

CYGNUS 850 G.SHDSL Modems

Q What is the function of CYGNUS 850 modems?

A To transport data across unloaded telephone grade copper pairs at speeds up to 2048 kbps.

Q How much distance can CYGNUS 850 Modems drive on the copper circuit between them?

A The CYGNUS 850 can offer a tradeoff between driving range and the speed of transmission. At 2048 kbps the driving range is up to 5.5 km on 0.5 mm diameter unloaded copper pair. At 64 kbps the range can be as high as 10 km on the same conductor. The actual range achieved depends on factors such as quality of wire, joints, noise on the line, etc.

Q What are the typical applications of CYGNUS 850 modems?

A They are typically used to interconnect computing or networking equipment (e.g., routers) at two locations over leased or dedicated connections.

In wide area leased line applications one pair of these modems is typically deployed on each of the local loops at either end of the long distance leased circuit, to carry data between user premises and central offices (COs). The modem at the subscriber end usually has a V.35 compatible interface for connecting to DTEs such as routers. The modem at the exchange usually has a G.703 compatible (either E1 or 64 kbps co-directional) interface for connecting to the PCM equipment there. Once the modems deliver data to the PCM equipment, the telecom service provider's network carries data between the two COs.

In on-campus applications a pair of CYGNUS 850 modems can be used to directly connect DTEs at two locations over telephone grade wire at speeds of up to 2048 kbps.

Q Which user interfaces are available on the CYGNUS 850 modem?

A 64 kbps co-directional G.703, 2 Mbps E1, V.35 and 10/100 Base-TX Ethernet (built-in 2-port bridge) interfaces.

Q Which connectors on the CYGNUS 850/E1 modem do I use to connect to the PCM equipment at the exchange?

A A 4-way terminal block (marked "E1 Tx" & "E1 Rx") and a RJ-45 socket are provided on the unit's back panel. Either of these can be used to connect the modem to the PCM equipment.

Q Which connector on the CYGNUS 850/V.35 modem do I use to connect to V.35 DTEs such as routers?

A The DTE's V.35 WAN cable should be connected to the 34 pin block type connector on the unit's back panel (the connector is marked "V.35 DTE").

Q Where do I connect the 2 wire telephone line to the modems?

A Use the 2-way terminal block or RJ-11 socket (labelled "LINE") on the unit's back panel.

Q What is the pin out of the E1 interface connector of CYGNUS 850/E1?

A Pins 1,2 - TX; pins 4,5 - RX

Q What protection is provided against current and voltage surges on the telephone line?

A A combination of sidactors, GD Tubes and PTCs/fuses are provided.

Q What is the default clock mode in CYGNUS 850/E1 modem?

A E1 Slave clock mode. This clock mode is suitable for use when the clock is supplied by the PCM equipment connected to the unit's E1 interface.

Q What is the default clock mode in CYGNUS 850/V.35 modem?

A DSL Slave clock mode. This clock mode is suitable for use when the unit recovers the clock from the signal received on the line from the remote modem.

Q How do I test the line side of a V.35, G.703 modem pair?

A Connect the modems back to back and power them on. Ensure that one of them is configured as Master and the other as Slave, and that "default clock mode" is selected on both modems. If DSL Link indicator is ON on both modems, the line side of the modems is OK.

Q How do I know whether the E1 interface of the CYGNUS 850/E1 is properly connected to the PCM equipment?

A The E1 LINK indicator will be ON if the modem is properly connected to the PCM equipment.

Q How do I know if the two modems are properly connected to each other over the 2-wire telephone line?

A The DSL LINK indicator will be ON if the two modems are synchronised with each other.

Q What are the indications to show that end to end link is up?

A CYGNUS 850/V.35 Modem : PWR, DTR, DSL Link, TxD, RxD indicators should be ON. TST should be OFF.
CYGNUS 850/E1 Modem : PWR, LT, DTR, DSL Link, TxD, RxD indicators should be ON. TST should be OFF.

Q What diagnostic facilities are available in CYGNUS 850 modems?

A Local loopback, Remote loopback, Digital loopback and Pattern generation and checking.

Q How do I test whether the end-to-end circuit is OK?

A Start Pattern Generation test from the V.35 modem at location A. TST and PAT ERR indicators should glow on this unit. Now give DIG LP from the V.35 modem at location B. With a properly working end-to-end link PAT ERR indication on the modem at location A should go off. If PAT ERR indicator is blinking or continuously ON, check the line.

Q How do I configure the E1 modem for framed operation at (say) 256 kbps?

A Connect an asynchronous RS232 terminal to the console port of the modem. Configure the terminal for 9600 bps, no parity, 8 data bits and 1 stop bit. Log into the supervisory function (default password is "0").

From Main menu > Configuration, select framing mode.

From Main menu > Configuration > TDM slots, select 4 slots to E1 (4x64=256).

Store the parameters and reset the unit.



Q How do I configure the V.35 modem for framed operation at (say) 256 kbps?

A Connect an asynchronous RS232 terminal to the console port of the modem. Configure the terminal for 9600 bps, no parity, 8 data bits and 1 stop bit. Log into the supervisory function (default password is "0").

From Main menu > configuration, select framing mode.

From Main menu > configuration > TDM slots, select 4 slots to E1 (4x64=256).

Store the parameters and reset the unit.