Rugged 10-port Gigabit Switch
with two 10Gbit ports (copper and/or fiber)

General Description

The fanless µMAXBES comes with 8-ports 1Gbit and 2-ports 10Gbit speed. The open frame version offers for the 1Gbit ports lockable headers. The 10Gbit ports can be equipped with RJ45 or SFP connectors. All ports have status LEDs, indicating the activity and speed of each port.

The µMAXBES solution is extremely compact, its size is only 115 x 95 x 30mm (237 gramm) and can be used as open frame solution or in a MIL housing with connectors of your choice. Supply power is 5–36VDC and uses less than 6W (8x 1Gbit copper links and 2x 10Gbit SFP+ fully operational). The product can be operated at -20°C to +60°C and optionally an extended temperature -40°C to +85°C version is available.

For the fiber ports, most Ethernet compatible transceivers (acc. MSA) can be used. It allows the users to select the appropriate transceiver for each link. In the same size as the SFP+ carrier, a copper RJ45 carrier is available. The µMAGBES can be equipped with 2 carriers (2x copper or fiber, or 1 of each). The copper carrier supports 100Mbit, 1Gbit, 2.5Gbit, 5Gbit and 10Gbit. The SFP+ carrier supports 1Gbit and 10Gbit SFP.

As managed switch, the product gives access to various switch settings to configure features like: Quality of Service, VLAN, Rapid Spanning Tree, to mention just a few. To adjust these switch settings, MPL provides an easy to use web interface.

µMAXBES-A8OH with
2x 10Gbit fiber ports (2x µMAXBES-SFP1)

Web Interface of µMAXBES Management Software
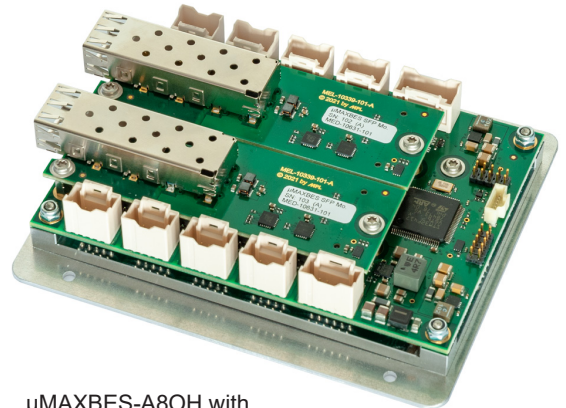
Key features are:

- Two 10Gbit ports to be used with SFP+ and copper
- Copper or mixed copper/fiber versions
- Header versions for the 1Gbit ports
- Wide input 5-36VDC
- Fully manageable over Web interface or Telnet
- Fanless operation
- IEEE802.1AS gPTP support
- Optionally CLI via USB
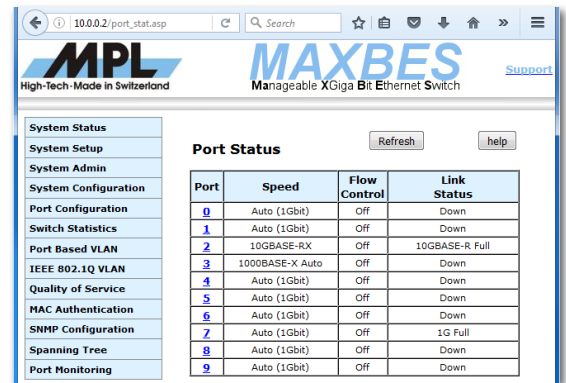
These features make

the µMAXBES ideally suited for any rugged or industrial network applications. Due to the low power consumption, robust and flexible design, the products are well suited for any embedded system. It is the perfect fit, whether they are used in a rugged, hot or other harsh environment. The µMAXBES makes it easy to set up a challenging network!
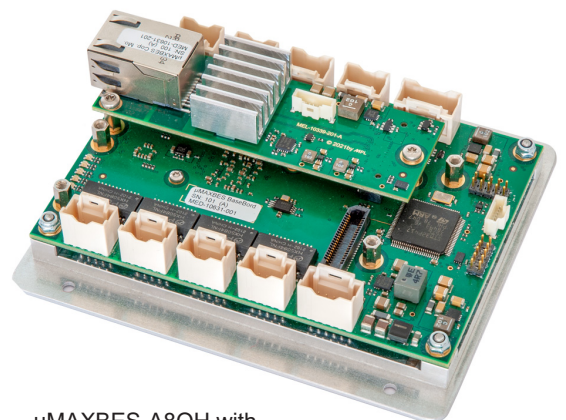
All MPL products are 100% designed and manufactured in Switzerland.

µMAXBES-A8OH with
1x 10Gbit copper port (1x µMAXBES-RJ1)

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Technical Features

Board Key Data

Switch lookup Engine	High performance lookup engine, supports up to16k MAC entries
	IEEE 802.3x flow control, back pressure flow control
Status LED	1 dual color LED for each copper port (Link, Activity and Speed indicators)
	1 LED for each SFP (Link and Activity indicators)
External Status LED	All LED for remote indication are available over lockable header

Interfaces

Ports	8x 1Gbit copper, 2x 10Gbit ports for SFP+ and copper RJ45
Copper ports	Auto crossover (Auto MDI/MDIX) support., auto polarity correction, auto negotiation
10Gbit SFP ports (2x)	Supports all 10Gbit SFP+ and 1Gbit SFP which are MSA compliant and Ethernet compatible
	Support for direct attached cable SFP+ (DAC)
	Support for digital diagnostics monitoring
10Gbit copper (2x)	Supports 100BASE-TX, 1000BASE-T, 2.5GBASE-T, 5GBASE-T, 10GBASE-T

Management Software

MPL developed and maintains a management SW with easy to use web interface.

Management supports:
- Accessible via https, Telnet or serial
- SNMPv1, v2c and v3 support
- Switch statistic
- IEEE 802.1Q VLAN
- IEEE 802.1X MAC Address Checking
- Port monitoring
- IGMPv3 support
- DHCP Client
- Port Based VLAN
- Quality of Service
- IEEE 802.1D RSTP support
- Firmware Update via HTTP or TFTP
- Trunking support
- gPTP IEEE802.1AS

Power

Input voltage	5VDC- 36VDC Input range, reverse polarity protection
Power consumption	6W fully operational with SFP+ module
	9W fully operational with copper module

Environment

Storage Temperature	-45°C to +85°C (-49°F to 185°F)
Operating Temperature	-20°C to +60°C (-4°F to 140°F) at full operation
	-40°C to +85°C optional (fiber version only)
Relative Humidity	5% to 95% none condensing

Standard Compliance

The µMAXBES is designed to meet or even exceed the most common standard Particular references are:

EMC	EN 55022, EN 55024, EN 61000, MIL-STD-461E
Shock & Vibration	EN 60068
Environmental & Safety	EN 50155, MIL-STD-810-F, EN 60601, EN 60950
Approval List	CE, IEC 60945, IACS E10

Packaging

Chassis version	width		depth		height	comment
Open Frame	115 mm	x	95 mm	x	min. 30 mm	custom cooling plate available

Order Information

µMAXBES-A8OH	Open Frame 10-port manageable Ethernet Switch with 8x 10/100/1000 copper ports on headers and 2x 10Gbit interfaces for SFP+ or copper carrier, all built on universal cooling plate, 8 -36VDC
µMAXBES-SFP1	SFP+ 10Gbit carrier module (max 2 modules (SFP1 or RJ1) per µMAXBES)
µMAXBES-RJ1	RJ45 10Gbit copper module (max 2 modules (SFP1 or RJ1) per µMAXBES)

Accessories for the µMAXBES Family

µPOWER-KIT1	Power cable (10 cm)
µSerLED-KIT1	Multicolor LED panel PCB for all 10 ports, power, Reset and Status LED
µCLI-KIT1	CLI Interface for µMAXBES
COAT-1	Critical components are being bonded and coated
XTEST-1	Extended temperature test -40°C up to +85°C for the µMAXBES solutions (fiber configurations only)

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