

# USER MANUAL

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## MODEL 1053 iDSL Modem with RS-232 Interface



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



**An ISO-9001  
Certified  
Company**

Part# 07M1053-UG  
Doc# 05815U2-001 Rev. A  
Revised 11/10/04

SALES OFFICE  
(301) 975-1000  
TECHNICAL SUPPORT  
(301) 975-1007

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## 1.0 WARRANTY INFORMATION

**Patton Electronics** warrants all Model 1053 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 FCC INFORMATION

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. 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

### 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 Patton Technical Support.



**Important**

Conformity documents of all Patton products can be viewed online at [www.patton.com](http://www.patton.com) under the appropriate product page.

### **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 Service at:

Tel: **(301) 975-1007**

E-mail: **support@patton.com**

URL: **www.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 1053. 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 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

- Synchronous data rates: 32, 56, 64, and 128 kbps
- Asynchronous data rates: 0–38.4, 57.6, 76.8, and 115.2 kbps
- Full duplex operation over a single twisted pair (2-wires)
- Point-to-point distances up to 5 miles (all data rates) on 24 AWG twisted pair
- Multi-rate symmetric DSL
- RS-232 Interface
- Compatible with popular Models 1092A, 1082, and 1052
- Universal power options, 120 VAC and -48, -24, and -12 VDC available
- LED status indicators
- Small, convenient desktop unit
- CE marked

### 2.2 DESCRIPTION

The Patton Model 1053 is a high speed, AC powered short range modem that is able to operate synchronously or asynchronously—full duplex—over a single twisted pair. Supporting data rates up to 128 kbps (synchronous) or 115.2 kbps (asynchronous), the Model 1053 is capable of point-to-point distances up to 5 miles (8 km) using 24 AWG wire. The Model 1053 supports internal, external, or receive recovery clocking, and asynchronous data rates may be configured locally using DIP switches.

The Model 1053/A provides an RS-232 interface on a DB-25 female connector. Line connection is made by an RJ-45 jack. Standard versions of Model 1053 are powered by a 100–240 VAC (Universal) supply. The DC power supply options support either -12, -24, or -48 VDC.

### 3.0 CONFIGURATION

The Model 1053 is equipped with 16 DIP switches that enable configuration of the unit for a wide variety of applications. This section describes switch locations and explains the different configurations

#### 3.1 CONFIGURING THE HARDWARE DIP SWITCHES

S1 and S2 each contain eight internal DIP switches (see Figure 1) that are used for configuration reset purposes only. To access switch sets, use a small flat blade screwdriver to open the Model 1053's case as shown in Figure 2 on page 8.

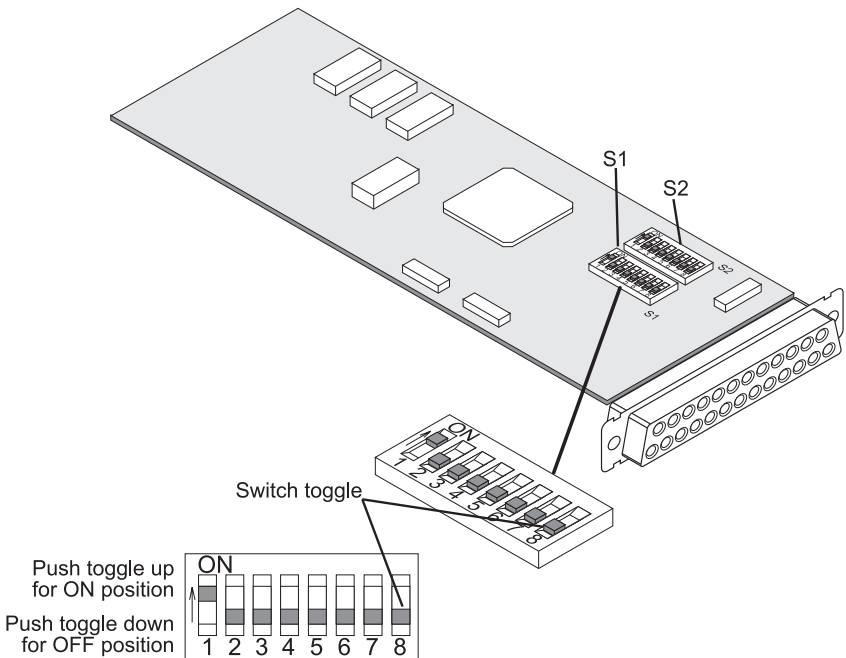
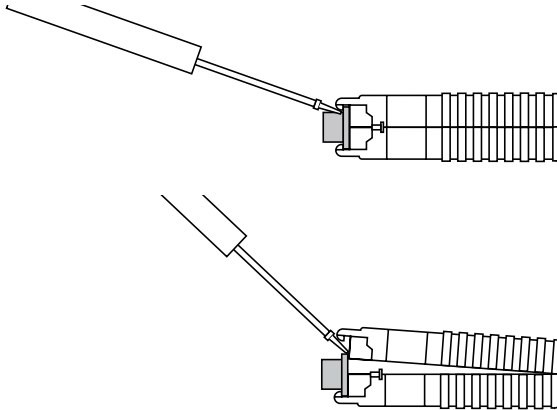


Figure 1. DIP switches S1 and S2

To configure the DIP switches, use a small screwdriver and gently push each switch to its proper setting. The ON and OFF positions are shown in Figure 1.



**Figure 2.** Opening the Model 1053 case

Figure 1 on page 7 shows the orientation of the DIP switches in the “ON” and “OFF” positions.

### Configuring DIP Switch S1

DIP switch S1 is where you configure the data rate, asynchronous or synchronous data format, transmit clock source. The following table summarizes default positions of DIP switches S1-1 through S1-8. Detailed descriptions of each switch follow the table.

S1 Summary Table		
Position	Function	Factory Default
S1-1	Data Rate	On } 128K Sync
S1-2	Data Rate	On }
S1-3	Reserved	On
S1-4	Reserved	On
S1-5	Async/Sync Data Format	Off
S1-6	Tx Clock Source	On } Internal Clock
S1-7	Tx Clock Source	On }
S1-8	Reserved	Off

**Switches S1-1 and S1-2: Data Rate.** Use switches S1-1 and S1-2 to configure the asynchronous or synchronous data rate of the Model 1053.



Each setting represents one synchronous data rate and one asynchronous data rate.

S1-1	S1-2	Sync Data Rate	Async. Data Rate
On	On	128 kbps	115.2 kbps
Off	On	64 kbps	57.6 kbps
On	Off	56 kbps	76.8 kbps
Off	Off	32 kbps	0–38.4 kbps

**Note** If the S2-1 switch is positioned in the OFF position, the 128 kbps sync data rate/0–38.4 kbps async data rate option is selected.

**Switch S1-3:** Must be set to the ON position (Reserved).

S1-3	Setting
On	Reserved

**Switch S1-4:** Must be set to the ON position (Reserved).

S1-4	Setting
On	Reserved

**Switch S1-5: Asynchronous/Sync Operation.** Use Switch S1-5 to configure the Model 1053 for async/sync operation. For synchronous data rates set switch S1-5 OFF. For asynchronous rates set switch S1-5 ON.

S1-5	Setting
Off	Sync
On	Async

**Switches S1-6 and S1-7: System Clock Mode.** Use Switches S1-6 and S1-7 to configure the 1053 for internal, or receive recover clock mode.

S1-6	S1-7	Clock Mode	Description
On	On	Internal	System clock generated internally
Off	On	External (DTE)	System clock derived from terminal interface
On	Off	Receive Recover	System clock derived from the received line signal
Off	Off	Hardware Reset	



A pair of Model 1053s communicate synchronously across the twisted pair line connection. Therefore, **you must set these switches whether your application is async or sync**. For Sync or Async applications, please configure one Model 1053 for internal clock mode and the other Model 1053 for receive recover clock mode.

**Switch S1-8:** Must be set to the OFF position (Reserved).

S1-8	Setting
Off	Reserved

### Configuring DIP switch S2

DIP switches in S2 are reserved and must be set in the OFF position. The following table summarizes default positions of DIP switches S2-1 through S2-8.

## 4.0 INSTALLATION

Once the Model 1053 has been configured, it is ready to connect to the twisted pair interface, the serial port, and the power source. This section tells you how to make these connections.

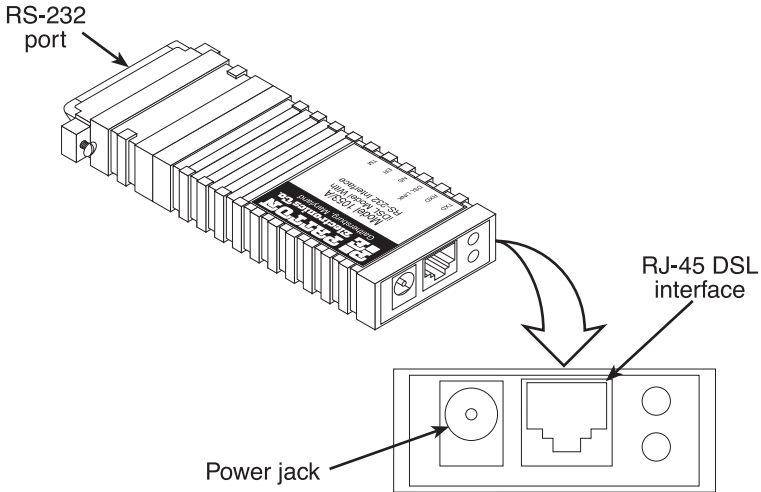


Figure 3. Model 1053 Rear Panel

### 4.1 CONNECTING THE TWISTED PAIR INTERFACE

The Model 1053 supports communication between two DTE devices at distances to 5 miles (8 km) over 24 AWG (0.5 mm) twisted pair wire. Two things are essential:

- These units work in pairs. Both units at the end of the twisted pair DSL span must be set for the same DTE rate.
- To function properly, the Model 1053 needs one twisted pair of metallic wire. This twisted pair must be unconditioned, dry, metallic wire, between 19 (0.9 mm) and 26 AWG (0.4 mm) (the higher number gauges will limit distance). Standard dial-up telephone circuits, or leased circuits that run through signal equalization equipment, or standard, flat modular telephone type cable, are not acceptable. The RJ-45 connector on the Model 1053's twisted pair interface is polarity insensi-

tive and is wired for a two-wire interface. The signal/pin relationships are shown in Figure 4.

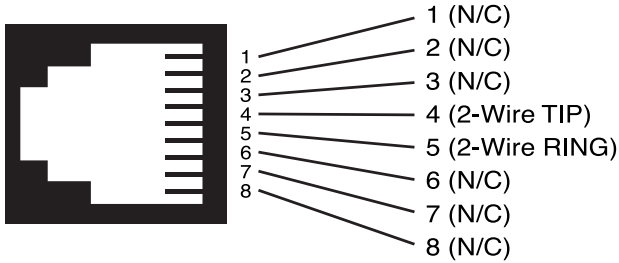


Figure 4. Model 1053 twisted pair line interface

#### 4.2 CONNECTING THE MODEL 1053/A (RS-232)

The Model 1053/A supports RS-232 serial port connections. This section describes how to connect the serial ports to your RS-232 equipment.

##### Connecting the Model 1053/A (RS-232) to a DTE Device

The Model 1053/A provides an RS-232 DCE (data circuit terminating equipment) interface on a DB-25 female connector. As a DCE, this interface is designed to connect to DTE equipment, such as a router. When connecting the RS-232 interface of the Model 1053/A to your DTE device, use an RS-232 straight-through cable (see Figure 5). Appendix C on page 18 describes pin assignments and signal sources for the Model 1053/A RS-232 interface. When purchasing or constructing an interface cable, use the pin diagrams in Appendix C as a guide.

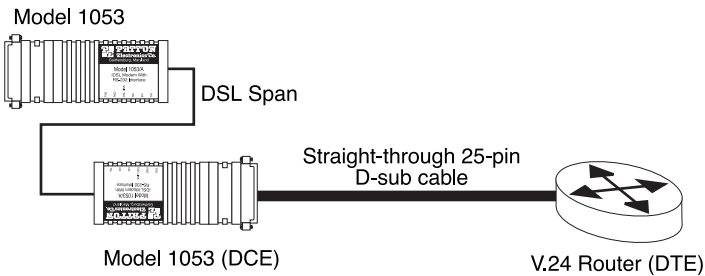


Figure 5. Connecting the Model 1053/A to an RS-232 serial DTE

#### 4.3 POWER CONNECTION

The Model 1053 (all versions) are available with Universal AC (100–240 VAC), 120 VAC, 230 VAC or -12, -24, or -48 VDC power options. This section describes these options.

### Universal AC Power (100–240 VAC)

The Model 1053 uses a 5VDC, 2A universal input 100–240VAC, power supply (center pin is +5V). The universal input power supply has a male IEC-320 power entry connector. This power supply connects to the Model 1053 by means of a barrel jack on the rear panel. Many international power cords are available for the universal power supply (Refer to Appendix B on page 17 for country-specific power cords). The Model 1053 powers up as soon as it is plugged into an AC outlet—there is no power switch. The Universal AC supply is equipped with a male IEC-320.

### DC Power

The optional -12, -24, or -48 VDC DC-to-DC adapter supplied with the DC version of the Model 1053 plugs in a DC source (nominal -12, -24, or -48 VDC) and plugs into the barrel power supply jack on the rear of the 1053. Refer to Figure 6 to make the proper connection.



Figure 6. Connecting DC power to the 48V-PSM DC power supply



**There are no user-serviceable parts in the power supply section of the Model 1053. Fuse replacement should only be performed by qualified service personnel. Contact Patton Electronics Technical support at +1 (301) 975-1007, via our web site at [www.patton.com](http://www.patton.com), or by E-mail at [support@patton.com](mailto:support@patton.com), for more information.**

## 5.0 OPERATION

Once the Model 1053 is properly configured and installed, it should operate transparently. This sections describes power-up, reading the LED status monitors.

### 5.1 POWER-UP

Before applying power to the Model 1053, read section 4.3, “Power Connection” on page 12 to ensure that the unit is connected to the appropriate power source.

### 5.2 LED STATUS MONITORS

The Model 1053 features six side-panel LEDs (see Figure 7). Table 1 describes the function of each LED.

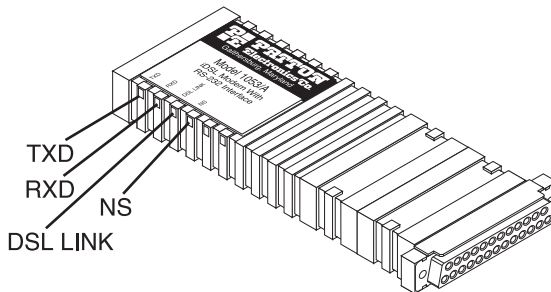


Figure 7. Model 1053 side panel LEDs

Table 1: LED descriptions

LED	Description
TXD	(Active: Green) When lit, indicates data transmission.
RXD	(Active: Green) When lit, indicates data transmission.
LINK	(Active: Green) When lit, indicates that the end-to-end DSL framer link is up, signifying that the link across the DSL span is active. The DSL Link LED is off when the link is down.
NS	(Active: Yellow) When the No Signal LED is lit, it indicates that the local Model 1053 is not connected with the remote Model 1053

## **APPENDIX A**

### MODEL 1053 SPECIFICATIONS

#### **A.1 TRANSMISSION FORMAT**

Synchronous or asynchronous

#### **A.2 TRANSMISSION LINE**

Single unconditioned twisted pair

#### **A.3 CONTROL SIGNALS**

CD and RTS

#### **A.4 CLOCKING**

Internal, external, or receive recover

#### **A.5 DISTANCE**

Distance, max, all data rates:

- 10.1 miles (16.4km) on 19 AWG (0.9 mm) wire
- 7.2 miles (11.5 km) on 22 AWG (0.64 mm) wire
- 5.0 (8 km) on 24 AWG (0.5 mm) wire
- 3.4 (5.5 km) on 26 AWG (0.4 mm) wire

#### **A.6 DATA RATES**

- Synchronous: 32, 56, 64, and 128 kbps
- Asynchronous: 0–38.4, 57.6, 76.8, and 115.2 kbps

#### **A.7 LED STATUS INDICATORS**

TXD, RXD, Link, NS (no signal), ER (CRC error)

#### **A.8 CONNECTORS**

RJ-45 on DSL line side; DB-25 female on serial interface side

#### **A.9 POWER**

100–253 VAC, 50–60 Hz (universal input option); 48 VDC (optional),  
5 watts

**A.10 TEMPERATURE RANGE**

32–122°F (0–50°C)

**A.11 ALTITUDE**

0–15,000 feet (0–4,572 meters)

**A.12 HUMIDITY**

5–95% non-condensing

**A.13 WEIGHT**

2.01 lbs. (1.0 kg)

**A.14 LINE INTERFACE**

Transformer coupled 1500 VAC isolation



**APPENDIX B**  
**MODEL 1053/A FACTORY REPLACEMENT**  
**PARTS AND ACCESSORIES**

<b>Model #</b>	<b>Description</b>
1053/A	RS232 iDSL Modem
12V-PSM	12 VDC Power Supply Module
24V-PSM	24 VDC Power Supply Module
48V-PSM	48 VDC Power Supply Module
08055DCUI	100–240VAC (+5V ±5% reg. DC/2A) Universal Input Adapter
0805EUR	European Power Cord CEE 7 (“A”)
0805UK	United Kingdom Power Cord (“D”)
0805US	American Power Cord (“K”)
0805AUS	Australia/New Zealand Power Cord (“C”)
0805DEN	Denmark Power Cord (“E”)
0805FR	France/Belgium Power Cord (“F”)
0805IN	India Power Cord (“G”)
0805IS	Israel Power Cord (“H”)
0805JAP	Japan Power Cord (“J”)
0805SW	Switzerland Power Cord (“L”)
07M1053	User Manual

## **APPENDIX C**

### **MODEL 1053/A INTERFACE PIN ASSIGNMENTS**

#### **RS-232 INTERFACE (DB-25 Female Connector) (DCE Orientation)**

<b>Pin #</b>	<b>Signal</b>
1	Shield GND
2	TD (Transmit Data) (DTE Source)
3	RD (Receive Data) (DCE Source)
4	RTS (Request to Send) (DTE Source)
5	CTS (Clear to Send) (DCE Source)
6	DSR (Data Set Ready) (DCE Source)
7	SGND (Signal Ground)
8	CD (Carrier Detect) (DCE Source)
15	TC (Transmitter Clock) (DCE Source)
17	RC (Receiver Clock) (DCE Source)
20	DTR (Data Terminal Ready) (DTE Source)
24	XTC (External Transmit Clock) (DTE Source)



