Rugged 10-port Gigabit Switch
with 2 SFP+ 10Gbit ports

General Description

The MAXBES comes with 8-ports 1Gbit and 2-ports 10Gbit speed. The eight 1GBit ports are either available as eight RJ45 copper ports or four RJ45 copper ports and four 1GBit SFP. The open frame version also offers lockable headers instead of RJ45. All ports have status LEDs, indicating the activity and speed of each port.

The MAXBES solution is extremely compact and can be used as open frame solution or in a MIL housing with connectors of your choice. Supply power is 8–36VDC and uses less than 15W. The product can be operated at -20°C to +60°C and optionally even up to +70°C.

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.

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

MAXBES Highlights

- Includes two 10Gbit SFP+ ports
- RJ45 & header Versions
- Wide input 8-36VDC
- Fully manageable over Web Interface or Telnet
- Copper or mixed Copper/Fiber versions
- Fanless operation
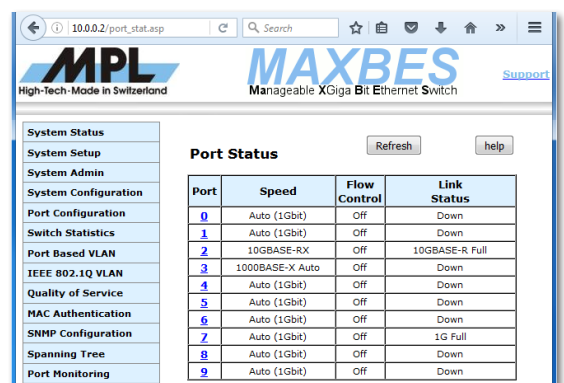- 1588 PTP support

These features make
the MAXBES 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 MAXBES makes it easy to set up a challenging network!

MPL products are 100% designed and manufactured in Switzerland. All products are fanless, shock and vibration proof, low power, rugged, and long-term* available. The perfect solution for a system to be used in rugged environments.
* Typically 10 years or more, 20+ years repair-ability

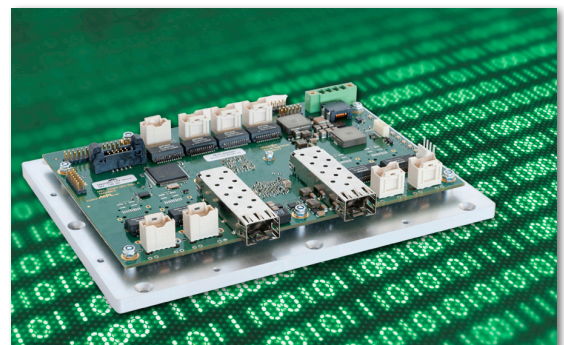**MAXBES** for the harsh Industrial Environment

Web Interface of MAXBES Management Software

MIL-MAXBES for use in Military Environments

OPEN-MAXBES for integration in existing Housing

MPL AG is an ISO9001 certified company

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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	2 LEDs for each copper port (Link/Activity and Speed indicators)
	1 LED for each SFP (Link/Activity indicators)
external Status LED	all LED for remote indication are available over lockable header

Interfaces

Ports	8x 1Gbit copper, 2x 10Gbit SFP+ / or 4x 1Gbit copper, 4x 1GBit SFP, 2x 10Gbit SFP+
Copper ports	Auto crossover (Auto MDI/MDIX) support., auto polarity correction, auto negotiation
	Support for 802.3az Energy Efficient Ethernet
1Gbit SFP ports	Supports all 1GBit SFP which are MSA compliant and Ethernet compatible
	Support for digital diagnostics monitoring (DDM) and triple speed copper SFP
10Gbit SFP ports (2x)	Supports all 10Gbit SFP+ and 1Gbit SFP which are MSA compliant and Ethernet compatible
	Support for direct attached cable SFP+

Management Software

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

Management supports:
- Accessible via https, Telnet or RS232
- SNMPv1, v2c and v3 support
- Switch statistic
- IEEE 802.1Q VLAN
- IEEE 802.1X MAC Address Checking
- Port monitoring
- IGMPv3 support (planned)

- DHCP Client
- Port Based VLAN
- Quality of Service
- IEEE 802.1D RSTP support
- Firmware Update via HTTP or TFTP
- Trunking support
- gPTP (1588 PTP support)

Power

Input voltage	8VDC- 36VDC Input range, reverse polarity protection
Power consumption	15W

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
	optionally up to 70°C (158°F)
Relative Humidity	5% to 95% none condensing

Standard Compliance

The MAXBES 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

The MAXBES family has been successfully tested according EN50155, MIL-STD-810-G as well as CE marking

Packaging

Chassis version	width		depth		height	comment
DIN-Rail/Flange	162	x	120	x	62 mm	custom color or foil available
IP67 MIL	280	x	208	x	100 mm	custom housings and connectors available
Open Frame	154.5	x	105	x	min 23 mm	custom cooling plate available

MAXBES Versions

MAXBES-F001

Product	Description
MAXBES	10 port manageable Ethernet Switch

Mechanical	Description
F	Standard housing, Flange mount
D	Standard housing, DIN-Rail mount
M	MIL housing
O	Open Frame, Single Board, cooling plate
OR	Open Frame, Multi Board, cooling plate
RF	Rugged/Railway housing, Flange mount
RD	Rugged/Railway housing, DIN-Rail mount

Option	Description
0	No serial CLI
1	With serial CLI

Port Config	10G SFP+	1G SFP	Copper
00	2		8 x RJ45
33	2	4	4 x RJ45
65	2	2	6 x M12
44	2		8 x header

MPL AG is an ISO9001 certified company