

Model							
<b>HW interface</b>							
<b>Uplink port</b>	10GBase-X/1000Base-X SFP slot x 4	10GBase-X/1000Base-X SFP slot x 4	10GBase-X/1000Base-X SFP slot x 4	10GBase-X/1000Base-X SFP slot x 4	100/1000Base-X SFP slot x 4	100/1000Base-X SFP slot x 4	100/1000Base-X SFP slot x 2
<b>Service LAN port</b>	100/1000Base-X SFP slot x 24 + 10/100/1000Base-T RJ45 x 4	100/1000Base-X SFP slot x 20 + GbE combo port x 4	100/1000Base-X SFP slot x 24	100/1000Base-X SFP slot x 20 + GbE combo port x 4	10/100/1000Base-T RJ45 x 4	10/100/1000Base-T RJ45 x 4	10/100/1000Base-T RJ45 x 2
<b>Console port</b>	RJ45 x 1 (RS-232)	RJ45 x 1 (RS-232)	RJ45 x 1 (RS-232)	RJ45 x 1 (RS-232)	RS-232 DB9 x 1 (when plugged into FRM220-CH02M)	RS-232 DB9 x 1 (when plugged into FRM220-CH02M)	RS-232 DB9 x 1 (when plugged into FRM220-CH01M)
<b>Management Port</b>	10/100/1000Base-T RJ45 x 1	10/100/1000Base-T RJ45 x 1		10/100/1000Base-T RJ45 x 1			
<b>1 PPS / ToD</b>		RJ45 x 1					
<b>HW specification &amp; performance</b>							
<b>Power module</b>	AC power : 100 ~ 240VAC DC power : 18 ~ 60VDC (24V) 36 ~ 60VDC (48V)	AC power : 100 ~ 240VAC DC power : 36 ~ 60VDC (48V)	AC power : 100 ~ 240VAC DC power : 18 ~ 60VDC (-24V) 36 ~ 60VDC (-48V)	AC power : 100 ~ 240VAC DC power : 36 ~ 60VDC (48V)	AC power : 100 ~ 240VAC DC power : 18 ~ 72VDC (48V)	AC power : 100 ~ 240VAC DC power : 18 ~ 72VDC (48V)	AC power : 100 ~ 240VAC DC power : 18 ~ 72VDC (48V)
<b>Power supply type</b>	Dual power & built-in	Dual power & built-in	Dual power & hot swappable	Dual power & built-in	Dual power & built-in FRM220-CH02M	Dual power & built-in FRM220-CH02M	Dual power & built-in FRM220-CH01M
<b>Switching fabric capacity</b>	136Gbps	128Gbps	128Gbps	128Gbps	16Gbps	16Gbps	8Gbps
<b>Packet buffer</b>	32M bits	32M bits	32M bits	32M bits	1M bits	1M bits	2M bits
<b>MAC address table size</b>	32K	32K	32K	32K	8K	8K	8K
<b>Jumbo frame size</b>	10K Bytes	10K Bytes	10K Bytes	10K Bytes	10K Bytes	10K Bytes	9.6 Bytes
<b>Layer 2 feature</b>							
<b>Flow control</b>	IEEE 802.3x for full duplex mode				V	V	V
	Back pressure for half duplex mode				V	V	V
	<b>VLAN Group</b>	4K	4K	4K	4K	4K	4K
	<b>VLAN ID</b>	1 ~ 4094	1 ~ 4094	1 ~ 4094	1 ~ 4094	1 ~ 4094	1 ~ 4094
	<b>IEEE 802.1Q tagged VLAN</b>	V	V	V	V	V	V
	<b>MAC based VLAN</b>	V	V	V	V	V	V
	<b>IEEE 802.1v Protocol &amp; subnet based VLAN</b>	V	V	V	V	V	V
	<b>IEEE 802.1ad Q-in-Q</b>	V	V	V	V	V	V
	<b>Q-in-Q TPID selectable</b>	V	V	V	V	V	V
	<b>Voice VLAN</b>	V	V	V	V	V	V
	<b>Private VLAN</b>	V	V	V	V	V	V
	<b>VLAN translation</b>	V	V	V	V	V	V
	<b>GVRP</b>	V	V	V	V	V	V
	<b>Static Trunk (SA, DA, IP, TCP/UDP port)</b>	V	V	V	V	V	V
	<b>Max. trunk No. (LACP)</b>	16	14	14	14	4	2
	<b>Port No. per (LACP)</b>	8 Max.	8 Max.	8 Max.	8 Max.	8 Max.	4 Max.
	<b>802.1D STP</b>	V	V	V	V	V	V
	<b>802.1w RSTP</b>	V	V	V	V	V	V
	<b>802.1s MSTP</b>	V	V	V	V	V	V
	<b>Loop protection</b>	V	V	V	V	V	V
	<b>ITU-T G.8031</b>	V	V	V	V	V	V
	<b>ITU-T G.8032</b>	Convergence time : 50 ms	50 ms	50 ms	50 ms	50 ms	50 ms
	<b>ERPS</b>	Revertive operation mode	V	V	V	V	V
		Multiple-ring network	V	V	V	V	V
<b>QoS feature</b>							
	<b>Priority Queues</b>	8	8	8	8	8	8
	<b>Traffic scheduling</b>	WRR priority scheduling	V	V	V	V	V
		Strict priority scheduling	V	V	V	V	V
		Hybrid	V	V	V	V	V
	<b>Traffic classification</b>	802.1p based COS	V	V	V	V	V
		IP Precedence based COS	V	V	V	V	V
		IP DSCP based COS	V	V	V	V	V
	<b>Two rate three color markers</b>	Ingress traffic policing	V	V	V	V	V
		Egress traffic shaping	V	V	V	V	V
		Marking/remarking	V	V	V	V	V
	<b>Rate limiting</b>	Ingress	Per port based	Per port based	Per port based	Per port based	Per port based
		Egress	V	V	V	V	V
			Per port based / Per queue based	Per port based / Per queue based	Per port based / Per queue based	Per port based / Per queue based	Per port based / Per queue based
	<b>Diffserv remarking (RFC2474)</b>	V	V	V	V	V	V
<b>IP Multicasting</b>							
	<b>Two rate three color markers</b>	IGMP Snooping v1/v2/v3	V	V	V	V	V
		IGMP filtering/throttling	V	V	V	V	V
		IGMP Fast Leave	V	V	V	V	V
		IGMP query	V	V	V	V	V
		IGMP proxy reporting	V	V	V	V	V
		MLD snooping v1/v2	V	V	V	V	V
	<b>MVR (Multicast VLAN Registration)</b>	V	V	V	V	V	V
<b>Security features</b>							
	<b>Static Port Security (MAC-based)</b>	V	V	V	V	V	V
	<b>Per port limited MAC learning</b>	V	V	V	V	V	V
		Port-Based	V	V	V	V	V
		MAC-Based	V	V	V	V	V
	<b>IEEE 802.1X</b>	Dynamic VLAN Assignment	V	V	V	V	V
		QoS Assignment (w/o ACL profile)	V	V	V	V	V
		QoS assignment w/ ACL profile	V	V	V	V	V
		Guest VLAN / Voice VLAN	V	V	V	V	V
	<b>ACL</b>	Number of rules	512	512	512	256	256
		L2/L3/L4	V	V	V	V	V
	<b>RADIUS authentication</b>	V	V	V	V	V	V
	<b>RADIUS authentication &amp; accounting</b>	V	V	V	V	V	V
	<b>TACACS+ authentication</b>	V	V	V	V	V	V
	<b>HTTPS &amp; SSL</b>	V	V	V	V	V	V
	<b>SSH v2</b>	V	V	V	V	V	V
	<b>User name password authentication</b>	Local Authentication	V	V	V	V	V
		Remote Authentication via RADIUS/TACACS+	V	V	V	V	V
	<b>Management Interface Access</b>	SNMP	V	V	V	V	V
		Web	V	V	V	V	V
	<b>Filtering</b>	Telnet/SSH	V	V	V	V	V
<b>Management features</b>							
	<b>Cisco like CLI</b>	V	V	V	V	V	V
	<b>Web based management</b>	V	V	V	V	V	V
	<b>Telnet Server</b>	V	V	V	V	V	V
	<b>SNMP v1/v2c/v3</b>	V	V	V	V	V	V
	<b>SW &amp; configuration upgrade</b>	TFTP	V	V	V	V	V
		HTTP	V	V	V	V	V
	<b>RMON</b>	RMON I (1,2,3,9 group)	V	V	V	V	V
	<b>MIB II</b>	RFC 1213	V	V	V	V	V
	<b>DHCP</b>	Client	V	V	V	V	V
		Relay	V	V	V	V	V
		snooping	V	V	V	V	V
		relay option 82	V	V	V	V	V
	<b>IP Source Guard</b>	V	V	V	V	V	V
	<b>Port mirroring</b>	V	V	V	V	V	V
	<b>Event Syslog</b>	Syslog server (RFC3164)	Support 1 server	Support 3 server	Support 1 server	Support 3 server	Support 3 server
	<b>DNS</b>	Client	V	V	V	V	V
		Proxy	V	V	V	V	V
	<b>NTP</b>	V	V	V	V	V	V
	<b>LLDP (IEEE 802.1ab)</b>	Link Layer Discovery Protocol	V	V	V	V	V
		LLDP-MED	V	V	V	V	V
	<b>UPnP</b>	V	V	V	V	V	V
	<b>sFlow</b>	V	V	V	V	V	V
	<b>L2CP</b>	V	V	V	V	V	V
	<b>IPv6 Management (Telnet Server/ICMP v6)</b>	V	V	V	V	V	V
	<b>SFF-8472 DDMI</b>	V	V	V	V	V	V
<b>Ethernet OAM features</b>							
	<b>IEEE 802.3ah</b>	Peer discovery	V	V	V	V	V
		Dying gasp	V	V	V	V	V
		Loopback	V	V	V	V	V
		Event notification	V	V	V	V	V
	<b>IEEE 802.1ag</b>	CCM	V	V	V	V	V
		Loopback	V	V	V	V	V
		Linktrace	V	V	V	V	V
		CCM/Loopback/Linktrace	V	V	V	V	V
	<b>ITU-T Y.1731</b>	Loss measurement	V	V	V	V	V
		Delay Measurement	V	V	V	V	V
		TEST signal	V	V	V	V	V
	<b>RFC2544 tester functionality</b>	V	V	V	V	V	V
	<b>ITU-T Y.1564</b>	V	V	V	V	V	V
	<b>RFC5654 MPLS-TP</b>	V	V	V	V	V	V
<b>Timing synchronization</b>							
	<b>ITU-T G.8262 SyncE</b>	V	V	V	V	V	V
	<b>IEEE 1588v2</b>	V	V	V	V	V	V
<b>Others</b>							
	<b>Dimension</b>	270.3 x 437.5 x 43.5 mm	250 x 440 x 43.5 mm	270.3 x 437.5 x 43.5 mm	250 x 440 x 43.5 mm	220 x 256.4 x 43.6 mm	155 x 88 x 23 mm
	<b>Operating temperature</b>	-10 ~ 60 degree C	0 ~ 50 degree C	-10 ~ 60 degree C	0 ~ 50 degree C	0 ~ 50 degree C	0 ~ 50 degree C
	<b>Operating humidity</b>	5% ~ 90% (non-condensing)	5% ~ 90% (non-condensing)	5% ~ 90% (non-condensing)	5% ~ 90% (non-condensing)	5% ~ 90% (non-condensing)	5% ~ 90% (non-condensing)
	<b>Power consumption</b>	< 60W	< 60W	< 60W	< 60W	< 20W	< 12W
	<b>Installation type</b>	19" rack mounting	19" rack mounting	19" rack mounting	19" rack mounting	19" rack mounting	desktop placement