SPEC SHEET

T1/E1 Module for the Alpine 3800 Series

Wide Area Access for the Alpine 3800 Switch Series

The T1/E1 module for the Alpine 3800 series switches provide WAN connectivity throughout the network. This flexible WAN connectivity offers T1/E1 channel bonding scaling from 1.5 Mbps to 6 Mbps of uplink capacity. Using the sophisticated bidirectional rate shaping and Policy-Based Quality of Service (PB QoS) capabilities of the Alpine 3800 switch series, the T1/E1 module ensures delivery of real-time and mission-critical applications in the WAN.

Extending Ethernet to the First Mile

The T1/E1 module has 4 ports supporting both switched Ethernet and IP routed configurations across T1/E1 links. Additionally, the T1/E1 ports can be configured as switched Ethernet ports. This preserves VLAN tags and Ethernet MAC information by encapsulating Ethernet packets over the WAN link. Routed IP configurations are also supported, enabling the switch to interface with third-party WAN routers.

Any of the individual T1/E1 channels may be bonded together as multi-link point-to-point (MLPPP) WAN links for increased WAN bandwidth.

Key Features and Benefits

Ethernet and IP-centric PPP/MLPPP connection model
- ¥ Layer 2 Ethernet encapsulation provides Ethernet switching in the WAN
- ¥ Layer 3 IP routed model supports traditional connectivity as an IP router

Sophisticated rate shaping and IP QoS capabilities
- ¥ Enables real-time and mission-critical applications

Fully standards-based implementation
- ¥ Provides interoperability with all leading routers and switches
- ¥ Supports Point-to-point (PPP) and Multi-link PPP with Ethernet or IP encapsulation

Two 10/100BASE-T ports available on each card
- ¥ Allows server and host connections — without the need to purchase an additional card

Multi-link bonding with MLPPP
- ¥ Provides flexible uplink capacity by bonding 1 to 4 T1/E1s into a single WAN link
- ¥ Packet forwarding at line rate on all ports with any packet size

Switched Ethernet mode
- ¥ Switched Ethernet-on-WAN enables transparent Layer 2 service end-to-end using VLANs
- ¥ Propagates 802.1Q and 802.1p tags across WAN link to preserve Layer 2 attributes
- ¥ Ethernet encapsulation over MLPPP using Bridge Control Protocol (BCP)

Routed IP mode
- ¥ Fully Routed IP model supports static IP packet forwarding/filtering and dynamic routing via RIP/RIP v2
- ¥ IP encapsulation over MLPPP using IP Control Protocol (IPCP)

T1 and E1 Modules for the Alpine 3800 Series Product Specifications

General
4 T1/E1 ports and 2 10/100 Ethernet ports

T1/E1 Interfaces:
- ¥ Integrated CSU/DSUs
- ¥ Port line rate: 1.544 Mbps

10/100BASE-TX Interfaces:
- ¥ 2 ports 10/100BASE-TX
- ¥ Auto-negotiation
- ¥ Full- or Half-duplex operation

Test and Diagnostics
Remote loopback operation
Alarm and error condition reporting

Connectors
T1/E1: RJ48c
10/100BASE-TX: RJ-45

Distance
T1/E1: 655 feet
10/100BASE-TX: Up to 300 feet over CAT3 at 10Mbs and up to 300 feet over CAT5 at 100Mbps

Speci cations continued on page 2

Product Specifications Continued

Switching/Bridging
Transparent bridging
Bridge/address filtering
802.1Q & 802.1p support
Per-port broadcast isolation and privacy

Routing
IP over point-to-point protocol (PPP)
Multi-link point-to-point protocol (MLPPP)
Supports all Alpine 3800 series IP routed protocols

Protocols
Bridge control protocol (BCP)
IP control protocol (IPCP)

Compliance
FCC Part 15 Class A
CE compliant
UL compliant

ExtremeWare Requirement
6.1.8W2.0 or most recent version

Physical Specifications
Occupies one slot in an Alpine 3800 Series chassis
Module dimensions (H x W x D): 1.5 x 16.25 x 8.0 in.
(3.8 x 41.3 x 20.3 cm)
Module weight: 5 lbs (2.7 Kg)
Shipping box dimensions (H x W x D): 4.25 x 20.0 x 11.25 in. (10.8 x 50.8 x 28.6 cm)

Environmental Conditions
Operating temperature: 0¡ to 40¡ C
Storage temperature: -40¡ to 70¡ C
Operating relative humidity: 10% to 95%, noncondensing
Mean Time between Failure (MTBF): 693,730 hours

Safety Compliance
UL 1950 3rd Edition, Listed (Safety of ITE)
EN60950:1992/A1-4:1997+ZB/ZC Deviations (Safety of ITE)
IEC 950CB (Safety of ITE)
Low Voltage Directive (LVD)
CSA 22.2#950-95 (Safety of ITE)
AS/NZX 3260 (product safety standard)
EN60825-1 (Safety of Lasers Products)
FCC CFR 21 (Laser Products)

EMI/EMC Compliance
FCC CFR 47 part 15 Class A (USA EMC standard)
ICES-003A/C108.8-M1983 Class A (Canada EMC standard)
VCCI Class A (Japan EMC standard)
AS/NZS 3548 (Australia EMC standard)
EN 55022 Class A (European EMC standard)
CISPR 22 Class A (European EMC standard)
EN 50082-1:1997 includes ENV 50204 (European EMC standards)
EN 55024:1998 includes IEC 61000-4-2, 3, 4, 5, 6, 8, 11 (European EMC standards)
EN 61000-3-2,3 (European EMC standards)
CNS 13438 Class A (BSMI-Taiwan)
Low Voltage Directive (LVD)

Ordering Information

Part Number	Product	Description
45302	WM-4T1i	Alpine 3800 4-port T1 RJ-48 and 2-port 10/100BASE-TX RJ-45 Module
45306	WM-4E1i	Alpine 3800 4-port E1 RJ-48 and 2-port 10/100BASE-TX RJ-45 Module

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