

ASM-40

High-Speed Short-Range Modem



FEATURES

- High-speed, short-range, synchronous modem
- Operates in full-duplex over unconditioned 4-wire lines or BNC coaxial cable
- Utilizes HDB3, AMI, or B8ZS line coding for extending the operation range to 1.75 km (1 mi)
- Operates at 2048, 1544, 1536, or 1920 kbps line rate
- Supports a wide range of serial and Ethernet DTE interfaces, operating at 13 user-selectable data rates
- Can be used in rate and interface conversion applications
- Conforms to special telecom standards (Austel, TUV, BABT, etc.)
- Provides extensive diagnostics, including loopbacks and BER testing
- Available as a card for RAD's ASM-MN-214 card cage

DESCRIPTION

- ASM-40 is a synchronous short-range modem that operates in full-duplex over 4-wire lines or BNC coaxial cable. The modem extends data transmission range up to 1.75 km (1 mile).
- The device employs HDB3, AMI, or B8ZS line coding in compliance with G.703 requirements.
- The unit supports a wide range of serial and Ethernet interfaces including: V.24, V.35, X.21, V.36, RS-530, G.703-HDB3, G.703 Codirectional, Ethernet bridge, Ethernet bridge with VLAN support, Ethernet/Fast Ethernet bridge with VLAN support, and IP router.
- The modem line rates support different data rates that enable ASM-40 to be used as a rate converter:
 - 2048 kbps – 32, 64, 128, 256, 512, 1024, and 2048 kbps
 - 1536 kbps – 192, 384, 768, and 1536 kbps
 - 1544 kbps – 1544 kbps
 - 1920 kbps – 1920 kbps.

- Transmit and receive timing can be provided internally, or derived externally from the data terminal or receive signal. Internal FIFO buffers attenuate jitter or correct for phase difference either from the incoming analog signal (line side) or from the external clock on the DTE side.
- ASM-40 has comprehensive diagnostics, including:
 - Local analog, remote digital, and local digital loopbacks in compliance with ITU V.54 requirements
 - Built-in pattern generator and tester in compliance with ITU V.52 requirements.
- ASM-40 is also available as a plug-in card, ASM-40/R, for RAD's ASM-MN-214, 19-inch card cage.

ASM-40

High-Speed Short-Range Modem

SPECIFICATIONS

LINE INTERFACE

- **Line Type**
 - Unloaded 4-wire twisted pair, 19 to 26 AWG
 - BNC coaxial cable, 75Ω
 - **Line Code**
User-selectable: HDB3, AMI, or B8ZS
 - **Framing**
Unframed
 - **Transmit Level**
According to G.703
 - **Line Rate**
2048, 1544, 1536, 1920 kbps
- **Impedance**
 - 75Ω for 2048 and 1920 kbps, unbalanced (BNC coax)
 - 100Ω for 1544 and 1536 kbps, balanced
 - 120Ω for 2048 and 1920 kbps, balanced
 - **Return Loss**
Better than 15 dB
 - **Attenuation**
Up to 40 dB
 - **Range**
1.75 km (1 mile) over 24 AWG wire

- **Connector**
DB-15 or 5-clip terminal block:
 - 100Ω for 1544 kbps and 1536 kbps, balanced
 - 120Ω for 2048 kbps and 1920 kbps, balancedBNC coax:
 - 75Ω for 2048 and 1920 kbps, unbalanced

APPLICATIONS

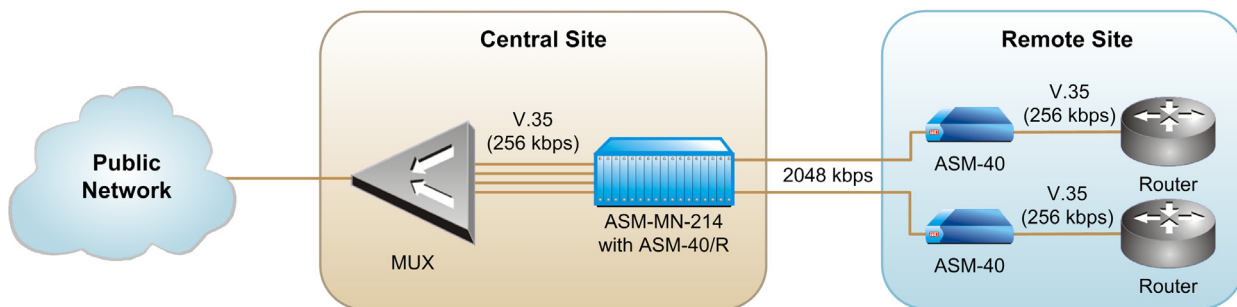


Figure 1. Point-to-Point Interface and Rate Conversion

High-Speed Short-Range Modem

DTE INTERFACE

- **Type and Connector**

- V.24: 25-pin, D-type, female
- V.35: 34-pin, female
- X.21: 15-pin, D-type, female
- RS-530: 25-pin, D-type, female
- V.36: via adapter cable converting between RS-530 connector and 37-pin, D-type, female connector
- G.703-HDB3: 15-pin D-type, female or BNC coax
- G.703 Codirectional: 5-clip terminal block or RJ-45

Note: End-to-end byte synchronization is not maintained on the G.703 interface.

- IR-ETH (Ethernet bridge): RJ-45 or BNC coax
- IR-ETH/Q (Ethernet bridge with VLAN support): RJ-45
- IR-ETH/QN (Ethernet/Fast Ethernet bridge with VLAN support): RJ-45
- IR-IP (IP router): RJ-45

- **Data Rate**

- 32, 64, 128, 192, 256, 384, 512, 768, 1024, 1536, 1544, 1920, or 2048 kbps
- G.703-HDB3: 128, 256, 512, 1024, or 2048 kbps
- G.703 Codirectional: 64 kbps

- **G.703/HDB3 Interface**

Characteristics

- Signal Attenuation: 6 dB
- Output Level: ± 3 V

GENERAL

- **Timing**

- Internal, from internal oscillator
- External, from attached DTE
- Receive, from received signal

- **Diagnostics**

ITU V.54 compliant loopbacks:

- Local analog
- Local digital
- Remote digital

ITU V.52 compliant BER testing:

- Built-in pattern generator and tester

- **Indicators**

- PWR (green) – ON when power is ON
- RTS (yellow) – ON when DTE activates Request To Send
- TD (yellow) – ON when steady SPACE is transmitted, blinks when data is transmitted
- RD (yellow) – ON when steady SPACE is received, blinks when data is received, not active when the RLB is active
- DCD (yellow) – ON when a valid received line signal is present
- TST (red) – ON when ASM-40 is in any loopback mode, or when PATT is pressed
- ERR (yellow) – ON or blinks if errors are present in the test pattern, lights up momentarily when PATT pushbutton is pressed

- **Pushbuttons**

ANA – Local analog loopback
DIG – Local digital loopback
REM – Remote digital loopback
PATT – Pattern generator

- **Physical**

ASM-40:

Height: 443 mm / 1.7 in

Width: 214 mm / 8.4 in

Depth: 258 mm / 10.1 in

Weight 0.88 kg / 1.9 lb

ASM-40/R:

Fits one slot in the ASM-MN-214 card cage

- **Power**

AC: 100 to 240 VAC ($\pm 10\%$),

50 to 60 Hz, 6.8 VA max

DC: 24 VDC (18 to 36 VDC) or

-48 VDC (-36 to -72 VDC),

5.7W

- **Environment**

Temperature: 0° – 50° C/ 32° – 122° F

Humidity: Up to 90%, non-condensing

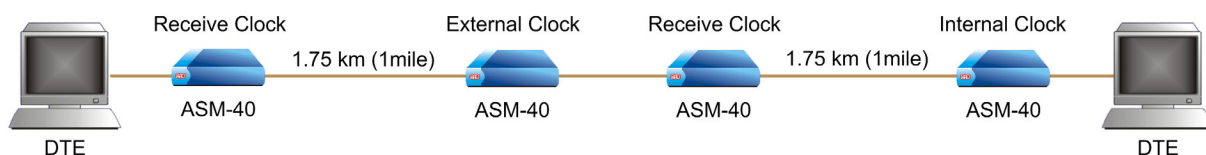


Figure 2. Tail-End Application for DDS Service

ASM-40

High-Speed Short-Range Modem

ORDERING

ASM-40-1/~/+/j/i

High-speed, short-range modem, standalone version

ASM-40-1/R/+/j

High-speed, short-range modem, card version for ASM-MN-214 card cage

Note: When using V.35, X.21, V.36, or one of the Ethernet interface modules in the ASM-MN-214 rack, a special interface adapter is required.

~ Specify power supply:

AC for 100 to 240 VAC

24 for 24 VDC

48 for -48 VDC

+ Specify DTE interface:

V24 for V.24 interface

V35 for V.35 interface

X21 for X.21 interface

530 for RS-530 interface

703TB for G.703 Codirectional interface, terminal block connector

703RJ for G.703 Codirectional interface, RJ-45 connector

703 for G.703-HDB3 balanced interface

703UB for G.703-HDB3 unbalanced interface

UTP for IR-ETH module, RJ-45 connector

BNC for IR-ETH module, BNC coax connector

UTP/Q for IR-ETH/Q module

UTP/QN for IR-ETH/QN module

IP for IR-IP module

j Specify line connector:

TB for balanced terminal block connector

B for balanced DB-15 connector

UB for unbalanced BNC coax connector

i Specify **1920** for special 1920 kbps option

SUPPLIED ACCESSORIES

- Power cord (for standalone units)
- DC adapter plug (for DC-powered standalone units only)

OPTIONAL ACCESSORIES

CBL-530/449F

Adapter cable converting one DB-25 connector into one DB-37 connector

CIA/\$

Connector interface adapters for the ASM-MN-214 modem rack

\$ Specify CIA type:

V35/1 for converting one DB-25 DTE connector into one 34-pin connector

X21/1 for converting one DB-25 DTE connector into one DB-15 connector

ETHERNET for converting one DB-25 DTE connector into one RJ-45 connector

TB-BNC/214 for converting one terminal block line connector into two BNC coax connectors

RM-28

Special hardware for mounting one or two ASM-40 standalone units in a 19-inch rack

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