JumboSwitch 10G

MEF Carrier Ethernet 2.0 Compliant

TC3850-1

Features

- E-Line, E-LAN, E-Tree, and E-Access Services
- Ethernet OAM Service Assurance
- Sub-50ms Protection Switching by ITU-T G.8032v2 ERPS
- IEEE 1588v2 PTP Time Synchronization

Configuration

- 4-port 10G SFP+, 4-port 100/1000M SFP, and 4-port GbE RJ45
- 2 Open Slots for JumboSwitch® Ethernet and TDM Interface Cards
- 2U Chassis

JumboSwitch® 10G Multi-Service Ethernet Platform Front View

Description

The JumboSwitch® TC3850-1 is a 10G Multi-Service Layer 2 Switch supported in a modular chassis design with 2 open slots compatible with JumboSwitch® expansion cards. Advanced networking features of the JumboSwitch® 10G include:

- **Complies with Carrier Ethernet 2.0** including IEEE 802.3ah MAC Layer OAM, IEEE802.1ag Ethernet CFM, ITU-T Y.1731 Ethernet OAM, ITU-T G.8031 Ethernet Linear Protection Switching, ITU-T G.8032v2 Ethernet Ring Protection Switching (ERPS) and IEEE 1588v2 PTP.
- **VLAN, QoS and Rate Control** which allows network segregation, isolation, prioritization and bandwidth control.
- **Diagnostics** include Temperature, Power and SFP Monitoring, and RMON.
- **Management** is through Web, SNMP, or Command Line Interfaces. Settings can be saved and loaded to simplify network administration, and firmware can be remotely upgraded.
- **Security** features such as 802.1X, RADIUS/TACACS+, AAA, SNMPv3 and SSL provide both network and management security.
- **Durable and reliable operation.** The TC3850-1 is designed with extended temperature, shock/vibration, and surge ratings. The modularized chassis comes with a pair of redundant power supplies that can be configured to use AC, DC or mixed AC/DC power sources.

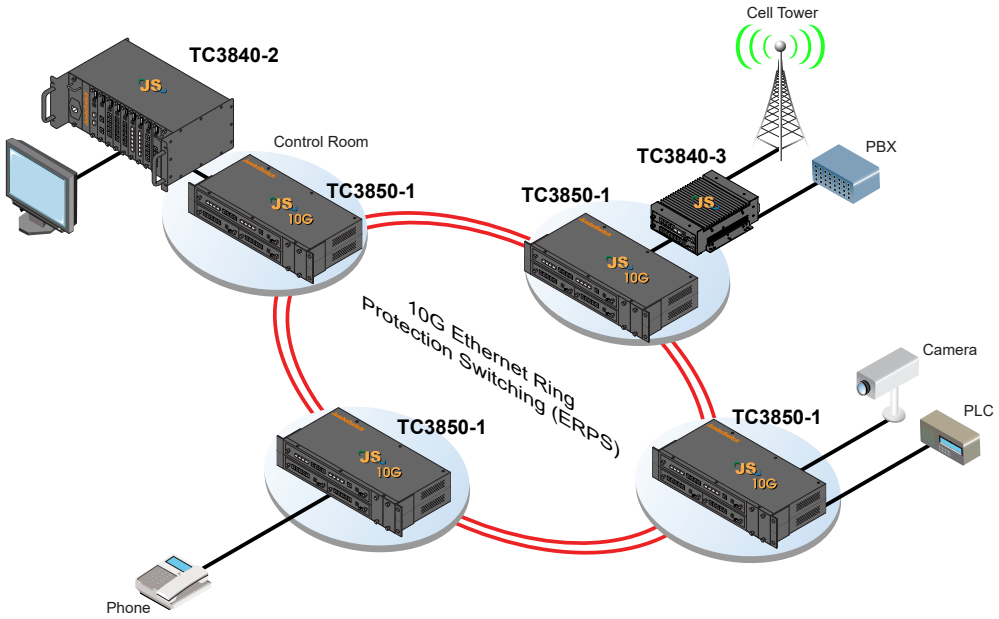
Applications

Built for mission critical and industrial communications:

- Teleprotection
- Internet Service Provider (ISP)
- Public Safety
- Air Traffic Control
- Oil & Gas

Feature	Description
Ethernet	
MAC Table	Up to 32K MAC addresses
Spanning Tree	• Spanning Tree Protocol (STP) IEEE 802.1D • Rapid Spanning Tree Protocol (RSTP) IEEE 802.1w/802.1D-2004 • Multiple Spanning Tree Protocol (MSTP) IEEE 802.1s/802.1Q-2005
Aggregation	Link Aggregation Control Protocol (LACP) IEEE 802.3ad • Up to 32 groups • Up to 16 ports per group
Virtual LAN (VLAN)	Support for up to 4094 IEEE 802.1Q VLANs simultaneously • Port-based VLAN • MAC-based VLAN • Protocol-based VLAN • Private VLAN
Voice VLAN	Voice traffic is automatically assigned to a voice-specific VLAN and treated with appropriate levels of QoS
Generic VLAN Registration Protocol (GVRP)	Dynamic VLAN for automatically propagating and configuring VLANs in a network
IGMP v1/v2/v3 Snooping	Provides IGMP (IPv4 multicast group) support on Layer 2 switches.
MLD v1/v2 Snooping	Provides MLD (IPv6 multicast group) support on Layer 2 switches.
Link Layer Discovery Protocol (LLDP)	IEEE 802.1AB standard for advertising their identity, capabilities, and neighbors of network devices
Storm Control	Policing and protection from broadcast and flooding
Quality of Service	
Hardware Priority Queue	8 QoS class queues per port
Scheduling	Strict priority and deficit weighted round-robin (DWRR)
Classification	• Port based; 802.1p Class of Service (CoS) • Port Tag Remarking • DSCP based; Differentiated Services (DiffServ) • DSCP translation and remarking
Rate Limiting	Ingress policing and egress shaping per port and per CoS
Carrier Ethernet Protocol and Features	
Ethernet CFM	IEEE 802.1ag standard that provides connectivity fault management
Service OAM	ITU-T Y.1731 Ethernet OAM standard for dividing a network into maintenance domains in the form of hierarchy levels
Provider Bridging	VLAN stacking (Q-in-Q) IEEE 802.1ad
Bandwidth Profile	Policing with leaky bucket (CIR/CBS & EIR/EBS) are supported per service
Ethernet Ring Protection Switching (ERPS)	ITU-T G.8032v2 provides sub-50 ms protection switching for Ethernet ring topologies
Precision Time Protocol (PTP)	IEEE 1588v2 protocol provides sub-microsecond range network timing and synchronization for Ethernet networks

Feature	Description
Security	
Secure Shell (SSH) Protocol	SSH secures Telnet traffic in or out the switch, SSH v1 and v2 are supported
HTTPS	SSL encrypts the HTTP traffic, allowing secure access to the web based management GUI
Network Access Control	IEEE 802.1X defined: • Port based authentication • MAC based authentication • Single host mode • Multi host mode
AAA	Authentication, Authorization and Accounting provides management security with a central RADIUS or TACACS+ server
RADIUS/TACACS+	Supports security through central RADIUS and TACACS+ servers
Port Security	Locks MAC Addresses to ports, and limits the number of learned MAC addresses
DHCP Snooping	Provides security by filtering un-trusted DHCP messages, and by building and maintaining a dynamic IP address database
IP Source Guard	Prohibits IP packets with invalid IP addresses from accessing the network
ARP Inspection	Protects from Address Resolution Protocol (ARP) spoofing attacks
Access Control Lists (ACL)	Support for up to 256 entries for permitting or denying Ethernet packets based on variety of parameters
Management	
Web GUI Interface	Built-in switch configuration utility for browser-based device configuration (HTTP/HTTPS). Supports configuration, system dashboard, maintenance, and monitoring
SNMP	SNMP v1, v2c and v3 with support for multiple traphosts
Remote Monitoring (RMON)	Supports RMON groups 1,2,3,9 (history, statistics, alarms, and events) for enhanced traffic management, monitoring and analysis
Network Time Protocol (NTP)	Protocol for providing clock synchronization. NTP Authentication is also supported.
IPv4 and IPv6 Support	Both IP version 4 and version 6 are supported
Firmware Upgrade	• Web browser upgrade (HTTP/HTTPS) • Upgrade through console port (TFTP) • TCView® to deploy the switch firmware
Dual Image	Dual image provides independent primary and secondary OS files for backup while upgrading
Diagnostics	Syslog, cable/link diagnostics, ping, chassis status



Typical Application Using the TC3850-1 to form an ERPS Network

Data Rates

SFP+ ..... 10 Gbps
SFP ..... 100/1000 Mbps
RJ45 ..... 10/100/1000 Mbps

Optical

Wavelength
Multimode 850nm
Single Mode 1310/1550nm
SFP+ Optic
Connector LC
Port 4
Interface ..... 10G BASE-SR/ER/LR/ZR
SFP Optic
Connector LC
Port 4
Interface ..... 1G-LX/SX , 100M-FX

Electrical

Ethernet
Connector RJ45
Port 4
Interface ..... 1000 Base-T
Console
Connector RJ45
Port 1
Interface RS-232

Regulatory Approval

CE, FCC Part 15, CISPR (EN55022) CLASS A, IEC 61850-3, IEEE 1613, NEMA TS-2, EN50155, AREMA

LEDs

PWR A, PWR B, VCC, MGM, FAN, UNIT ALARM, SYSTEM ALARM, LINK, SPEED

Power

AC 115/230V, 50/60Hz
DC 12/24/48/125V

Operating Temperature

High Temp ..... -20°C to 70°C
Extreme Temp ..... -40°C to 70°C

Storage

Temperature ..... -40°C to 90°C
Humidity ..... 95% non-condensing

Physical (Rackmount Card)

Height ..... (8.9 cm) 3.5"
Width ..... (48.3 cm) 19.0"
Depth ..... (26.7 cm) 10.5"
Weight ..... (6.8 kg) 15.0 lbs

*Contact factory for additional requirements

TC COMMUNICATIONS®
FIBER OPTIC CONNECTIVITY

Certified System™
SAI GLOBAL
ISO 9001
Quality

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Note: Information contained in this data sheet is subject to change without prior notice.