T-MARC® 280
ETHERNET SERVICE DEMARCATION DEVICE

Telco Systems' T-Marc™ 280 is a cost-effective, fully-managed Carrier Ethernet demarcation device that provides service termination and demarcation over service providers' packet-based networks. As a customer-located intelligent demarcation device, the T-Marc 280 delivers managed converged services (voice, video and data) over virtual Ethernet in metro Ethernet networks.

Advanced Layer 2 networking using Telco Systems' AccessEthernet allows total flexibility in deployment and delivery of Ethernet services, while physical and logical channel networking capabilities provide bandwidth profiles, advanced traffic classes, and complete control over how subscriber traffic is transported and managed across a service provider's network. Different applications are prioritized over different traffic-engineered paths, multi-level operations, administration and maintenance (OAM) is used to measure and ensure provisioned service level agreements (SLA).

Advanced Networking Features

The T-Marc offers a rich management toolset for multi-vendor interoperability in element, network and service management, to reduce operational expenses (OPEX) and scale management to large access networks.

By augmenting existing IP/SNMP-based management frameworks with IEEE and ITU-T OAM protocols and MEF frameworks, the T-Marc family provides proactive health and status updates on network topology and application behavior.

Multi-level management provides unprecedented flexibility and scalability in the management of Ethernet services. Telco Systems' EdgeGenie Service Management Platform simplifies management of the full life cycle of network deployment from planning to managing, monitoring and maintaining Ethernet services.

To reduce operational expenses and scale management to large access networks, existing standards-based SNMP management is coupled with a secure IP-based proxy management solution to provide proactive health and status information on individual links and connections.

Standards-based management enables service providers to use any off-the-shelf management system to manage a T-Marc device as an independent network element with its own IP address.

RFC 2544 and ITU-T Y.1564-based embedded test head and patent-pending Logical Services Loopback (LSL) provide end-to-end service level verification across multiple providers to support individual service level agreements.

Multi-layer OAM based on IEEE 802.3ah (link), IEEE 802.1ag (connectivity), ITU-T Y.1731 (fault and performance), IEEE 1588v2 PTP and MEF OAM (services) provides unprecedented in-service monitoring, troubleshooting and fault isolation in multi-vendor networks.

Enhanced troubleshooting tools include optical power monitoring, quality of equipment monitoring, and quality of line monitoring to enable fast fault identification that minimizes the need for expensive truck rolls.

PRODUCT HIGHLIGHTS

- Managed demarcation for converged services
- Flexible architecture supporting
    - 2 x 10/100/1000Base-T ports
    - 1 Combo 10/100/1000Base-T or 100Base-FX/1000Base-X port
    - 1 x 100Base-FX/1000Base-X uplink
- Extensive Layer 2 functionality with non-blocking wire-speed switching capabilities
- Comprehensive management supported by BiNOSCenterNG and EdgeGenie Service Management
- Flexible management options for remote alarms/provisioning
- Control, monitoring, line testing and loopback capabilities for remote fault isolation
- Redundant uplinks for protected services and link aggregation
- Enhanced security and protection mechanisms
- Granular rate limiting for ingress and egress
- Compact 1RU design with desktop, rack and wall-mounting options
- Purpose-built technology for optimized CAPEX and OPEX

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PRODUCT SPECIFICATIONS

Hardware Characteristics	2 x 10/100/1000BaseT ports 1 x 100BaseFX/1000BaseX uplink port 1 Combo port (10/100/1000BaseT or 100BaseFX/1000BaseX) Non-blocking 4Gbps FD platform 19" rack and wall-mounting options
Services	All MEF services, IEEE 802.1Q bridging, IEEE 802.1ad Q-in-Q (TLS)
Timing	IEEE 1588v2 PTP support for precise one-way measurement
Resiliency	Sub-50ms ITU-T G.8031 EPS, ITU-T G.8032v2 R-APS, xSTP, MSTP Fast Ring, resilient link, LAG (static/IEEE 802.3ad LACP)
Quality of Service	Per port rate limiting and shaping SP, WRR and Hybrid frames scheduling, CoS marking and mapping
Multicast Management	IGMP snooping v1/v2 IGMP Proxy Multicast VLAN registration (MVR)
OAM	Hardware-based IEEE 802.3ah EFM, IEEE 802.1ag CFM
Testing & Monitoring	Hardware-based ITU-T Y.1564 and RFC2544 test head and service performance analyzer In-service testing capabilities* ITU-T Y.1731 PM, SM and SLM support Per-Port/EVC hardware-based flexible MAC-based loopbacks using either IOMetrix or LSL mechanisms
Management	Console, Telnet, SSHv2, Radius, TACACS+, SNMP v1/2/3, xFTP, NTP, DNS resolver, DHCP Client and Zero-Touch provisioning
Security	RADIUS, SSHv2, IEEE 802.1x, SNMPv3, SFTP, port security, broadcast storm prevention
General Specifications	Dimensions: H x W x D 1.73" x 8.7" x 5.51" 44 mm x 221 mm x 140.5 mm Weight: 2.42 lbs (0.6 kg) Power: 5VDC @3A (max) with external power adaptor (AC to DC, DC to DC) Operating temperature:0°C to 40°C (32°F to 104°F) Short term extended temperature: -20°C to 60°C (-4°F to 140°F) Relative humidity: 0% to 95% non-condensing Storage temperature: -25ºC to 80ºC (-13°F to 176°F)
Regulatory Compliance	**North America and Canada** EMI - FCC Part 15 Class B EMC - FCC 47CFR part15:2005, subpart B, Class B (US) EMC - ICES-003: 2004 Issue4, Class B (Canada Safety - UL1950, cUL 60950 CSA 22.2 No. 950 **International** EMI - EN55022 Class B Immunity - EN55024:1998+A1(01)+A2(03) EMC - VCCI V-3/2006.04,Class B (Japan) EMC - AS/NZS CISPR 22: 2004, Class B (Australia/ NZ) EN300386 V1.3.3 : 2005 Safety - EN 60950 plus IECEE-CB-105a (Japan) Safety - AS/NZS 60950.1 : 2003 (Australia/ NZ)
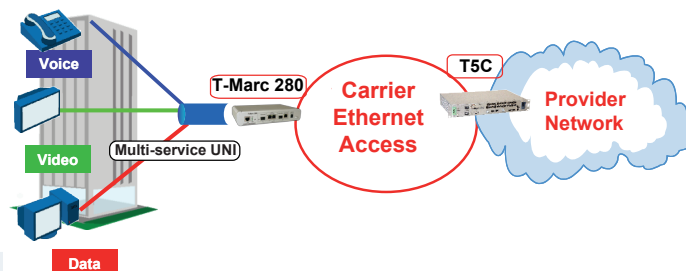
KEY APPLICATIONS

- Wire-speed copper and fiber Ethernet-based demarcation between service provider and enterprise networks
- High-perfomance Private LAN, Private Line, Ethernet VPN and TLS
- Industrial parks, FTTx

ORDERING INFORMATION

Part Number	Description
TMC-280-z	Managed Ethernet demarcation gateway (2) 10/100/1000BaseT ports (1) Unpopulated SFP-based 100FX/1000BaseX port (1) universal 100/1000BaseX unpopulated SFP-based or 10/100/1000BaseT port (1) external power supply

Note: 'z' specifies power supply and cord types: NA for North America, EUR for Europe, UK: for United Kingdom, DC for DC, AC for no power cord

For full list of optical modules, please visit us at www.telco.com, contact our sales department, any of our branches or authorized distributors

*Future feature