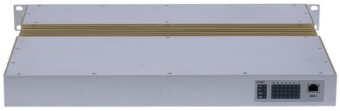
SWMME-3000 Series Modular Industrial Ethernet Switch



CXR SWMME series - the modular industrial Ethernet switches provide multi-slots and many integrated forms including gigabit network, content switching, PRP/HSR module. And all the modules support on-line upgrade. All modules in SWMME series are equipped with unified optical modules and software, forming a system that can adapt to future develop-ment. With the unified operation, the equipment can make better use of themselves. SWMME series adopt hardware-based algorithm that ensures the fail-over time in every node less than 5ms and the network self-healing time less than 50ms (typical value). SWMME also supports IEC62439- 2 based MRP, IEC62439-3 based PRP, and HSR. SWMME series adopt FPGA and CPLD. This dynamic reconfigurable technology is with high stability and reliability, and can monitor varied key operation parameters locally and re-motely. With unique extended industrial design and technology, SWMME series can be applied to any harsh condition.

Performance Features

- Modular industrial switches with 3 slot modules of flexible configuration and high performance, and all modules support on-line upgrade
- Supporting Ethernet ring and multiple self-healing rings with the fail-over time in every node less than 5ms and the network self-healing time less than 50ms (typical value)
- Supporting IEC62439-2 based MRP
- Supporting IEC62439-3 based PRP, and HSR
- Any two ports can establish a self-healing ring and support multiple independent self-healing rings
- With function of data packet dropout protection and quick recover from network failure.
- Multi-Protocol L3 routing meets the requirement of private network.
- Support various multicast protocols and strong safety protection mechanism
- Provide bandwidth service with different levels in Ethernet service by speed limiting and traffic shaping in QoS of layer 2
- Support function of the static and dynamic allocation as well as limitation of CPU and real-time monitor the key operating parameters, including CPU utilization rate, RAM, supply voltage and mainboard voltage.
- SWMME series have a full set of professional net-work management and monitoring and alarm system. And they also support OPC.
- Redundant dual power input design
- No fan, the operating temperature ranges from -40 ℃ to + 85 ℃
- MTBF as much as 600,000 hours

Technical Specifications

- IEEE 802.3 CSMA/CD method and physical Layer specifications
- IEEE 802.1p Priority Queuing,
- IEEE 802.1q VLAN tagging
- IEEE 802.1d Spanning Tree Algorithm
- IEEE 802.1w Rapid Spanning Tree
- IEEE 802.1s Multiple Spanning Tree
- IEEE 802.3ac VLAN Tagging
- IEEE 802.1x Authentication
- IEEE 802.3ad Link Aggregation
- IEEE 802.3x Flow Control
- IEEE 802.3 Ethernet
- IEEE 802.3u Fast Ethernet
- IEEE 802.3z Gigabit Ethernet
- IEEE 802 Networks
- RFC 768 UDP
- RFC 791 IP
- RFC 792 ICMP
- RFC 793 TCP
- RFC 826 ARP
- RFC 854 Telnet Client & Server
- RFC 951 BootP
- RFC 862 Echo Protocol
- RFC 863 Discard Protocol
- RFC 867 Daytime Protocol
- RFC 868 Time Protocol
- RFC 904 Exterior Gateway Protocol Formal Specification
- RFC 919 Broadcasting Internet Datagram
- RFC 922 Broadcasting Internet Datagrams in the Presence of Subnets
- RFC 1024,1035 Domain names
- RFC 1027 Using ARP to Implement Transparent Subnet Gateways
- RFC 1042 Standard for the Transmission of IP Datagram over Networks
- RFC 1058 RIP
- RFC 1059, 1119 NTPv1/2
- RFC 1112 IGMP
- RFC 1122 Host Requirements
- RFC 1166 Internet Numbers
- RFC 1191 Path MTU Discovery
- RFC 1256 ICMP Router discovery protocol
- RFC 1267 A Border Gateway Protocol 3 (BGP-3)
- RFC 1305 NTPv3
- RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)
- RFC 1334 PPP Authentication Protocols (specifies PAP)
- RFC 1388 RIP Version 2 Carrying Additional Information
- RFC 1403 BGP OSPF Interaction BGP et OSPF
- RFC 1519 CIDR (Classless Inter-domain Routing)
- RFC 1542 Bootstrap Extensions & DHCP
- RFC 1548 The Point-to-Point protocol
- RFC 1587 OSPF NSSA

Technical Specifications

- RFC 1619 PPP over SONET/SDH
- RFC 1638 PPP Bridging Control Protocol (BCP)
- RFC 1661 The Point-to-Point Protocol (PPP)
- RFC 1662 PPP in HDLC-like Framing
- RFC 1701 Generic Routing Encapsulation
- RFC 1702 Generic Routing Encapsulation over IPv4 Networks
- RFC 1771 BGP4 BGPv4
- RFC 1745 BGP4/OSPF RFC 1765 OSPF Database Overflow
- RFC 1812 Requirements for IP Version 4 Routers
- RFC 1851 The ESP Triple DES Transform
- RFC 1866 HTML
- RFC 1965 Autonomous system configuration for BGP
- RFC 1966 BGP Route Reflection
- RFC 1989 PPP Link Quality Monitoring
- RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)
- RFC 1997 BGP Communities Attribute
- RFC 2068 HTTP
- RFC 213 DHCP Server
- RFC 2132 DHCP Options and BOOTP Vendor Extensions
- RFC 2138 RADIUS
- RFC 2139 RADIUS Accounting
- RFC 2236 IGMPv2
- RFC 2328 OSPF V2
- RFC 2338 VRRP
- RFC 2362 PIM-SM/DM
- RFC 2370 The OSPF Opaque LSA Option
- RFC 2439 Route Flap Damping
- RFC 2453 RIPv2
- RFC 2474 DiffServ Precedence
- RFC 2475 DiffServ Core and Edge Router Functions
- RFC 2597 DiffServ Assured Forwarding,
- RFC 2598 DiffServ Expedited Forwarding
- RFC 2615 PPP over SONET/ SDH
- RFC 2644 Directed Broadcasts
- RFC 2792 DSA and RSA Key and Signature Encoding for the Key Note TMS
- RFC 2865 Remote Authentication Dial In User Service (RADIUS)
- RFC 3046 DHCP Relay Agent Information Option
- RFC 3084 COPS-PR
- RFC 3140 PHB Identification Codes
- RFC 3222 Forwarding Information Base (FIB)
- DVMRP v3
- GMRP GARP
- GVRP GARP
- RSVP
- SSH2 Secure Shell 2
- IGMP snooping
- SNMPv3

Hardware Performance

Backplane bandwidth:	96Gbps
Switch-ing technique:	ASIC based parallel store and forward
MAC address table:	16K (Max)
Buffer：	1.5M (Min)

Software Function

Management style:	browser，serial port，STD-17 MIB-II，STD-58 SMIv2, STD-59 RMON, STD-62 SNMPv3, SNMPv2c, SNMPv1, RFC2668 MAU, RFC2925 Ping MIB, Private MIBs
Diagnosis mode：	Indicator light，journal file，relay，RMON, port mirroring, TRAP
Functional redundancy:	MRP，HSR，PRP, MSTP，RSTP，port trunking
Time synchronization:	IEEE1588，NTP，SNTP
Others：	IPv4/IPv6 multicast，storm control，MC/BC protection，support Jumbo Frame

Physical Performance

MTBF:	more than 600,000 hours
Storage temperature	-40°C ~ 85°C
Operating temperature：	-40°C ~ 85°C
Humidity：	5% ~ 95%，non-condensing
Product size：	1U，depth 330MM
Protection grade：	IP40
Weight ：	3.7kg (Max)
Power：	70W (Max)

Mechanical Features

Vibration ：	IEC 60068-2-6
Impact：	IEC 60068-2-27
Free– falling ：	IEC 60068-2-32

Electromagnetic Characteristics

Electromagnetic radiation	FCC 47 CFR Part 15 Class A EN55022 Class A
Electromagnetic compatibility	IEC(EN)61000-4-2，class 4 IEC(EN)61000-4-3，class 4 IEC(EN)61000-4-4，class 4 IEC(EN)61000-4-5，class 4 IEC(EN)61000-4-6，class 4 IEC(EN)61000-4-9，class 4

Industry Certification and Testing

Product safety	CE EN60950-1
Dangerous area	UL/cUL1604 Class 1 Div 2
Power industry	IEC61850-3 IEEE1613（C37.90.x）

Product Order Information

Reference	Description
SWMME-2400	Ruggedized Layer 2 Modular Gigabit Ethernet switch for the Transportation and Power Utility networks. 1x Ethernet Uplink slot, 2x slots for Ethernet cards up to 24 ports, and 2 slots for power supply cards. -40 to +85 °C operating temperature, fanless. EC, IEC-61850-3. Equiped with the 4x Gigabit SFP uplink card. Please order 1x or 2x DC or AC power supply cards, and 1x or 2x Ethernet communication cards. 1x CLI RS232 port, 1x Alarm relay.
SWMME-3400	Ruggedized Layer 3 Modular Gigabit Ethernet switch for the Transportation and Power Utility networks. 1x Ethernet Uplink slot, 2x slots for Ethernet cards up to 24 ports, and 2 slots for power supply cards. -40 to +85 °C operating temperature, fanless. EC, IEC-61850-3. Equiped with the 4x Gigabit SFP uplink card. Please order 1x or 2x DC or AC power supply cards, and 1x or 2x Ethernet communication cards. 1x CLI RS232 port, 1x Alarm relay.
SWMME-3400-DC	48 Vdc power converter card for SWMME-2400 & SWMME-3400 modular switch. 18-60 Vdc input range. 75 W. hot swappable.
SWMME-3400-AC	110-230 Vac power converter card for SWMME-2400 & SWMME-3400 modular switch. 75 W. Hot swappable. 90 to 260 Vac, 50-60 Hz, and 88 - 300 Vdc input voltage range.
SWMME-3400-12TTX	Ethernet card for SWMME-2400/3400, 12x 10/100BaseTX ports
SWMME-3400-12GTX	Ethernet card for SWMME-2400/3400, 12x 10/100/1000BaseTX ports
SWMME-3400-12FSF	Ethernet card for SWMME-2400/3400, 12x 100FX SFP ports
SWMME-3400-12GSF	Ethernet card for SWMME-2400/3400, 12x dual rate GE / 100FX SFP ports
SWMME-3400-4GS8GX	Ethernet card for SWMME-2400/3400, 4x dual rate GE / 100FX SFP and 8x 10/100/1000BaseTX ports
SWMME-3400-4FS8TX	Ethernet card for SWMME-2400/3400, 4x 100FX SFP and 8x 10/100BaseTX ports

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