

USER MANUAL

H8400

Serial to Bi-directional
Parallel (IEEE 1284)
Converter/Line Driver



digital

Part# 07M2030- DEC
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1.0 WARRANTY INFORMATION

Digital Equipment Corp. warrants all H8400 components to be free from defects, and will - at our option - repair or replace the product should it fail within one year from the first date of shipment.

This warranty is limited to defects in workmanship or materials, and does not cover customer damage, abuse or unauthorized modification. If this product fails or does not perform as warranted, your sole recourse shall be repair or replacement as described above. Under no condition shall Digital Equipment Corp. be liable for any damages incurred by the use of this product. These damages include, but are not limited to, the following: lost profits, lost savings and incidental or consequential damages arising from the use of or inability to use this product. Digital Equipment Corp. specifically disclaims all other warranties, expressed or implied, and the installation or use of this product shall be deemed an acceptance of these terms by the user.

1.1 RADIO AND TV INTERFERENCE

The H8400 generates and uses radio frequency energy, and if not installed and used properly - that is, in strict accordance with the manufacturers instructions - may cause interference to radio and television reception. The H8400 has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection from such interference in a commercial installation. However, there is no guarantee that interference will not occur in a particular installation. If the H8400 does cause interference to radio or television reception, which can be determined by disconnecting the RS-232 interface, the user is encouraged to try to correct the interference by one or more of the following measures: moving the computing equipment away from the receiver, re-orienting the receiving antenna and/or plugging the receiving equipment into a different AC outlet (such that the computing equipment and receiver are on different branches).

1.2 SERVICE

Thank you for your purchase of this Digital Equipment Corporation product. This product has been thoroughly inspected and tested and is warranted for One Year parts and labor. If any questions or problems arise during installation or use of this product, please do not hesitate to contact your local distributor or Digital Equipment Corp. Technical Support at: 1-800-354-9000 (U.S .). Users outside the U.S. should call their local distributor.

2.0 GENERAL INFORMATION

2.1 FEATURES

Model H8400 Serial to Bi-directional Parallel Converter

- Supports Data Rates to 115.2 Kbps
- Supports two IEEE 1284 Bi-directional Nibble and Centronics Compatible Modes (switchable)
- 10KV ESD Protection on Serial Interface
- Power Derived from Both Interfaces, or from External AC Power Supply
- LEDs for Power and Data Mode (Distinctive Blinking)
- Male Centronics -36 for Parallel Connection
- RJ-45 Jack for Serial Connection
- Ultra-Miniature Size
- Made in THE U.S.A.

DECConnect H8400 Adapter/Surge Protector

- Power Handling up to 600 Watts per Wire
- Surge Energy Diverted to Ground via Braided Metal Strap
- Clamps Surges at 25 Volts
- Made in the U.S.A.

2.2 DESCRIPTION

The H8400 RS-232/423 to IEEE 1284 Bi-directional parallel converter lets you connect RS -232/423 serial hardware to a printer or other device equipped with an IEEE 1284 Bi-directional parallel interface. Able to work in either Level 1 Compatible or Nibble modes (according to the IEEE 1284 Standard), the H8400 supports the high speeds necessary for graphics-intensive laser printer applications.

The H8400 works with all IEEE 1284 Bi-directional parallel Level 1 compatible hardware, including Level 2 hardware with Level 1 backward compatibility. Power may be supplied by both interfaces, or by a plug-in AC adapter.

3.0 CONFIGURATION

The H8400 is simple to install and designed for excellent reliability: just set it and forget it. The following instructions will help you set up and install the converters properly.

3.1 CONFIGURATION SWITCHES

The H8400 uses a set of eight external DIP switches that allow configuration to a wide range of applications. To configure the unit, follow these steps:

- 1) Open the H8400 case by inserting a small flat-blade screwdriver in the slot on either side of the case and twisting gently.
- 2) Having exposed the H8400 PC board, you will see the miniature DIP switch packet on the side of the board nearest the Centronics connector.
- 3) To set the switches, use a small screwdriver and gently push each switch to its proper setting. The ON position is printed on the switch packet.
- 4) Fit the case halves and end plate together and push to snap closed.

3.2 DETAILED SWITCH SETTINGS

The DIP switches on the H8400 PC board are labeled 1-8. Only switches 1-4 are used. Switches 5-8 have no function. Descriptions of the the H8400 DIP switch settings are found below.

Switch 1: Hardware/Software Control

The setting for Switch 1 determines whether the H8400 will use hardware or software (X-on/X-off) flow control.

Flow Control SW1
Hardware OFF*
Software ON

*FactoryDefault

Switch 2: Reverse Flow Control

The setting for Switch 2 determines whether the serial device receives reverse flow control information from the printer (see IEEE 1284 Specification for further details on reverse flow control).

Reverse Flow Control SW2

Hardware (Nibble) OFF*

None (Compatible) ON

*Factory Default

Switches 3 and 4: Data Rate

Switches 3 and 4 set the serial data rate for the H8400.

Data Rate	SW3	SW4
9,600	OFF*	OFF*
19,200	OFF	ON
38,400	ON	OFF
115,200	ON	ON

*Factory Default

Switches 5 thru 8: Future Use

4.0 INSTALLATION

Once you have configured the H8400 properly, follow these steps to install the unit:

- 1) Plug the H8400 directly into the 36-Pin Centronics interface. Where necessary, a short (6ft maximum) parallel printer cable may be used.
- 2) The modular RS-232/RS-423 interface on the H8400 is wired as a DCE according to the EIA-561 Standard. Connect the H8400 to your serial device using the surge protected EIA/TIA-561 to DECCConnect Modular Adapter with integral 3" cable (RJ45P/RJ45S) supplied with the unit. The adapter is wired as shown below:

H8400 to DECCConnect Wiring Adapter

H8400 (EIA-561)					Terminal (DECCConnect)	
SIGNAL	PIN#		PIN#		SIGNAL	
DSR	1	↔	N/C		N/C	
CD	2	↔	N/C		N/C	
DTR	3	↔	N/C		N/C	
SG	4	↔	1		RXD Return	
RD	5	↔	6		TXD	
TD	6	↔	2		RXD	
CTS	7	↔	7		DTR	
RTS	8	↔	8		DSR	
			3		TXD Return	

- 3) In order for the surge protected DECCConnect Modular Adapter to function properly, it is essential that the braided metal ground strap be connected to the chassis ground on the printer. See Figure 1 below.

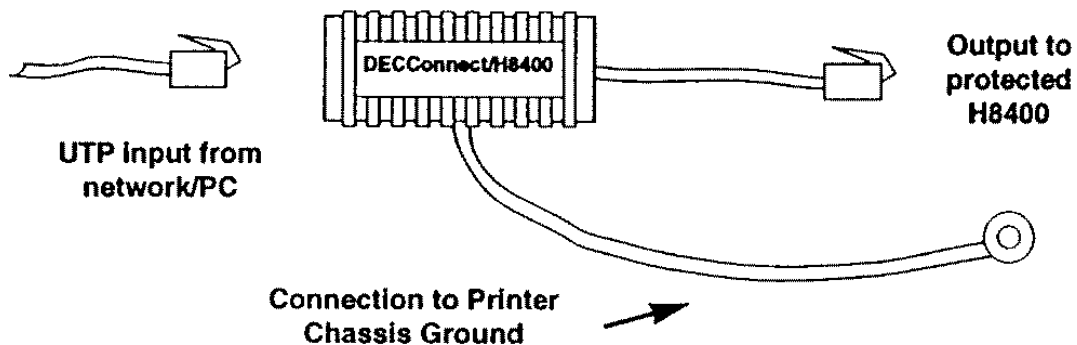


Figure 1. How to Connect the H8400 Braided Ground Strap

Warning- Should your equipment or building be subject to a direct lightning strike, this product will not provide complete protection.

- 4) The H8400 derives power from the RS-232/423 and IEEE 1284 interfaces.

IMPORTANT: For the H8400 to operate as an interface powered device, the IEEE 1284 B interface must support the optional 5V on pin 18. If the IEEE 1284 interface does not meet these requirements, you must supply power to the H8400 using the 120 VAC Wall Mount Adapter (H8400-AA) or 230 VAC External Adapter (H8400-AB).

5.0 OPERATION

Once the H8400 is properly configured and installed, it should operate transparently - as if it were a standard cable connection. There is no ON/OFF switch.

5.1 LED STATUS MONITORS

The H8400 features two easy-to-read status LEDs: The green LED glows when optional AC power is applied to the unit. The red LED indicator blinks to show data activity. Since there is only one indicator, it uses different LED codes to demonstrate various messages. The following chart describes these codes:

LED Codes

11—1——11—1——	Computer is sending data.
1——1——1——	Serial device is connected; computer is not sending data.
11——11——	Both serial and parallel devices are connected; computer not sending data.
1—1——1—1——	Printer not ready, data held in buffer.
1111——1111	Computer Ignoring flow control, data lost.

Key:

1	Blink
—	Short pause
——	Long pause

APPENDIX A

H8400 SPECIFICATIONS

Transmission Format:	Asynchronous, Full Duplex on the serial side; IEEE 1284 Bi-directional on the parallel side, supporting Compatibility and Nibble Modes (switchable)
Connectors:	Male Centronics-36for Parallel Connection; RJ -45 Jack for Seriat Connection.
ESD Protection:	10KV
Data Rates:	9.6, 19.2, 38.4 and 115.2 Kbps
Range:	Meets capacitive and resistive load requirements of RS-232 and RS-423
Power Supply:	Power derived from RS -232/423 and IEEE-1284 Interfaces. Note: IEEE 1284 B interface must support the optionat 5V on pin 18. Otherwise, power must be supplied using the optional AC wall mount power supply.
Temperature Range:	0 - 60 °C (32 -140 °F)
Altitude:	0 - 10,000feet
Humidity:	Up to 95% noncondensing
Dimensions:	3"H x 2"W x .75"D

APPENDIX B

H8400 INTERFACE CONNECTIONS

36 PIN CENTRONICS PARALLEL PORT CONNECTIONS

Pin	Description	Direction
1	Strobe	Output
2	Data bit 0	
3	Data bit 1	
4	Data bit 2	
5	Data bit 3	
6	Data bit 4	
7	Data bit 5	
8	Data bit 6	
9	Data bit 7	
10	Acknowledge	Input (active low)
11	Busy	Input (active high)
12	Paper end	
13	Select	
18	+5 volts	
32	Error	
	(16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 33, 36)	

Note: All other pins are unconnected.