

# USER MANUAL

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## MODEL 2030 Bidirectional (IEEE-1284) Line Driver/Converter



**PATTON**  
**Electronics Co.**



An ISO-9001  
Certified Company

Part # 07M2030-B  
Doc. #102121U,  
Rev. C  
Revised 1/22/08

SALES OFFICE  
(301) 975-1000  
TECHNICAL SUPPORT  
(301) 975-1007  
<http://www.patton.com>

## **1.0 WARRANTY INFORMATION**

**Patton Electronics** warrants all Model 2030 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 **Patton Electronics** 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. **Patton Electronics** 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 Model 2030 generates and uses radio frequency energy, and if not installed and used properly—that is, in strict accordance with the manufacturer's instructions—may cause interference to radio and television reception. The Model 2030 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 Model 2030 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 CE NOTICE**

The CE symbol on your Patton Electronics equipment indicates that it is in compliance with the Electromagnetic Compatibility (EMC) directive and the Low Voltage Directive (LVD) of the Union European (EU). A Certificate of Compliance is available by contacting Technical Support.

### 1.3 SERVICE

All warranty and nonwarranty repairs must be returned freight prepaid and insured to Patton Electronics. All returns must have a Return Materials Authorization number on the outside of the shipping container. This number may be obtained from Patton Electronics Technical Support: **(301) 975-1007**; **<http://www.patton.com>**; or, **support@patton.com**.

**Notice:** Packages received without an RMA number will not be accepted.

Patton Electronics' technical staff is also available to answer any questions that might arise concerning the installation or use of your Model 2030. Technical Service hours: **8AM to 5PM EST, Monday through Friday**.

## 2.0 GENERAL INFORMATION

Thank you for your purchase of this Patton Electronics product. This product has been thoroughly inspected and tested and is warranted for One Year parts and labor. If any questions arise during installation or use of the unit, contact Patton Electronics Technical Support at (301) 975-1007.

### 2.1 FEATURES

- Supports Data Rates to 115.2 Kbps
- Supports two IEEE 1284 BiTronics® Modes:  
Compatible and Nibble (switchable)
- 4KV 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 or Mini-Centronics® -36  
for Parallel Connection
- DEC® MMJ jack, RJ-45 jack, or DB-25 (male or female)  
for Serial Connection
- Miniature Size
- Made in USA

### 2.2 DESCRIPTION

**The Patton Model 2030 RS-232/423 to IEEE 1284 BiTronics® Protocol Converter** lets you connect RS-232/423 serial hardware to a printer or other device equipped with a BiTronics® parallel interface. Able to work in either Level 1 Compatible or Nibble modes (according to the IEEE 1284 Standard), the Model 2030 supports the high speeds necessary for graphics-intensive laser printer applications.

On the serial side, the Model 2030 translated Nibble operations into standard Hewlett-Packard™ LaserJet® IV serial printer escape sequences. This allows operation with standard printer drivers. On the parallel side, the Model 2030 translates all commands received from the serial device into BiTronics® Nibble operations or Compatible operations (depending upon the mode selected).

The Model 2030 works with all BiTronics® 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. A variety of interface connection options are available.

## **3.0 CONFIGURATION**

The Model 2030 is simple to install and designed for excellent reliability. The following instructions will help you set up and install the converters properly. If you have any questions, please call Patton Technical Support at (301) 975-1007.

### **3.1 CONFIGURATION SWITCHES**

The Model 2030 uses a set of eight external DIP switches (see Figure 1) that allow configuration to a wide range of applications. Because all eight switches are in one externally accessible DIP switch package, there is no need to open the case for configuration. The configuration switches allow you to select data rates, parity, word length and flow control selection. The following section describes all switch locations, positions and functions.

1. Open the Model 2030 case by inserting a small flat-blade screwdriver in the slot on either side of the case and twisting gently.
2. Having exposed the Model 2030 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 Model 2030 PC board are labeled 1-8. Only switches 1-4 are used. Switches 5-8 have no function. Below are descriptions of the Model 2030 DIP switch settings.

#### Switch 1: Hardware/Software Control

The setting for Switch 1 determines whether the Model 2030 will use hardware or software (X-on/X-off) flow control.

Flow Control	SW1
Hardware	OFF*
Software	ON

\*Factory Default

#### 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 Model 2030.

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

\*Factory Default

#### Switches 5 and 8: Future Use

## 4.0 INSTALLATION

Once you have configured the Model 2030 properly, follow these steps to install the unit:

1. Plug the Model 2030 directly into the 36-Pin Centronics® interface. Where necessary, a short (6ft maximum) parallel printer cable may be used.
2. The RS-232 interface is wired as a DCE (see below) according to the EIA-561 Standard. Connect the Model 2030 to your Serial RS-232 DTE device using a straight through modular cable:

<u>RJ-45 (DCE)</u>	<u>SIGNAL</u>
1-----	DSR
2-----	CD
3-----	DTR
4-----	SG
5-----	RD
6-----	TD
7-----	CTS
8-----	RTS

3. The Model 2030 derives power from the RS-232/423 and IEEE 1284 interfaces. **IMPORTANT:** For the Model 2030 to operate as an interface powered device, the IEEE 1284 B interface must support the optional 5V on pin 18, and IEEE 1284 C must support interface pin 36 (peripheral logic high). If the IEEE 1284 interface does not meet these requirements, you must supply power to the Model 2030 using the option wall mount AC power supply.

## 5.0 OPERATION

Once the Model 2030 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 Model 2030 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	
● ● - ● - - - ● ● - ● - - -	Computer is sending data
● - - - ● - - - ● - - -	Serial device is connected; computer is not sending data
● ● - - - ● ● - - -	Both serial and parallel devices are connected; computer not sending data

Key:	
●	Blink
-	Short pause
- - -	Long pause



## APPENDIX A

### PATTON MODEL 2030 SPECIFICATIONS

<b>Transmission Format:</b>	Asynchronous, Full Duplex on the serial side; IEEE 1284 BiTronics® on the parallel side, supporting Compatibility and Nibble Modes (switchable)
<b>Connectors:</b>	Male Centronics®-36 or Mini-Centronics® - 36 for Parallel Connection; DEC® MMJ jack, RJ-45 jack, or DB-25 (male or female) for Serial Connection
<b>ESD Protection:</b>	4KV
<b>Data Rates:</b>	9.6, 19.2, 38.4 and 115.2 Kbps
<b>Range:</b>	Meets capacitive and resistive load requirements of RS-232 and RS-423
<b>Power Supply:</b>	Power derived from RS-232/423 and IEEE-1284 Interfaces. <b>Note:</b> IEEE 1284 B interface must support the optional 5V on pin 18, and IEEE 1284 C must support interface pin 36 (peripheral logic high). Otherwise, power must be supplied using the optional AC wall mount power supply.
<b>Temperature Range:</b>	0-60°C (32-140°F)
<b>Altitude:</b>	0-10,100 feet
<b>Humidity:</b>	5 to 95% noncondensing
<b>Dimensions:</b>	Approximately 3"H x 2"W x .75"D

## APPENDIX B

### PATTON MODEL 2030

#### INTERFACE CONNECTIONS

#### 36 PIN CENTRONICS PARALLEL PORT CONNECTIONS

Pin	Description	Direction
1	Strobe	Output
2	Data bit 0	} I/O
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	
16	Logic Ground	
17	Chassis Ground	
18	+5 volts	
	(19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30)	} Ground
31	Init	
32	Error	
36	nSelectIn	

**Note:** All other pins are unconnected



Dear Valued Customer,

Thank you for purchasing Patton Electronics products! We do appreciate your business. I trust that you find this user manual helpful.

We manufacture one of the widest selections of data communications products in the world including CSU/DSU's, network termination units, powered and self-powered short range modems, fiber optic modems, interface converters, baluns, electronic data switches, data-line surge protectors, multiplexers, transceivers, hubs, print servers and much more. We produce these products at our Gaithersburg, MD, USA, facility, and can custom manufacture products for your unique needs.

We would like to hear from you. Please contact us in any of the following ways to tell us how you like this product and how we can meet your product needs today and in the future.

Web:	<a href="http://www.patton.com">http://www.patton.com</a>
Sales E-mail:	<a href="mailto:sales@patton.com">sales@patton.com</a>
Support E-mail:	<a href="mailto:support@patton.com">support@patton.com</a>
Phone - Sales	(301) 975-1000
Phone - Support	(301) 975-1007
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We are committed to a quality product at a quality price. Patton Electronics is ISO 9001 certified. We meet and exceed the highest standards in the industry (CE, UL, etc.).

It is our business to serve you. If you are not satisfied with any aspect of this product or the service provided from Patton Electronics or its distributors, please let us know.

Thank you.

Burton A. Patton  
Vice President

P.S. Please tell us where you purchased this product:

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