IC 1056

Microlinker RS-232 Powered Interface Converter

User Manual

Revision 2 - March 1999

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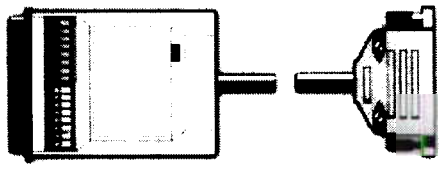
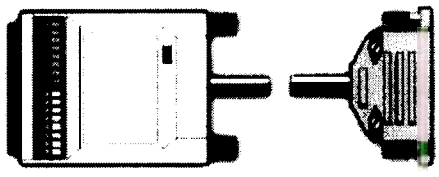
Variants

1



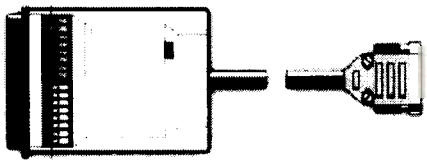
1) **Centronics /RS-232** using a 25 pin male or female D type connector wired in the DCE (Data Communications equipment) configuration. This connector would plug directly into most equipment including computers and printers. Optionally this connector can be wired in the DTE (Data Terminal Equipment) configuration. **Centronics / Parallel** using a 36 way male Amphenol type connector. This connector would plug directly into most printers.

2



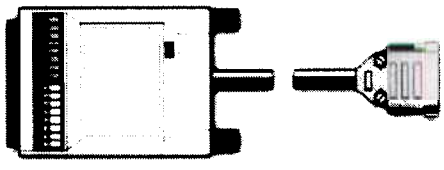
2) **PC / RS-232** - as above but with a parallel IBM PC 25 pin connector.

3



3) **IBM PC Serial** using a 9 way pin female D type connector. This connector would plug directly into a number of IBM PC variants and also a number of PC compatibles. However, it is now more common for PCs to be fitted with a 25 pin male connector for the RS-232 serial connection.

4

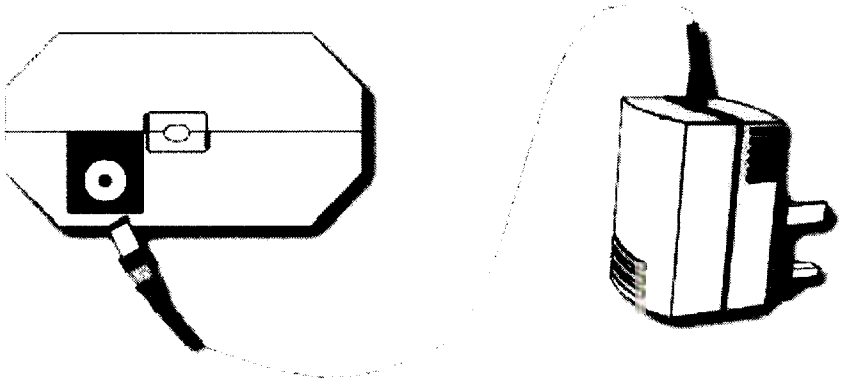


4) **PC / IBM PC Serial** - as above but with a parallel IBM PC 25 pin connector.

Power Requirements

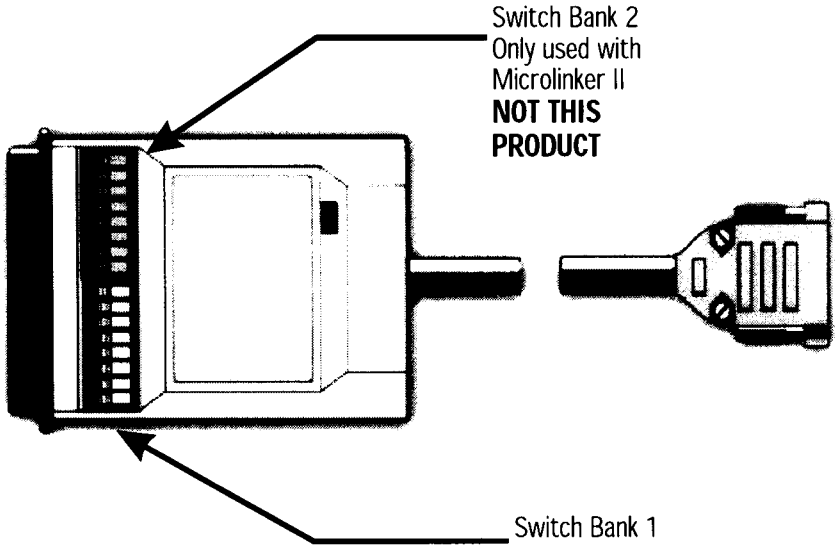
The Microlinker derives its power directly from the RS-232 signals provided by your equipment and thus in most applications no additional power source is required.

Provision, however, is to power the Microlinker from an optional power module for applications where the typical RS-232 signals are not available although most equipment including the majority of Printers and Computers do provide the required signals for correct operation of the Microlinker. Further information on the required signals can be found in the appendix of this manual. For applications which must use the optional power adaptor, the Microlinker is fitted with a 2.1mm power inlet **(-ve on centre pin)** into which the output of the power adaptor should be plugged.

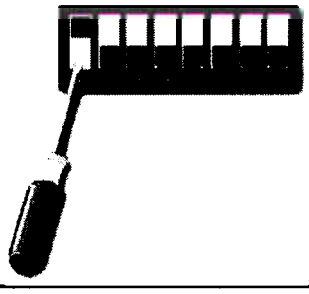


Configuration Switches

Accessible from the top of the Microlinker is two banks of eight miniature switches. These must be set during installation to set the required operating conditions of the unit. They can also be adjusted subsequently if your needs change.



Switch operation:- To set the configuration switches use a small instrument such as a screwdriver. The example on the left shows switch 1 in the **ON** position and switches 2 to 8 in the **OFF** position.



Switch Settings Bank 1 (Microlinker)

Switches 1, 2 & 3 (Baud Rate)

These switches set the baud rate (data signaling speed) at the serial port. They must be set to match the speed setting of your serial device.

Switch 4 (Flow Control)

Xon/Xoff Flow Control - one popular method of achieving flow control is a method known as Xon/Xoff. In this method the receiving device transmits two special data characters, called `Xon' and `Xoff', back to the sending equipment periodically during data transmission. Xoff means `stop', and Xon means `go'.

Hardware Flow Control - In this method the recipient controls a steady voltage level signal on one of its interface pins. A positive voltage (between +3V and +25V) means `go' and a negative voltage (between -3V and -25V) means `stop'.

Switches 5 & 6 (Parity Selection)

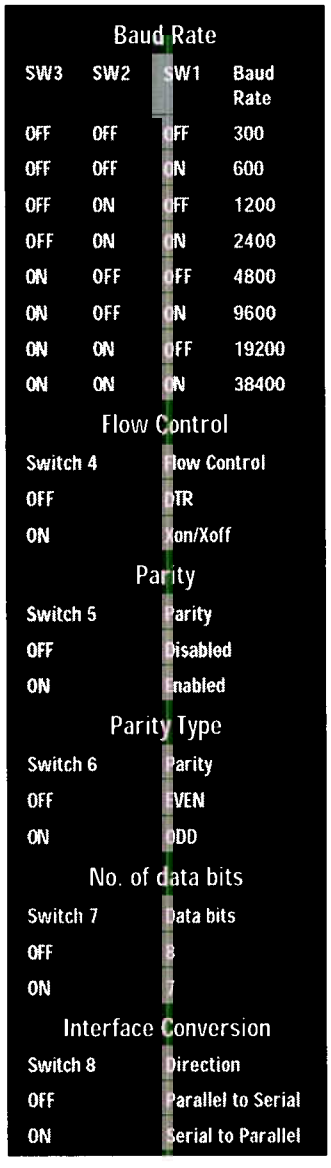
Parity when selected adds or checks for an additional bit in the serial transmission. This bit serves as check on the validity of the transmitted data. The parity selection must be set to match that of the serial device.

Switch 7 (Character Length)

The character length is the number of data bits that form each character, and is normally either 7 or 8.

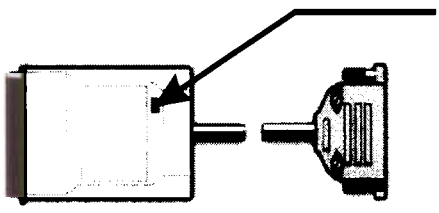
Switch 8 (Conversion)

Switch 8 configures the Microlinker to convert from either Serial to Parallel or from Parallel to Serial. **Note:** To avoid any possible damage to the Microlinker or your equipment it is important to set the direction of conversion before connecting to any other equipment.



Button Operation

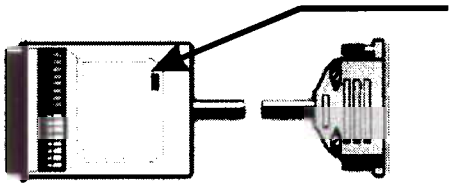
Status Message Generation



Located on the switch side of the Microlinker is a small red button, the function of which, is to help with installation. When depressed for 3 seconds (approx.) a diagnostic message is sent to selected output port(s):-

```
************************************************
Interlink Communications
Microlinker II
RS-232 / RS-485 / Parallel / Centronics
Interface Converter
Version 1.0
************************************************
Direction: RS-485 -> Parallel
************************************************
RS-485: 9600 Baud, 8 Data, Xon/Xoff
************************************************
RS-232: 9600 Baud, 8 Data, DTR/CTS, No Parity
************************************************
```

Reset



Located on the underside of the Microlinker is a small red button, the function of which, is to perform a complete (hard) reset of the Microlinker.

Interface Connections

Serial RS232 Connections (25 Way Connector Male/Female). Wired as DCE

Pin	Signal	Destination	Comment
2	RXD (Receive Data)	Input	Serial Data Input. Also provides negative RS-232 power to the Microlinker
3	TXD (Transmit Data)	Output	Serial Data Output
4	RTS (Request to send)	Input	This signal is used to power the Microlinker.
5	CTS (Clear to send)	Output	Hard wired handshake output
7	GND		Signal Ground. Must be connected
20	DTR (Data terminal ready)	Input	Hard wired handshake input. Data flow from the Microlinker will be suspended immediately this input is taken low. Also used to power the Microlinker.

Serial RS232 Connections (9 Way Connector Female) Wired as DCE

Pin	Signal	Destination	Comment
2	TXD (Transmit Data)	Output	Serial Data Output.
3	RXD (Receive Data)	Input	Serial Data Input. Also provides negative RS-232 power to the Microlinker
4	DTR (Data terminal ready)	Input	Hard wired handshake input. Data flow from the Microlinker will be suspended immediately this input is taken low. Also used to power the Microlinker.
5	GND		Signal Ground. Must be connected
7	RTS (Request to send)	Input	This signal is used to power the Microlinker.
8	CTS (Clear to send)	Output	Hard wired handshake output

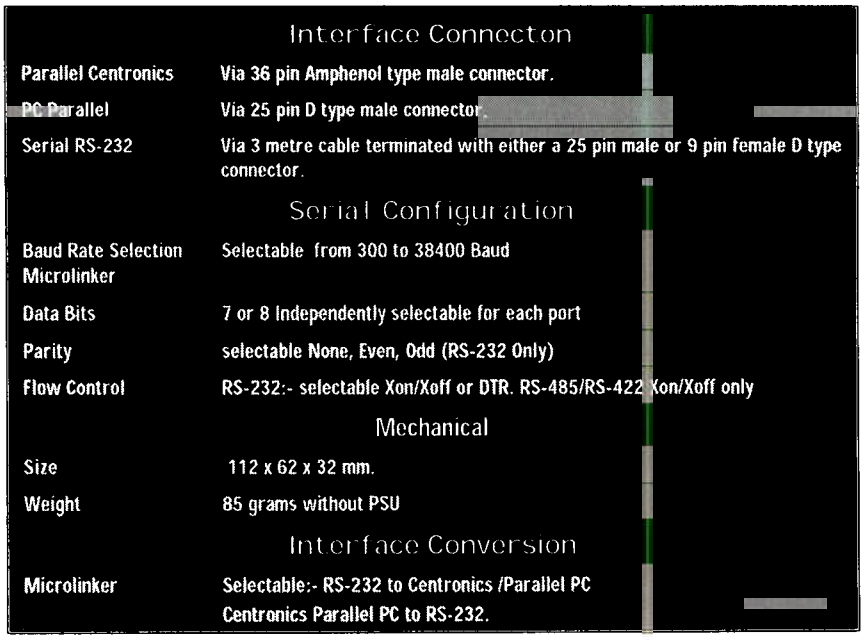
Parallel / Centronics Connections (Parallel to RS-232 Serial Conversion)

Pin PC Parallel	Pin Centronics	Destination	Signal	Function
1	1	Input	$\overline{\text{Strobe}}$	Must normally be high. Used to strobe data into the Microlinker. (Minimum pulse width 1uS).
2-9	2 - 9	Input	Data 1-8	These lines represent the data in true logic. Note: Data must be present when the strobe line goes from high to low.
10	10	Output	$\overline{\text{Ack}}$	A negative going pulse from the Microlinker is generated to acknowledge acceptance of data.
11	11	Output	Busy	This signal when high indicates that the Microlinker is in the busy state.
12	12	Output	PE	Paper Empty: Held low except for parallel line driving (pair mode) in which the signal reflects the signal at the printer.
13	13	Output	SLCT	ON/OFF LINE: Held high except for parallel line driving (pair mode) in which the signal reflects the signal at the printer.
14	14	Input	$\overline{\text{Auto Feed}}$	Auto Line Feed: No function except for parallel line driving (pair mode) in which the signal is passed through to the printer.
18-25	19-30	0V	GND	Twisted pair return signal GND level.
15	32	Output	$\overline{\text{Error}}$	Printer Error: Held high except for parallel line driving (pair mode) in which the signal reflects the signal at the printer.
16	31	Input	$\overline{\text{Prime}}$	Printer Intialize: No function except for parallel line driving (pair mode) in which the signal is passed through to the printer.
17	36	Input	$\overline{\text{SLCT IN}}$	Set Printer ON/OFF Line: No function except for parallel line driving (pair mode) in which the signal is passed through to the printer.

Parallel / Centronics Connections (RS-232 Serial to Parallel Conversion)

Pin PC Parallel	Pin Centronics	Destination	Signal	Function
1	1	Output	$\overline{\text{Strobe}}$	Used to strobe data into the Printer.
2-9	2 - 9	Output	Data 1-8	These lines represent the data in true logic.
10	10	Input	$\overline{\text{Ack}}$	Used to acknowledge acceptance of data from the printer.
11	11	Input	Busy	This signal when high indicates that the printer is in the busy state.
12	12	Input	PE	Paper Empty:
13	13	Input	SLCT	ON/OFF LINE: No function except for parallel line driving (pair mode) in which the signal is passed through to the sending device.
14	14	Output	$\overline{\text{Auto Feed}}$	Auto Line Feed: Held high except for parallel line driving (pair mode) in which the signal is passed through from the sending device.
18-25	19-30	0V	GND	Twisted pair return signal GND level.
15	32	Input	$\overline{\text{Error}}$	Printer Error:No function except for parallel line driving (pair mode) in which the signal is passed through to the sending device.
16	31	Output	$\overline{\text{Prime}}$	Printer Intialize: Held high except for parallel line driving (pair mode) in which the signal is passed through from the sending device.
17	36	Output	$\overline{\text{SLCT IN}}$	Set Printer ON/OFF Line: Held high except for parallel line driving (pair mode) in which the signal is passed through from the sending device.

Specification



Interface Connecton	
Parallel Centronics	Via 36 pin Amphenol type male connector.
PC Parallel	Via 25 pin D type male connector.
Serial RS-232	Via 3 metre cable terminated with either a 25 pin male or 9 pin female D type connector.
Serial Configuration	
Baud Rate Selection Microlinker	Selectable from 300 to 38400 Baud
Data Bits	7 or 8 Independently selectable for each port
Parity	selectable None, Even, Odd (RS-232 Only)
Flow Control	RS-232:- selectable Xon/Xoff or DTR. RS-485/RS-422 Xon/Xoff only
Mechanical	
Size	112 x 62 x 32 mm.
Weight	85 grams without PSU
Interface Conversion	
Microlinker	Selectable:- RS-232 to Centronics /Parallel PC Centronics Parallel PC to RS-232.

This product conforms to the following European Directives:-

CE **EN55022:1987 CLASS A** for Conducted and Radiated Interference.
EN50082-1:1992 for Immunity.
EN60950:1992 for Low Voltage Directive.