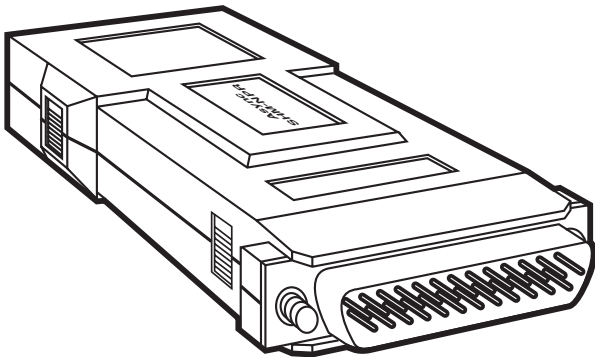




MARCH 1997  
ME6100A-F  
ME6100A-M  
ME6101A-F  
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ME6102A-F  
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## Async SHM-NPR



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### CUSTOMER SUPPORT INFORMATION

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# 1. Specifications

**Transmission Mode** — Asynchronous, full or half duplex

**Transmission Line** — 4-wire unconditioned telephone line (two twisted pairs)

**Data Rates** — Up to 19,200 bps

**Transmission Level** — -6 dBm

**Transmission Controls** — DCD (Circuit 109) turns on after recognizing the receive signal from the line; CTS (Circuit 106) turns on 1 or 12 msec (selectable) after the terminal raises RTS (Circuit 105)

## NOTE

To ensure proper operation, the equipment connected to the SHM-NPR should provide at least one of the following signals: RTS (Circuit 105) or DTR (Circuit 108.2).

**Transmission Range** — 2 miles (3.2 km) on 24 AWG wire at all speeds up to 19,200

**Terminal Interface** — EIA RS-232C/CCITT V.24, integral 25-pin connector, choice of male or female

**Telephone Line Interface** — 5-screw (4-wire and ground) connector block with cable strain relief inside plastic cover

**Temperature** — 32 to 122 °F (0 to 50 °C)

**Humidity** — Up to 95%, non-condensing

**Power** — None required, uses ultra-low power from the EIA RS-232/CCITT V.24 data and control signals

**Size** — 0.9”H x 2.1”W x 4.3”D (2.2 x 5.3 x 11 cm)

**Weight** — 3.3 oz. (90 g)

## 2. Introduction

### 2.1 Description

The Async SHM-NPR is used for local data distribution, connecting full- or half-duplex asynchronous terminals to computers. A pair of modems ensures integrity of data transmission, over unconditioned 4-wire telephone lines, for distances of up to 2 miles (3.2 km).

The SHM-NPR is a high-speed synchronous modem operating at 76.8 Kbps. The async-to-sync conversion is performed by over-sampling, allowing for asynchronous data transmission at data rates up to 19,200 bps. This design results in a unit that is insensitive to polarity of wiring (no need to observe “+” and “-” on the twisted pairs), and is therefore simple to install and maintain.

The SHM-NPR features a DCE/DTE switch. This allows it to operate as a DTE in order to connect to another DCE, such as a multiplexor port, without requiring a cross cable. The carrier can be strapped for either continuous operation (point-to-point applications) or for switched operation, controlled by the RTS signal (multi-point applications). Delay between RTS and CTS is strap-selectable to 1 or 12 msec.

The low transmit level minimizes crosstalk onto adjacent circuits within the same cable. Data is transmitted and received at a balanced impedance, ensuring excellent immunity to circuit noise. Additionally, the SHM-NPR is coupled to the telephone line through isolation transformers which, in conjunction with electronic circuitry, protect against AC or DC overvoltages.

Innovative circuitry design allows the SHM-NPR to operate without connection to the main supply, by using ultra-low power from the standard EIA RS-232/ITU V.24 data and control signals. To ensure proper operation, the equipment connected to the SHM-NPR should provide at least one of the following signals: RTS (Circuit 105) or DTR (Circuit 108.2).

## 2.2 Features

- Insensitive to wire polarity
- Asynchronous transmission
- Up to 19,200 bps
- Full- or half-duplex
- Point-to-point or multipoint
- Transmission range of up to 2 miles (3.2 km)
- DCE/DTE switch
- Strain relief for line cable
- Lightning-protected
- No AC power required
- Easy to install
- Compact, lightweight



### 3. Installation

Installation of the Async SHM-NPR is simple and straightforward. Follow these steps:

1. Separate the two parts of the plastic cover by pressing the marked places on the side, starting at the cable end.
2. Connect 4-wire telephone line to the screw terminal block: transmit pair to “XMT” and receive pair to “RCV.” To connect the cable shield, a ground is provided.
3. Strap the modem according to the strapping diagram (**Figure 3-1**) and the strap-selection table (**Table 3-1**).
4. To close the unit, simply press the two halves of the cover together.
5. Plug the modem directly into the 25-pin connector of the terminal or computer port, and fasten with the screws on each side of the connector.

Table 3-1. Strap Selection.

Strap/Switch Identity	Function	Position	Factory Setting
DCE/DTE	Selects SHM-NPR interface	DCE DTE	DCE
Carrier	Selects carrier constantly on or switched by RTS	On Controlled	On
RTS/CTS Delay	Selects RTS/CTS delay	1 msec 12 msec	1 msec

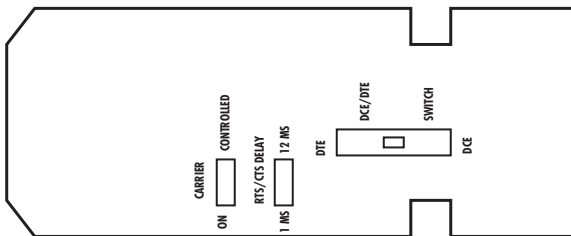


Figure 3-1. Strapping Diagram.



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