

USER MANUAL

MODEL 2039 Parallel to Serial/ Serial to Parallel Interface Converter



PA PATTON
IE Electronics Co.



An ISO-9001
Certified Company

Part #07M2039-B
Doc. #102081U,
Rev. C
Revised 1/23/08

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

1.0 WARRANTY INFORMATION

Patton Electronics warrants all Model 2039 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 2039 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 2039 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 2039 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 non-warranty 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**.

NOTE: 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 2039. Technical Support 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 or problems arise during installation or use of this product, please do not hesitate to contact Patton Electronics Technical Support at (301) 975-1007.

2.1 FEATURES

- Converts parallel data to serial data and vice versa
- Automatically selects parallel-to-serial and serial-to-parallel operation
- Serial data rates to 115.2 Kbps
- No AC power required
- Supports both software and hardware flow control
- A five-state LED monitors status and diagnostics
- Ultra-miniature size
- A DB-9 female and a Centronics male connector
- Made in USA

2.2 DESCRIPTION

The Patton Model 2039 Parallel to Serial Converter automatically converts RS-232C serial data to parallel data format and vice versa. Incorporating advanced microprocessor technology, the Model 2039 is able to automatically sense and select parallel and serial modes. The Model 2039 requires no AC power or batteries and supports serial data rates to 115.2 Kbps.

For easy configuration, the Model 2039 features a convenient set of external configuration switches. These accessible configuration switches allow the user to control baud rate, parity, word length and flow control. An easy-to-read LED indicator displays status and operating condition.

Housed in an ultra-miniature ABS plastic case, the Model 2039 measures only 2.68" x 1.25" x .75". The Patton Model 2039 comes equipped with a DB-9 female connector on the serial side and a Centronics 36 pin male connector on the parallel side. A six foot integral cable is also included.

3.0 CONFIGURATION

The Model 2039 is simple to install and designed for excellent reliability. The following instructions will help you set up and install the converter properly. If you have any questions, please call Patton Technical Support at (301) 975-1007.

3.1 CONFIGURATION SWITCHES

The Model 2039 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.

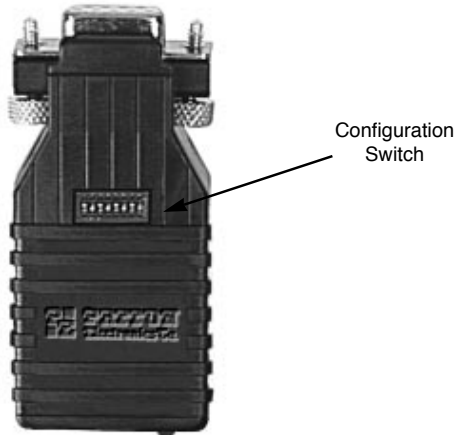


Figure 1. The location of the configuration switches

The Model 2039 uses a *miniature* configuration switch package. To configure your unit, use a small screwdriver and gently push each switch to its proper setting. The ON and OFF positions are shown in Figure 2. Default settings for the DIP switches are shown in the table on the following page. Detailed settings follow the table.

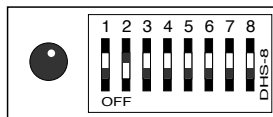


Figure 2. The miniature configuration switch package

| DIP SWITCH SUMMARY TABLE | | |
|--------------------------|-------------------------|-----------------|
| Position | Function | Factory Default |
| SW1 | Flow Control | Off Hardware |
| SW2 | LED Indicator | On Enabled |
| SW3 | Data, Parity, Stop Bits | Off |
| SW4 | Data, Parity, Stop Bits | Off |
| SW5 | Data, Parity, Stop Bits | Off |
| | | } 8B, NP, 1S |
| SW6 | Data Rate | Off |
| SW7 | Data Rate | Off |
| SW8 | Data Rate | Off |
| | | } 38400 bps |

3.2 DETAILED SWITCH SETTINGS

This section provides detailed information about the function of each DIP switch and lists all possible settings.

Switch 1: Hardware/Software Control

The setting for Switch 1 determines whether these interface converters will control either hardware or software flow control.

| Flow Control | SW1 |
|--------------|-----|
| Hardware | OFF |
| Software | ON |

Switch 2: Enable/Disable the LED Indicator

The setting for Switch 2 determines whether the LED indicator is enabled or disabled.

| LED | SW2 |
|----------|-----|
| Enabled | ON |
| Disabled | OFF |

Switch 3 through 5: Data, Parity and Stop Bit

Switches 3 through 5 are used to specify the data, parity and stop bits. The following table shows the settings that may be used:

| Data | Parity | Stop Bit | SW3 | SW4 | SW5 |
|------|--------|----------|-----|-----|-----|
| 7B | EP | 1S | ON | ON | ON |
| 7B | OP | 1S | OFF | ON | ON |
| 7B | NP | 2S | ON | OFF | ON |
| 7B | EP | 2S | OFF | OFF | ON |
| 7B | OP | 2S | ON | ON | OFF |
| 8B | EP | 1S | OFF | ON | OFF |
| 8B | OP | 1S | ON | OFF | OFF |
| 8B | NP | 1S | OFF | OFF | OFF |

Switches 6 through 8: Frequency and Data Rate

Switches 6 through 8 determine the frequency and data rate. The following chart shows the settings that may be used:

| Model 2039 | | | |
|------------|-----|-----|-----|
| Data Rate | SW6 | SW7 | SW8 |
| 1,200 | OFF | OFF | ON |
| 2,400 | ON | OFF | ON |
| 4,800 | ON | ON | OFF |
| 9,600 | OFF | ON | ON |
| 19,200 | ON | ON | ON |
| 38,400 | OFF | OFF | OFF |
| 57,600 | ON | OFF | OFF |
| 115,200 | OFF | ON | OFF |

4.0 INSTALLATION

The Patton Model 2039 is very simple to install. Once you have configured the DIP switches, just plug it in like a normal cable and you're ready to go. Figure 3 illustrates the proper connections for the standard cables. If you have special-ordered a non-standard connector, your connections may be different.

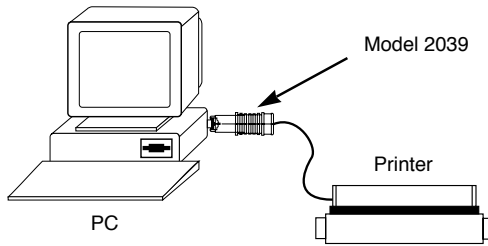


Figure 3. Installing the Model 2039

5.0 OPERATION

Once your interface converter is properly configured and installed, it should operate transparently—as if it were a standard cable connection. Operating power is derived from the RS-232 data and control signals; there is no "ON/OFF" switch.

5.1 LED STATUS MONITORS

The Model 2039 features an easy-to-read status LED that glows red to indicate the condition of the transmission line. Figure 1 shows the location of the LED. The following chart describes the LED's various functions.

| 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 |
| ● - ● --- ● - ● --- | Printer not ready, data held in buffer |
| ●●●● --- ●●●● | Computer ignoring flow control, data lost |

The red LED indicator blinks to show data activity. However, since there is only one indicator, it uses different LED codes to demonstrate various messages. The following chart describes these codes:

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

APPENDIX A

PATTON MODEL 2039 SPECIFICATIONS

| | |
|---------------------------|-------------------------------------------------------|
| Interface: | Async., RS-232C compatible |
| Connectors: | Serial, DB-9 F; parallel, Centronics 36 pin M |
| Cables: | Six foot integral cable |
| Data Rates: | 1.2 - 115.2 Kbps |
| LED: | LED displays status and operating condition |
| Power Supply: | None required; uses power from RS-232C interface |
| Data Format: | 7 or 8 bits; 1 or 2 stop bits; even, odd or no parity |
| Temperature Range: | 0-60°C (32-140°F) |
| Altitude: | 0-10,100 feet |
| Humidity: | 5 to 95% non-condensing |
| Dimensions: | 2.68" x 1.25" x .75" |
| Weight: | 2 oz. |

APPENDIX B

PATTON MODEL 2039 INTERFACE CONNECTIONS

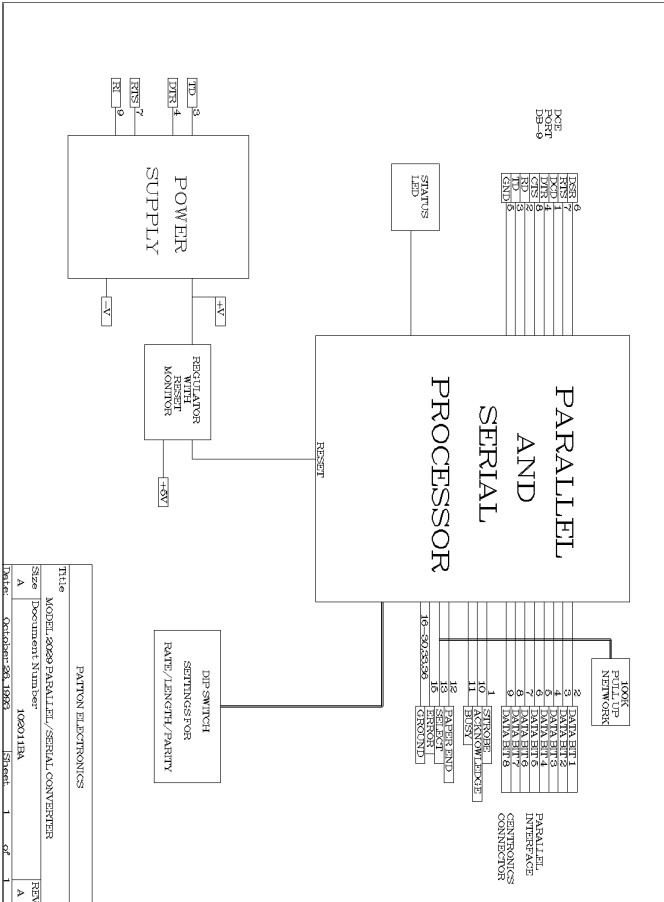
PARALLEL PORT CONNECTIONS

| Pin | Name | Description |
|-----|-------------|----------------------------------------------------------------------------------|
| 1 | Strobe | Output; normally high, goes low to read data on power up |
| 2 | Data bit 0 | Output |
| 3 | Data bit 1 | Output |
| 4 | Data bit 2 | Output |
| 5 | Data bit 3 | Output |
| 6 | Data bit 4 | Output |
| 7 | Data bit 5 | Output |
| 8 | Data bit 6 | Output |
| 9 | Data bit 7 | Output |
| 10 | Acknowledge | Input; normally high, goes low to shift next byte out of buffer |
| 11 | Busy | Input, normally low, goes high when buffer is full, goes low when buffer empties |
| 16 | Ground | |
| 17 | Ground | |
| 18 | Ground | |
| 19 | Ground | |
| | | |
| | | |
| 30 | Ground | |
| 33 | Ground | |
| 36 | Ground | |

DB-9 SERIAL PORT CONNECTIONS

| Pin | Name | Description |
|-----|------|---------------------------------------|
| 1 | DCD | Carrier Detect |
| 2 | RXD | Receive Data |
| 3 | TXD | Transmit Data, power source |
| 4 | DTR | Data Terminal Ready, power source |
| 5 | GND | Signal Ground |
| 6 | DSR | Data Set Ready |
| 7 | RTS | Request to Send, power source |
| 8 | CTS | Clear to Send |
| 9 | RI | Ring Indicator, optional power source |

APPENDIX C PATTON MODEL 2039 BLOCK DIAGRAM



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: | http://www.patton.com |
| Sales E-mail: | sales@patton.com |
| Support E-mail: | support@patton.com |
| Phone - Sales | (301) 975-1000 |
| Phone - Support | (301) 975-1007 |
| Fax: | (301) 869-9293 |
| Mail: | Patton Electronics Company 7622 Rickenbacker Drive Gaithersburg, MD 20879 USA |

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.
