MICROSENS

Data Sheet
28 Port Gigabit Ethernet PoE+ Switch
with Fiber Uplinks

Overview

The 28 Port Gigabit Ethernet PoE+ Switch with 4 Fiber uplink ports is the next generation Layer 2 Power-over-Ethernet (PoE) switch from MICROSENS. It provides 24 Gigabit Ethernet ports with PoE/PoE+ capability and four dual speed (100/1000Base-X) SFP slots. The switch can be managed via Telnet/SSH or Web-based management. Additionally, SNMP allows to configure essential functions. Due to powerful Layer 2 features, security functions like RADIUS authentication and high PoE capability (in total 370 W) the switch is ideally suited for enterprise environments with several PDs (powered devices) like IP cameras, IP phones or Wireless Access Points.

Key Features and Benefits

- Easy manageability, basic security and QoS

- Low Total Cost of Ownership (TCO) with Energy-efficient Design

- DHCP Server

- Cost-effective Ethernet Switch for Enterprise-class

- Advanced Power-over-Ethernet management and scheduling

- 24 PoE/PoE+ ports according to IEEE802.3af/at

- 802.3az Energy Efficient Ethernet

Specifications

Gigabit Ethernet Switch

- Gigabit Ethernet Switch
- PoE(+) PSE according to IEEE 802.3af/at
- Low power consumption switch-chipset
- Layer-2+ store-and-forward
- Max. 8k MAC-addresses, automatic learning and aging
- Jumbo Frames (max. 9k Bytes)

Energy-Efficient Ethernet

- EEE according to IEEE 802.3az
- Reduced power consumption for each RJ-45 port

Network Management

- Web Manager (HTTP/HTTPS)
- Telnet/SSH incl. standard-commands (ping etc.)
- SNMP v1/v2c/v3 with User-based Security Model (USM)

Connectors

Uplink
- 4x SFP slots 100/1000Base-X

Local Ports
- 24x RJ-45 10/100/1000Base-T PoE+ ports

Power Supply
- 100..240 VAC 50/60 Hz, internal

Mounting

- Mounting into 19" racks requiring 1U space

Feature Overview

Performance

Switching capacity	56 Gbps
Forwarding rate	41.7 mpps

Layer 2 Switching

Spanning Tree Protocol (STP)	Standard Spanning Tree 802.1d Rapid Spanning Tree (RSTP) 802.1w Multiple Spanning Tree (MSTP) 802.1s
Trunking	Link Aggregation Control Protocol (LACP) IEEE 802.3ad Static aggregation
VLAN	Supports up to 4K VLANs simultaneously (out of 4096 VLAN IDs) • Port-based VLAN • 802.1Q tag-based VLAN • Protocol-based VLAN • IP subnet-based VLAN • MAC-based VLAN • Q-in-Q (double tag) VLAN • Management VLAN • Private VLAN Edge (PVE)
Voice VLAN	Voice traffic is automatically assigned to a voice-specific VLAN and treated with appropriate levels of QoS

Feature Overview (continued)

DHCP Relay	Relay of DHCP traffic to DHCP server in different VLAN Supports DHCP Option 82
IGMP Snooping	IGMP limits bandwidth-intensive multicast traffic to only the requesters Supports 512 multicast groups
IGMP Proxy	IGMP snooping with proxy reporting or report suppression actively filters IGMP packets in order to reduce load on the multicast router
MLD v1/v2 Snooping	Deliver IPv6 multicast packets only to the required receivers
Multicast VLAN Registration (MVR)	The switch uses a dedicated manually configured VLAN, called the multicast VLAN, to forward multicast traffic over Layer 2 network in conjunction with IGMP snooping

Security

Secure Shell (SSH) Protocol	SSH secures Telnet traffic in or out of the switch SSH v1 and v2 are supported
Secure Sockets Layer (SSL)	SSL encrypts the http traffic, allowing advanced secure access to the browser-based management GUI in the switch
IEEE 802.1X	RADIUS authentication, authorization and accounting, MD5 hash, guest VLAN, single/multiple host mode and single/multiple sessions Supports IGMP-RADIUS based 802.1X Dynamic VLAN assignment
Layer 2 Isolation Private VLAN Edge (PVE)	PVE (also known as protected ports) provides L2 isolation between clients in the same VLAN, supports multiple uplinks
Port Security	Locks MAC addresses to ports and limits the number of learned MAC addresses
IP Source Guard	Prevents datagrams with spoofed addresses from being send over the network
RADIUS/ TACACS+	Supports RADIUS and TACACS+ authentication. Switch operates as a client.
ARP Inspection	ARP inspection is a security feature that validates ARP packets in a network. ARP inspection determines the validity of packets by performing stored in a trusted database.
Storm Control	Prevents traffic on a LAN from being disrupted by a broadcast, multicast, or unicast storm on a port
DHCP Snooping	DHCP snooping provides security by filtering un-trusted DHCP messages and by building and maintaining a DHCP snooping binding table
ACLs	Supports up to 384 entries Drop or rate limitation based on source and destination MAC, VLAN ID, IP address, protocol, port, differentiated services code point (DSCP) / IP precedence, TCP/ UDP source and destination ports, 802.1p priority, Ethernet type, Internet Control Message Protocol (ICMP) packets, IGMP packets, TCP flag

Feature Overview (continued)

Quality of Service

Hardware Priority Queue	Supports 8 hardware queues
Scheduling	Strict priority and weighted round-robin (WRR) Queue assignment based on DSCP and class of service (802.1p/ CoS)
Classification	Port-based 802.1p VLAN priority based
Rate Limiting	Ingress policer Egress shaping and rate control per port

Management

Web GUI Interface	Built-in switch configuration utility for browser-based device configuration (HTTP/ HTTPs)
Dual Image	Dual image provides independent primary and secondary images for backup while upgrading
DHCP Server	Supports DHCP server to assign IP to DHCP clients
SNMP	Management of essential functions and parameters like IP settings, VLAN, PoE, LACP or QoS through SNMP: - version1, 2c and 3 with support for traps, - version 3 user-based security model (USM)
NTP	Network Time Protocol (NTP) is a networking protocol for clock synchronization between computer systems over packet-switched networks
Remote Monitoring (RMON)	Embedded RMON software agent supports RMON groups 1,2,3,9 (history, statistics, alarms, and events) for enhanced traffic management, monitoring and analysis
Firmware Upgrade	Web browser upgrade (HTTP/ HTTPs) and TFTP
Port Mirroring	Traffic on a port can be mirrored to another port for analysis with a network analyzer or RMON probe. Up to N-1(N is number of switch's ports) ports can be mirrored to single destination port. A single session is supported.
Other Management	• HTTP/HTTPs • SSH • RADIUS • DHCP Client • SNTP • Cable diagnostics • Ping test • Syslog • Telnet client • IPv6 management

Feature Overview (continued)

Green Ethernet

Energy Detect	Compliant IEEE802.3az Energy Efficient Ethernet Task Force. Automatically turns off power on Gigabit Ethernet RJ-45 port when detecting link down or Idle of client. Active mode is resumed without loss of any packets when the switch detects the link up.
Cable Length Detection	Adjusts the signal strength based on the cable length Reduces the power consumption for shorter cables

General

Jumbo Frames	Frame sizes up to 9216 bytes
MAC Table	Up to 8K MAC addresses

Discovery

Link Layer Discovery Protocol (LLDP) (IEEE802.1AB) with LLDP-MED Extensions	Used by network devices for advertising their identity, capabilities, and neighbours on an IEEE 802ab local area network, principally wired Ethernet Supports LLDP-MED extensions

Power-over-Ethernet

Port Configuration	Supports per port PoE configuration
PoE Scheduling	Supports per port PoE scheduling to turn on/off the PoE devices (PDs)
Auto-checking	Check the link status of PDs; reboot PDs if there is no response
Power Delay	The switch provides power to the PDs based on delay time when PoE switch boots up, in order to protect switch from misuse of the PDs

Technical Specifications

Type	**28 Port Gigabit Ethernet PoE+ Switch with 4x Fiber Uplinks**
Device Interfaces	24x10/100/1000Base-T PoE(+) ports with RJ-45 connectors 4x100/1000Base-X SFP slots
Available PoE Power	370 W (max.) Each of port 1 - 24 supports PoE (15.4 W) or PoE+ (30 W) within available PoE power.
Power Supply	100..240 VAC, 50/60 Hz
Power Consumption	32 W (typ., without PoE, GBE links at all ports, 4x SFPs inserted) 426 W (typ., with PoE , GBE links at all ports, 4x SFPs inserted)
Operating Temperature	0…+50 °C
Storage Temperature	-20…+70 °C
Operating Humidity	10…90 % (relative, non-condensing)
Altitude	< 3000 m
Dimensions (W x H x D)	442 x 44 x 211.2 mm
Weight	< 3 Kg
EMC	CE mark
Safety	CE mark

Order Information

Description	Article No.:
28 Port Gigabit Ethernet PoE+ Switch with 4 Fiber Uplinks	
28 Port Gigabit Ethernet PoE+ Switch, 24x10/100/1000Base-T PoE+ ports, 4x100/1000Base-X SFP slots, smart management, 19" 1U, internal 230 VAC power supply	**MS400834M**

Accessories
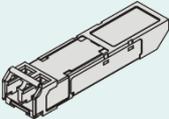
Description	Article No.:
SFP 1G Transceiver (Fast Ethernet & WDM on request)	
SFP Transceiver, Gigabit Ethernet, Digital Diagnostic 850 nm Multimode, 1000Base-SX, LC duplex	**MS100200D**
SFP Transceiver, Gigabit Ethernet, Digital Diagnostic 1310 nm single mode, 1000Base-LX, LC duplex	**MS100210D**

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