



T5C FAMILY

COMPACT CARRIER ETHERNET AGGREGATION COPPER AND FIBER ROUTING SWITCHES

The T5C line of 10/100/1000 Mbps fiber and copper Ethernet switches provides high performance in a super-compact, only 1 RU in height, enclosure. This versatile product family is ideal for metro access rings supporting applications such as video, VoIP, and data aggregation and MDU applications which require high availability.

The T5C switches utilize Telco Systems® BiNOS™ field proven, carrier grade operating system. BiNOS features a robust and advanced Layer 2 – 4 software platform geared toward satisfying carriers' most stringent requirements for operations, administration, and management.

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.

Compact, Cost-Effective Metro-Ethernet Access Rings

Deployment of Metro-Ethernet rings becomes increasingly popular due to its efficiency, costs savings, and flexibility. Ring architecture allows for multiple services to be consolidated, transported, and drop/inserted as needed. The inherent redundancy, resiliency and re-routing capabilities of ring technology result in increased reliability and high network availability. The T5C product line offers a unique Ethernet Fast Ring technology with recovery time, for link or switch failure, of less than 50ms (verified in rings comprised of up to 14 switches). T5C's software implementation is fully standards-based and is fully interoperable with other standards-based products deployed in the same ring.

Compact, Cost-Effective Copper and Fiber Aggregation

Space in most wiring closets, switch rooms, and CO racks is at an absolute premium. The versatile product line offers just the right port density and interfaces options to suit any environment - from fiber aggregation in metro networks, to fiber-to-the-home/business (FTTH/B), to departmental concentration in small-to-medium enterprise (SME).

Ethernet Operations, Administration and Maintenance

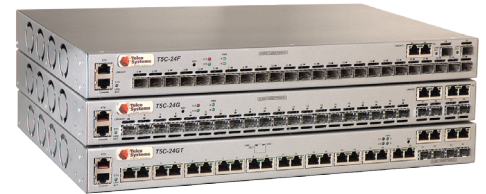
The recent rise of Ethernet, as a preferred technology in metropolitan and core networks, has created a need for a new set of operations, administration and maintenance (OAM) protocols. Service provider networks are wide and complex and usually span different departments and network segments in order to provide an end-to-end service for both enterprise and residential customers.

As enterprise customers' demand for better SLA, service providers need to find a way to increase service availability. Ethernet OAM features provide service providers the means to address those challenges and provide carrier-grade services over the Ethernet infrastructure. The T5C supports industry-standard OAM tools including IEEE 802.1ag Connectivity Fault Management (CFM) and IEEE 802.3ah Ethernet in the First Mile (EFM OAM).

802.1ag provides a set of tools that monitor and troubleshoot end-to-end service delivery over an Ethernet infrastructure. It allows service providers to detect, verify and isolate end-to-end connectivity failures. 802.3ah provides a set of tools to manage the link between the customer equipment and the service provider's network. Those tools can detect OAM capable devices on the link, monitor the link, provide indication for remote failures and perform loopback operations.

State-of-the-industry management

T5C switches are fully manageable via SNMP, CLI, or the Web with either In-band (IB) or Out-of-Band (OOB) management tools. The CLI complies with the de facto industry standard and enables administration via a user friendly interface. Web management is made possible by utilizing embedded Java™ based user friendly management technology.

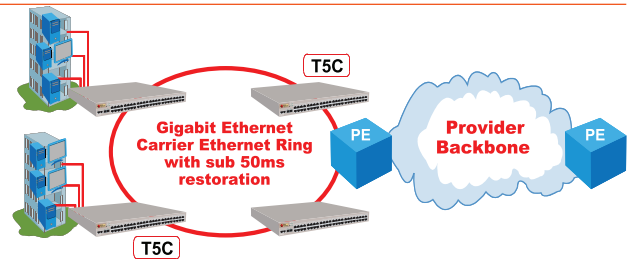
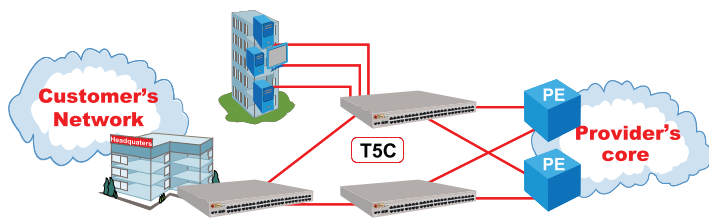


PRODUCT HIGHLIGHTS

- Wire speed, non-blocking Layer 2 switching
- Extensive set of routing capabilities: static routing, RIP, OSPF, IS-IS, VRRP
- TLS for E-2-E tunneling
- Multi-layer multicast support for video-conferencing and online learning applications (IGMP, PIM-SM/DM)
- Jumbo frames support
- Sub 50ms switch over time in Carrier Ethernet rings
- Link Aggregation (802.3ad & LACP) broadens the bandwidth between switches, adding robustness and redundancy
- 1+1 link redundancy
- Redundant power option (AC and DC)
- Extensive QoS support includes traffic classification, rate-limiting, queuing, shaping and congestion avoidance
- Comprehensive set of security features for authentication, connectivity and access control
- Professional management tools provides a vast variety of management methods
- Low power consumption
- MEF and IEEE standards compliance for multi-vendor interoperability
- NEBS Level 3

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PRODUCT SPECIFICATIONS

Hardware Characteristics	T5C-24G - 20 x 1000BaseX + 4 x 10/100/1000BaseT or 1000BaseX combo ports T5C-24GT - 20 x 10/100/1000BaseT + 4 x 10/100/1000BaseT or 1000BaseX combo ports T5C-24F - 24 x 100BaseFX + 2 x 10/100/1000BaseT and 2 x 1000BaseX ports Non-blocking 24Gbps FD platform
Services	All MEF services, IEEE 802.1Q bridging, IEEE 802.1ad QinQ (TLS)
Resiliency	Sub-50ms MSTP Fast Ring xSTP, resilient link, LAG (static/IEEE 802.3ad LACP) Redundant AC/DC power supply
Quality of Service	Per port/EVC/flow single/dual rate limiting SP, WRR and hybrid frames scheduling, CoS marking and mapping per EVC
Multicast Management	IGMP snooping v1/v2 IGMP proxy Multicast VLAN registration (MVR) PIM-SM, PIM-DM
Routing	Static Routing, RIP, OSPF, IS-IS, VRRP, VRF, BGP, BFD
OAM	IEEE 802.3ah EFM, IEEE 802.1ag CFM
Testing & Monitoring	ITU-T Y.1731 SM
Management	Console, Telnet, SSHv2, Radius, TACACS+, SNMP v1/2/3, xFTP, NTP, DNS resolver, DHCP client
Security	ACLs, RADIUS, SSHv2, SNMPv3, SFTP, port security, broadcast storm prevention, secured access
General Specifications	Dimensions: (W x H x D) 442 mm (17.4") x 43.9 mm (1.73") x 304 mm (12.0") - 411 mm/(16.2") Weight: T5C-24G, T5C-24GT: 4.6 kg (10.2 lbs) T5C-24F: 5.3 kg (11.7 lbs) Operating Temperature: T5C-24G, -24GT: 0° C to 45° C (32° F to 113° F) T5C-24F: 0° C to 55° C (32° F to 131° F) Non-operating Temperature: -20° C to +65° C (-4° F to 149° F) Humidity: 95% non-condensing for all T5C models Input power: 100-240 VAC @2.3A, 50/60 Hz -48VDC typical (36V to 56VDC) @ 2A Altitude range: 0 – 1500 m (0-4,921ft)
Regulatory Compliance	Safety: EN/IEC 60950, EN60825, UL1950, CSA 22.2 EMC: EN55022 Immunity: EN61000 FCC class A, VCCI class 1, UL/CUL, VE (EMI, EMS, LVD) NEBS level 3 certified (T5C-24GT) NEBS level 3 compliant (T5C-24F, T5C-24G)

KEY APPLICATIONS

- Resilient GE Carrier-Ethernet Access Ring
- Hub and spoke access/aggregation
- FTTx access and aggregation for triple play service
- Enterprise/SMB/Home Business: Multi-tenant Unit (MTU) and Multi-dwelling Units (MDU) customer located (CLE) switch

ORDERING INFORMATION

Part Number	Model	10/100/1000 BaseT	100 BaseFx	1000 BaseX	GE Combo Copper/Fiber
BTI-0524GT	T5C-24GT	20			4 ⁽²⁾
BTI-0524F	T5C-24F	2	24 ⁽²⁾	2 ⁽²⁾	
BTI-0524G	T5C-24G			20 ⁽²⁾	4 ⁽²⁾

Notes:

- (1) A variety of PSU options (AC/DC/Dual)
- (2) Unpopulated SFP ports. For full list of optical modules, contact our sales department, any of our branches or authorized distributors



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