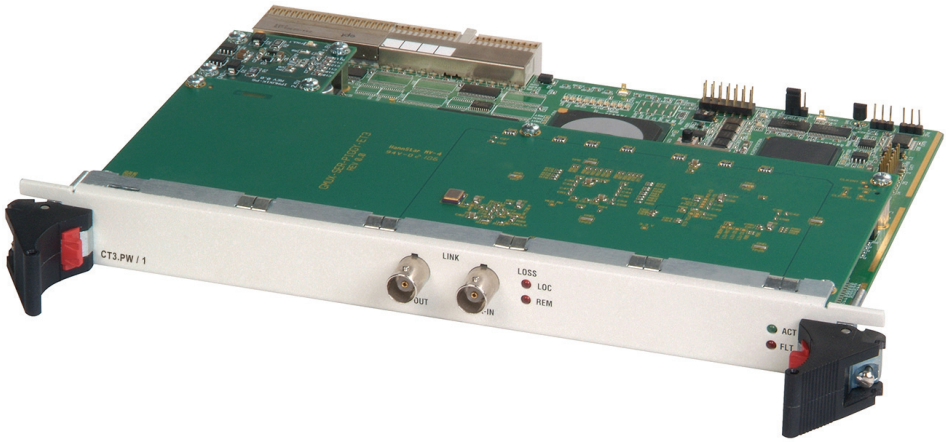
Data Sheet

Gmux-2000 Module

CT3-PW/1

Pseudowire Channelized T3 Circuit Emulation Module with External Interface



T1 or HDLC emulation over Ethernet, MPLS and IP networks

- T1 or HDLC emulation over Ethernet, MPLS and IP networks, using TDMoIP, CESoPSN, SAToP or HDLCoPSN encapsulation
- One external T3 interface served by 28 internal interfaces per module, with up to 196 T1 interfaces for a fully loaded Gmux-2000 chassis
- Independent timing for each T1 port
- CAS and CCS signaling as well as clear channel data in both framed (full and fractional) and unframed modes
- Extended diagnostic mechanism, including self-test and loopbacks on the T1 and T3 ports, and end-to-end alarm propagation

The CT3-PW/1 module provides circuit emulation services for transporting T1 data streams over packet-switched networks (PSNs) using TDMoIP, CESoPSN, SAToP or HDLCoPSN encapsulation.

The module has an external channelized T3 interface, which provides the TDM payload connection. A T3 link carries 28 T1 data streams, each served by an independent internal T1 interface. A Gmux-2000 fully equipped with CT3-PW/1 modules can handle up to 196 T1 data streams.

Each framed T1 port is served by up to 16 pseudowire connections (PWs). Each PW can be separately routed to its desired destination, providing the equivalent of fractional T1 services over PSNs, for a total of 448 destinations per module. An unframed T1 port is served by a single PW.

CT3-PW/1 meets the requirements for edge-to-edge simulation of TDM circuits over PSN in accordance with RFC4197, including high-performance adaptive timing capabilities.

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CT3-PW/1

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Packets sent over MPLS networks use smaller overhead in comparison to the IP encapsulation. This makes communication over MPLS ideal for networks with bandwidth constraints.

Each PW terminated on the CT3-PW/1 can be independently configured to handle the desired type of traffic:

- Transparent transfer of data (unframed T1 streams) using TDMoIP/TDMoMPLS, or SAToP
- Transfer of framed T1 streams in accordance with AT&T TR-62411 and ANSI T1.403, using TDMoIP/TDMoMPLS, and CESoPSN
- Fractional T1 services are supported by means of TDMoIP/TDMoMPLS
- HDLC traffic carried over framed T1 using HDLCoPSN. For framed T1 ports, this enables efficient and transparent transfer of Frame Relay traffic, and CCS protocols.

Packet structure is independently selectable for each PW, for compatibility with the various pseudowire protocols (TDMoIP/TDMoMPLS, CESoPSN, HDLCoPSN, SAToP) and the UDP/IP and MPLS/ETH network standards.

The Tx clock of each internal T1 port operates in one of the following modes:

- Loopback, locked to the port Rx clock
- Adaptive, locked to the original transmit timing of the remote T1 stream (as received through the PSN)
- System nodal clock.

The Tx clock of external T3 port is derived from the Gmux-2000 nodal timing, or locked to the port Rx clock.

Comprehensive diagnostic capabilities include:

- Automatic self-test at power-up to monitor the module subsystems
- Local and remote loopbacks on the external T3 and internal T1 ports
- Inband code-activated loopbacks on the external T3 and internal T1 ports.

When the OAM functionality is enabled, the module transmits AIS and yellow alarm AIS conditions end-to-end over the PSN.

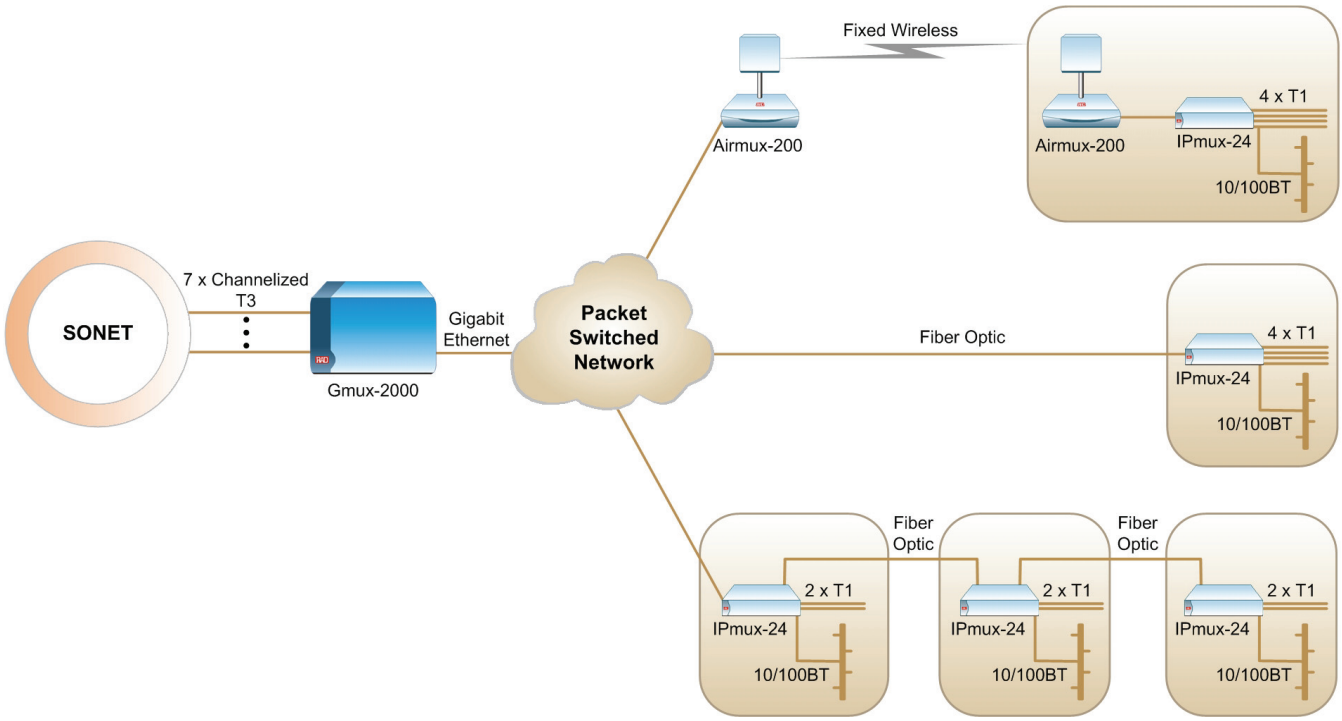

Figure 1. Ethernet and Emulated TDM Services over PSN

Specifications

PSEUDOWIRE PROCESSING

Number of Bundles per Port
Up to 16 per T1 port

Protocols
- TDMoIP (RFC 5087)
- TDMoMPLS (RFC 5087 and ITU-T Rec. Y.1413)
- HDLCoPSN (RFC 5087 and RFC 4618 except Clause 5.3 – PPP)
- CESoPSN (RFC 5086)
- SAToP (RFC 4553)

PSN Types
UDP over IP, MPLS over ETH

EXTERNAL T3 INTERFACE

Number of Ports
1

Compatibility
ANSI T1.102, ANSI T1.107, ANSI T1.107a, ITU-T Rec. G.703

Nominal Data Rate
44.736 Mbps

Framing Modes
M13, C-bit

Line Code
B3ZS

Timing
Loopback, system

Line Impedance
75Ω

Connector
2 BNC, coax

INTERNAL T1 INTERFACE

Number of Ports
28

Bit Rate
1544 kbps

Standards Compliance
AT&T TR-62411, AT&T Pub 54016, ANSI T1.107, ANSI T1.403

Framing Modes
D4 (SF), ESF, unframed

Timing
Loopback, adaptive, system

GENERAL

Indicators
T3 interface:

LOC (red): Red alarm, or red alarm + AIS

REM (red): Yellow alarm

CT3-PW/1 module:

ACT (green): Module activity status

FLT (red): Module fault detected

Diagnostics
- Self-test at start-up
- Local and remote loopback per T3 and T1 port
- Network-activated line loopback on T3 port
- Inband code-activated local and remote loopbacks on each T1 port

Physical
Fits a single slot of the Gmux 2000 chassis

Environment
Operating temperature: 0–55°C (0–131°F)

Storage temperature: -20–50°C (0–150°F)

Humidity: Up to 90%, non-condensing

Figure 2. Corporate Leased Line Replacement

Data Sheet

CT3-PW/1

Pseudowire Channelized T3 Circuit Emulation Module with External Interface

Ordering

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