ASMi-31

Sync/Async 2-Wire Manageable IDSL Modem

RAD

FEATURES

- 2-wire IDSL modem with remote management, extending data transmission to 7.0 km (4.3 miles)
- Supports multiple data rates between 1.2 and 128 kbps
- Utilizes 2B1Q line coding for extended range and improved quality
- Provides full duplex inband management of the remote unit over the D-channel
- Supports variety of data interfaces, as well as built-in Ethernet bridge and router
- Operates with internal, external or receive timing, providing automatic rate detection in external clock mode
- Operates opposite RAD's ASM-31, ASMi-31CQ (quad modem card for LRS-24 modem rack), SRM-31, HS-U modules of Megaplex, U-RPT repeater

- Supports V.54 diagnostics and BER testing
- Provides real time alarm indication for local and remote units
- Available as a single modem card for RAD's LRS-24 modem rack with SNMP management and for the ASM-MN-214 modem rack

ASMi-31

Sync/Async 2-Wire Manageable IDSL Modem

DESCRIPTION

- ASMi-31, IDSL modem with remote management, operates in full duplex over 2-wire lines, extending data transmission to 7.0 km (4.3 miles) irrespective of data rate.

- ASMi-31 supports synchronous or asynchronous operation at user-selectable data rates from 1.2 to 128 kbps.

- The modem uses 2B1Q line code and adaptive equalizers, which provide immunity to background noise, eliminate normal line distortion and enable efficient transmission over 2-wire twisted pair cables.

- ASMi-31 is available as "master" or "slave" standalone units. The master modem includes front panel LCD and control buttons. The slave modem has a blank front panel with a special 20-pin connector for a portable control unit (PCU) connection.

- The master modem provides full duplex inband management of the remote unit. The management data is transmitted over the D-channel to ensure simultaneous configuration of the local and remote units, activation of real-time alerts on system faults and initiation of the diagnostic tests.

- ASMi-31 supports a wide range of digital interfaces: V.24/RS-232, V.35, X.21, RS-530, V.36/RS-449 and G.703 Codirectional (64 kbps). In addition, the modem supports built-in Ethernet bridge (IR-ETH), Ethernet bridge with VLAN support (IR-ETH/Q) and IP router (IR-IP), which allow LAN-to-LAN connectivity using IDSL technology.

- ASMi-31 can be managed via front panel buttons and LCD (in the master unit). The single modem card, installed into the LRS-24 rack can be managed via an SNMP-based network management station.

- The ASMi-31 clock source depends on the modem's functional mode (master or slave):
    - Master clock: INT, derived from internal oscillator or EXT, derived from the DTE interface
    - Slave clock: RCV (recovered from line signal).

- The carrier may be continuous or controlled by RTS, for passing control signals end-to-end (user-selectable).

- ASMi-31 has wide diagnostics capabilities that include the following test options:
    - V.54 local analog and remote digital loopbacks
    - BER testing as per V.52.

- Line interface circuitry protects against lightning and power surges.
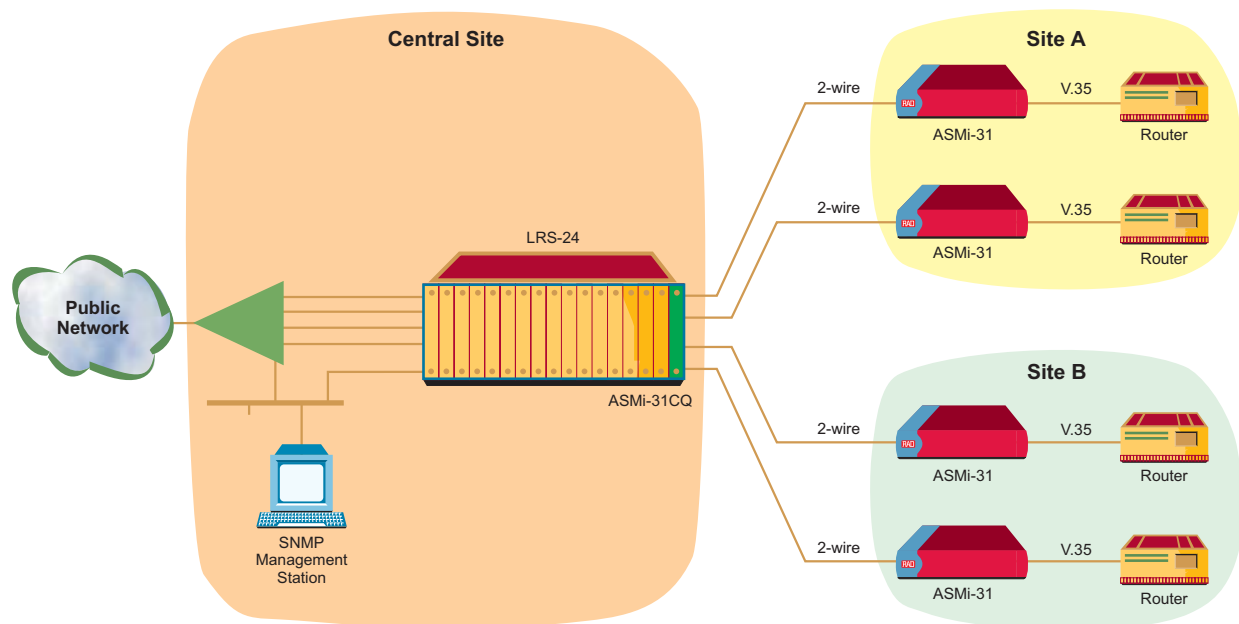
APPLICATIONS

Figure 1. Standalone ASMi-31 units operate opposite ASMi-31CQ quad modem card installed into the LRS-24 modem rack.

SPECIFICATIONS

LINE INTERFACE

- **Line Type**
  Unconditioned telephone line (twisted pair), 19 AWG to 26 AWG

- **Line Coding**
  2B1Q

- **Range**
  Up to 7.0 km (4.3 miles) over 24 AWG line, irrespective of data rate

- **Level**
  Up to 14 dBm

- **Impedance**
  135Ω, high

- **Return Loss**
  Greater than 15 dB

- **Standard**
  Line code and transmission specifications comply with ANSI T1.601, 1988

- **Carrier**
  Constantly ON or controlled by RTS

- **Connector**
  3-clip terminal block and RJ-45 jack

DTE INTERFACE

- **Type**
  - V.24/RS-232: 25-pin D-type, female
  - RS-530: 25-pin D-type, female
  - V.35: 34-pin, female
  - X.21: 15-pin, D-type, female
  - V.36/RS-449: via adapter cable converting between the RS-530 connector and a 37-pin, D-type, female connector
  - G.703 Codirectional: RJ-45 or terminal block
  - IR-ETH (Ethernet bridge): RJ-45 or BNC coax
  - IR-ETH/Q (Ethernet bridge with VLAN support): RJ-45
  - IR-IP (IP router): RJ-45

- **Data Rate**
  - Synchronous: 1.2, 2.4, 4.8, 9.6, 16, 19.2, 32, 38.4, 48, 64 or 128 kbps
  - Asynchronous: 1.2, 2.4, 4.8, 9.6, 19.2, 38.4, 57.6 or 115.2 kbps

- **Control Signals**
  DCD:
  - ON when two modems are synchronized
  - Local unit DCD follows remote unit RTS

  DSR:
  - Always ON
  - Remote unit DSR follows local unit DTR

GENERAL

- **Timing**
  Master clock:
  - Internal – supplied by the internal oscillator
  - External – received from the DTE

  Slave clock:
  - Receive – recovered from the line signal

- **Diagnostics**
  - V.54 local analog and remote digital loopbacks
  - V.52 BER testing

  Note: The loopbacks are initiated by the management software or via the DTE interface pins. Activation via the DTE interface pins is not available for X.21, G.703 or Ethernet interfaces.

- **Indicators**
  PWR (green) – Power
  RTS (yellow) – Request to Send
  DCD (yellow) – Data Carrier Detect
  TD (yellow) – Transmit Data
  RD (yellow) – Receive Data
  ALM (red) – Alarm
  TST (red) – Test
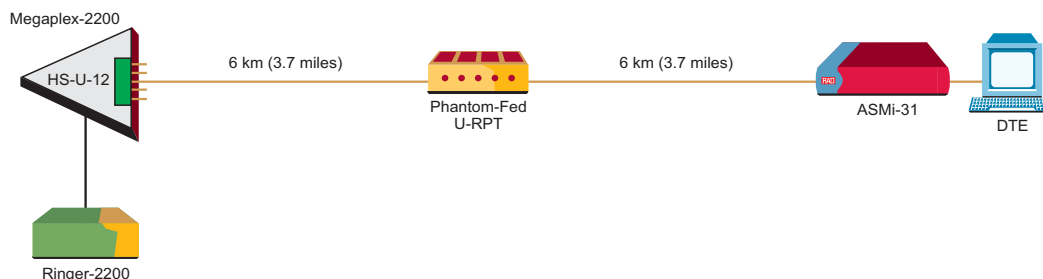 SYNC (green/red) – Sync Status

Figure 2. ASMi-31 working opposite the HS-U-12 module of Megaplex.
The HS-U-12 ISDN data module provides power feeding for remote U-RPT repeater, increasing the IDSL operation range for up to 12 km (7.4 miles)

Sync/Async 2-Wire Manageable IDSL Modem

- **Physical**
  Height: 4.4   cm   / 1.7   in
  Width: 21.5   cm   / 8.5   in
  Depth: 24.3   cm   / 9.6   in
  Weight   1.5   kg   / 3.2   lb

- **Power**
  AC: 100 to 240 VAC (±10%),
       50 or 60 Hz
  DC: 24 VDC (18 to 36 VDC), or
       -48 VDC (-36 to -72 VDC)

- **Power Consumption**
  - Standalone ASMi-31: 5W
  - ASMi-31/R, ASMi-31C: 2.2W

- **Line Protection**
  AC/DC overvoltage protection
  circuits are connected via
  transformers to the transmit and
  receive lines

- **Environment**
  Temperature: 0–50°C/32–122°F
  Humidity: Up to 90%,
                 non-condensing

ORDERING

ASMi-31-2/M/*/#
Sync/async 2-wire manageable IDSL
modem, master unit

ASMi-31-2/S/*/#
Sync/async 2-wire manageable IDSL
modem, slave unit

ASMi-31-2/R/#
Single modem card for ASM-MN-214
rack

ASMi-31-2CF/#
Single modem card for LRS-24 rack,
ETSI version

ASMi-31-2CB/#
Single modem card for LRS-24 rack,
ANSI version

* Specify power supply:
  AC for 100 to 240 VAC
  48 for -48 VDC
  24 for 24 VDC

Specify DTE interface:
  V24 for V.24/RS-232 interface
  V35 for V.35 interface
  V36 for V.36/RS-449 interface
  530 for RS-530 interface
  X21 for X.21 interface
  703 for G.703 Codirectional
     (64 kbps) interface with terminal
     block connector
  703/RJ for G.703 Codirectional
     (64 kbps) interface with RJ-45
     connector
  UTP for IR-ETH module with
     RJ-45 connector
  BNC for IR-ETH module with
     BNC connector
  UTP/Q for IR-ETH/Q module
  IP for IR-IP module

*Note: ASMi-31/R cards use DB-25 DTE
connector of the ASM-MN-214 modem rack.*

PCU
Portable control unit with protective
casing for the slave ASMi-31 unit or
ASMi-31/R card

RM-28
Special hardware for mounting one or
two ASMi-31 units in a 19-inch rack