



**JULY 2003**

**ME1721A-F**

**ME1721A-M**

**ME1821A-F**

**ME1821A-M**

# **Miniature Asynchronous Modems**

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# ME1721A-F, ME1721A-M, ME1821A-F, ME1821A-M

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## 1. Features

Miniature asynchronous modems:

- Data rate up to 19.2 kbps
- Full duplex operation over 4-wire lines
- Range of up to 5 km (3 miles) at 19.2 kbps over 24 AWG lines
- Transformer isolated from line hazards
- DCE/DTE switch for easy direct connection
- No AC power required
- Miniature, lightweight, easy to install.

## Versions

The following versions of the modem are available:

- ME1721A-F – modem with female DTE connector and terminal block line connector
- ME1721A-M – modem with male DTE connector and terminal block line connector
- ME1821A-F – modem with female DTE connector and RJ-45 line connector
- ME1821A-M – modem with male DTE connector and RJ-45 line connector.

## Application

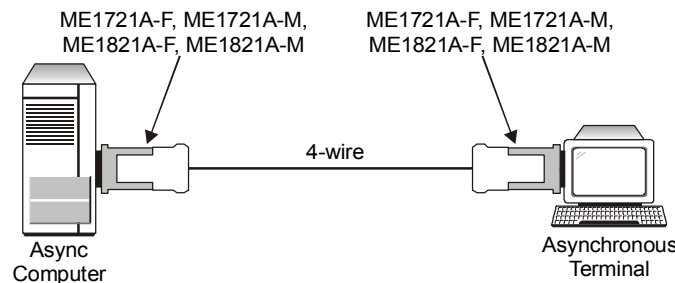


Figure 1. Typical Application

## 2. Description

ME1721A-F, ME1721A-M, ME1821A-F, ME1821A-M are miniature asynchronous modems for local data distribution, connecting full duplex asynchronous DTEs to computers. [Table 1](#) lists typical ranges achieved by the modems over different wire types.

*Table 1. Typical Transmission Ranges*

Data Rate [kbps]	19 AWG		24 AWG		26 AWG	
	[km]	[miles]	[km]	[miles]	[km]	[miles]
1.2, 2.4	12.0	7.5	5.5	3.5	4.0	2.5
4.8	11.5	7.0	5.0	3.0	4.0	2.5
9.6	10.0	6.0	4.5	2.5	3.0	2.0
19.2	5.0	3.0	2.0	1.0	1.5	1.0

A DTE/DCE switch allows to operate as a DTE in order to connect to another DCE, without requiring a cross cable.

Innovative circuitry allows the modems to operate without connection to the mains supply, by using ultra low power from the V.24/RS-232 data and control signals. The modems will operate even if only Transmit Data is connected, i.e. without any control signals. Both positive and negative signals are generated, irrespective of constantly high or constantly low Transmit Data.

The low transmit level minimizes crosstalk onto adjacent circuits within the same cable. Data is transmitted and received at a balanced interface, ensuring high immunity to circuit noise.

The modems are coupled to the dedicated line via isolation transformers rated at over 1,500 VRMS. The transformers, together with other circuitry, protect against AC or DC overvoltages. This makes them suitable for connection to local circuits provided by most national telephone administrations (PTTs).

The modems are available with a male or female integral 25-pin connector for the DTE interface and a 5-screw (4-wire and ground) terminal block connector for the line. Optionally, the line connection can be RJ-45. [Table 2](#) provides the pinout of the RJ-45 line connector.

*Table 2. Line Connector Pinout (RJ-45)*

Pin	Function
1	Not connected
2	Ground
3	RCV-
4	XMT-
5	XMT+
6	RCV+
7	Not connected
8	Not connected

### 3. Technical Specifications

<b>Line Interface</b>	<i>Line Type</i>	4-wire unconditioned dedicated line (two twisted pairs)
	<i>Transmission Mode</i>	Asynchronous, full duplex
	<i>Transmission Level</i>	0 dBm
	<i>Range</i>	See <a href="#">Table 1</a>
	<i>Protection</i>	AC/DC overvoltage protection circuits are connected via isolation transformers rated at 1,500 VRMS
	<i>Connector</i>	<ul style="list-style-type: none"> <li>• ME1721A-F, ME1721A-M: 5-screw terminal block</li> <li>• ME1821A-F, ME1821A-M: RJ-45</li> </ul>
<b>DTE Interface</b>	<i>Type</i>	RS-232/V.24
	<i>Control Signals</i>	<p><b>DSR</b> (Circuit 107) turns on immediately after the DTE raises DTR (Circuit 108/2);</p> <p><b>CTS</b> (Circuit 106) and <b>DCD</b> (Circuit 109) turn on immediately after the DTE raises RTS (Circuit 105)</p>
	<i>Data Rate</i>	Up to 19.2 kbps
	<i>Connector</i>	<ul style="list-style-type: none"> <li>• ME1721A-F, ME1821A-F: D-type, 25-pin, female</li> <li>• ME1721A-M, ME1821A-M: D-type, 25-pin, male</li> </ul>
<b>Power</b>		None required; uses ultra low power from the RS-232/V.24 data and control signals
<b>Physical</b>	<i>Height</i>	18 mm / 0.7 in
	<i>Width</i>	53 mm / 2.1 in
	<i>Depth</i>	52 mm / 2.1 in
	<i>Weight</i>	38g / 1.3 oz
<b>Environment</b>	<i>Temperature</i>	0–50°C (32–122°F)
	<i>Humidity</i>	Up to 90%, non-condensing

## 4. Installation

**Caution** This is a delicate instrument. Be careful when setting jumpers or performing any actions within the product so that you do not break or shake any components.

Installation of the modems is simple and straightforward, just follow these steps:

1. Configure the modem to operate as DCE or DTE by setting the DCE/DTE switch on the bottom panel to appropriate position. Refer to [Figure 2](#) for control signal direction in DCE and DTE modes.

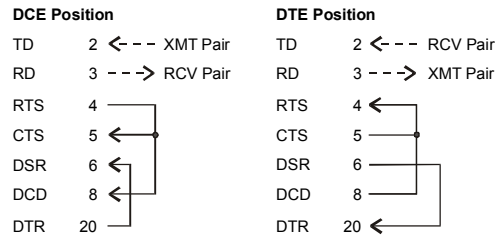


Figure 2. DCE/DTE Switch Configuration

2. Connect the 4-wire line to the terminal block connector. Observe the following pin polarity between the local and remote units:
  - Local XMT (+) connected to remote RCV (+)
  - Local XMT (-) connected to remote RCV (-)
  - Local RCV (+) connected to remote XMT (+)
  - Local RCV (-) connected to remote XMT (-).

**Note** When operating in a noisy environment, use shielded cables, and connect the cable shield to the G (ground) terminal.

3. Plug the modem directly into the 25-pin connector of the terminal or computer port. Fasten the screws on each side of the connector.