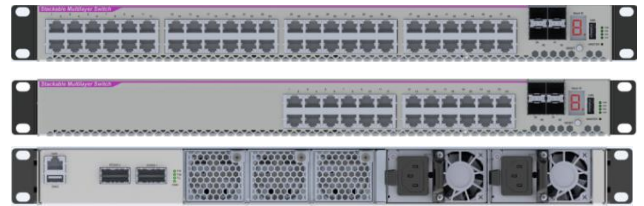


TJ1400P M3 Switch Series

Stackable L2/L3 Gigabit Ethernet Switches

TJ1400P M3 switching family is specifically optimized for LAN applications and Metro Applications.

The TJ1400P M3 models are enterprise-plus class L2/L3 Switches with Carrier Ethernet features for OAM and resiliency. They support GigE electrical and optical interfaces with auto-negotiation and Jumbo frames and are available in several factory fitted configurations.



TJ1400P M3

Using L3 upgrade capability, the TJ1400P M3 provides L2 isolation and bridges traffic between L2 & L3 domains. Advanced L3-features and stacking make this a versatile product for the core of a network. In stand-alone, non-PoE 24-port configurations operation up to 60 deg C is supported.

The target applications are campus networks, power utilities, transportation and traffic control systems, industrial factory floor installations, video surveillance systems, and installations, which require high density of gigabit aggregation.

Features	Benefits
QoS Features <ul style="list-style-type: none"> 8 levels of packet prioritization Per-port Rate Limiting at 64 kbps granularity and Traffic Policing Policy based Bandwidth Classification Statistics of classification ACLs 	Enhanced Traffic Management <ul style="list-style-type: none"> Enables Traffic metering, shaping and scheduling Lesser latency and unpredictability leading to better Quality of Service (QoS) Enables the service provider to offer differentiated services with different levels of QoS
Switching Functionalities <ul style="list-style-type: none"> VLAN tagging & classification (IEEE 802.1 Q) VLAN stacking (Q in Q) Support for Link Aggregation (IEEE 802.3ad) Spanning Tree Protocol (IEEE 802.1 D) & Rapid Spanning Tree Protocol (IEEE 802.1 w) 	Ethernet Service Management <ul style="list-style-type: none"> Enables separation of Applications Facilitates re-use of VLAN's across multiple customer Enhanced granularity of service provisioning over the backhaul
Carrier Ethernet Features <ul style="list-style-type: none"> Ethernet Ring Protection Switching (ERPS) Connectivity Fault Management (CFM) Performance Management (Y.1731) 	Metro Service Management <ul style="list-style-type: none"> Efficient Ring deployments in Metros Enhanced OAM for Carriers SLA Monitoring capability
Routing Functionalities <ul style="list-style-type: none"> L3 switching/routing based on OSPF, RIP etc Router redundancy support based on VRRP Multicast Routing Advanced protocols like BGP, IS-IS available with -E upgrade over -S models 	Layer 3 Service Management <ul style="list-style-type: none"> Enables network planning and scalability Enables high availability networks Allows peering
Optional POE Capability <ul style="list-style-type: none"> 802.3af compliant PoE support 	<ul style="list-style-type: none"> Enables converged applications by providing power to IP phones, surveillance cameras, and wireless access points

Technical Specifications*

Traffic Interfaces

- 24 10/100/1000 + 4 x 1/10G Optical
- 24 10/100/1000 with PoE + 4 x 1/10G Optical
- 48 10/100/1000 + 4 x 1G/10G
- 48 10/100/1000 with PoE + 4 x 1G/10G
- 24 1000 Base-X SFP ports + 4 x 1/10G
- 24 1000 Base X + 24 10/100/1000 + 4 x 1/10G

- 1 QSFP port in the rear for extra 40G or 4x10G links

Stacking and PoE Support

- 2 dedicated Stacking ports of 80Gbps full-duplex each
- 320 Gbps of stacking bandwidth
- Up to 9 switches in a stack
- Hot insertion and removal of stack members
- 802.1at support on all 10/100/100 ports in PoE models

Switching Support

- RFC 768 UDP
- RFC 783 TFTP
- RFC 791 IP
- RFC 792 ICMP
- RFC 793 TCP
- RFC 826 ARP
- RFC 951 BootP
- RFC 2131 DHCP
- RFC 2131, 2132 DHCP Server
- TFTP / BOOTP
- IEEE 802.1D
- IEEE 802.1Q VLAN Tagging
- Double VLAN Tagging
- GARP/GVRP
- IEEE 802.1p
- IEEE 802.3x
- IEEE 802.1 s
- IEEE 802.1x
- IEEE 802.1ab
- IEEE 802.3ad - LAGs
 - Support for IP-Address based hash (distribution on Routing interface)
- Static LAGs
- XMODEM
- Broadcast Storm Recovery
- Port Mirroring
- Static MAC Filtering
- Protocol Based VLANs (IP, ARP, IPX)
- Protected port
- DHCP snooping
- GMRP
- Outbound Telnet
- Syslog (RFC 3164)
- Port Locking
- SNTP
- Denial of Service Protection (control plane)

Routing (-S Feature)

- Static Routing (IPv4, IPv6)
- Port Based Routing
- VLAN Routing
 - 802.3ad (LAG) for router ports
- VLAN Router Slot Number (unit = 0 for stacking) 2
- OSPFv2, OSPFv3
- RIPv1/v2
- BGP (-E feature)
- IS-IS (-E feature)
- VRF (-E feature)
- RFC 1519 CIDR

Services

- Residential Triple-play : Broadband Access, IP-TV, VoIP Services
- Enterprise Services : Ethernet Private Lines (EPL), Ethernet Virtual Private Line (EVPL), Ethernet Private LAN (EPLAN)
- MEF E-Line, E-LAN and E-Tree Services

Switch Scalability

- Line rate forwarding on all ports
- Switching Bandwidth 288 Gbps full-duplex
- 4094 VLANs (IEEE 802.1Q)
- Up to 256 Multicast groups
- MAC Table Size of 32K
- Maximum 6 LAGs
- Up to 8 ports per LAG
- Up to 4 MSTP instances
- Up to 100 ACL entries
- 8 COS queues per port
- 64 Policing profiles
- 32 Shaping profiles
- 8 WRED profiles
- RMON 1,2,3,9
- 64 byte to 9216 byte Ethernet Frames

Multicast

- IGMPv2
- IGMPv3
- Expediated leave function
- IGMP Snooping
 - IGMPv3 Snooping
 - Enable IGMP Snooping per VLAN
- DVMRP
- PIM-DM
- PIM-SM
- IPMC replication (hardware support)

Protection

- Link Aggregation Groups (LAG)
- Ethernet Ring Protection (ERP) (-M feature)
- STP, RSTP, MSTP, UDLD

Security

- Hardware based ACL (wire speed)
- L2 Filter Criteria:
 - Source/Destination MAC Address/Mask
 - CVLAN (TPID, VLAN ID, 802.1p)
 - SVLAN (TPID, VLAN ID, 802.1p)
- L3/L4 Filter Criteria:
 - Source/Destination IP Address
 - IP Protocol, ToS, DSCP
 - Source TCP/UDP port
- Storm control for Multicast, Broadcast, DLF (Destination Lookup Failed) frames and Broadcast suppression
- Port Mirroring for incoming/outgoing packets
- Multiple source ports mirrored to a probe port

Operations, Administration and Management

- IEEE 802.3ah (ETH-OAM) (-M feature)
- IEEE 802.1ag and ITU Y.1731 OAM capabilities (-M feature)
 - CCM (Connectivity), LTM/LTR (Link Trace) and LBM/LBR (Loopback) Messages
 - DMM/DMR (Delay/Jitter) measurements
 - 15minute and Daily Bins for DMM/DMR
- Trap and Syslog messages

Technical Specifications*

Quality of Service

- 64Kbps ingress rate limiting on all ports
- 64kbps egress rate shaping on all ports
- Programmable burst sizes (4,8,...,32KB)
- CIR, PIR, CBS and PBS support
- L2, L3, L4 packet classification
- L2 attributes:
 - Source/Destination MAC
 - VLAN ID
 - IEEE 802.1p bit
- L3 attributes:
 - Source/Destination IP Address/Mask
 - IP ToS, Precedence, DSCP
 - IP Protocol Type
- Source/Destination TCP/UDP ports
- Set DSCP, Precedence and COS values
- 8 COS queues per port
- Strict Priority, WRR, WFQ egress scheduling
- Tail Drop, WRED COS queue management
- DiffServ
 - Edge Node applicability
 - Interior Node applicability
 - 802.3ad (LAG) for service interface

Standards Support

- IEEE 802.3x (Flow Control)
- IEEE 802.1 D (Spanning Tree Protocol)
- IEEE 802.1w (Rapid Spanning Tree Protocol)
- IEEE 802.1 s (Multiple STP)
- IEEE 802.1 p
- IEEE 802.1q (VLAN tagging)
- IEEE 802.3ad (Link aggregation)
- IEEE 802.1ab (LLDP)
- IEEE 802.1ad (Q-in-Q)
- IEEE 802.3ah (EFM)
- IEEE 802.3ag (CFM)
- ITU-T G.8032 (ERP)
- ITU-T Y.1731 (PM)

Management Capability

- SNMP v1, v2, v3 support
- SNMP Traps on Alarms and Security violations
- Telnet
- SSH
- CLI based configuration
- WebGUI based configuration
- TACACS+
- RADIUS

Orderable Models

Layer2 Stackable Switches

TJ1400P M3-24TD-L
TJ1400P M3-24PD-L
TJ1400P M3-48TD-L
TJ1400P M3-48PD-L
TJ1400P M3-24SD-L
TJ1400P M3-24T24SD-L

Layer 2 switches can be upgraded to **Metro Switches which have a -M identifier e.g.** TJ1400P M3-24TD-M

Layer3 Stackable Switches

TJ1400P M3-24TD-S
TJ1400P M3-24PD-S
TJ1400P M3-48TD-S
TJ1400P M3-48PD-S
TJ1400P M3-24SD-S
TJ1400P M3-24T24SD-S

Layer 3 switches can be upgraded to **Advanced IP Switches which have a -E identifier e.g.** TJ1400P M3-24TD-E

High Temperature (-HT) models

TJ1400P M3-24TD-L/M/S/E-HT
TJ1400P M3-24SD-L/M/S/E-HT

Physical Characteristics

- Dimensions (H x W x D): 44 mm x 450 mm x 471 mm

Power Supply

- AC Operation (220V)
- Redundant, hot-swappable AC Power Supplies

Environmental

- Operating Temperature: -5 deg C to +50 deg C
- -HT model Operating Range: -5 deg C to +60 deg C
- Relative Humidity: 10% to 95% RH non-condensing
- FCC Class A

Orderable SFP/SFP+ Modules

SFP-1GE-T	Electrical 1000-BaseT RJ45
SFP-1GE-SX	Multi-Mode, 550m
SFP-1GE-LX	Single Mode, 10Km
SFP-1GE-LH	Single Mode, 40Km
SFP-1GE-ZX	Single Mode, 80Km
SFP-10GE-SX	Multi-Mode, 550m
SFP-10GE-LX	Single Mode, 10Km
SFP-10GE-LH	Single Mode, 40Km
SFP-10GE-ZX	Single Mode, 80Km

* Technical Specifications are subject to change without notice

Contact us at: sales@tejasnetworks.com Visit us at: www.tejasnetworks.com



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Tejas Networks Ltd.
5th Floor JP Software Park,
Plot 25, Electronic City 1st Phase,
Hosur Road,
Bangalore 560 100, India
Phone: +91-80-4179 4600/700

Tejas Networks Ltd.
Spaze I Tech Park,
9th Floor, Tower A,
Sector 49, Sohna Road,
Gurgaon, Haryana
Tel: +91 11 4615 8000

Tejas Communication Pte. Ltd.
3, Anson Road,
#27-01, Springleaf Tower,
Singapore - 079 909