeywell Security France
Parc Gutenberg, 13, Voie La Cardon
91120, Palaiseau, France
www.ademco.fr
TEL +33-1-6932-1090

Honeywell Security Italia SpA
Via della Resistenza 53/59, 20090 Buccinasco
Milan, Italy
www.ademco.it
TEL +39-02-457-1791

Honeywell Security Espana
Calle Vivero, 5, 28040
Madrid, Spain
www.ademco.es
TEL +34-91-533-4706

Honeywell Security House (Netherlands)
Amperestraat 41
1446 TR Purmerend, Netherlands
www.SecurityHouse.nl
TEL +31-299-419-000

Honeywell Video Systems UK Ltd.
Aston Fields Road, Whitehouse Ind Est
Runcorn, Cheshire, WA7 3DL, UK
www.videocontrols.co.uk
TEL +44-1928-754-000

Honeywell Security South Africa
Unit 6 Galaxy Park, Galaxy Avenue, Linbro
Business Park
P.O. Box 59904, Kengray, 2100, South Africa
www.honeywell.co.za
TEL +27-11-574-2500

Honeywell Security Germany
Großenbaumer Weg 8
40472 Düsseldorf, Germany
www.ultrak.com
TEL +49-211-415-090

Honeywell Security Poland
Chmielewskiego 22a, 70-028
Szczecin, Polska
www.ultrak.pl
TEL +48-91-485-40-60

Honeywell Security Czech Republic
Havránkova 33, Brno
Dolní Heršpice, 619 00, Czech Republic
www.olympo.cz
TEL +420-543-558-111

Honeywell Security Slovakia Republic
Vajnorskà 142, 83104 Bratislava
Slovakia
www.olympo.cz
TEL +421-2-444-54-660

Honeywell

Video Systems
www.honeywellvideo.com
1-800-796-CCTV