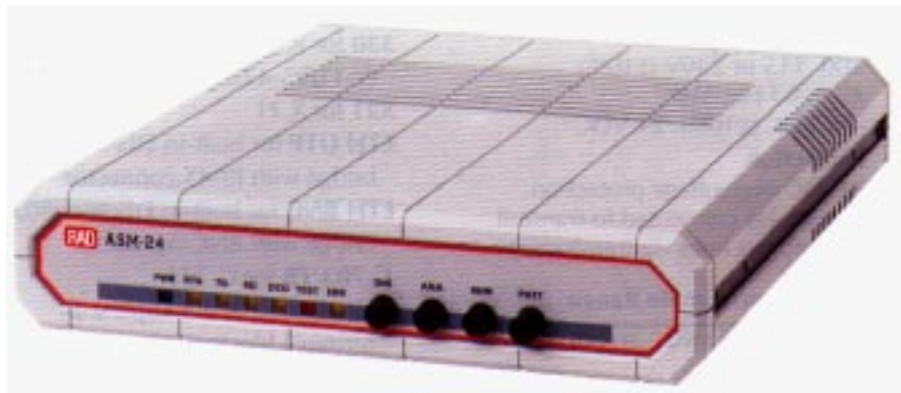


ASM-24

Sync Short Range Modem



FEATURES

- High-speed, extended range, baseband modem
- Synchronous operation, full or half duplex
- Selectable data rates, from 48 to 144 kbps
- Range up to 10 km (6.2 miles) at 64 kbps, over 24 AWG
- Carrier control
- V.54 diagnostics: Internal test pattern generator and error detection
- Interface options for: V.24/RS-232, V.35, V.36/RS-449, RS-530, X.21, G.703 Codirectional (64 kbps), and built-in Ethernet bridge
- Line protection circuits

DESCRIPTION

- The ASM-24, High Speed Short Range Modem, operates synchronously at full or half duplex, over unconditioned twisted pair, 4-wire lines. It has a range of up to 26.4 km (16.5 miles), depending upon the wire gauge and data rate used (see *Table 1*). ASM-24 operates at data rates from 48 up to 144 kbps (48-128 kbps for V.24).
- The line code used, PR4 (Partial Response, Class IV), reduces bandwidth requirements, providing excellent performance and long range.
- ASM-24 incorporates interface circuits for the DTE, an automatic equalizer, a modulator, a demodulator, and diagnostics circuitry. It is coupled to the line through isolation transformers which, in conjunction with other circuitry, protect against AC or DC overvoltages. The protection circuitry enables operation even when DC is connected to the line.
- Transmit timing is provided internally, or is derived externally from the data terminal or receive signal. Receive timing is derived from the line received signal.
- ASM-24 features V.54 diagnostic capabilities to perform local

analog loopback, and local and remote digital loopbacks. The loops can be activated manually from the front panel or via control signals from the digital interface.

- A built-in Bit Error Rate Tester (BERT) enables complete testing of both modems and the line. A front-panel switch generates a pseudo-random test pattern (511 bits) according to ITU V.52, for testing end-to-end connectivity. When a bit error is detected, the ERR LED flashes.
- ASM-24 is available as a standalone unit or as a rack-mount card for the ASM-MN-214 19" modem rack. The rack can carry up to 14 cards and is supplied with 25-pin D-type connectors.
- Optional rack mounting hardware is available for mounting one or two standalone units in a 19" modem rack.

SPECIFICATIONS

- **Transmission Line**
Type: Unloaded twisted pair, 19 to 26 AWG
Range: Up to 26.4 km (see *Table 1*)
Level: 0 or -6 dBm, strap-selectable
Impedance: 150Ω, high
Carrier:
Controlled by RTS or constantly ON;
For X.21 interface controlled by CONT
- **Digital Interface**
Type:
V.24/RS-232 via 25-pin D-type, female connector
V.35 via 34-pin, female connector
V.36 via 37-pin D-type, female mechanical cable adapter, provided with the product

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X.21 via 15-pin D-type, female connector
RS-530 (V.11/RS-422) via 25-pin D-type, female connector
G.703 Co-directional (64 kbps) via terminal block or RJ-45 connector
Ethernet bridge: via UTP/RJ-45 connector or BNC (see *Ordering*)

Data rates:
48, 56, 64, 72, 96, 112, 128, 144 kbps, selectable
RTS/CTS Delay:
8 or 70 msec, selectable

• Diagnostics

Complies with V.54 standard
Digital loopback:
– Local (DIG), activated by manual switch
– Remote (REM), activated by manual switch or by control signal from digital interface connector

Analog loopback:

– Local (ANA), activated by manual switch or by control signal from digital interface signal

Pattern:

– Test pattern activated by manual switch
– Received pattern compared to transmitted pattern; if unequal, ERR LED flashes

• Timing Elements

Receive clock: derived from the receive signal

Transmit clock: derived from three alternative sources:

- Internal oscillator
- External from DTE
- Loopback clock derived from the received signal

• Physical

ASM-24SA modem:

Height: 4.4 cm / 1.75 in (1U)
Width: 21.5 cm / 8.5 in
Length: 24.3 cm / 9.6 in
Weight: 1.12 kg / 2.5 lb

ASM-24R card

Dimensions:
Fits ASM-MN-214 modem rack
Weight: 360g / 0.1 lb

• Environment

Temperature: 0-50°C / 32-122°F
Humidity: up to 90%, non-condensing

• Power Supply

100, 115 or 230V (±10%)
47 to 63 Hz; 5W
-48 VDC (±10%), 24 VDC

• Protection

AC/DC overvoltage protection circuits are connected to transmit and receive lines via transformers

Table 1. Approximate Range

Date Rate	19 AWG		22 AWG		24 AWG		26 AWG	
	km	miles	km	miles	km	miles	km	miles
144	16.8	10.5	10.1	6.4	7.0	4.3	4.8	3.0
128	18.0	11.2	10.8	6.8	7.5	4.7	5.0	3.1
112	19.2	12.0	11.5	7.2	8.0	4.9	5.7	3.5
96	20.4	14.2	12.3	7.7	8.5	5.3	6.8	4.2
72	21.6	14.6	13.0	8.1	9.0	5.6	7.0	4.4
64	24.0	15.0	14.5	9.0	10.0	6.2	7.3	4.5
56	25.2	15.7	15.2	9.5	10.5	6.5	7.5	4.7
48	26.4	16.5	16.0	10.0	11.0	6.8	8.0	5.0

ORDERING

ASM-24SA*/##

Short Range Modem, standalone unit with internal power supply

ASM-24R/#

Short Range Modem card for the ASM-MN-214 19" rack

Note: When using V.35 or X.21 interfaces, the CIA adapter is required.

ASM-MN-214*/#&

19" rack for 14 modem cards

* Specify supply voltage for a standalone unit and main power supply for the modem rack:

100 for 100 VAC
115 for 115 VAC
230 for 230 VAC
48 for -48 VDC
24 for 24 VDC

Specify interface:

V24 for V.24 or RS-232

V35 for V.35

V36 for V36 or RS-449

530 for RS-530

(V.11/RS-422 on 25-pin)

X21 for X.21

ETH UTP for built-in Ethernet/802.3 bridge with RJ-45 connector

ETH BNC for built-in Ethernet/802.3 bridge with BNC connector

G.703/TB for G.703

Codirectional (64 kbps) with terminal block

G.703/RJ for G.703 Codirectional (64 kbps) with RJ-45 connector

& Specify second, redundant power supply for the rack:

100 for 100 VAC

115 for 115 VAC

230 for 230 VAC

48 for -48 VDC

24 for 24 VDC

RM-17

Hardware for mounting one or two standalone units in a 19" rack

CIA/V35

Adapter for changing one modem card's 25-pin connector into one V.35 connector

CIA/X21

Adapter for changing two adjacent modem cards' 25-pin connectors to two X.21 connectors

data communications

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