

# TJ1400P-4X Series

## Compact Service Routers



### DATA SHEET



## Product Highlights

**Switch Capacity:** 60Gbps full duplex

**IP/MPLS:** Traffic Engineered MPLS, VPLS, L2VPNs, L3VPNs

Available in multiple variants

SDN ready\*, SR capable\*

**Form factor :** 1RU compact service routers  
Carrier Ethernet : VLAN & Q-in-Q

**50ms Protection:** MPLS FRR (1:1) & ERPS

**Packet Synchronization:** SyncE, 1588v2

## Key Features and Benefits

TJ14WP-4X is an ultra-compact and cost-effective MPLS router that aims to provide multi-service aggregation and transport of the client services over MPLS-.

TJ14WP4X is a platform capable of supporting multiples of IOGE rates on the network side and has been envisaged to address the growing demand of Ethernet and IP client services in the form of Fast Ethernet (FE) and Gigabit Ethernet (GE)- It is also capable of supporting circuit emulation services of EI/DSI and STW1/OC-3 interfaces.

TJ1400P-4X equipments can be configured in various topologies such as Linear, Ring, and Mesh. The general specifications of TJ1400P-4X are the following:

- Standalone pizza-box system, 1 RU half depth.
- Has a base card with interfaces, fabric, Clock & Processor subsystems.
- 2 FRU Redundant Power Supply Units are supported. FRU PSUs can be AC or DC.
- Capable of operating at industrial temperature ranges.

**High Performance Design:** State of art silicon powers the TJ1400P-4X family of products ensuring low power consumption. The TJ1400P-4X Next Gen Routers are capable of Layer2, Layer3 processing along with MPLS label stack that allow for line-rate lookup and forwarding at all packet sizes from 64bytes to 9K bytes. The cutting-edge software is designed to operate in the

service provider aggregation and access layer to deliver seamless experience of multiple telecommunication services, including video and internet and feature enhancements as the needs of the network evolve. All the pluggable optical modules are MSA compliant and meet IEEE 802.3 specification and definition.

**Carrier Ethernet Switching:** Comprehensive Layer2 feature set includes the ability to offer Ethernet services over double VLAN tagged frames (802.1ad) and over MPLS constructs (LSP / Pseudowires) along with Ring protection using ERPS for 50ms switching capability. Multicast snooping and forwarding are supported for efficient Video and multicast applications. Service OAM in the Service Provider realm with CFM (802.1ag) and PM capabilities (Y.1731) provide tools for SLA enforcement and low downtime.

**MPLS Framework:** Multi Protocol Label Switching (MPLS) is a versatile networking technology on account of simple lookups and the ability to stack labels that can then provide different functionality. The platform provides MPLS-TE based traffic engineered tunnels, onto which L3VPN and L2VPN can be mapped dynamically. Segment Routing\* is supported for advanced mobile backhaul services.

**Synchronization:** IEEE 1588V2 and SyncE provide the required timing synchronization over Ethernet interfaces for carrying TDM applications and meeting the timing requirements of 4G/5G networks.

## Key Features and Benefits

**IP Routing:** Scalable implementation of IP routing is provided in the TJ1400P-4X platforms. These include Unicast and Multicast Routing protocols like RIP, OSPF, IS-IS and PIM. Both IPv4 and IPv6 route lookups are supported in hardware. Border Gateway Protocol (BGP) is used for scalable IP routing as well as signaling service constructs in the context of VPN setup. IPV6 Dual stack is supported. IP routing supports both IPv4 and IPv6 routing in a mixed environment.

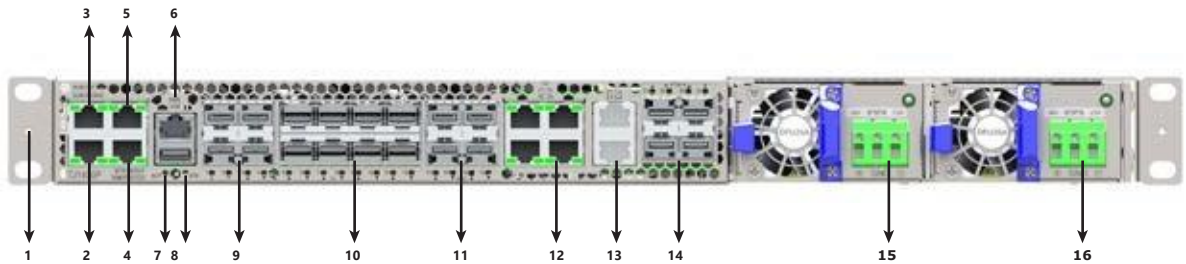
**Traffic Engineering and QoS:** Restoration of traffic on a network outage is achieved via Ethernet, MPLS and IP techniques. Similarly the setting up of paths to meet the service constraints can be done via provisioning or signaling, the former by the management APIs and the latter with RSVP-TE.

Hierarchical Quality of Service (QoS) allows for flexibility in meeting various bandwidth requirements. Policing and Shaping can be done at flow, VLAN or port level or bundled interfaces. Additionally scheduling disciplines like Strict Priority, Weighted Round Robin (WRR) and congestion avoidance techniques like WRED are available.

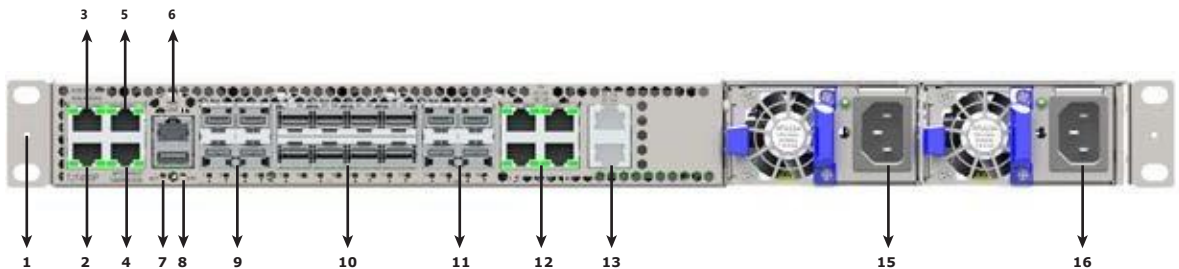
**Management:** Management of the nodes can be done locally using the console port or remotely using Secure access through In-Band and Out-of-band Management ports. Access to the Router via CLI commands, SNMP interface is available for integration with EMS/NMS. Commands can be authorized via RADIUS/TACACS+ so that all operations are authorized and logged. The nodes have extensive logging that is available locally and can also be directed to syslog servers.

## TJ1400P-4X

Front panel view of TJ1400P-4XC with DC PSU



Front panel view of TJ1400P-4X/4Xi/4XCi with AC PSU



Numbering	Description
1	Chassis Grounding
2	Alarm IN/DIAG [P2]
3	Alarm OUT [P1]
4	PPS/TOD/10M [P4]
5	BITS PORT [P3]
6	NMS PORT + USB
7	Active LED
8	Status LED

Numbering	Description
9	4X 1G SFP (P1 to P4)
10	8X 1G SFP (P5 to P12)
11	4x10G SFP+
12	4x10/100/1000 BASE-T
13	2x E1/T1/J1 CEM
14	2x2 STM-1 SFP
15	Power for AC/DC PSU
16	Power for AC/DC PSU

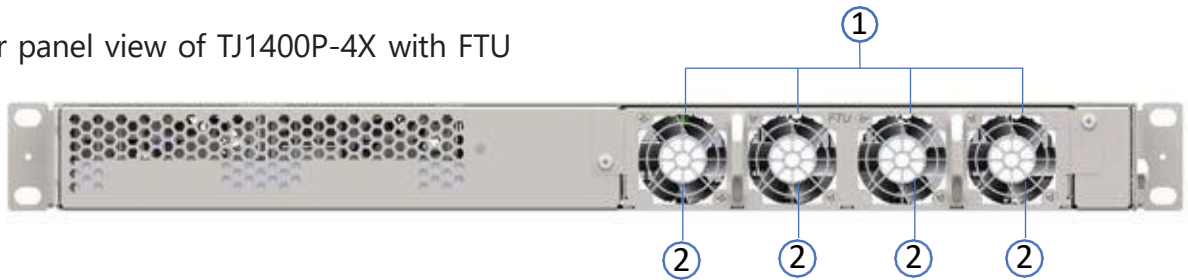
# TJ1400P-4X Series

## Compact Service Routers



# TJ1400P-4X

Rear panel view of TJ1400P-4X with FTU



Numbering	Description
1	Fan Tray Unit (FTU)
2	Fans in Fan Tray Unit

Power Supply Unit  
(AC / DC PSUs)



Fan Tray Unit (Rear)



OAM Interfaces  
(Front)



### AC/DC PSU:

TJ1400P-4X supports modular DC and AC Power Supply Units (PSU). The PSU functions on a load-sharing basis to provide redundancy. That is, if one PSU fails, the other PSU becomes the active load driver and continues to supply stable AC/DC power to the system.

### Functional Description

Each DC PSU consists of a single output DC-DC converter and supplies the necessary voltage to the system. The output of the PSU is isolated from the input.

Each AC PSU consists of a single output AC-DC converter and supplies the necessary voltage to the system. The output of the PSU is isolated from the input.

PSU Specifications:

Specification	Range
Input voltage range	DC: -40V to -60V AC: 100V to 240V
Maximum Power consumption	140 W

### FTU:

The Fan Tray Unit (FTU) in the TJ1400P-4X network element is used to cool the equipment. The TJ1400P-4X supports four fans. Alarm is raised in case of over temperature and fan fail. The FTU regulates fan speeds depending on temperature within the chassis.

### Functional Description

The following are the functional features of FTU:

- TJ1400P-4X : supports four fans.
- Fuse on each fan power supply to isolate any failed fan from other fans.
- Fan speed monitoring and control through software, based on the temperature sensed.
- Temperature monitoring.
- Hot-Swap protection.

### OAM Interfaces:

The OAM interface provides static user interfaces and visual indications for managing operations, administration and maintenance of the system. OAM block provides 10/100/1000 Base-T NMS & USB.

The Timing / Alarm Interfaces i.e. BITS Data/clock, PPS/ToD/10M Interface, Alarm In and Alarm Out are provided on the base board through 2X2 RJ45 connector.

The above PSU, FTU and OAM specifications are applicable to all variants.

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## Compact Service Routers



## System Port Types

The TJ1400P series of Service Routers has both fixed & SFP based Interfaces and Multiple Fabric Capacity options that can be used to match deployments. The following table lists the supported traffic port types in various variants of TJ1400P-4X.

Port type/ Module	TJ1400P-4X	TJ1400P-4XC	TJ1400P-4Xi	TJ1400P-4XCi
10/100/1000-Base-T	4	4	4	4
1G SFP	12	12	12	12
10G SFP+	4	4	4*	4*
E1 CEM*	4	4	4	4
STM-1 CEM	-	4	-	-

\*Enabled based on license

### Hardware Characteristics

There are currently two main variants in TJ1400P compact pizza-box family, i.e. TJ1400P-4X and TJ1400P-H. TJ1400P-4X has sub-variants, which provide options like E1/STM-1 and extended operating range of temperature.

Parameters	TJ1400P-4X/4XC/4Xi/4XCi
Switching Capacity	60 Gbps
PSU Redundancy	Yes (AC/DC)
Field Replaceable Fan Tray(s)	Yes
Timing and OAM	NMS, USB, BITS, ToD, Alarm In, and Alarm Out
Dimensions (WxH) mm	444x44x298
Max Power Consumption	140 W



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