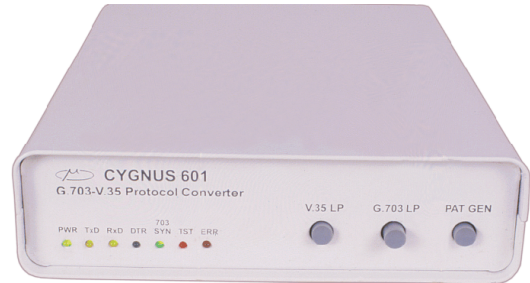


CYGNUS **CYGNUS 601**
G.703-V.35 Converter



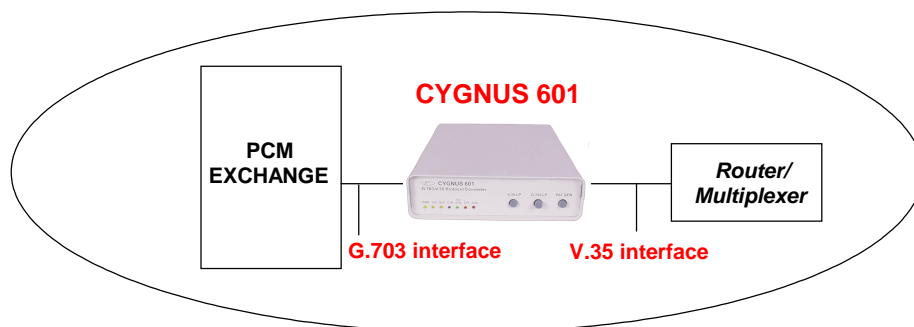
The CYGNUS 601 G.703-V.35 Protocol Converter is an important component for providing connectivity to computing/data communication equipment over telecom networks. It offers format conversion for a full-duplex data channel operating at 64 Kbps. The G.703 interface on the CYGNUS 601 is used to connect to a 64 Kbps PCM channel of the telecommunication network. The V.35 interface on the device is used to connect user equipment (e.g. computers, networking devices such as packet switches, routers and multiplexers, etc.).

Telecom networks offer digital interfaces for carrying traffic at speeds in multiples of 64 Kbps, the lowest offered speed being 64 Kbps. These interfaces are collectively referred to as G.703 interfaces since they conform to the ITU-T (formerly known as CCITT) recommendation G.703. The G.703 interface provided by the CYGNUS 601 is a "co-directional" digital interface. It carries data at 64 Kbps to a distance of up to a few hundred meters in an encoded form using four wires. The encoding used by the CYGNUS 601 is such that the average direct current (DC) portion of the signal is nil. This allows the device to be connected to the telecom network through transformers for providing electrical isolation. The encoded signal also carries timing information along with the data. This timing is recovered at the receiver for receiving incoming bits.

To connect to the user equipment the CYGNUS 601 provides the ITU-T recommended V.35 interface. This is a popular interface for connecting computers and networking devices such as packet switches, routers and multiplexers to data channels. The interface is suitable for high speed synchronous communication since it carries data and clock signals in differential form, thereby enhancing noise immunity.

FEATURES

- Allows devices with V.35 interfaces to connect to telecom networks through G.703 interface at data speeds of 64 Kbps
- Provides built-in diagnostics for quick fault isolation in the communication path
- Provides an array of front panel LEDs provided for display of unit and link status



The CYGNUS 601 has three clocking modes which enhance its versatility:

- In the **G.703 slave mode** it derives the timing from the received G.703 stream, provides it to the V.35 interface as DCE clock, and also uses it for encoding the data to be sent on the G.703 interface.
- In the **V.35 slave mode**, the CYGNUS 601 receives the clock from the V.35 interface (called DTE clock) and uses it for encoding the data to be sent on the G.703 interface. In this case, the external equipment connected to the G.703 interface should either have a matching clock, or derive its clock from the data received by it from the CYGNUS 601.
- In the **master mode**, the CYGNUS 601 generates the clock through an on-board oscillator and supplies it to the V.35 interface. The same clock is also used to encode the data being sent on the G.703 interface. In this mode too, the external

device connected to the G.703 interface should either have a matching clock, or should derive its clock from the data received by it from the CYGNUS 601.

The CYGNUS 601 has useful diagnostic features for first level detection of faults in the communication path. The diagnostic tests are activated through front panel switches. The V.35 port loop facility loops back data received from the V.35 DTE to itself. This loop can also be activated by asserting the LL control signal on the V.35 interface. The G.703 port loop facility loops back data received on the G.703 port to the transmit of the G.703 port. A facility is also provided for getting an indication of error rate on the G.703 side of the communication link. This is achieved by generating a standard test pattern on the transmit of the G.703 interface and looking for the same pattern on the receive side of the G.703. On mismatch of any bit between the two, an indicator on the front panel is flashed. The rate of flashing of the indicator thus gives a qualitative picture of line error rate on the G.703 end.

SPECIFICATIONS

G.703 INTERFACE

Type: 4-wire co-directional interface conforming to ITU-T Rec. G.703
Speed: 64 Kbps
Connector: 4-way terminal block
Protection: Current limiting devices in series

V.35 INTERFACE

Type: Digital interface conforming to ITU-T Rec. V.35
Speed: 64 kbps
Connector: Standard 34-pin female V.35 connector or 25 pin 'D' female connector with V.35 compatible signals and proprietary pin out. Available as ordering time option.

CLOCKING OPTIONS

G.703 slave mode: Derived from received G.703 signal and supplied on V.35 interface, as well as used for encoding the G.703 transmit signal.
V.35 slave mode: Derived from V.35 DTE supplied clock and used for encoding the G.703 transmit signal (external clock accuracy should be +/- 30 ppm)
Master mode: Internally generated and supplied to the V.35 interface as well as used for encoding the G.703 transmit signal.

DIAGNOSTICS

V.35 loop back: Activated by front panel switch "V.35 LP" or by asserting LL control signal on the V.35 interface. Loops back data received at the V.35 interface to the V.35 DTE.
G.703 loop back: Activated by the front panel switch "G.703 LP". Loops back data received at the G.703 interface to the G.703 transmit.

BERT

Activated by the front panel switch "PAT GEN". Generates a pseudo random 2047 pattern as per ITU-T recommendation V.52 and transmits it on the G.703 interface. Simultaneously compares data received on the G.703 interface to the standard pattern and flashes front panel "ERROR" LED once for every bit mismatch.

FRONT PANEL INDICATORS

PWR: "ON" indicates presence of internal +5V supply.
TxD: "FLICKERING" indicates activity on data received at the V.35 interface.
RxD: "FLICKERING" indicates activity on data sent to the V.35 interface.
DTR: "ON" indicates activation of DTR signal on the V.35 interface.
703 SYNC: "ON" indicates that proper data is being received on the G.703 interface.
"OFF" indicates absence of signal on G.703 receive pins.
"FLASHING" indicates Alarm on G.703 receive signal, owing to absence of code violations.
TST: "ON" indicates activation of (a) V.35 loop or (b) G.703 loop or (c) pattern generation and checking.
ERR: "FLASHING" indicates mismatch of receive data on G.703 with respect to a 2047 bit pseudo random sequence conforming to ITU-T V.52.

GENERAL

Power: 230 V AC +/- 10% 50 Hz 5 W (max.)
Size: 190 mm(w) x 251 mm(d) x 72 mm(h)
Operating Temperature: 0 to 45 deg C

Ref.: 970801



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