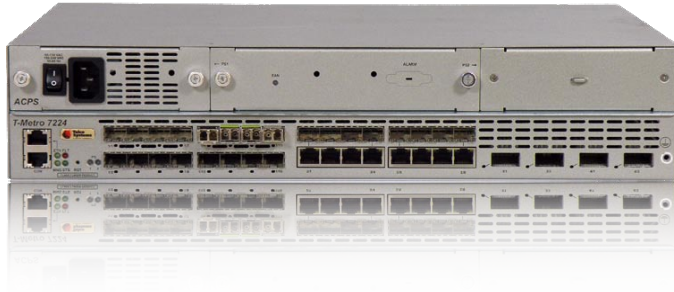# T-Metro® 7224

10 Gigabit Carrier Ethernet Multiservice Aggregation Platform

Delivering converged voice and data services over a single network offers many revenue-generating opportunities for today's service provider. Telco Systems' T-Metro 7224 10-Gigabit Ethernet Service Access Switch supports a Carrier Ethernet/MPLS network, enabling service providers to deliver reliable services across the access network.

The T-Metro 7224 was designed for service providers who need the reliability of the traditional SONET/SDH quality of service and the flexibility to deliver TDM circuits, in a Gigabit/10 Gigabit metro Ethernet ring. This carrier-class device offers advanced MPLS/H-VPLS capabilities, enabling emerging and incumbent service providers to protect their existing investments, while easily migrating to next-generation services. T-Metro 7224 delivers features such as uncompromised security, advanced HQoS and MPLS/ H-VPLS.

AccessMPLS™

AccessMPLS™ extends an H-VPLS or T-MPLS domain to the customer premises for expanded, integrated multi-service networking. In cases where service providers want to extend the many benefits of H-VPLS and Pseudowires to a CLE, AccessMPLS provides a purpose-built solution to map into existing MPLS-based networks in a transparent manner, while utilizing a common set of rich management, provisioning and OAM tools.

AccessEthernet®

Advanced Layer 2 Networking using Telco Systems' AccessEthernet allows total flexibility in deployment, provisioning, and delivery of Ethernet services. Physical and virtual networking capabilities provide automated address management and discovery, bandwidth profiles, advanced traffic classes, and complete control over how subscriber traffic is transported across a service provider's network.

Its reliable, non-blocking architecture and redundancy features ensure maximum uptime.

Modular in design, the T-Metro 7224 allows service providers to connect different services and interfaces at the network edge while maintaining the existing infrastructure.

T-Metro 7224 and other solutions from Telco Systems are standards-based, ensuring interoperability in a diverse network. T-Metro 7224 is released with several flavors to address various application needs.
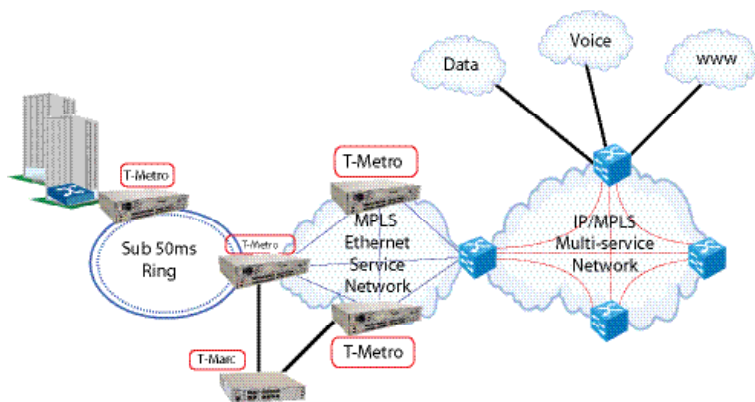
The T-Metro 7224 utilizes Telco Systems' field proven and carrier grade BiNOX operating system to provide a robust and advanced multi-layer software platform to support operations, administration, and management requirements.

Telco Systems' EdgeGenie Service Management Platform simplifies management of the full lifecycle of network deployment from planning to managing, monitoring and maintain Ethernet services.

- ☐ **Purpose-built, highly available, modular, scalable architecture**
- ☐ **10 Gigabit Ethernet, wire speed non-blocking at 64 Gigabit Carrier Ethernet service switch**
- ☐ **MEF, IEEE, ITU-T and IETF standards compliant for multi-vendor interoperability**
- ☐ **EdgeGenie Service Management for full lifecycle support of Ethernet services**
- ☐ **Enhanced security and maximum protection mechanisms**
- ☐ **Full MPLS/H-VPLS Provider Edge support**
- ☐ **H-VPLS MTU support**
- ☐ **Field upgradeable, redundant hot-swappable power supplies**
- ☐ **BiNOX operating-system**
- ☐ **Enhanced Hierarchical-Quality-of-service (HQoS) and service granularity support**
- ☐ **Complete professional management tools for best control of your network**
- ☐ **24 Gigabit Ethernet/MPLS SFP ports (8 Combo ports)**
- ☐ **Four 10 Gigabit Ethernet/MPLS XFP ports**
- ☐ **Compact size: 2RU height, 19" rack-mountable metal enclosure, 300mm depth**
- ☐ **ETSI compliant design**

T-Metro® 7224

Carrier Ethernet Multiservice Aggregation Platform

Key Applications

- **Access and core ring configuration with sub-50mSec failover**
- **VPLS/MPLS Provider Edge switching**
- **Hub & Spoke Layer 2 aggregation**
- **Low cost DSLAM/CMTS aggregation**
- **Triple play Ethernet**
- **Enterprise/SMB/Home Business**
- **Multi-Tenant Unit (MTU) and Multi-Dwelling Units (MDU) customer located equipment**
- **FTTx**
- **Data center consolidation**
- **E-Line, E-LAN, and E-Tree**

Specifications

Standards and Certifications
IEEE 802.1D; IEEE 802.1Q; IEEE 802.1P
IEEE 802.1p Priority Queuing; IEEE 802.1u-2001
IEEE 802.3x PAUSE: flow control and back pressure
IEEE 802.1x; IEEE 802.3ad
IEEE 802.3; 802.3u; 802.3z Ethernet
IEEE 802.1d, IEEE 802.1w and IEEE 802.1s
IEEE 802.3ah OAM; IEEE 802.1ag CFM; ITU-T Y.1731
ITU-T Y.1731/EEE 802.1ag (CFM)
NEBS Level 3 compliant

Interfaces
Four 10Gigabit MPLS enhanced ports
24 - 1Gigabit MPLS enhanced ports
- 8 combo SFP/RJ-45 ports support 100Base-FX or 1000Base-X (SFP) and 10/100/1000Base-TX (RJ-45)
- 16 SFP ports support 100Base-FX/1000Base-X only
RJ-45, ASCII Management ports

Advanced video support
L2 mulitcast (IGMP)
IGMP1/2 Snooping
IGMP quick zapping (22ms)

Layer 2 Features
IEEE 802.1D, 802.1Q, 802.1ad Bridging
4095 system-wide VLAN space
256K MAC address forwarding table
Port-based VLANs and Super VLANs
Layer Two Control Protocol (L2CP) Tunneling
Response Time Reporter (RTR)
AccessEthernet® and AccessMPLS™
Advanced OAM and HQoS tools
Rate limiting and policy enforcement
Transparent LAN services (Q-in-Q), H/VPLS

MPLS Features
LDP LSPs
RSVP LSPs with Strict and Loose Paths
Sub-50ms protection with Fast-Reroute (1:1, N:1)
Link Colors/Resource Classes
Maximum/Unreserved Bandwidth (CAC)
Bi-Directional Forwarding Detection (BFD)
LSP Ping & Traceroute
IETF VCCV (PW OAM)

Protection Features
Carrier-class redundancy and load balancing mechanisms
Resilient Link
Link aggregation groups, including LACP with MAC address-based distribution
Advanced fast ring convergence with sub 50 mSec recovery

Advanced security features
IEEE 802.1x
RFC2138 RADIUS
ACL
DoS (Denial of Service) protection

Management
SNMPv1/v2c/v3
SMIv1/v2
MIB-II, EtherLike MIB, Private MIBs
RMON; Syslog
CLI: Serial, Telnet, SSH
NETCONF/YANG
Interface: In-Band/ Out-of-Band
Local Interface: RJ-45, RS-232
SW Download: via TFTP
Service Management: EdgeGenie

Regulatory Compliance
European CE marking; EN 55022 Class A; CISPR 22 Class A
EN55024:1998+A1; ETSI compliant

EMC Immunity
Harmonics: EN 61000-3-2/ IEC 61000-3-2
Voltage fluctuations: EN 61000-3-3/ IEC 61000-3-3
ESD: EN 61000-4-2/ IEC 61000-4-2
RFI-AM: EN 61000-4-3/ IEC 61000-4-3
EFT: EN 61000-4-4/ IEC 61000-4-4
Surges: EN 61000-4-5/ IEC 61000-4-5
Conducted: EN 61000-4-6/ IEC 61000-4-6
Voltage DIP: : EN 61000-4-11/ IEC 61000-4-11

EMC Emissions
FCC 47 CFR Part 15 Class A
ICES-003 Issue 4 Class A (Canada)
EN 300386
Telcordia GR-1089 issue 4

Safety requirements
UL 60950; EN 60950; IEC 60950; IEC 60825-1
CSA 22.2 No. 950
Class 1 Laser product safety (eye safety)

Environmental Compliance
Full RoHS

General Specifications

Dimensions	3.5"H (2RU) x19"W x12"D
	89mm (2RU) x 440mm x 305mm
Weight	16.97lbs (7.7kg) max (without PSU)
	1.3lbs (0.6kg) (with single PSU)
Power	Dual redundant, hot-swappable
	AC/DC 100-240VAC
	-48VDC (-36VDC to -60VDC)
Operating temp	0ºC to 45ºC
Extended temp	-5ºC to 55ºC (up to 96 hours)
Humidity	Up to 95%, non-condensing
Fan	Load sharing, speed controlled, hot-swappable

Ordering Information

Part Number	Description	
		Note: At least one (1) power supply module is required for operation. Optical ports require SFP
TM7224-AC-z*	T-Metro 7224 platform with fixed eight (8) 10/100/1000BaseTX or unpopulated SFP-based 100/1000BaseFX/X combo ports, sixteen (16) unpopulated SFP-based 100BaseFX ports and four(4) unpopulated XFP-based 10Gigabit XFP ports. Two (2) unpopulated power supply slots. Optical ports require SFP/XFP. BiNOX ML support + HQOS+ Enhanced MPLS. Base System inc. Fan Tray, 1 AC PSU, Blanking Plates (PSU), Accessory Pack, Console Management Cable and Power Cord	
TM7224-DC	T-Metro 7224 platform as above with 1 DC PSU -48Volt	

*z= power supply requirements: NA (North America); EUR (Europe); UK (Great Britain)