SPD-703-1

G.703 Rate and Interface Converter

FEATURES

- Converts between G.703 Codirectional interface and V.24/RS-232, V.35, V.36/RS-422, X.21, RS-530 or Ethernet
- Performs 48 kbps or 56 kbps to 64 kbps rate conversion
- Operates with selectable timing source
- Meets G.823 jitter requirements
- Supports ITU V.54 and V.52 diagnostics
- ITU V.110 compatible (56 kbps to 64 kbps conversion)
- Supports additional 1.2 kbps asynchronous subchannel
- Includes line protection circuits

DESCRIPTION

- SPD-703-1 rate and interface converter enables communication between devices with G.703 Codirectional (64 kbps) and several other standard communication interfaces.
- SPD-703-1 performs two types of conversion:
  - Interface conversion from G.703 Codirectional to V.24, V.35, V.36, X.21, RS-530 or Ethernet
  - Rate conversion from 48 kbps or 56 kbps to 64 kbps.
- SPD-703-1 recovers receive timing from the G.703 signal. The transmit timing is user-selectable for:
  - Recovered clock from the G.703 receive signal
  - Internal timing

  Two internal 16-bit elastic buffers accommodate for the difference in clocking phase.
- When operating at 64 kbps, SPD-703-1 has a range of up to 0.8 km (0.5 mile) from the G.703 equipment.

- SPD-703-1 supports activation of local analog, remote digital and local digital loopbacks in compliance with ITU V.54 requirements. The loopbacks are activated either via the front panel pushbuttons or the DTE interface (except for X.21 and Ethernet interfaces). In addition, SPD-703-1 generates and tests a pseudo-random test pattern according to ITU V.52 standard.
- When operating at 48 kbps or 56 kbps, SPD-703-1 transfers RTS to DCD control signal end-to-end. Alternatively, the available bandwidth can be used for a 1.2 kbps async subchannel for connecting additional DTE equipment over the same link.
- SPD-703-1 is available either as a standalone unit or as a card for ASM-MN-214, 19-inch modem rack.

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SPECIFICATIONS

G.703 INTERFACE

- **Type**
  Codirectional, 64 kbps
- **Line**
  4-wire, 19 AWG to 26 AWG
- **Range**
  Up to 0.8 km (0.5 mile) over
  24 AWG line
- **Impedance**
  120Ω nominal
- **Balance**
  Better than 45 dB (up to 256 kHz)
  Better than 35 dB (up to 384 kHz)
- **Return Loss**
  Better than 20 dB (up to 256 kHz)
  Better than 14 dB (up to 384 kHz)
- **Clock Frequency**
  64 kHz
- **Frequency Tracking**
  ±500 ppm
- **"Pulse" Amplitude**
  1.0V nominal
- **"Zero" Amplitude**
  0V ±0.1 max
- **Jitter Performance**
  According to G.823 requirements
- **Connector**
  5-clip terminal block

DTE INTERFACE

- **Type**
  - V.24/RS-232: 25-pin, D-type, female
  - V.35: 34-pin, female
  - V.36/RS-422: 37-pin, D-type, female (via adapter cable)
  - X.21: 15-pin, D-type, female
  - RS-530: 25-pin, D-type, female
  - Ethernet: RJ-45 or two BNC
- **Data Rate**
  48 kbps, 56 kbps or 64 kbps

- **Spare Bandwidth Utilization**
  Available when operating at
  48 kbps or 56 kbps:
  - Additional 1.2 kbps async channel
  - Transfer of RTS to DCD control signal end-to-end
  - Fixed "1" to guarantee "1"s density over T1 network

GENERAL

- **Timing**
  Receive (LBT), derived from
  G.703 receive pair:
  - RC and TC from SPD-703-1 to a DTE
  - RC from SPD-703-1 and TC from an external tail modem
  - RC and TC from an external DCE to SPD-703-1
  External (EXT): from the DTE
  Internal (INT): from internal source
- **Diagnostics**
  V.54 loopbacks:
  - Local analog (ANA), activated via front panel or from DTE
  - Remote digital (REM), activated via front panel or from DTE
  - Local digital (DIG), activated via front panel
  BERT:
  Internal pattern generator and tester in compliance with V.52

  Note: ANA and REM loopback activation from the DTE is not available for X.21 and Ethernet interfaces.
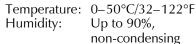
- **Physical**
  Height: 4.4 cm / 1.7 in
  Width: 21.5 cm / 8.5 in
  Depth: 24.0 cm / 9.6 in
  Weight: 1.4 kg / 3.1 lb
- **Power**
  AC: 115 or 230 VAC (±10%),
  47 to 63 Hz, 5W
  DC: 24 (18 to 32 VDC) or
  -48 VDC (-42 to -57 VDC)
- **Environment**
  Temperature: 0–50°C/32–122°F
  Humidity: Up to 90%, non-condensing

ORDERING

SPD-703-1/*/#
G.703 rate and interface converter

SPD-703-1/R/#
G.703 rate and interface converter, card version for the ASM-MN-214 modem rack

* Specify power supply:
  115 for 115 VAC
  230 for 230 VAC
  24 for 24 VDC
  48 for -48 VDC

Specify DTE interface:
  V24 for V.24 interface
  V35 for V.35 interface
  V36 for V.36 interface
  530 for RS-530 interface
  X21 for X.21 interface
  UTP for built-in Ethernet bridge with RJ-45 connector
  BNC for built-in Ethernet bridge with two BNC connectors

CIA/&
Connector interface adapter for the ASM-MN-214 modem rack

& Specify connector type:
  V35/1 for adapting one modem rack 25-pin connector to one V.35 34-pin connector
  X21/1 for adapting one modem rack 25-pin connector to one X.21 15-pin connector

APPLICATION