

# GUARD-FS

## Industrial Firewall/Router with Gbit Switch

### General Description

With the GUARD-FS, MPL has integrated several systems into one housing, a Firewall, a VPN-Gateway, a Router, as well as an Ethernet Switch with your choice of copper and/or fiber ports. You can imagine the broad use of the GUARD-FS with this variety of functionality. Basically in any application that needs to be installed in a rugged rough environment where space is an issue, the GUARD-FS is a perfect fit.

Today, everything is getting automated. Therefore security in this automated world is becoming more and more important. The key differences of industrial applications are that they require a long-term availability due to the life cycle management of the investments.

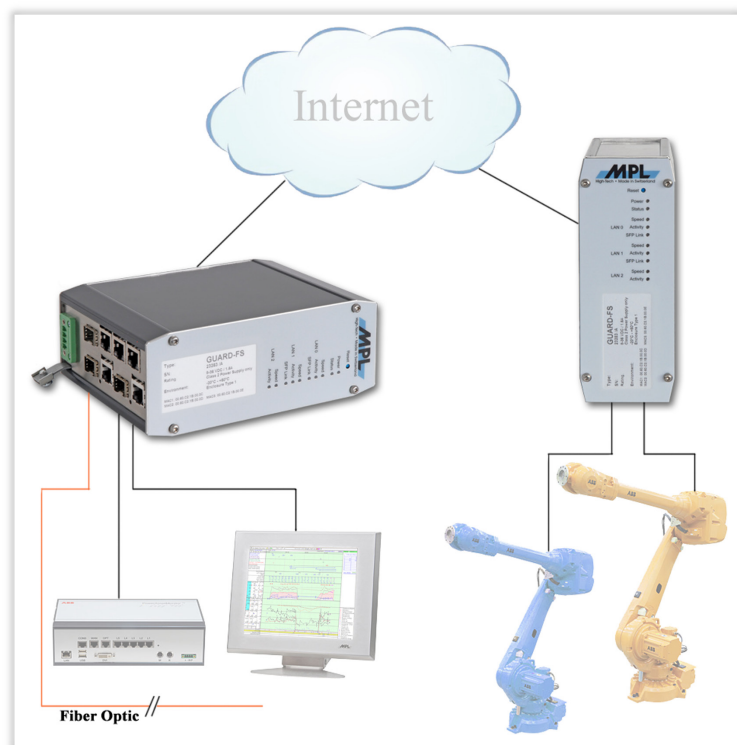
### GUARD-FS Highlights

The system can be operated from  $-20^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  (optional  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ ), without the need of a fan or case openings. The capability to offer copper as well as SFP ports for various fiber optical solutions make the product universal. This versatility is supported by the availability of a software development kit, the powerful 1.2 GHz ARM processor, and the 512 Mbyte built in flash that allows for customer specific extensions. Other unique features are:

- Wide input voltage range (8V – 36VDC)
- Low power consumption (fanless)
- Optional  $-40^{\circ}\text{C}$  up to  $+85^{\circ}\text{C}$
- All connectors on one side
- Customized housing
- Firewall/Router with 2x Gbit Ethernet ports (copper or SFP)
- 4-port switch (copper and/or fiber)
- switch as managed or unmanaged vers.

### These features make

the GUARD-FS to the ideal solution for industrial, transportation and defense applications where security, quality, reliability, low power consumption, and long-term availability are key. Just to name a few, the GUARD-FS can be used for applications such as remote monitoring & maintenance, secure communication in automation, etc..



# Technical Features GUARD-FS

## Board Key Data

Processor	RISC SoC 1.2GHz	Low Power CPU
Memory	512MByte DDR2	Soldered OnBoard
Firmware	512MByte NAND Flash	Soldered OnBoard

## Interfaces

<b>Firewall ports</b> 2 x Ethernet	2 x RJ45, auto negotiation, auto MDI MDIX 2 x SFP Slot	Either 10BaseT /100BaseTX / 1000BaseTX or 100Base-FX or 1000Base-LX SFP Modules
<b>Switch ports</b> 4 x Ethernet	*4 x RJ45 copper ports or *3 x RJ45 and 1 x SFP or *2 x RJ45 and 2 x SFP	Either 10BaseT /100BaseTX / 1000BaseTX or 100Base-FX or 1000Base-LX SFP Modules * configuration depends on version ordered

## Physical / Power

Chassis	Compact rugged chromated Aluminum with stainless steel plates	DIN-rail or flange mounting, no ventilation holes
Size & Weight	62.1 x 162.1 x 118mm	0.94kg / 2lb including housing
Power	8 – 36VDC	Power consumption < 9 W, reverse polarity protection
Temperature Range	-20°C up to +60°C optionally -40°C to +85°C	No fan, no openings, values at full CPU load
Humidity	5% - 95% none condensing	Optional coating available

## Standard Compliance

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

## Software

The GUARD-FS uses an adapted version of OpenWRT (<http://www.openwrt.org>) for providing all the basic Firewall functionality. Since OpenWRT is an open source firewall software, all sources including the adaptations required for the GUARD-FS are available in source code. This allows for security reviews down to code level for high security applications.

The basic functionality provided by the default installation can be extended via a multitude of mandatory software packages that allow extending the functionality of the GUARD-FS. These packages include support for various routing protocols, proxy servers, IPV6 over IPV4 tunnels, intrusion detection, web servers and so on. As an additional benefit, a software development kit will be made available which allows the implementation of customer specific functionality into the base system of the GUARD-FS.

Most of the configuration of the firmware installed can be done using a web based interface. For more specialized requirements, a console based configuration utility is available. All configuration is stored on the device in a human friendly text format and can be modified using a text editor, too.

### Firewall functionality

- Network address translation (NAT)
- IPV4 and IPV6 connectivity
- DHCP and DNS functionality
- Dynamic DNS support
- OpenVPN client and server support
- Quality of Service (QoS)
- SSH access
- and more...

### Managed Switch functionality

- Easy configuration via web interface
- Port based VLAN
- IEEE 802.1Q VLAN
- Quality of Service (QoS)
- IEEE 802.1X MAC address checking
- IEEE 802.1D spanning tree
- Port monitoring
- and more...

## GUARD-FS Versions

GUARD-FS1	Rugged Industrial Firewall/Router with 2 GigE ports (2x RJ45 or 2x SFP) and a 4 port switch (MAGBES-13) with 3x RJ45 and 1x SFP port, pre-installed OpenWRT embedded Linux. (Housing has to be added separately)
GUARD-FS2	Rugged Industrial Firewall/Router with 2 GigE ports (2x RJ45 or 2x SFP) and a 4 port Switch (MAGBES-12) with 2x RJ45 and 2x SFP ports, pre-installed OpenWRT embedded Linux. (Housing has to be added separately)
GUARD-FS3	Rugged Industrial Firewall/Router with 2 GigE ports (2x RJ45 or 2x SFP) and a 4 port switch (MAGBES-11) with 4x RJ45, pre-installed OpenWRT embedded Linux. (Housing has to be added separately)
GUARD-Cx	GUARD Solution assembled & mounted according the customer needs & requirements (e.g. with special housing, depopulated parts, installing a customers application, ....)

