



PT7820



L2/L2.5/L3 INTELLIGENT SWITCH

MPLS-TP

ERPS

VPWS

VPLS

IEC-61850

Ruggedized

Introduction

The **CXR-PT7820** is a high performance Ethernet switch to meet next generation Mission Critical Communication (such as power utility and transportation) and Enterprise Ethernet network requirements designed based on high-end scalable chipset with integration of Layer 2 to Layer 3 packet processing engine, traffic management and fabric interface.

The **PT7820** switch provides a total of 48 GbE RJ45 ports. The switch capability of **PT7820** supports 120Gbps non-blocking switching for full line speed traffic.

The **PT7820** provides advanced L2 and L3 features to meet the requirements in Carrier Ethernet and Enterprise network application. **PT7820** main features including full IPv4/IPv6* stack, On-chip OAM (802.1ag/CFM/EFM), and Protocol Independent APS (<50ms protect switching).

Applications Illustrations

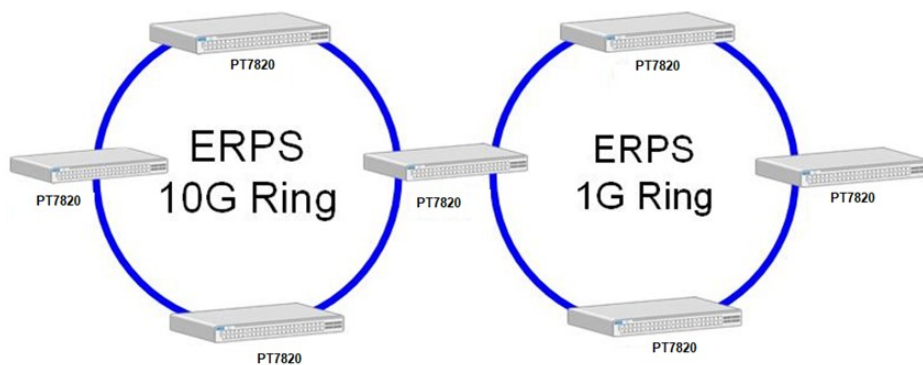


Fig.1 Ethernet Ring Protection Switching (ERPS) network

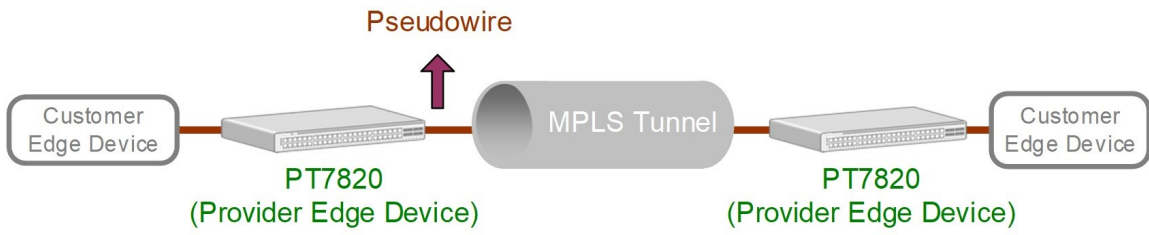


Fig.2 Virtual private wire service (VPWS) network

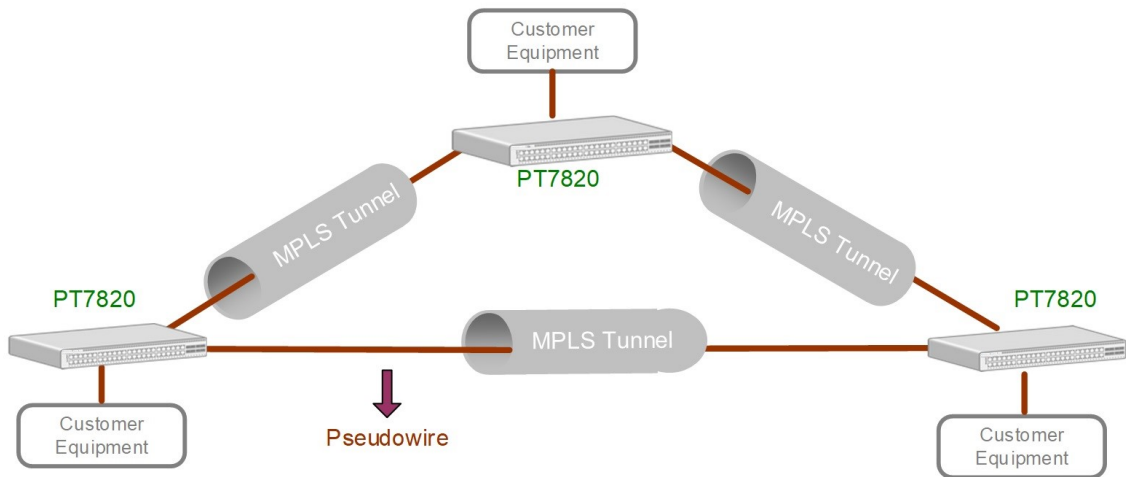


Fig.3 Virtual private LAN service (VPLS) network



CXR
T +33 (0) 237 62 87 90
www.cxr.com

Rue de l'Ornette 28410 Abondant France
contact@cxr.com

Features

Capacity
<ul style="list-style-type: none"> 8 x 10GbE ports 24/48 GbE ports 120 Gbps Wire-Speed Bi-dir Switching Capacity
MLPS-TP
<ul style="list-style-type: none"> Any Ethernet port can be configured as NNI (MPLS port) or UNI (Ethernet service port) Bi-directional LSP Static LSP/PW provisioning via NMS MPLS-TP OAM per ITU G.8113.2
Carrier Ethernet
<ul style="list-style-type: none"> Ethernet OAM – 802.3ah, 802.1ag/Y.1731 IEEE 802.1d STP, 802.1w RSTP, 802.1s MSTP IEEE 802.3x Flow Control, 802.1q port based VLAN and port isolation, 802.1p QoS IEEE 802.3ad Link Aggregation Control Protocol (LACP) IEEE 802.1ad VLAN Stacking (Q-in-Q) Number of VLANs: 4094
Layer 3
<ul style="list-style-type: none"> VRF (Lite) ARP, Ping, Trace route VRRP Static Route RIP v1/v2 OSPF NTP server/client IGMP v2/v3 PIM-SM Number of SubInterfaces: 32
Network Protection
<ul style="list-style-type: none"> LSP 1+1 protection (send two, pick one) per RFC6378, based on TP OAM as fault detection LSP 1:1 protection (RFC6378) ERPS (G.8032) Ring Protection based on Ethernet OAM as fault detection ERPS Sub-Ring End to end protection switching within sub 50ms

Ethernet Services
<ul style="list-style-type: none"> E-Line, E-LAN, E-Tree services as defined by MEF 9 and 14 and using VPWS/VPLS Native Ethernet packets supported Encapsulation: PW/LSP (MPLS-TP), VLAN tagging (1Q), VLAN double tagging (Q-in-Q)
VPLS
<ul style="list-style-type: none"> VPLS bridging H-VPLS bridging 32K MAC addresses 2K VPLS instances per device Split horizon to prevent forwarding loops
Cos/Qos
<ul style="list-style-type: none"> 8 Priority Queues Scheduling: Strict Priority, WRR with Hierarchy Ingress Policing & Egress Shaping per service CIR / PIR (EIR) 2-rate-3-color MPLS: TC/EXP-Inferred-PSC (Per Hop Behavior Scheduling Class) LSP
Timing
<ul style="list-style-type: none"> IEEE 1588 v2* PTP Clocks: Ordinary/Boundary/Transparent ToD (Time of day) PPS (Pulse per second) output interface SyncE Synchronous Ethernet from all GbE ports (not on FET ports) ESMC per ITU-T (Ethernet Synchronous Message Channel)
Management
<ul style="list-style-type: none"> Fully manageable via SNMP (v1, v2, v3) Fully manageable via CLI Serial port SSH, Telnet via Ethernet Account Security Two types of privileges: Operator (read only) and Administrator (read and write) Radius Client Authentication Upload/Download NE configuration Syslog, NTP

* Future option



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Specifications

Ethernet Function	
Basic features <ul style="list-style-type: none"> Up to 4K VLANs 32K/64K MAC address Configurable MTU: minimal 1518bytes Up to 9600 bytes jumbo frame 24S model: 24 x 1GbE SFP ports + 8 x 1GbE RJ45 ports + 8 x 10GbE SFP ports 48T model: 48 x 1GbE RJ45 ports + 8 x 10GbE SFP ports Connectors and cabling <ul style="list-style-type: none"> 10/100/1000BASE-T ports: RJ-45 connectors Cat-5 UTP cabling 1000BASE-SX, -LX SFP-based ports: LC fiber connectors (single-mode or multimode fiber) 10GBASE-LR SFP+ based ports: LC fiber connectors (single-mode or multimode fiber) Ethernet Management port: RJ-45 connectors, Cat-5 UTP cabling Management console port: DB9-to-DB9 cable for PC connections 	
Management and Administration	
<ul style="list-style-type: none"> Management ports: VT-100 Console (DB9 connector) and SNMP (RJ45 connector) CLI: Fully manageable with Command Line Interface (CLI) Remote login: Telnet, SSH SNMP: SNMP v1, v2, v3 	
QoS	
<ul style="list-style-type: none"> Eight priority queues Ingress policing per service Egress shaping per service Two-rate, three-color – Committed Information Rate (CIR), peak or expected information rate (CIR/PIR) E-LSP: EXP-Inferred PSC (Per Hop Behavior Scheduling Class) LSP (label switching path) Congestion management – Weighted Random Early Detection (WRED) 	
Performance	
<ul style="list-style-type: none"> Switching capacity 24S model: 112-Gbps, 48T model:120-Gbps Memory 16 GB Flash / 512 MB Dram 	
Power Consumption	
<ul style="list-style-type: none"> AC 24S model: <61.5W, 48T model: <60W DC48 24S model: <60W, 48T model: <60W 	
Indicators	
<ul style="list-style-type: none"> Per-port status LEDS: link integrity, disabled, activity, speed, and full-duplex indications System status LEDS: system indications Power status LEDS: active, failure indications Fan status LEDS: active, failure indications 	
Physical and Environmental	
<ul style="list-style-type: none"> Dimensions (WxHxD): 442mmx44mmx334mm (17.4”x1.73”x13.14”) Net Weight: 3.8Kg (8.38lbs) Operating Temperature: Fan version: 0 to 60°C Fan-less version: -20 to 55°C Relative humidity: 5 to 95% (non-condensing) Mounting: Desk-top stackable, rack mount 	
Standard Compliance	
IEEE	RFC (IETF)
802.1ad Tag Stacking (Q-in-Q)	2131 & 2132 DHCP
802.3ag Ethernet OAM	6378 MPLS-TP Linear Protection
802.3ah Ethernet in the First Mile	5798 Virtual Router Redundancy Protocol
1588 v2* Precision Time Protocol	2328 OSPFv2
	1058 RIPv1
	2453 RIPv2
ITU	MEF
G.8113.2 MPLS-TP OAM	9
Y.1731 Ethernet OAM	14
Certifications	
EMC	EN55032, FCC Part15, IEC61850-3/IEEE1616, EN50121-4
Safety	EN62368-1/UL62638-1

Ordering information

Reference	Description
<i>Fan Version</i>	
PT7820-48T-FAN	1U height ETSI L2/L3 Ethernet switch with 8 x 1/10GbE SFP+ ports and 48 x 10/100M/1GbE RJ45 ports. Chassis with 3 internal fans for operating temperature: 0 to 60 °C.
PT7820-SyncE-FAN	1U height ETSI L2/L3 Ethernet switch with 8 x 1/10GbE SFP+ ports and 48 x 10/100M/1GbE RJ45 ports. Synchronous Ethernet supporting 24 x 10/100M/1GbE RJ45 ports. Chassis with 3 internal fans for operating temperature: 0 to 60 °C.
PT7820-SyncE1588-FAN	1U height ETSI L2/L3 Ethernet switch with 8 x 1/10GbE SFP+ ports and 48 x 10/100M/1GbE RJ45 ports. Synchronous Ethernet supporting 24 x 10/100M/1GbE RJ45 ports. 1588 v2 support
PT7820-24S-FAN	1U height ETSI L2/L3 Ethernet switch with 8 x 1/10GbE SFP+ ports ,24 GbE SFP ports and 8 x 10/100M/1GbE RJ45 ports (with built-in 4 POE+ ports). Chassis with 3 internal fans for operating temperature: 0 to 60 °C.
PT7820-24S-SyncE1588-FAN	1U height ETSI L2/L3 Ethernet switch with 8 x 1/10GbE SFP+ ports, 24 GbE SFP ports and 8 x 10/100M/1GbE RJ45 ports (with built-in 4 POE+ ports). Synchronous Ethernet support. 1588 v2 support
<i>Fanless Version</i>	
PT7820-48T-FL	1U height ETSI L2/L3 Ethernet switch with 8 x 1/10GbE SFP+ ports and 48 x 10/100M/1GbE RJ45 ports. Chassis with fan-less version for operating temperature: -20 to 55 °C.
PT7820-48T-SyncE-FL	1U height ETSI L2/L3 Ethernet switch with 8 x 1/10GbE SFP+ ports and 48 x 10/100M/1GbE RJ45 ports. Synchronous Ethernet supporting 24 x 10/100M/1GbE RJ45 ports. Chassis with fan-less version for operating temperature: -20 to 55 °C.
PT7820-48T-SyncE1588-FL	1U height ETSI L2/L3 Ethernet switch with 8 x 1/10GbE SFP+ ports and 48 x 10/100M/1GbE RJ45 ports. Synchronous Ethernet supporting 24 x 10/100M/1GbE RJ45 ports. 1588 v2 support
<i>Power Supply modules</i>	
PT7820-SD48	Single -48Vdc power plug-in module (Input voltage: -36 to -75 Vdc)
PT7820-SA	Single AC power plug-in module (Input voltage: 100 to 240 Vac)
<i>Management software</i>	
iNET-PT7820	INET license for one node PT7820 (SMA mandatory).
iNET-PTN-PT7820	Graphical Cross connection tool for PT7820. (SMA mandatory).



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