Firmware Features
10GbE Micro Switch with PoE+/++

Feature Specifications

Provision of Inventory Information

- Factory and inventory data
- Custom-defined device information

System

- Integrated thermal protection
- Energy Efficient Ethernet (EEE, IEEE 802.3az)
- Configuration changes
- Alternative MAC address
- LED mode

IP Stack

- Dual stack (IPv4, IPv6)
- DHCP Option 66 / 67
- Ping, traceroute
- Secondary IPv4 address
- Hostname
- DNS

SFP

- SFP DDM (Digital Diagnostic Monitoring)

Quality of Service (QoS)

- 4 priority queues per port
- Prioritization scheme
- Layer 1 priority
- Layer 2 priority (802.1p)
- Layer 3 priority (IPv4 / IPv6)
- Egress rate shaping
- Ingress rate shaping

Spanning Tree Protocols

- Spanning Tree Protocol (STP)
- Rapid Spanning Tree Protocol (RSTP)
- Multiple Spanning Tree Protocol (MSTP)
- BPDU Guard

Ethernet Port Features

- Cable tester
- Loop protection
- Port enable / disable
- Port alias
- Port roles: local, uplink
- Speed negotiation
- Jumbo frame support
- Port mirroring

PoE Power Management

- PoE available maximum power configuration
- PoE enable / disable
- PoE+ PSE enable
- Emergency port

Switch / MAC

- MAC table
- MAC filter
- SNMP access
- MAC limit per port
- Configurable MAC aging time

RMON Statistics

- RMON counters
- Port utilization

Ring Protocols

- MICROSENS Redundant Ring Protocol (MICROSENS Ring)
- Ethernet Ring Protection Switching (ERPS, ITU-T G.8032 v2)

Multicast (IGMP / MLD Snooping)

- IGMP snooping per VLAN
- MLD snooping per VLAN
- IGMP querier
- Static multicast router port

Feature Specifications (continued)

Virtual LANs (VLANs)

- Port VLANs, tagged VLANs
- Up to 4094 VLANs
- VLAN filter
- Configurable port modes:
    - access
    - hybrid
    - trunk
- Stacked VLANs (Q-in-Q)
- Priority override
- Voice VLAN
- STP / RSTP VLAN
- Unauthorized VLAN
- Management VLAN
- Force port default VID

Port Access Control

- IEEE 802.1X authentication
- IEEE 802.1X supplicant
- RADIUS MAC authentication
- MAC locking
- MAC learning
- Limited number of MAC addresses
- Learned MAC timeout
- Dynamic VLAN
- Wake-on-LAN support
- Network edge authentication
- Authentication fail retry timer

DHCP

- DHCP snooping
- IP–MAC binding table
- DHCP filtering
- DHCP flooding detection
- DHCP relay agent including support for Option 82
- Dynamic ARP inspection

Command Line Interface (CLI)

- Context-sensitive help
- Show device configuration
- Show device status
- Create snapshot
- Live syslog
- Telnet
- Secure Shell (SSH)
- Welcome message

Login Access Protection

- Unlimited number of users
- General access rights
- Disable insecure interfaces
- User permissions
- Public key encrypted passwords
- View model for SNMPv1 / SNMPv2c
- Firewall with black- and whitelist
- Authentication and authorization:
    - TACACS+
    - RADIUS

Web Interface (WEB)

- User authentication
- http(s)
- Custom TLS certificates
- Animated device visualization
- Firmware update
- Online documentation
- SNMP MIB download
- Event display
- RESTful API
- Supported browsers:
    - Google Chrome
    - Mozilla Firefox
    - Microsoft Edge

Feature Specifications (continued)

Link Layer Discovery Protocols (LLDP, CDP)

- LLDP operation
- LLDP-MED
- CDP operation
- CDP voice VLAN

Access Control Lists (ACL)

- Access control lists (ACL)
- Dynamic ACL via RADIUS

Link Aggregation Control Protocol (LACP)

- Static link aggregation
- Dynamic link aggregation
- Load balancing and trunking

File Management

- File Transfer Protocol (FTP)
- Secure File Transfer Protocol (FTPS)
- FTP server support
- Secure firmware update
- Configuration export and import
- Compare configuration
- Temporary configuration
- Save configuration

Event Logging

- Syslog to CLI
- Local logfile
- Log filters
- Recent logs

Diagnostic Functions

- Ping, traceroute
- Port mirroring
- Test event
- DNS lookup
- LED test
- ARP cache

Simple Network Management Protocol (SNMP)

- SNMPv1 / SNMPv2c
- SNMPv1 / SNMPv2c security
- SNMPv3
- SNMP Transport Security Model (TSM)
- Trap / Inform (SNMPv1 / SNMPv2c / SNMPv3)
- Enterprise-specific notifications
- Enterprise and standard MIBs

Network Time Protocol (NTP)

- NTP client

Power-over-Ethernet PoE/PoE+

- 4x or 5x IEEE 802.3af/at PoE+ PSE (max. 30 W) (depending on variant; see Micro Switch Variants section in data sheet)
- 1x IEEE 802.3af/at/bt PoE++ PSE (max. 60 W) (depending on variant; see Micro Switch Variants section in data sheet)
- PoE available max power configuration
- PoE enable/disable
- PoE+ PSE enable
- Emergency port

Network Management

- Support of common management standards
- Software integration with MICROSENS NMP as central management solution for network and device configuration

Automation

- Docker virtualization environment for custom applications

Miscellaneous

- Broadcast storm control

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