

**NEW**



# FRM220-MSW404S

**4x GbE, RJ45 + 4x Dual Rate SFP  
L2+ Carrier Ethernet Switch (NID) with SyncE**

The FRM220-MSW404S is the new generation of carrier grade Ethernet demarcation device for business connection and mobile backhaul transportation service delivered by carriers. The FRM220-MSW404S is equipped 4 SFP slots as dual rate 100/1000Base-X and 4 ports 10/100/1000Base-T RJ45 network interfaces. It is designed to enable E-Line, E-LAN, E-Tree services which are CE (Carrier Ethernet) 2.0 compliant for Metro Ethernet network deployments.

The FRM220-MSW404S device enables carriers and service providers to delivered SLA-based network service with extensive fault detection and diagnostic capabilities which are compliant with the latest Ethernet OAM standards such as IEEE 802.3ah, IEEE 802.1ag and ITU-T Y.1731. With built-in RFC2544 and ITU-T Y.1564 feature sets, The FRM220-MSW404S also enables the service providers to perform the SLA verification anytime to ensure the quantitative latency, jitter and throughput delivery performance indexes. The CE2.0 compliant functions support EVCs and 3 colors marker QoS traffic management to enable service providers managing bandwidth and enforce SLA guaranteed. This card may be controlled and monitored via an NMC in a managed chassis or used as a completely manageable device when used stand-alone. Stand-alone management supports Telnet/SSH, HTTP/HTTPS and SNMP v1, v2C or v3.

MEF 22.1 defines the standard for how Metro Ethernet service is adopted for traffic transportation in mobile backhaul applications. Mobile service is time sensitive and requires accurate packet delivery over a clocking synchronized network to transmit packetized data from a mobile device among base stations without loss. The FRM220-MSW404S supports timing synchronization features (SyncE & IEEE 1588 v2) to fulfill the IP converged services (data, voice, video) over synchronous Ethernet aware carrier Ethernet network.

## Feature

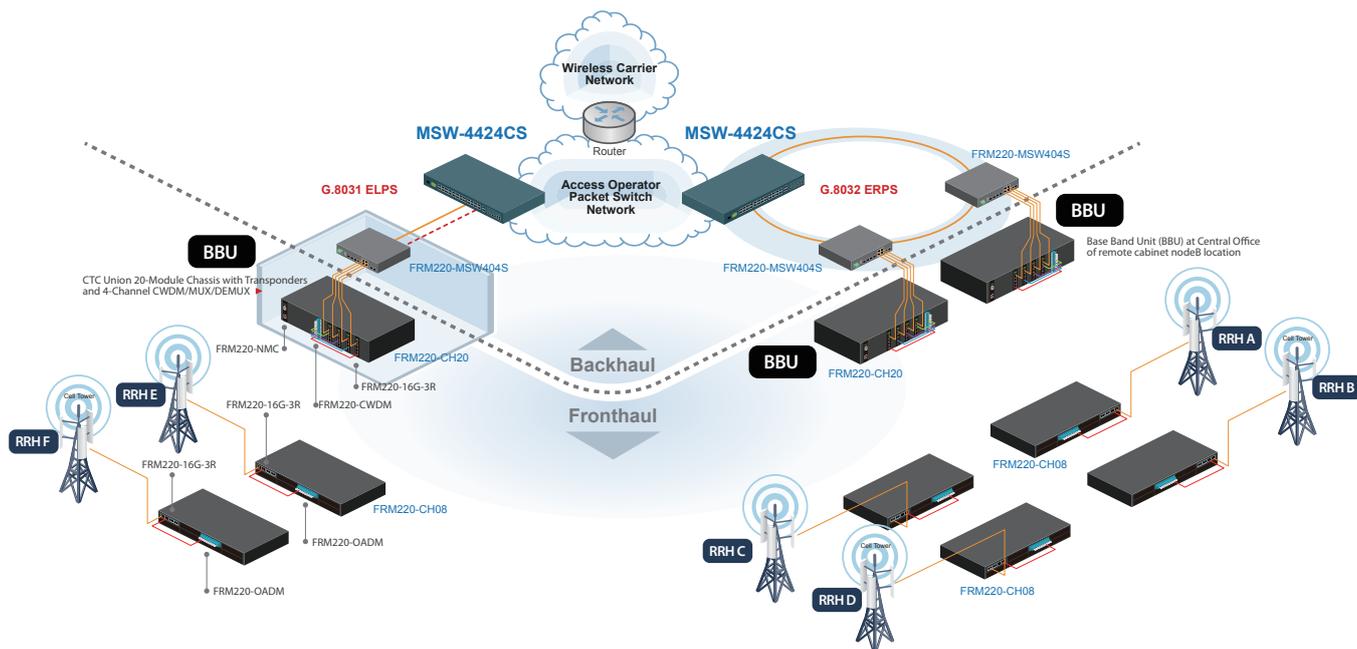
- The next generation of Ethernet demarcation device, at customer premise, fulfilling the large-scale carrier Ethernet deployment for intelligent business connection and mobile backhaul services complied to CE 2.0 standard.
- CE2.0 standards compliant product guarantees the fully interoperability with other MEF certified equipment and reduces the risks and cost of Carrier Ethernet network deployment for operators and service providers.
- Advanced clock synchronized features for carrier Ethernet network allows operators to deliver time sensitive services with optimal stability and continuity in the end-to-end connectivity.

## Specifications

<b>Interface</b>	100/1000Mbps SFP slots x 4 + 10/100/1000Base-T RJ45 x 4	<b>Security</b>	IEEE 802.1x port based access control, MAC based access control authentication, RADIUS authentication, limited MAC address learning, IP/MAC binding, ACL rule based filtering, TACACS+, IP source guard, DHCP snooping/relay option 82, ARP inspection
<b>Filter &amp; Forward Rate</b>	14880pps at 10Mbps, 148800pps at 100Mbps, 1488000pps at 1Gbps	<b>IP Multicasting</b>	IGMP throttling, IGMP filtering, IGMP fast leave, IGMP snooping v1/v2/v3, MVR, MLD snooping v1/v2
<b>Switching Fabric Capacity</b>	16Gbps	<b>Storm Control</b>	Unknown Unicast/Broadcast/Multicast storm suppression
<b>Transmission Method</b>	Store and Forward Switching	<b>Management</b>	Web/Telnet CLI/SNMP/console interface, Web/CLI authentication, SSH v2, HTTPs, port mirroring, syslog, IPv6 management, NTP, SNTP
<b>Standard</b>	IEEE 802.3u, IEEE 802.3z, IEEE 802.3ae, IEEE 802.3x, IEEE 802.1p, IEEE 802.1Q, IEEE 802.1ad, IEEE 802.1D, IEEE 802.1w, IEEE 802.1s, IEEE 802.1x, IEEE 802.3ad	<b>SNMP Agent</b>	SNMP v1/v2c/v3, RMON Group 1,2,3 and 9
<b>Packet Buffer</b>	8M bits	<b>Software Upgrade</b>	TFTP/HTTP
<b>MAC Table Size</b>	8K	<b>Ethernet OAM</b>	IEEE 802.3ah, IEEE 802.1ag, ITU-T Y.1731, RFC2544, ITU-T Y.1564
<b>Max. Packet Size</b>	10K Bytes	<b>Timing Synchronization</b>	ITU-T G.8262, SyncE, IEEE 1588 v2
<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>MPLS feature</b>	RFC5654 MPLS-TP
<b>QoS Feature</b>	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	<b>LED Display</b>	Power, System, Console, Link, Speed/Act
<b>L2 switching protection</b>	STP, RSTP, MSTP, ITU-T G.8031/G.8032 Ethernet ring protection	<b>Power Input</b>	100V ~ 240VAC, -18 ~ -72VDC
<b>Trunking</b>	IEEE 802.3ad LACP(Max. 4 trunking group, Max. 8 ports per trunking group)	<b>Power Consumption</b>	< 20W
		<b>Operating Temperature</b>	0 ~ 50°C
		<b>Humidity</b>	5% ~ 90% (non-condensing)
		<b>Dimensions</b>	Card: 155 x 42.1 x 88 mm (D x W x H)
		<b>Regulatory</b>	FCC, CE

## Application

### Mobile fronthaul & backhaul application



- Carrier Ethernet with multiple class of service
- Traffic Synchronization
- Precisely delivery of time-sensitive service

## Ordering Information

Model Name	Description
FRM220-MSW404S	4x 100/1000Base-x SFP slots + 4x 10/100/1000Base-T RJ45 Carrier Ethernet Switch with SyncE

**Note:** To support console Interface management, this card must be placed in CH02M chassis.