

**24 × GbE/SFP + 4 × GbE/RJ-45 with 4 × 10G/SFP+  
L2+ Carrier Ethernet Switch**

**CE<sup>2.0</sup>**



Aimed at Carrier Ethernet market application, CTC Union Technologies unveils the L2+ gigabit carrier Ethernet switch, MSW-4428X, which fully meets the attributes of Carrier Ethernet standards proposed by MEF (Metro Ethernet Forum). With the deployment of MSW4428X, operators or service providers can flexibly provision the bandwidth of either 100Mbps or 1000Mbps as well as uplink connection of Gigabit or 10G speed upon their service application.

The MSW-4428X is equipped with 24 100Base-FX/1000Base-X dual speed SFP slots, 4 ports GbE (10/100/1000Base-T) ports and 4 1G/10Gbps dual speed SFP+ uplink slots. It has built-in dual power supplies to enable power redundancy and enhance high network availability. It also complies with CE2.0 standard to support E-Line/E-LAN/E-Tree/E-Access service and enables the bandwidth profile configuration delivering SLA (Service Level Agreement) for end-to-end performance characteristics as well as Ethernet OAM functionality to support carrier grade service OAM management rapidly detecting and recovering from the network incidents in real time.

## Features

### Fully dual rate architecture of fiber link port

Completely dual speed ports of fiber link to offer the scalable physical connection of Metro Ethernet network for operators

### Fully Ethernet OAM enabled

Enables Ethernet OAM features (IEEE 802.3ah/802.1ag/ITU-T Y.1731) to rapidly detect and recover network fault and save the OPEX for operators as well as increase customer satisfaction

### MEF standards compliant solution

CE2.0 compliant product to guarantee the compatibility with other MEF certified equipment and reduce the risk and cost for Metro Ethernet network deployment of operators

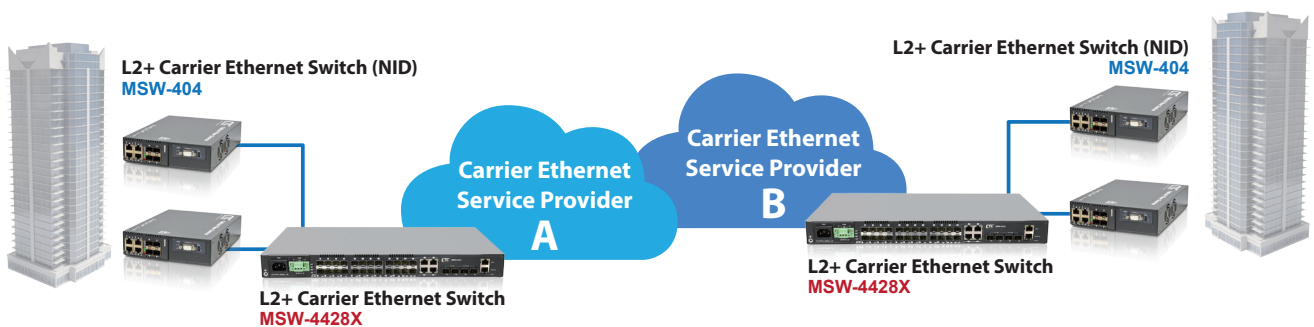
## Specifications

<b>Interface</b>	24x 100/1000Mbps SFP slots + 4x 10/100/1000Base-T RJ45 + 4x 1G/10Gbps SFP+ slots
<b>Console Port</b>	1x RJ-45 console port
<b>Management Port</b>	1x 10/100/1000Base-T RJ45
<b>Switching Fabric Capacity</b>	136Gbps
<b>Packet Forwarding Capacity</b>	102Mpps
<b>Filter &amp; Forward Rate</b>	14880pps at 10Mbps, 148800pps at 100Mbps, 1488000pps at 1Gbps, 14880000pps at 10Gbps
<b>Transmission Method</b>	Store and Forward Switching
<b>Standards</b>	IEEE 802.3u, IEEE 802.3z, IEEE 802.3ae, IEEE 802.1p, IEEE 802.1Q, IEEE 802.1ad, IEEE 802.1D, IEEE 802.1w IEEE 802.1s, IEEE 802.1x, IEEE 802.3ad, IEEE 802.3az, IEEE 802.3ah, IEEE 802.1ag, ITU-T Y.1731
<b>Packet Buffer</b>	32M bits
<b>Mac Table Size</b>	32K
<b>Jumbo Frames Size</b>	10,240 bytes
<b>VLAN Feature</b>	IEEE 802.1Q tagged VLAN(Max. 4K VLAN groups), port based VLAN, MAC based VLAN, protocol based VLAN private VLAN, IEEE 802.1ad Q-in-Q, VLAN translation, GVRP
<b>QoS Feature</b>	Hard wired IEEE 802.1p 8 priority queues per port, CoS based on switch port, VLAN ID, DSCP, TCP/UDP port IEEE 802.1p priority tag remarking, DSCP remarking, Port based ingress/egress rate limit 3 colors marker-CIR/EIR/Burst bandwidth control, IEEE 802.3x flow control

## L2+ Gigabit Carrier Ethernet Switch

<b>L2 switching Protection</b>	STP, RSTP, MSTP, ITU-T G.8031/G.8032
<b>Trunking</b>	IEEE 802.3ad LACP (Max. 16 trunking group; Max. 8 ports per trunking group)
<b>Security</b>	IEEE 802.1x port based access control, MAC based access control authentication RADIUS/TACACS+ AAA, Per port limited MAC address learning, IP/MAC binding, ACL rule based filtering IP source guard, DHCP client/snooping/relay option 82, ARP inspection
<b>IP Multicasting</b>	IGMP throttling, IGMP filtering, IGMP fast leave, IGMP snooping v1/v2/v3, MVR, MLD snooping v1/v2
<b>Storm Control</b>	Unicast/Broadcast/Multicast storm suppression
<b>Management</b>	Web/Telnet CLI/SNMP/console interface, Web/CLI authentication, SSH v2, HTTPs, Port mirroring RSPAN, Syslog, IPv6 management, NTP IEEE 802.3az Energy/Efficient/Ethernet (EEE) power management, SFF-8472 DDMI
<b>SNMP agent</b>	SNMP v1/v2c/v3, RMON Group 1,2,3 and 9
<b>Software Upgrade</b>	TFTP/HTTP
<b>Ethernet OAM</b>	IEEE 802.3ah/IEEE 802.1ag/ITU-T Y.1731, RFC2544, ITU-T Y.1564
<b>LED Display</b>	Power, System, Console, Link/Act, Speed
<b>Power Input</b>	100~240VAC ; 36~60VDC
<b>Build in Power Module Combination</b>	AC, DC, AD (AC+DC), AA (AC+AC) or DD (DC+DC)
<b>Power Consumption</b>	40.3 Watts Max.
<b>Operating Temperature</b>	-10~60°C
<b>Storage Temperature</b>	-25~70°C
<b>Humidity</b>	5% ~ 90% (non-condensing)
<b>Dimension</b>	440 × 250 × 43.5mm (W×D×H)
<b>Certification</b>	FCC, CE

### Application



### Ordering Information

Model Name	Description
MSW-4428X-AC	L2+ 10G Fiber Access Switch and Build-in Single AC Power Module
MSW-4428X-DC	L2+ 10G Fiber Access Switch and Build-in Single DC Power Module
MSW-4428X-AA	L2+ 10G Fiber Access Switch and Build-in Dual AC Power Module
MSW-4428X-DD	L2+ 10G Fiber Access Switch and Build-in Dual DC power Module
MSW-4428X-AD	L2+ 10G Fiber Access Switch and Build-in AC + DC Power Module

### Optional Accessory

#### • 10G SFP+ Transceiver Module

Model Name	Description
SFM-1000-SR85	10G SFP+ SR/SW MMF 300m, 850nm VCSEL, 10G Ethernet/FC/SDH/SONET
SFS-1010-LR31	10G SFP+ LR/LW SMF 10km, 1310nm DFB DML, 10G Ethernet/FC/SDH/SONET
SFS-1040-ER55	10G SFP+ ER/EW SMF 40km, 1550nm DFB EML, 10G Ethernet/FC/SDH/SONET
SFS-1080-ZR55	10G SFP+ ZR/EW SMF 80km, 1550nm DFB EML, 10G Ethernet/FC/SDH/SONET