

ASM-40

High-speed Short-range Modem

High-speed synchronous short-range modem with a wide range of serial and Ethernet interfaces



- High-speed short-range synchronous modem
- Full-duplex over unconditioned 4-wire lines or BNC coaxial cable
- HDB3, AMI, or B8ZS line coding for extending the operation range to 1.75 km (1 mile)
- 2048, 1544, 1536, or 1920 kbps line rate
- Wide range of serial and Ethernet DTE interfaces, with 13 user-selectable data rates

ASM-40 is a synchronous short-range modem that operates 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.

ASM-40 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.



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The modem supports different data rates that enable ASM-40 to be used as a rate converter:

- 2048 kbps – 32, 64, 128, 256, 512, 1024, 2048 kbps
- 1536 kbps – 192, 384, 768, 1536 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 differences either from the incoming analog signal (line side) or from the external clock (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.

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, 1920, 1544, 1536 kbps

Impedance

100Ω for 1544 and 1536 kbps, balanced
120Ω for 2048 and 1920 kbps, balanced
75Ω for 2048 and 1920 kbps, unbalanced (BNC coax)

Return Loss

Better than 15 dB

Attenuation

Up to 40 dB

Range

1.75 km (1 mile) over 24 AWG wire

Connector

100Ω or 120Ω balanced:
DB-15 or 5-clip terminal block
75Ω unbalanced: BNC coax

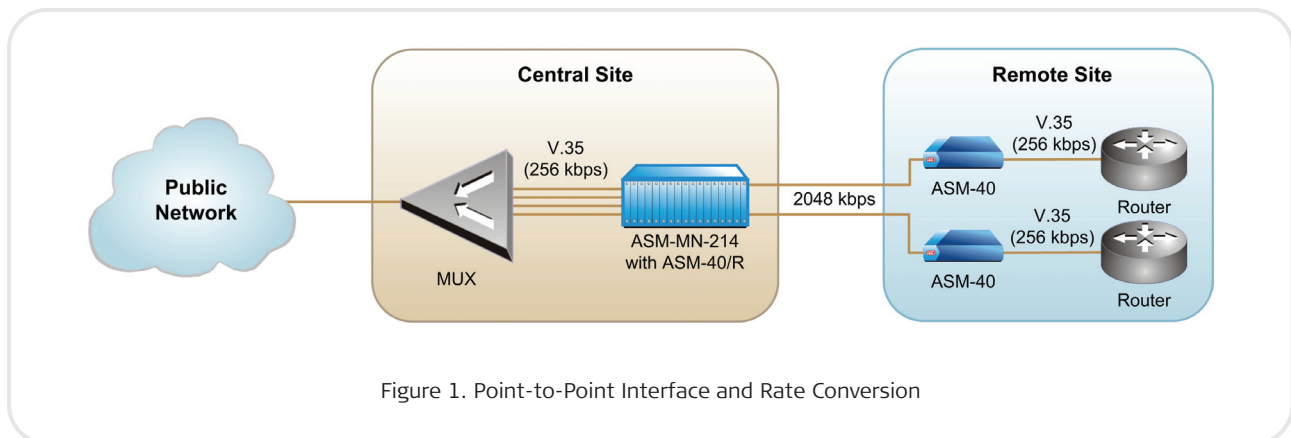


Figure 1. Point-to-Point Interface and Rate Conversion

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
 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, 2048 kbps
 G.703-HDB3: 128, 256, 512, 1024,
 2048 kbps
 G.703 Codirectional: 64 kbps

G.703/HDB3 Interface Characteristics

Signal Attenuation: 6 dB
 Output Level: $\pm 3V$

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 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: 44.3 cm (1.7 in)
 Width: 21.4 cm (8.4 in)
 Depth: 25.8 cm (10.1 in)
 Weight: 0.88 kg (1.9 lb)
 ASM-40/R:
 Fits one slot in the ASM-MN-214 card cage

Power

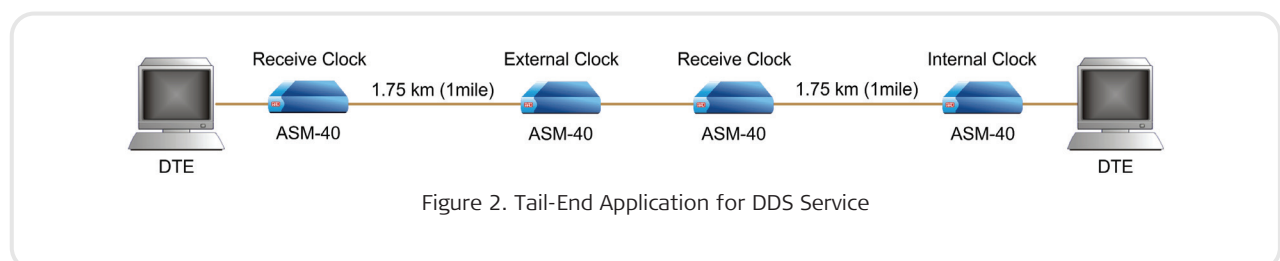
Wide range: 100 to 240 VAC or
 –48 VDC (–40 to –72 VDC)
 +24 VDC (+18 to +36 VDC)

Power Consumption

AC: 15.6 VA
 DC: 5.4W

Environment

Temperature: 0°–50°C (32°–122°F)
 Humidity: Up to 90%, non-condensing



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Ordering

ASM40-1/~j/+

Standalone version

ASM40-1/R/j/+

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.

Legend

~ Power supply:

AC	100 to 240 VAC or -48 VDC
24	+24 VDC

j Line connector:

TB	balanced terminal block connector
B	balanced DB-15 connector
UB	unbalanced BNC coax connector

+ DTE interface:

V24	V.24 interface
V35	V.35 interface
X21	X.21 interface
530	RS-530 interface
703TB	G.703 Codirectional interface, terminal block connector
703RJ	G.703 Codirectional interface, RJ-45 connector
703	G.703-HDB3 balanced interface
703UB	G.703-HDB3 unbalanced interface
UTP	IR-ETH module, RJ-45 connector
UTP/QN	IR-ETH/QN module
IP	IR-IP module

SUPPLIED ACCESSORIES

Power cord (for standalone units)

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

OPTIONAL ACCESSORIES

CBL-530/449F

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

CIA/\$

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

Legend

\$ Connector interface adapter type:

V35/1	converts one DB-25 DTE connector into one 34-pin connector
X21/1	converts one DB-25 DTE connector into one DB-15 connector
ETHERNET	converts one DB-25 DTE connector into one RJ-45 connector
TB-BNC/214	converts 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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