



## ASM-40

### High Speed Short Range Modem

- **Selectable data rates: 32 kbps to 2.048 Mbps**
- **Range up to 1.75 km (1.1 miles)**
- **V.54 diagnostics**
- **Digital interfaces: V.24, V.35, X.21, RS-530, V.36/RS-449, Ethernet (bridge) or G.703 (HDB3)**
- **Optional built-in router**

For latest updates visit [www.rad.com](http://www.rad.com)

The ASM-40 is a high speed synchronous short range modem operating at 13 selectable data rates, from 32 kbps up to 2.048 Mbps with a range up to 1.75 km (1.1 miles).

The modem transmits data to the line at four data rates, depending upon the selected DTE rate or the PCM network. Data rates of 32, 64, 128, 256, 512, 1,024 and 2,048 kbps are transmitted at 2,048 kbps; data rates of 192, 384, 768 and 1,536 kbps are transmitted at 1,536 kbps; the 1,544 kbps data rate is transmitted at 1,544 kbps; and the 1,920 kbps data rate is transmitted at 1,920 kbps.

The modem's line interface is coded using HDB3, AMI or B8ZS (strap-selectable). On the

digital side, a choice of V.35, V.36/RS-449, X.21, RS-530, built-in Ethernet bridge, router or G.703/HDB3 interfaces is available. This also enables the ASM-40 to perform as an interface converter, a rate converter or a repeater for G.703.

The ASM-40 features V.54 diagnostic capabilities to perform local analog loopbacks and local and remote digital loopbacks. An internal test pattern complying with the V.52 standard can be generated to provide end-to-end integrity testing.

The ASM-40 is available as a standalone unit or as a card for the 19-inch ASM-MN-214 rack that holds up to 14 cards (see page 127).



## ASM-31

### 2-Wire Multirate Short Range Modem

- **Selectable data rates:**
  - 1.2 kbps up to 128 kbps (sync)
  - Up to 38.4 kbps (async)
- **2-wire full duplex**
- **Adaptive echo canceller**
- **Range up to 8 km (5 miles) over 24 AWG lines**
- **2B1Q line code**
- **DTE interfaces: V.24/RS-232, V.35, V.36, RS-530, X.21, Ethernet (bridge) or G.703 codirectional (64 kbps)**
- **Optional built-in router**

For latest updates visit [www.rad.com](http://www.rad.com)

The ASM-31 multirate sync/async short range modem operates full duplex over a 2-wire twisted pair. The ASM-31 can operate at selectable data rates from 1.2 kbps to 128 kbps.

Full duplex operation is achieved using the adaptive echo cancellation technique. This method entails setting one modem as a master and the other as a slave (switch-selectable). 2B1Q line coding provides an operating range of up to 8 km (5 miles) for all data rates, with an internal rate converter that converts all DTE data rates to a line data rate of 128 kbps.

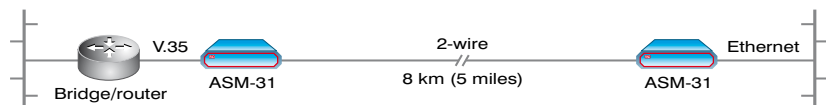
Local and remote loopbacks can be activated from either side of the line, to test both

modems and the line. Loopbacks are controlled by a manual switch or from the DTE interface.

The modem includes a BER tester for complete end-to-end integrity testing. An error LED indicates each bit error detected. The ASM-31 has line protection circuits against lightning and power surges.

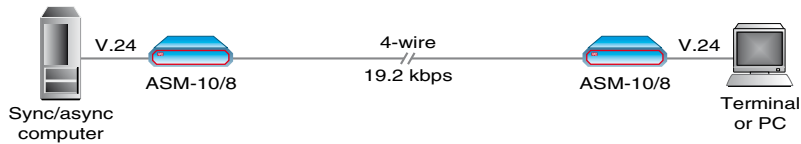
Interface options include V.24/RS-232, V.35, V.36, X.21, RS-530, built-in Ethernet bridge, router, and G.703 codirectional 64 kbps. The analog line connectors are RJ-45 and terminal block.

The ASM-31 is available as a standalone unit or as a card for the 19-inch ASM-MN-214 rack that holds up to 14 cards (see page 127).



# ASM-10/8

## Sync/Async Short Range Modem



The ASM-10/8 is a sync/async short range modem operating full or half duplex over twisted pair, unconditioned lines in point-to-point applications. It has a range of up to 10 km (6.2 miles) and operates at nine selectable rates up to 19.2 kbps.

The modem uses conditional diphase modulation (EUROCOM Std. D1), which provides immunity to background noise, eliminates normal line distortion and enables efficient

transmission over twisted pair. Transmit timing is provided internally, derived externally from the DTE or recovered from the receive signal.

The ASM-10/8 features diagnostic capabilities complying with the V.54 standard to perform local and remote loopbacks.

The unit has a V.24/RS-232 interface and is available as a standalone unit or as a card for the 19-inch ASM-MN-214 rack that holds up to 14 cards (see page 127).

- Full or half duplex over 4-wire
- Data rates up to 19.2 kbps
- Range up to 10 km (6.2 miles) at 19.2 kbps
- Controlled or continuous carrier
- V.54 diagnostics
- Automatic equalizer

For latest updates visit [www.rad.com](http://www.rad.com)

### Approximate Range for 24 AWG (0.5 mm)

Data Rate (kbps)	km	miles
19.2	10.0	6.0
9.6	13.0	8.0
4.8	16.0	10.0
2.4	21.0	13.1
1.2	28.0	17.5