

## Data Sheet

### 28 Port 10 Gigabit Ethernet Switch L2+ with 4x 10G Uplink



## Features

The MS400863M is a L2+ multiport fiber switch with 28 fiber ports in total. Four of them are designed as 10G uplink ports and additional four port as combo ports (fiber/TP). The power supply can be done either by 230 V AC or by 24-48 V DC and also redundant.

The existing feature set (firmware) offers a high performance hardware. Especially in the area of IT security the MS400863M supports all common IEEE standards for the implementation of secure and high performance IP networks.

For the management access and the configuration and administration several standardised interfaces are available.

- CLI (sshv1 / sshv2)
- Web (http/https)
- SNMP (v1/v2c/v3)
- serial interface RS-232 (Out band, as RJ-45 port)

Main application of this switch is the use as fiber aggregation switch in modern FTTO infrastructures. The connection to the central core switches is done with high performance 10G Ethernet ports. Another scenario is the central fiber aggregation of outdoor networks, for example in video surveillance applications or outdoor WLAN networks.

Powerful hardware, flexible in practice: with these features the MS400863M is described simple and accurate.

## Highlights

- flexible fiber connections with dual speed SFP (100/1000Base-X) and SFP+ (1000/10GBase-X)
- L3 static route function
- IPv6 support
- Flexible and redundant power supply AC/DC
- Compact 1U design, all interfaces at the front side
- Extended operating temperature range of -20..+60°C

## Specifications

### 10 Gigabit Ethernet Switch

---

- 1G / 10G Ethernet Switch
- Energy efficient Switching-Chipset
- Layer-2+ store-and-forward
- Max. 32k MAC addresses, automatic Learning and aging
- Jumbo-Frames (max. 4776 Bytes)

### Network Management

---

- Supports all common management standards
- Webmanager (HTTP/HTTPS)
- Telnet/SSH/Console, incl. standard-commands (ping etc.)
- SNMP v1/v2c/v3 with User-based Security Model (USM)
- IPv4/IPv6 Dual Stack

### Power Supply

---

- 100..240 VAC 50/60Hz, internal
- 24..48VDC
- Redundancy possible
- Power consumption max. 38W

### Operating Conditions

---

- Operating temp. range -20..+60°C
- Storage temp. range -25..+70°C
- Humidity 10..90% (non condensing)

### Connectors

---

#### Up-/Downlinks

- 4x SFP+ Slot 1000Base/10GBase-X
- 4x RJ-45 10/100/1000Base-T or SFP 100/1000Base-X (Dual Media Ports)

#### Local Ports

- 20x 100/1000Base-X (SFP)

#### RS-232 console port (RJ-45)

- Serial port for the CLI access (Out band Management)

### Mounting / Dimensions

---

- The mounting in a 19" rack requires 1U space
- 442 x 44 x 211.2 mm (w x h x d)
- Weight: 3.1kg

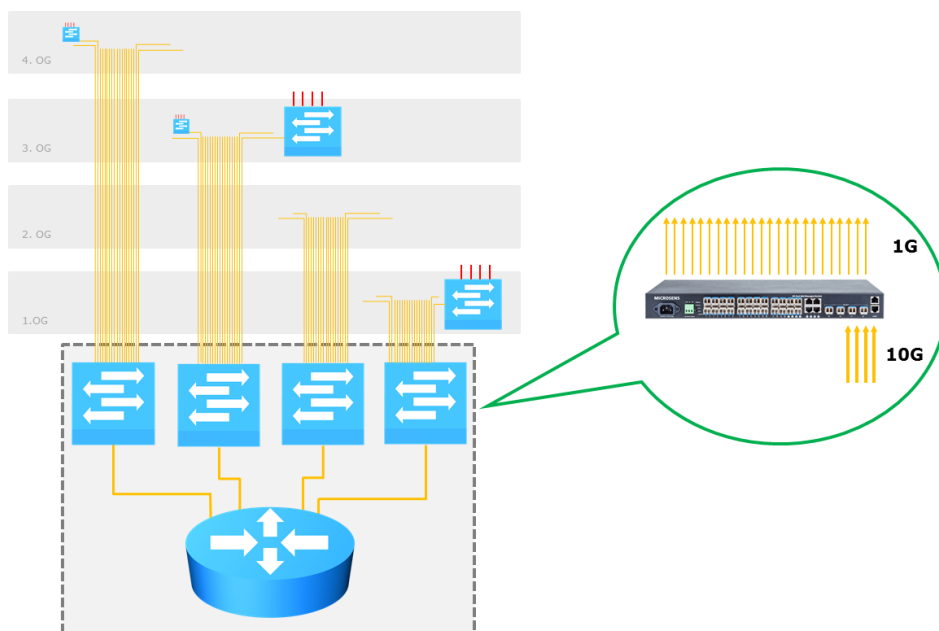
### Included at delivery:

---

- MS400863M
- 230VAC power cable with C14-connector, 1.8m
- 19" mounting kit
- Console cable => (RJ-45 to Sub-D9)

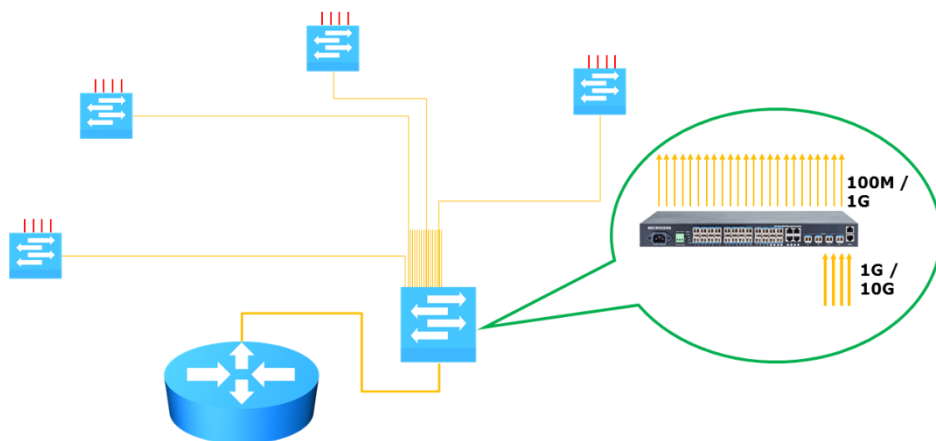
## Typ. Application Scenarios

### Example 1: FTTO Aggregation



The MS400863M is used in a central telecommunication room in order to interconnect the high performance Core switch (10 G) with the decentral components (1G FTTO switches).

### Example 2: Star based fiber topology (e.g. outdoor / IP video)



The MS400863M is used as multiport fiber switch for the star base fiber distribution to remote outdoor network devices. Due to its extended temperature range the switch can be also mounted in outdoor enclosures.

At the remote end there are MICROSENS outdoor switches or bridges (optional with PoE+) of the industrial line used.

## Overview Feature Set

Feature	Description
<b>Main</b>	
<b>Switch Capacity</b>	95,232 Mio. packets per second (64-byte packets), 128 Gbps internal backplane
<b>MAC Table</b>	32k
<b>Layer 2 Switching</b>	
<b>Spanning Tree Protocol</b>	Spanning Tree (STP) according IEEE802.1d Rapid Spanning Tree (RSTP) according IEEE802.1w Multiple Spanning Tree (MSTP) according IEEE802.1s
<b>Trunking</b>	Link Aggregation Control Protocol (LACP) according IEEE802.3ad (up to 14 groups, up to 8 ports per group)
<b>VLAN</b>	Supports up to 4k VLANs (out of 4096 VLAN IDs) <ul style="list-style-type: none"> <li>• Port-based VLAN</li> <li>• IEEE802.1Q tag-based VLAN</li> <li>• MAC-based VLAN</li> <li>• Management VLAN</li> <li>• Voice VLAN</li> <li>• Private VLAN</li> </ul>
<b>Generic VLAN Registration (GVRP)</b>	Automatic registration and de-registration of VLANs
<b>DHCP Snooping</b>	DHCP-Snooping for the filtering of non-trustable DHCP acknowledgements
<b>IGMP v1/v2/v3 snooping</b>	"Snooping of Internet Group Management Protocol" (IGMPv1/v2/v3) for IPv4. Automatic detection and forwarding of IPv4 multicast streams including IGMP proxy
<b>MLD v1/v2 snooping</b>	"Snooping of Multicast Listener Discovery (MLDv1/v2)" for IPv6. Automatic detection and forwarding of IPv6 multicast streams. Multicast router are detected automatically or via request.
<b>Security</b>	
<b>Secure Shell (SSH) Protocol</b>	SSH encrypts the telnet connections from or to the switch (SSH v1/v2)
<b>Secure Sockets Layer (SSL)</b>	SSL encrypts the http data transmission (https) for a secured access to the web management of the switch.
<b>IEEE 802.1X</b>	RADIUS authentication, authorisation and accounting (MD5), Dynamic VLAN assignment, IGMP-RADIUS based 802.1X
<b>Layer 2 isolation Private VLAN Edge (PVE)</b>	PVE (also described as protected ports) offers a L2 isolation between clients in the same VLAN and supports several uplinks
<b>Port Security</b>	Blocks MAC addresses at ports and limits the number of learned MAC addresses
<b>IP Source Guard</b>	Avoids that datagrams with faked addresses are inside of the network
<b>RADIUS/ TACACS+</b>	Supports the RADIUS- and TACACS+ authentication. The switch operates as client.
<b>ARP Inspection</b>	Checks ARP packets in terms of valid MAC/IP pairing. The per DHCP automatic generated and trusted data base is used.
<b>Storm control</b>	Avoids that the data traffic in the LAN is interrupted due to broadcast, multicast or unicast storms.
<b>ACLs</b>	ACLs are filtering incoming data packets at full data rate in order to avoid that unwanted or dangerous data is entering the network. The filtering or limiting is based on source and destination MAC, VLAN ID or IP address. Up to 256 entries are supported.

## Overview Feature Set (Continuation)

### Quality of Service

---

<b>Priority Queues</b>	8 queues per port
<b>Scheduling</b>	Supports to general schemes: strict priority (high priority always first) or weighted queue assignment based on DSCP and service class (802.1p / CoS)
<b>Classification</b>	Port based 802.1p VLAN priority based IPv4/IPv6 precedence/ type of service (ToS) / DSCP based Differentiated Services (DiffServ) classification and re-marking ACLs trusted QoS
<b>Rate Limiting</b>	Ingress policer egress shaping und rate control per VLAN, per port und flow based
<b>IPv6 applications</b>	<ul style="list-style-type: none"> <li>• Web/ SSL, Telnet/ SSH, ping, Simple Network Time Protocol (SNTP) =&gt; NTP is supported.</li> <li>• Trivial File Transfer Protocol (TFTP), SNMP, RADIUS, Syslog, DNS Client, protocol-based</li> <li>• VLANs</li> </ul>

### Management

---

<b>Web GUI</b>	Integrated network management for browser based device configuration (HTTP / HTTPS). Supports configuration, system dashboard, maintenance and monitoring.
<b>Dual Image</b>	Dual Image for independent primary and secondary operating system files for securing the upgrade process.
<b>SNMP</b>	SNMP v1, v2c und v3 incl. trap support SNMP v3 user based Security Model (USM)
<b>Remote Monitoring (RMON)</b>	Integrated RMON software agent supporting the RMON groups 1, 2, 3, 9 (progress, statistics, alarms and events) for an improved management, monitoring and analysis
<b>IPv4/IPv6 dual stack</b>	Parallel handling of the IPv4 and IPv6 protocol.
<b>Firmware upgrade</b>	Web browser upgrade (HTTP/ HTTPS), TFTP and via console port
<b>Port mirroring</b>	Data of one or multiple ports can be mirrored on another port. With this the data can be sniffed on an external analyser. Up to N-1 ports (N is the number of ports of the switch) can be mirrored to one port. A single session is supported.
<b>Management</b>	<ul style="list-style-type: none"> <li>• HTTP/HTTPS</li> <li>• SSH v1/v2</li> <li>• RADIUS</li> <li>• DHCP Client/ DHCPv6 Client</li> <li>• SNTP =&gt; NTP</li> <li>• cable diagnostics</li> <li>• ping</li> <li>• syslog</li> <li>• Telnet client (SSH secure support)</li> </ul>

### Green Ethernet

---

<b>Cable length detection</b>	Configures the signal strength according to the connected cable length. Reduces the power consumption for short cables.
-------------------------------	---

## Overview Feature Set (Continuation)

### Link Layer Discovery Protocols

<b>LLDP</b>	Is used by network devices for the declaration their identity, features and neighbours in a local network according IEEE802.1AB.
<b>LLDP-MED</b>	"Media Endpoint Discovery" for the automatic detection of LAN policies. Support of VLAN assignment.

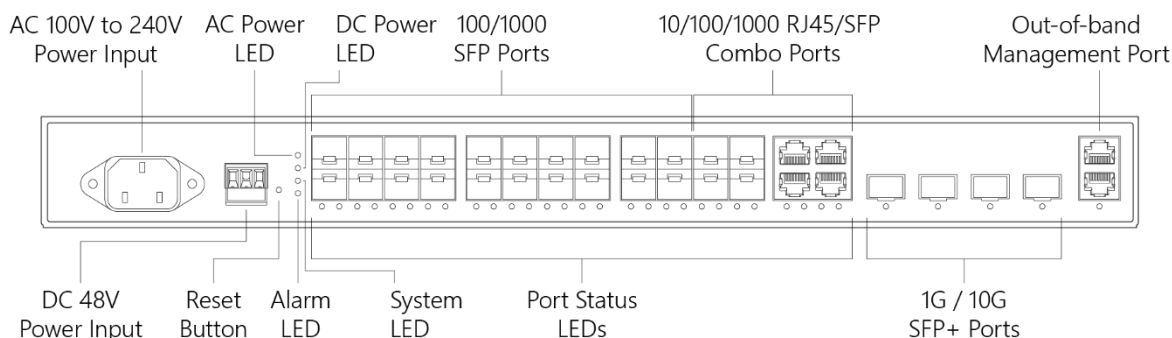
### Carrier Ethernet Feature Set

<b>IEEE 802.3ah Ethernet OAM</b>	Simple Link Fault Management (LFM) for Ethernet connections according IEEE802.3ah
<b>IEEE 802.1ag Ethernet CFM</b>	IEEE 802.1ag-Ethernet-CFM function for the administration of connection failures.
<b>ITU-T Y.1731</b>	ITU-T Y.1731 (OAM Standard) separates the network into maintenance domains in form of hierarchy levels.
<b>ITU-T G.8032v2</b>	G.8032v2 offers a method based on standards to provide high performance Carrier Ethernet services via a ring with several switch nodes.


### Minimum Requirements

- Web browser: Google Chrome, Mozilla Firefox, Microsoft Internet Explorer Version 10 or higher
- Cat. 5 TP cable
- TCP/IP, network interface card (NIC), Operating System (e.g. Microsoft Windows, Linux, or Mac OS X) installed on a computer in the network

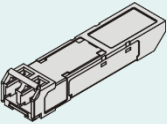
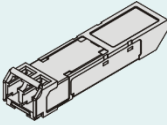
## Connectors



## Order Information

	Description	Article-No.
	<b>28 Port 10 Gigabit Ethernet Switch with 4x 10G Uplink</b>	
	28-Port 10 GbE fiber L2+ Switch 19" 1U 4x 1/10GBase-X SFP+-Slots, managed, 24x 100/1000X SFP-Slots, 4x Combo int. 110/230VAC (C14) + 24..48VDC red. RS-232 Port (RJ-45)	<b>MS400863M</b>

## Accessories

	Description	Article-No.
	<b>SFP 1G Transceiver (Fast Ethernet &amp; WDM on request)</b>	
	SFP Transceiver, Gigabit Ethernet, Digital Diagnostic 850 nm multimode, 1000Base-SX, LC duplex	<b>MS100200D</b>
	SFP Transceiver, Gigabit Ethernet, Digital Diagnostic 1310 nm single mode, 1000Base-LX, LC duplex	<b>MS100210D</b>
	<b>SFP+ 10G Transceiver (xWDM on request)</b>	
	SFP+ Transceiver, 10 Gigabit Ethernet, Digital Diagnostic 850 nm multimode, 10GBase-SX, LC duplex	<b>MS100700D</b>
	SFP+ Transceiver, 10 Gigabit Ethernet, Digital Diagnostic 1310 nm single mode, 10GBase-LX, LC duplex	<b>MS100702D</b>
	<b>230VAC-Netzteil for 230V-Redundanz</b>	
	Switching Power Supply 120 W prim. 85..264VAC, incl. 2m cable, Schuko connector, sec. 48 VDC/2.5A, 1.2m cable, wire end sleeve 3x	<b>MS700720</b>

This document in whole or in part may not be duplicated, reproduced, stored or retransmitted without prior written permission of MICROSENS GmbH & Co. KG. All information in this document is provided 'as is' and subject to change without notice. MICROSENS GmbH & Co. KG disclaims any liability for the correctness, completeness or quality of the information provided, fitness for a particular purpose or consecutive damage. MICROSENS is a trademark of MICROSENS GmbH & Co. KG. Any product names mentioned herein may be trademarks and/or registered trademarks of their respective companies. 10/2019pk/mr/sh/dh