

# ASM-45

## High Speed Short Range Modem



### FEATURES

- Synchronous transmission over 4-wire
- Selectable data rates: 64, 128, 192, 256, 384, 512 or 768 kbps
- Range up to 5.5 km / 3.5 miles at 64 kbps over 24 AWG cable
- Carrier control
- V.54 diagnostics
- Internal test pattern generator (V.52) and special error LED
- Variety of digital interfaces: RS-530, V.35, X.21, V.24 (64 kbps only) or G.703 Codirectional (64 kbps)

### DESCRIPTION

- The ASM-45, Short Range Modem, operates synchronously, full duplex over unconditioned lines, at a range of up to 5.5 km (3.5 miles). ASM-45 operates at seven selectable data rates up to 768 kbps.
- The digital interfaces available are:
  - RS-530
  - V.35
  - X.21
  - V.24/RS-232 (up to 64 kbps only)
  - G.703 Codirectional (64 kbps).
- Conditioned diphas modulation (EUROCOM Std. D1) provides immunity to background noise, eliminates normal line distortion and enables efficient transmission and reception of serial data over twisted pair cable.
- Transmit timing is provided either internally, or is derived externally from the data terminal or from the receive signal. Receive timing is regenerated from the received signal.

- ASM-45 features V.54 diagnostic capability to perform local analog loopback, and local and remote digital loopback tests. Loopback is controlled by either a manual switch or via the digital interface signals (excluding X.21 and G.703 interfaces). The front panel switch generates a pseudo-random test pattern (511 bits) according to ITU, for testing end-to-end connectivity. An ERROR LED flashes for each bit error.
- ASM-45 incorporates interface circuits for the terminal/computer, an automatic equalizer, and a modulator/demodulator. Line coupling is through isolation transformers which, in conjunction with other circuitry, protect against AC or DC overvoltages.
- ASM-45 is available as a standalone (desk-top) unit or as a card for the ASM-MN-214 19" modem rack. DTE connectors on the rack are 25-pin D-type, female. Modems with X.21 or V.35 interface require an external mechanical adapter. CIA/X.21 can be ordered for converting two adjacent DB-25 connectors to two X.21 15-pin connectors, or CIA/V.35/1 for converting one DB-25 connector to a V.35 34-pin connector.

**Table 1. Approximate Range**

Data Rate	19 AWG		22 AWG		24 AWG		26 AWG	
kbps	km	mile	km	mile	km	mile	km	mile
	S		S		S		S	
768	1.8	1.1	1.2	0.7	1.0	0.6	0.8	0.5
512	2.5	1.5	2.0	1.2	1.5	1.0	1.0	0.6
384	4.5	2.8	3.0	1.8	2.5	1.5	2.0	1.2
256	6.0	3.8	4.5	2.8	3.5	2.0	3.0	1.8
192	6.5	4.0	5.0	3.0	4.0	2.5	3.0	1.8
128	9.0	5.5	6.5	4.0	5.0	3.0	3.5	2.0
64	11.5	7.0	7.5	4.5	5.5	3.5	3.5	2.0

# ASM-45

## High Speed Short Range Modem

### SPECIFICATIONS

#### • Analog Interface

Line type: Unshielded twisted pair, 19 to 26 AWG  
Range: See Table 1  
Level: Strap-selectable to:  
0 dBm or -6 dBm  
Impedance: 120Ω  
Return loss: Greater than 15 dB  
TX carrier: Controlled by RTS or constantly ON  
Modulation: Conditioned diphase Eurocom Std. D1  
Connector: Terminal block

#### • Digital Interface

Type: RS-530, V.35, X.21  
V.24/RS-232 or G.703  
Codirectional (64 kbps)  
Bit rates: Strap-selectable to:  
64, 128, 192, 256,  
384, 512 or 768 kbps  
RTS/CTS Delay: 0 msec  
Connectors: RS-530: 25-pin  
D-type, female  
V.35: 34-pin, V.35, female  
X.21: 15-pin, D-type, female  
V.24/RS-232: 25-pin  
D-type, female  
G.703 Codirectional,  
terminal block or  
RJ-45 connectors

#### • Diagnostics

Complies with V.54 standard  
Digital loopback:  
Local (DIG), activated by  
manual switch  
Remote (REM), activated by  
manual switch or by  
digital interface signal  
Analog loopback:  
Local (ANA), activated by  
manual switch or by digital  
interface signal  
Test pattern: Activated by  
manual switch (PATT)

### APPLICATION

Note: Activation of analog and remote loopbacks by the digital interface is not available with X.21 and G.703 interfaces.

#### • Timing Elements

Receive clock: derived from the receive signal  
Transmit clock: derived from three alternative sources:  
– Internal oscillator  
– External from the DTE  
– Loop clock derived from the receive signal, looped back as a transmit clock

#### • Indicators

TD (yellow): Transmit Data  
RD (yellow): Receive Data  
RTS (yellow): Request to Send  
DCD (yellow): Data Carrier Detect  
TEST (red): Test  
PWR (green): Power  
ERR (yellow): Bit Errors

#### • Physical

##### ASM-45 Standalone modem:

Height: 43 mm / 1.7 in  
Depth: 243 mm / 9.6 in  
Width: 193 mm / 7.6 in  
Weight: 1.5 kg / 3.4 lb

##### ASM-45R Card:

Dimensions:  
Fits ASM-MN-214 modem rack  
Weight: 360 g / 10.1 oz

#### • Power Supply

115 or 230V (10%)  
47 to 63 Hz; 2.4W  
-48 VDC: range is -36 to -72 VDC

#### • Environment

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

### ORDERING

#### ASM45/\*/#

Short Range Modem, standalone unit

#### ASM-45R/#

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

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

#### ASM-MN-214/\*/@

19" modem rack for 14 modem cards

- \* Specify supply voltage for the standalone and the rack's main power supply:  
**115** for 115 VAC  
**230** for 230 VAC  
**48** for -36 to -72 VDC
  - # Specify interface:  
**V35** for V.35 interface  
**X21** for X.21 interface  
**530** for RS-530 interface  
**V24** for V.24/RS-232 interface  
**G703** for G.703 Codirectional, card version  
**G703/TB** for G.703 Codirectional, with terminal block (standalone)  
**G703/RJ** for G.703 Codirectional, with RJ-45 (standalone)
  - @ Specify second, redundant power supply:  
For ordering options, see main power supply.
- CIA/&**  
Connector Interface Adapter for the ASM-MN-214 19" rack
- & Specify connector:  
**V35/1** for adapting one modem card's 25-pin connector to one V.35, 34-pin connector  
**X21** for adapting two adjacent modem cards' 25-pin connectors to two X.21, 15-pin connectors

**RAD**

data communications

<http://www.rad.com>

#### • Corporate Headquarters

12 Hanechoshet Street  
Tel Aviv 69710, Israel  
Tel: (972) 3-6458181  
Fax: (972) 3-6498250, 6474436  
Email: [rad@rad.co.il](mailto:rad@rad.co.il)

#### • U.S. Main Office

900 Corporate Drive  
Mahwah, NJ 07430  
Tel: (201) 529-1100  
Fax: (201) 529-5777  
Email: [market@radusa.com](mailto:market@radusa.com)

619-100-03/99

