

1U, 3 I/O Slot Data, Ethernet, Voice E1 Managed Multiplexer

ETU02-MUX-Plus



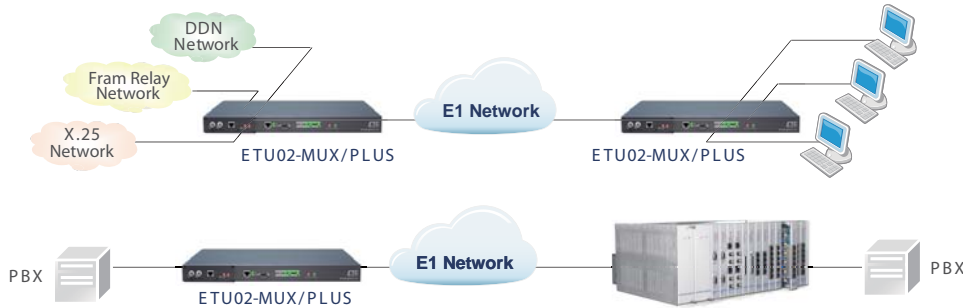
The ETU02-MUX/PLUS is a 1U 19(23)" 3 slot rack type E1 Time Division Multiplexer for Fractional E1 network access which provides an economic solution for central site or remote installations. There are 3 slots available for hot-swappable ETU02-MUX/PLUS-I/O cards. One slot is provided for MUX-E1 card, which provides either single E1 main link or main E1 link plus a drop and insert sub-E1 port. The MUX-E1 card may be linked to another ETU02-MUX/PLUS or ERM-MUX/PLUS Rack to provide a point-to-point variety of datacom, Ethernet & voice over E1 network services. The ETU02-MUX/PLUS optionally accommodates up to two separate power supplies, which may derive power from AC (110/220) or DC (-48V) power sources. When two power supplies are installed, the modules provide complete power redundancy and are hot swappable even during the E1 cards' transmission. The ETU02-MUX/PLUS provides BNC and RJ-45 for E1 Line interface connections, RJ-45 connections are used for all voice (FXO, FXS, E&M), for 10/100 Ethernet Bridge and G.703/64K Co-directional. Optional cable adapters are used to convert the DB-62F DCE ports of the I/O cards to 4xRS-232 or HP68F DCE ports of I/O card to 2x V.35, RS-530, RS-449, RS-422 and X.21 channels.

Features

- 1U 19" 3-slot chassis
- Provides 3 slots, removable interfaces: V35, X21, RS530, RS449, RS232, G.703 Co-directional, Ethernet Bridge, FXO, FXS and E&M
- Optional drop and insert E1 port (Sub E1)
- Setup and Control via RS-232 terminal
- Multiple clock source selection (Internal or External: E1 recovery, DTE or DCE)
- Optional SNMP management

Specifications

Indications	Power, Signal loss, Sync loss, Alarm (AIS, MRAI, RAI), TD, RD, Error, Test
Standard	ITU-T G.703/G.704/G.706 & G.732, G823
Power / Consumption	AC: 90 ~250V / 20W
Dimensions / Weight	235 x 438 x 45mm (D x W x H) / 2.9kg
Temperature	0 ~ 50°C (Operating), -10 ~ 70°C (Storage)
Humidity	10 ~ 90% non-condensing
MTBF	57,000 hrs



FXO

- Provides 4 independent channels
- Connects directly to PSTN



Specifications

- Connector: RJ-45*4
- Impedance: 600 ohms
- Level Gain: On Tx side 0 dB, On Rx side -3.5dB
- Ring current impedance: > 7.5k ohms
- Direct current resistance: < 300 ohms
- Maximum direct current borne: > 70V

8E1-DXC

- 8 independent channels



Specifications

- Connectors: BNC for unbalanced ; RJ-45 for balanced
- Framing Format: Unframed / Framed CCS(PCM31) / CAS (PCM30)
- CRC check: CRC4 on/off
- Bit rate: 2.048Mbps±0 ppm
- Line code: AMI / HDB3
- Line impedance: 75 ohm(BNC) / 120 ohm(DB-15, RJ-45)



Ordering Information

Model Name	Type	Description
ETU02-MUX/PLUS/AC	Chassis	1U 19" 3+1 slot Chassis with SNMP card and AC Power
ETU02-MUX/PLUS/DC48	Chassis	1U 19" 3+1 slot Chassis with SNMP card and DC 48V Power
ETU02-MUX/PLUS/DC24	Chassis	1U 19" 3+1 slot Chassis with SNMP card DC 24V Power
ETU/E1SUB	Card	E1 Trunk Module with One Main E1 and One Sub E1 Lines in BNC Type Both
ETU/E1	Card	E1 Trunk Module with One Main E1 Line in BNC Type
ETU/N64	Card	2Ch V.35/X.21/RS-449 Module, N X 64Kbps
ETU/232	Card	4Ch RS-232 Modul
ETU/232-C	Card	4Ch RS-232 Module with Clock
ETU/ET100	Card	2Ch 10/100Base-T EthernetModule RJ-45
ETU/FXS	Card	4Ch FXS Interface Module RJ-45
ETU/FXO	Card	4Ch FXO Interface Module R-J45
ETU/E&M	Card	4Ch E&M Interface Module R-J45
ETU/G64	Card	2Ch G.703 64Kbps Co-directional Module RJ-45
ETU/8E1-DXC	Card	8ch E1-DXC Card

ETU02 – MUX / PLUS /

Example: ETU02 – MUX / PLUS / AC

G.703/64K co-directional card



- 2-channels, Co-directional 64K interface

Specifications

- **Interface types** G.703/64K, Co-directional
- **Connector** RJ45 x 2
- **Line code** ITU-T G.703/64K, Co-directional
- **Data rate** 64kbps±100ppm x 2 channels
- **Line impedance** 120 ohms (balanced)
- **Frame mode** Unframed only

FXS



- Provides 4 independent channels
- Connects to standard telephones

Specifications

- **Connector** RJ45 x 4
- **Impedance** 600 ohms
- **Level Gain** On Tx side 0 dB; On Rx side -3.5dB
- **Ring current Output** 75±15V
- **Frequency** 25±3Hz
- **Feeding voltage** -48
- **Loop resistance** 1800 ohms
- **Connecting distance** up to 4km
- **Wire Gauge** 0.4mm
- **Feeding working current** 20mA

RS-232 card



- 4-channels
- Data rate: Asynchronous mode ≤ 38.4Kbps (4-channels),
- Synchronous mode = 19.2/38.4/64/128Kbps

Specifications

- **Interface type** RS-232
- **Connector** HD62F (female) with cable adapter
- **Line code** NRZ
- **Data rate** 3.84kbps x 4ch or 64/128kbps x 4ch

E&M



- BD/GD wires are for battery and ground detection
- E&M card provides 4 independent channels
- E&M interface provides 1 pair of E and 1 pair of M
- Each E&M can support Type I, II, III, IV or V
- Loop current range is normally 5-30mA, 70mA max
- Timeslot 16 complies with ITU-T G.711
- TX / RX attenuation, and 2 / 4 wire operation

Specifications

- **Input level** 0 to -16dB, in 0.5dB steps
- **Output level** 0 to -16dB, in 0.5dB steps
- **Impedance** 600 ohms, option
- **Return loss** 2-wire 300-600Hz: >12dB
2-wire 600-3400Hz: >15dB
4-wire 300-3400Hz: >20dB
- **Group delay** 2-wire @ -10dBm: < 750µ second
4-wire @ -10dBm: < 600µ second
- **Total distortion** According to ITU-T G223
- **Channel cross-talk** Not exceed -65dB, 1020Hz@0dBm
- **Out-of-band Signal attenuation** -25dBm@4.6~72KHz
- **Level not to exceed** -50dBm
- **Noise** <-65dBm
- **Interface connector** RJ-45*4

E1 and Sub E1 module



- Single E1 or 1+1 E1 card (E1 and Sub-E1), provides unbalanced BNC or balanced RJ45 connector
- Each E1 loop provides clock to be used as system clock source

Specifications

- **Connectors** BNC for unbalanced ; RJ-45 for balanced
- **Framing Format** Unframed / Framed CCS (PCM31) / CAS (PCM30)
- **CRC check** CRC4 on/off
- **Bit rate** 2.048Mbps±0 ppm
- **Line code** AMI / HDB3
- **Line impedance** 75 ohm(BNC) / 120 ohm(DB-15, RJ-45)
- **Relative receive level** 0 to -43dB
- **Transmitter driver reach** 1.5Km
- **Pulse amplitude** Nominal 2.37V ±10% for 75ohm
Nominal 3.00V ±10% for 120ohm
- **Zero amplitude** ±0.1V
- **Transmit frequency** Internal timing ±30 ppm
- **Tracking** Recovery timing ±50 ppm
- **External** timing±100 ppm
- **Jitter performance** According to ITU-T G.823
- **Compliance** ITU G.703, G.704, G.706, G.732

Nx64 card



- 2-channels , High speed data interface
- Data rate: N*64kbps, where N=1 to 31 in CCS N=1 to 30 in CAS

Specifications

- **Interface types** RS-530, X.21, V.35, RS-449, RS-232
- **Connector** HD68F (female) with cable adapter
- **Line code** NRZ
- **Data rate** Nx64kbps

ET-100 Ethernet Bridge card



- 2 independent channels, Ethernet bridge interface 10/100Base-TX bridge
- Auto-Negotiation, Auto MDI/MDIX
- Forward 1522 bytes (Max.) packets
- Supports IEEE 802.1q Tag VLAN pass thru
- Support flow control (Pause)

Specifications

LAN Specifications

- **Standard** Fully compliant with IEEE 802.3/802.3u
- **Connector** RJ-45x2, 10/100Base-TX, Auto-negotiation
- **Speed** 10Base-T/100Base-TX, Full or half duplex
- **Frames** Supports 64 to 1522 byte packet lengths standard and extended length frames for VLAN tagging, etc.

WAN Specifications

- **Protocol** Synchronous HDLC
- **Rates** N*64 or N*56Kbps, up to 2048Kbps