

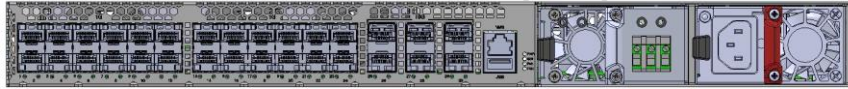
Compact TJ1400P-M2

Layer2/Layer3 Switches

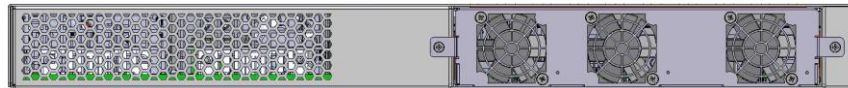
TJ1400P-M2-24TD-LSv2/Sv2/Ev2; TJ1400P-M2-24PD-LSv2/Sv2/Ev2



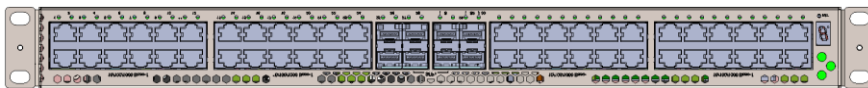
TJ1400P-M2-24SD-LSv2/Sv2/Ev2



24-port TJ1400P-M2 Rear View



TJ1400P-M2-48TD-LSv2/Sv2/Ev2; TJ1400P-M2-48PD-LSv2/Sv2/Ev2



48-port TJ1400P-M2 Rear View



Overview

Compact TJ1400P-M2 range of **fully-managed modular switches** are designed to provide a wide range of capabilities to meet diverse deployments. The comprehensive Layer2, Carrier Ethernet, and Layer3 features, choice of PoE, non-PoE and Optical Interfaces, Gigabit and 10Gigabit speeds, and security and management capabilities make these switches a good fit for many access network requirements.

Switches run TejNOS-EN software that provides flexible licensing options for Enterprise and Service Provider offerings. Layer2+ features are standard software offering. Carrier Ethernet and IP-Routing are enabled via the "-Sv2" license. Enhanced IP routing capabilities are enabled with upgrade to the "-Ev2" License

The switches support line-rate, non-blocking switching for predictable performance for Ethernet, IPv4 and IPv6 traffic. Stacking is supported using front-panel SFP+ ports.

Network Security is paramount today and these switches ensure that with features like ACLs based on L2-L4 headers, Storm Control, Denial of Service (DoS) mitigation the network security is not compromised. In addition, at Layer2 authentication of Clients via 802.1x for determining the authorized devices, and security features like IP Source Guard, ACLs, Storm Control the network is secured.

The switch supports Dual Field Replaceable Power Supply Units that can be AC or DC or a combination. Several AC PSUs, with different PoE wattage, are available.

To support compact deployment, especially in wall mount and small depth cabinets, 24-port switches have inputs including power feeds are in the front. A fan-tray, that has redundant fans, is at the back for some configurations.

Operating temperature of 0 to 65 degC allows for lower cost of operation for Electrical and Optical switches. PoE switches can operate from 0 to 55 degC

Key Features and Benefits

Layer2 / CE Switching

Comprehensive Layer2 feature set with Spanning Tree Protocols to prevent loops, Link aggregation to allow for increased interconnect bandwidth, and VLAN support allows for virtualization of networks. Multicast snooping and forwarding are supported for efficient Video.

Carrier Ethernet features like double tagging, Ring Protection (ERPSv2) and Ethernet OAM (EFM, CFM, Y.1731) are supported.

Layer3 Switching

Switches are IPv6 Ready and support IPv4 and IPv6 inter VLAN routing with Routing protocols like static routing, RIP, OSPF, and BGP, Policy Based Routing. For IP-multicast traffic the switch supports PIM with its various modes.

A built in DHCP server allows the switch to assign IP-addresses to endpoints and build a standalone IP-network. DPCP Relay and several IP utilities are supported for IPv4 and IPv6

Upgrade to -E license delivers BGP4+ and VRF-lite capabilities for enhanced network segmentation.

Quality of Service

In converged networks multiple applications can be given their own priorities and bandwidth. Customer traffic can be limited and uplink traffic shaped as required. Note that shaping needs to ensure that adequate attention is given to the packet buffering available on the device.

Secure Network Access

Authentication of the devices that connect to the switch allows you to ensure that there is no unauthorized use of the network. This is especially true in deployments that are remote. The DHCP snooping and Dynamic ARP inspection features on the switch allow the device to reject devices trying to use an IP-address that is provided to another authorized device.

Power over Ethernet

Specific models offer Power over Ethernet (PoE) capability. The PoE capable switches can act as the Power Source Equipment (PSE) and deliver 15.4W (IEEE 802.3af) / 30W (IEEE 802.3at) of power to connected Powered Devices (PD). Support of 60W (IEEE 802.3bt) is also provided on some ports.

With LLDP-MED capability the PD's can negotiate the power with the switch. Scheduling the powering of the devices is a feature that allows you to turn off the devices when not required.

Flexible Deployments

All ports are Gigabit Ethernet ports with Auto Negotiation and MDIX support allowing for seamless interconnectivity of new and old equipment.

Support of multiple uplinks allows for ring configurations for redundancy.

Line rate forwarding allows high-capacity access equipment like 802.11ac Access Points. Optical ports allow for traffic to be collected at remote locations with the use of the appropriate SFP modules.

Gigabit speeds reduce network latency. Jumbo frame support for Video applications

Secure Management

Switch Management can be done via IPv4 or IPv6.

The switch supports in-built diagnostics and hardware monitoring of the pluggable modules.

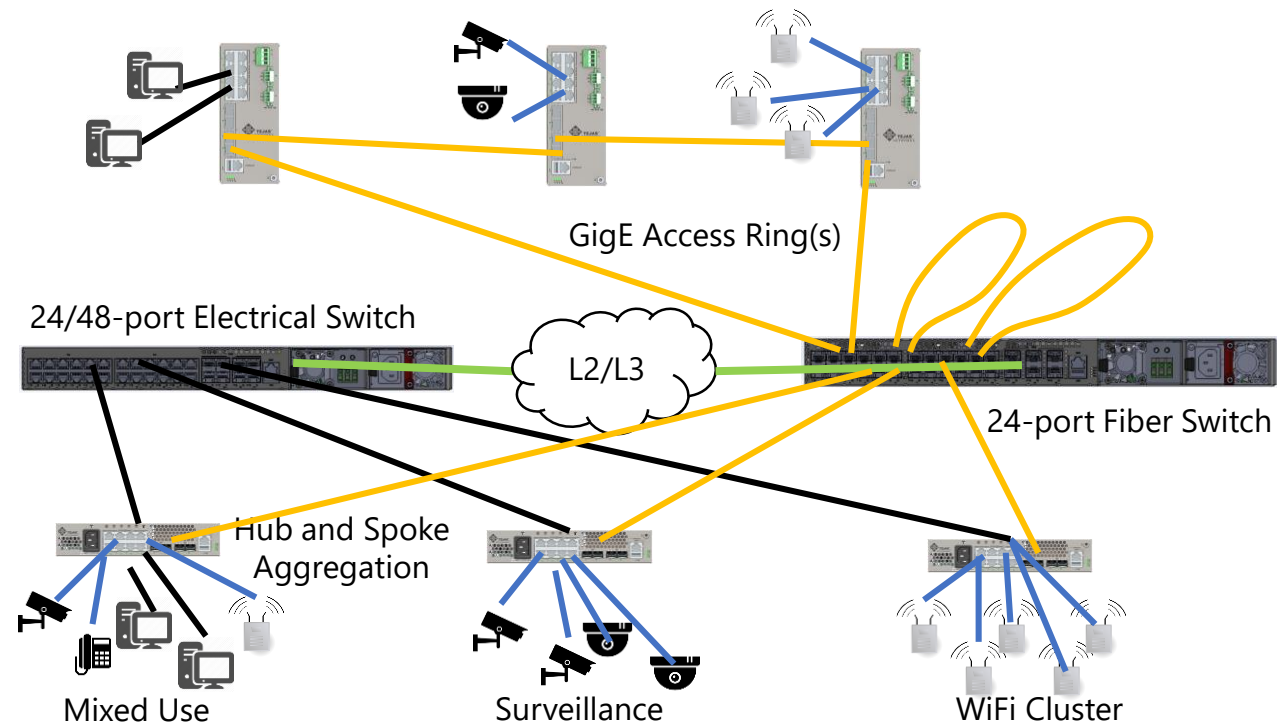
Management of the switch can be done locally using the RS232 console port or remotely using Secure access.

A Graphical User Interface (GUI) provides easy access. Access to the switch CLI commands via RADIUS/TACACS+ ensures that all operations are authorized and logged.

Traffic can also be selectively mirrored for analysis.

Integration with NMS via SNMP/CLI and syslog is supported.

Sample Deployment



Product models

Switch Hardware supports software feature bundles, built-in and enabled as license upgrades

- LSv2: **Built-in** Layer2 Managed switch with Static Route and DHCP server capability
- Sv2: **Upgrade** to Carrier Ethernet and IPv4/IPv6 unicast and multicast Routing protocols
- Ev2: **Upgrade** IP-Enhanced including BGP

Base Model Name	RJ45 Ports Tri-speed	PoE+ Ports	PoE Power	SFP Ports	SFP/SFP+ Ports	PSU Options
TJ1400P-M2-24TD	24	-	-	-	6 / 4+4 Stack	AC, DC
TJ1400P-M2-24PD	24	24	370W 740W	-	6 / 4+4 Stack	AC, DC AC
TJ1400P-M2-24IPD						
TJ1400P-M2-24SD	-	-	-	24	6 / 2+4 Stack	AC, DC
TJ1400P-M2-48TD	48	-	-	-	6 / 4+4 Stack	AC, DC
TJ1400P-M2-48PD	48	48	370W 740W	-	6 / 4+4 Stack	AC, DC AC

The switches can be stacked using the dedicated stacking ports in the front. The stacking bandwidth is 80Gbps and up to 4 units can be stacked to create a Virtual Chassis with a single management IP. The stacking can be over short distance using DAC or over longer distance using AOC or SFP+ pluggable modules. Two of the 4 stacking ports can be used as uplinks when stacking is not enabled.

Stacking upgrade is a licensable feature. See the Ordering information for details.

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Modular Layer2 / Layer3 10G Switches



Power Supply

Two Field-replaceable Power Supply units can be inserted from the front to power the switches in a variety of deployment scenarios.

The AC PSU models have a wide input range (90-240V, 50-60Hz) and the DC modules have 48V nominal input. Single output (12V) supplies are designed for the non-PoE and optical switches, while dual output (12V, 48V) Power Supply Units are available for the PoE switch models.

Hardware Characteristics

The switches are 19" rack mountable with an IP20 chassis. For the 24-port switches the power-supplies are also accessible from front. A Field replaceable Fan-tray is accessible from the rear of the chassis for Optical models and AC PoE models. Airflow is front to back.

A Console port (DIAG) and USB port in the front provides easy access for 24-port switches. For the 48-port switches these ports are in the rear. The USB port can be used as an out-of-band network management interface with an appropriate network adaptor (RJ45 Ethernet, Wireless,...) or can be used to load software, configs or to retrieve logs.

Per-port LED indications are provided, along with System Status LEDs / Stack Unit indication.

Switch Scalability

Line rate forwarding for Layer2 and Layer3 traffic is provided with hardware-based lookups, QoS, and ACLs for non-blocking switching.

Ports	Switching Capacity	Forwarding Rate	MAC Table	Packet Buffer	VLAN support	Frame Size	Flash Memory	RAM
24	208 Gbps	154 Mpps	16K	2 MB	4096	12KB	1GB/4GB	1GB/2GB
48	256 Gbps	190 Mpps	16K	4 MB	4096	12KB	1GB/4GB	2GB

Environmental Range

Operating Temperature	Commercial: -10 degC to +55 degC 0 degC to +50 degC (for 740W PoE version) Industrial: -40 degC to +65 degC
Storage Temperature	-40 degC to +85 degC
Operating Altitude	Up to 3000 meters
Operating Humidity	0% to 95% non-condensing, Coastal Environment.

Certifications and Compliances

Safety	CE, EN60950-1
EMI and EMC	FCC Part 15 Subpart B, Class A EN 55022, EN 55011 EN 300 386 EN 61000-3-2, EN 61000-3-3 EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5 EN 61000-4-6, EN 61000-4-8, EN 61000-4-11 EN 61000-6-4
Environmental	RoHS Directive 2011/65/EU

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Modular Layer2 / Layer3 10G Switches



TejNOS-EN Software Feature List

Built-in -LSv2 License Features for Layer2/Layer3 Switching	
<i>Layer3 Features available under –LSv2 License</i>	
Static Routing	<ul style="list-style-type: none"> • HW based IPv4 and IPv6 Static Routing • Policy Based Static Routes based on Classification rules • 1024 Static Route entries
DHCP Server	The built-in DHCP Server gives IP addresses to connected hosts, DHCP and DHCPv6
<i>Layer2 Features available under –LSv2 License</i>	
Bridging	<ul style="list-style-type: none"> • Dynamic Learning of MAC addresses; configurable Aging Timers • Static MAC addresses that are not subject to aging
Spanning Tree Protocol (STP)	<ul style="list-style-type: none"> • Standard Spanning Tree 802.1d • Rapid Spanning Tree (RSTP) 802.1w • Multiple Spanning Tree (MSTP) 802.1s; Up to 64 MSTP instances • BPDU Filter, Root Guard, Loop Guard, BPDU Guard • Standard SNMP Spanning Tree MIB support
Link Aggregation	<ul style="list-style-type: none"> • Link bonding using statically defined Link Aggregation Groups • Dynamic bonding using Link Aggregation Control Protocol (LACP) IEEE 802.3ad • Up to 128 link aggregation groups
VLAN support	<ul style="list-style-type: none"> • 4K VLAN supported • Port-based VLAN • 802.1Q tag-based VLAN • MAC-based VLAN • Protocol-based VLAN • Management VLAN • Private VLAN Edge (PVE) • Q-in-Q (double tag) VLAN • Voice VLAN • GARP VLAN Registration Protocol (GVRP) for propagating VLAN
IGMP/ MLD Snooping	Supports snooping of IGMP v1/v2/v3 and MLD requests to deliver the bandwidth intensive IPv4/IPv6 multicast traffic only to the requesters. Supports 1K L2 Multicast groups
IGMP/MLD Querier	IGMP/MLD querier is used to support a Layer 2 multicast domain of snooping switches in the absence of a multicast router
IGMP/MLD Proxy	IGMP/MLD snooping with proxy reporting actively filters IGMP/MLD packets in order to reduce load on the multicast router
Multicast VLAN Registration (MVR)	It uses a dedicated manually configured VLAN, called the multicast VLAN, to forward multicast traffic over Layer 2 network in conjunction with IGMP snooping to clients
DHCP Relay	<ul style="list-style-type: none"> • Relay of DHCP traffic to DHCP server in different VLAN • Works with DHCP Option 82

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Modular Layer2 / Layer3 10G Switches



-Sv2 Feature License Upgrade (IP-BASE feature set upgrade over –LSv2)	
Ring Protection	50-ms protection, ERPSv2 as per ITU-T G.8032
Ethernet OAM	Link OAM with Ethernet in First Mile (EFM) IEEE 802.3ah
Service OAM	Connectivity Fault Management (CFM) IEEE 802.1ag with 512 MEP for UDLD
Perf. Monitoring	Delay and Loss Measurement (DM, LM) as per ITU-T Y.1731
L2TP	Specific L2 protocols on CVLAN can be tunneled in SVLAN
MEF Services	E-Line and E-LAN Services with CVLAN to SVLAN mapping, Translation and Transparent LAN Service
RIP	<ul style="list-style-type: none"> Routing Information Protocol (RIP) as per RFC 2453 is supported along with Authentication as per RFC 4822. IPv4 and IPv6 addresses are supported, RIPv2 and RIP-ng
OSPFv2	<ul style="list-style-type: none"> Open Shortest Path First Version 2 (OSPFv2) for IPv4 is supported as per RFC 1583 and RFC 2328 Stub Areas are supported along with NSSA option RFC 3101 Opaque LSA as per RFC 2371/RFC 5250 are supported MD5 based OSPF authentication as per RFC 2154
OSPFv3	<ul style="list-style-type: none"> Open Shortest Path First Version 3 (OSPFv3) for IPv6 is supported as per RFC 2740 / RFC 5340 Supports OSPFv3 Authentication and encryption via RFC 4552
PIM	Protocol Independent Multicast – Sparse Mode (PIM-SM), Dense Mode (PIM-DM) and Source-Specific Multicast (PIM-SSM) for IPv4 and IPv6
ECMP	Equal Cost Multi-path for Load balancing/protection to be used in conjunction with Routing Protocols like OSPF
VRRP	Virtual Router Redundancy Protocol Version 3 for node failover for IPv4 and IPv6
Scalability	8K IP routes
-Ev2 Feature License Upgrade (IP-Enhanced feature set upgrade over –Sv2)	
BGP	<ul style="list-style-type: none"> Border Gateway Protocol version 4 (BGP-4) as per RFC 4271 Multiple BGP sessions are supported with multiple peers and any session can be reset if desired. Interior and Exterior sessions (iBGP/eBGP).

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Modular Layer2 / Layer3 10G Switches



Security Features for IPv4 and IPv6	
Secure Shell (SSH)	SSHv1 and SSHv2 are supported for secure remote access to the switch
Secure Socket Layer (SSL)	The browser based access to the switch is secured by encrypting the http traffic using SSL
Dot1x	<ul style="list-style-type: none"> • IEEE 802.1X : RADIUS, EAP Protocols MD5, TLS, PEAP, FAST • VLAN assignment Authorized / Unauthorized / Guest VLAN • Single/Multiple host mode, MAC Authentication Bypass • Multi Domain Authentication, MAB for Voice VLAN • Dynamic ACL and Downloadable ACL • CoA support for NAC integration to support client postures
Private VLAN Edge	PVE (also known as protected ports) provides L2 isolation between clients in the same VLAN. Supports multiple uplinks
Port Security	Locks MAC addresses to ports, and limits the number of learned MAC address
Source Guard RA Guard	Prevents illegal IP address (unicast, Multicast) from accessing specific port in the switch. Only IP-MAC address bindings that are verified are allowed
Dynamic ARP Inspection	The switch compares the ARP request received dynamically against the IP-MAC address bindings that are allowed and discards any illegal ARP requests (spoofing prevention).
RADIUS/TACACS+	For User Authentication, Authorization, Accounting
Captive Portal*	Web Authentication via redirection to captive portal is supported
Storm Control	Prevents traffic on a LAN from being disrupted by a broadcast, multicast, or unicast storm on a port
DHCP Snooping	The switch can snoop DHCP requests so it knows the responses from a trusted DHCP server and can use it to build IP-MAC bindings to enforce security policies
ACLs	Supports up to 2K entries and up to 100 per port Drop, Queue, rate limit, Redirect based on combination of <ul style="list-style-type: none"> ▪ Source-Destination MAC, VLAN ID or IP address, protocol, port, ▪ Differentiated services code point (DSCP) / IP precedence (TOS) ▪ TCP/ UDP source and destination ports ▪ 802.1p priority ▪ Ethernet type ▪ Internet Control Message Protocol (ICMP) packets ▪ TCP flag
Denial of Service Mitigation	<ul style="list-style-type: none"> • Hardware support for various DoS attacks like: illegal address check (IPv4, IPv6), LAND packets (SIP = DIP), NullScan (TCP sequence number = 0, control bits = 0), Ping flood (flood of IPMC packets), SYN/SYN-ACK flooding, SYN with sPort < 1024, Smurf attack, Individual control over handling of DoS packet • Fine Control of CPU bound traffic using dedicated queues

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Modular Layer2 / Layer3 10G Switches



Quality of Service Features	
Queuing Hardware	Supports 8 Queues per Port
Scheduling Disciplines	<ul style="list-style-type: none"> • Strict Priority • Weighted Round Robin (WRR) • Deficit Round Robin (DRR)
Congestion	<ul style="list-style-type: none"> • Random Early Detection (RED) and Weighted Random Early Detection (WRED) active queue management • Explicit Congestion Notification (ECN) support
Classification	Queue assignment based on <ul style="list-style-type: none"> • Port based • 802.1p VLAN priority based • IPv4/IPv6 precedence / DSCP based • Differentiated Services (DiffServ) • Classification and re-marking ACLs to identify Flows
Bandwidth Control	<ul style="list-style-type: none"> • Ingress Policer and marking (per port, and per Queue) • Egress Shaper and Rate Control (per port, and per Queue)
Management Features	
HW Monitoring	High Temperature and Hardware failure Detection and Alarms
HW Watchdog	CPU Hang events are detected and SW restarted
Remote Monitoring (RMON)	Embedded RMON agent supports RMON groups 1,2,3,9 (history, statistics, alarms, and events) for enhanced traffic management, monitoring and analysis
Port Mirroring	Traffic on a port can be mirrored to another port for analysis with a network analyzer or RMON probe. Up to N-1 (N is Switch's Ports) ports can be mirrored to single destination port
S-Flow	The switch allows traffic to be sampled and sent to a server for monitoring
Auto Discovery (LLDP)	Using IEEE 802.1an, the network devices advertise their identities, capabilities, and neighbors on an IEEE 802ab local area network. The switch support LLDP-MED extensions for client capabilities
SW Upgrades	Dual Images and Multiple configurations are supported. Independent primary and secondary images for backup while upgrading Software upgrade via Web Browser (HTTP/HTTPS) and via File transfer (SCP/SFTP).

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Modular Layer2 / Layer3 10G Switches



Firmware Upgrade	Firmware is upgradable via Web Browser or local console port
SNMP	SNMP version1, 2c and 3 with support for traps and access to ALL device information and Standard MIBS For enhanced security, SNMPv3 user-based security model (USM)
Local Logging	Switch supports local store of Logs in NVRAM for debugging and forensics of failures and events
Syslog	The events generated by the switch can be selected to be sent to syslog server(s) for further analysis and persistent storage
SMTP	E-mail alerts can be configured for various events
CLI	An Industry standard (Cisco-like) Command Line Interface (CLI) is available to configure and operate the switches
GUI – Graphical User Interface	A Web-server is embedded in the device and the switch can also be operated from a use-friendly Browser based User Interface
Cable Diagnostics	Electrical interfaces support cable diagnostics for fault location
Optical Port Monitoring	Monitoring of Optical characteristics of the pluggable modules
IPv6 Management	The Management interface and utilities are IPv6 compliant (i.e. support SSHv6, Telnetv6, DHCPv6, NTPv6, SNMPv6, etc.) The Node IP address can be IPv4 or IPv6 with dual stack support making the switch IPv6 Ready.
Power over Ethernet (PoE) Features for models where applicable	
Port Configuration	Supports per-Port PoE configuration
PoE Scheduling	Allows the PoE Devices (PDs) to be turned on/off as required
Auto Checking	Allows the PoE Devices (PDs) to be rebooted if the do not respond to a ping from the switch
Power Delay	The switch allows the PD's to be switched on following a programmable delay after rebooting. This allows the network to be established prior to powering the PoE Devices.
Persistent Power	This feature allows the PD's to retain power in case the switch undergoes a reboot. This allows PoE Devices with built in storage to continue operation and sync up on network availability.
Timing and Synchronization	
SNTP	Simple Network Time Protocol to synchronize the switch timing with the network clock information
PTP*	The switch supports Transparent Clock support using IEEE1588v2. This is a licensable feature

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Modular Layer2 / Layer3 10G Switches



Standards Support

Ethernet	IEEE 802.3
Physical Layer	IEEE 802.3u, 802.3z, 802.3ab, 802.3ac, 802.3ae, 802.3an
Flow Control	IEEE 802.3x
Framing/QoS	IEEE 802.1Q, 802.1ad, 802.1p, 802.1ac, 802.1v
Discovery	IEEE 802.1b
Bonding/Trunking	IEEE 802.3ad
PoE	IEEE 802.3af, 802.3at, 802.3bt
Energy Efficient Eth	IEEE 802.3az
STP	IEEE 802.1d, 802.1w, 802.1s, 802.1D-2004
Security	IEEE 802.1X (Dot1x), IEEE 802.1ae (MACSec)
Carrier Ethernet	ITU-T G.8032 v2, IEEE 802.3ah, IEEE 802.1ag, ITU-T Y.1731
MEF	MEF-9 and MEF-14
System Support	RFC 768 UDP RFC 783 RFC 791 IP RFC 792 ICMP RFC 793 TCP RFC 826 ARP RFC 903 RARP RFC 854Telnet RFC 906 TFTP Bootstrap RFC 951, 1542 BootP , RFC 1027 Proxy ARP RFC 1519 CIDR RFC 1591 DNS RFC 1256 IPv4 ICMP Router Discovery (IRDP) RFC 2131 DHCP RFC 2131, 2132 DHCP Server RFC 2068 HTTP server RFC 2474 DSCP RFC 2030 SNTP Simple Network Time Protocol RFC 2131 BOOTP/DHCP relay agent and DHCP server RFC 1492 TACACS+ RFC 2138 RADIUS Authentication RFC 2139 RADIUS Accounting RFC 3579 RADIUS EAP support for 802.1x RFC 5176 Dynamic Authorization Extensions to RADIUS RFC 3596 DNS IPv6 extn RFC 4861 ND for IPv6 RFC 2819 TFTP RFC 3413, RFC 3414, RFC 3415 SNMP
RIP	RFC 1058 RIP v1 RFC 2453 RIP v2
OSPF	RFC 2328 OSPF v2 (Edge-mode) RFC 1587 / RFC 3101 OSPF NSSA Option RFC 2154 OSPF w/Digital Signatures (Password, MD-5) RFC 2370 OSPF Opaque LSA Option RFC 5340 OSPFv3
Multicast Related	RFC 1112 IGMP v1 RFC 2236 IGMP v2 RFC 3376 IGMP v3 RFC 3618 MSDP - Multicast Source Discovery Protocol RFC 2362 PIM-SM (Edge-mode) draft-ietf-ssm-arch-06.txt PIM-SSM PIM Source Specific Multicast
SDN	Openflow Version 1.3 (in the Roadmap)
IPv6	"IPv6 Ready" Certified RFC 4861 ND Neighbor Discovery , RFC 4862 DAD RFC 8201 Path MTU, RFC 4443 ICMPv6

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Modular Layer2 / Layer3 10G Switches



Ordering Information

- **Optical Modules have to be ordered as per deployment requirements (reach)**
- **Power Supply Units have to be ordered as per requirements**
- **AC Power Cables have to be ordered as per deployment requirements (country)**

Part Number	Description
TJ1400P-M2-24TD-LSv2	24 Port 10/100/1000BaseT RJ45and 4 x 1/10G SFP+ Modular switch with Layer2+ software and Installation Kit
TJ1400P-M2-24PD-LSv2	24 Port 10/100/1000BaseT RJ45and 4 x 1/10G SFP+ Modular PoE switch with Layer2+ software and Installation Kit
TJ1400P-M2-24IPD-LSv2	24 Port 10/100/1000BaseT RJ45 with 6kV Surge Protection and 4 x 1/10G SFP+ Modular PoE switch with Layer2+ software and Installation Kit
TJ1400P-M2-24SD-LSv2	24 Port 1000BaseX SFP and 6 x 1/10G SFP+ Modular switch with Layer2+ software and Installation Kit
TJ1400P-M2-48TD-LSv2	48 Port 10/100/1000BaseT RJ45and 4 x 1/10G SFP+ Modular switch with Layer2+ software and Installation Kit
TJ1400P-M2-48PD-LSv2	48 Port 10/100/1000BaseT RJ45and 4 x 1/10G SFP+ Modular PoE switch with Layer2+ software and Installation Kit
Software Feature Upgrade Licenses	
TJ1400P-Mx-SW-LIC-24Sv2	Upgrade Layer2+ (-LS) to CE and IP Base (-S) for 24-port Switch
TJ1400P-Mx-SW-LIC-24Ev2	Upgrade Layer2+ (-LS) / CE and IP Base (-S) to IP-Enhanced for 24-port Switch
TJ1400P-Mx-SW-LIC-48Sv2	Upgrade Layer2+ (-LS) to CE and IP Base (-S) for 48-port Switch
TJ1400P-Mx-SW-LIC-48Ev2	Upgrade Layer2+ (-LS) / CE and IP Base (-S) to IP-Enhanced for 48-port Switch
TJ1400P-Mx-SW-LIC-STK	Stacking upgrade (only for Electrical port versions)
TJ1400P-Mx-SW-LIC-PTP	PTP feature upgrade
Field Replaceable Units	
TJ1400P-M2-AC-PSU-v2	110/220V AC PSU delivering internal 12V power. Airflow Input to Output
TJ1400P-M2-AC-POE-740W-PSU-v2	110/220V AC PSU delivering internal 12V and 740W of PoE power. Airflow Input to Output
TJ1400P-M2-AC-POE-370W-PSU-v2	110/220V AC PSU delivering internal 12V and 370 of PoE power Airflow Input to Output
TJ1400P-M2-DC-PSU-v2	-48V input DC PSU unit delivering internal 12V power
TJ1400P-M2-DC-POE-PSU-v2	TJ1400P-M2v2-DC-PSU: -48V input DC PSU unit delivering internal 12V power and up to 370W of PoE power
TJ-USB_FLASH-4GB	Expandable storage USB module of 4GB capacity
TJ1400P-M2-FTU-v2	Fan tray unit for sparing for compact M2 switches
TJ1400P-M2-INS-v2	Installation Kit for sparing (Mounting Kit and Diag Cable)

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Power Cables	
TJ-AC-CAB-IN	TJ-AC-CAB-IN: 5A, 3m AC Power Cable (India and similar)
TJ-AC-CAB-US	TJ-AC-CAB-US: 15A, 3m, AC Power Cable (US and similar)
TJ-AC-CAB-UK	TJ-AC-CAB-UK: 5A, 3m, AC Power Cable (UK and similar)
TJ-AC-CAB-EU	TJ-AC-CAB-EU: 5A, 2.5m, AC Power Cable (EU and similar)
TJ-DC-CAB-1M	DC cable with connector at one end and open end for Ground, Positive, Negative connection, Length 1m

Pluggable Interface Modules

The Optical Interfaces use Pluggable Optical modules compliant with IEEE Standards and the Multi Source Agreements (MSA). However, Tejas recommends that the Optical modules be ordered from Tejas as this ensures that the modules have been tested for Quality and functionality in Tejas equipment and their operation and performance is guaranteed. When a customer sources and installs optical modules without the consent of Tejas Networks, any network failure is not supported by Tejas.

Optical Modules can also be ordered with Extended Temperature Support. Please contact sales for part numbers and capabilities (temp range, distance).

Gigabit Ethernet Pluggable SFP Modules	
TJ-SFP-1GE-T	IEEE 1000BASE-T, 1000Mbps, Cat 6 cable, 100m, RJ45
TJ-SFP-1GE-T-AN	IEEE 1000BASE-T, 10/100/1000Mbps, Cat 6 cable, 100m, RJ45
TJ-SFP-1GE-SX	IEEE 1000BASE-SX, 850nm, Multi-Mode OM3, 550m, 2xLC
TJ-SFP-1GE-LX	IEEE 1000BASE-LX, 1310nm, Single Mode, 10Km, 2xLC
TJ-SFP-1GE-LX-BI-U	IEEE 1000BASE-BX10, 1310nm-TX/1490nm-RX, 10Km, LC
TJ-SFP-1GE-LX-BI-D	IEEE 1000BASE-BX10, 1490nm-TX/1310nm-RX, 10Km, LC
TJ-SFP-1GE-EX	IEEE 1000BASE-EX, 1310nm, Single Mode, 40Km, 2xLC
TJ-SFP-1GE-ZX	IEEE 1000BASE-ZX, 1550nm, Single Mode, 80Km, 2xLC
10 Gigabit Ethernet Pluggable SFP+ Modules	
TJ-SFP-10GE-T	IEEE 10GBASE-T, Cat 7 cable, 30m, RJ45
TJ-SFP-10GE-SR	IEEE 10GBASE-SR, Multi-Mode OM3, 300m, 2xLC
TJ-SFP-10GE-LR	IEEE 10GBASE-LR, Single Mode, 10Km, 2xLC
TJ-SFP-10GE-ER	IEEE 10GBASE-ER, Single Mode, 40Km, 2xLC



Software-Enabled Transformation

Plot No. 25, J.P. Software Park,
Electronic City Phase-1
Hosur Road, Bengaluru,
Karnataka 560100, India
www.tejasnetworks.com
+91 8041794600

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