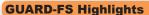
# Rugged Industrial Firewall/Router with Gbit Switch

### **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.



The system can be operated from -20°C to +60°C (optional -40°C to +85°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.

- Wide input voltage range (8V 36VDC)
- Low power consumption (fanless)
- All connectors on one side
- Customized housing
- Firewall/Router with 3x Gbit (copper or SFP)
- Optional switch (copper and/or fiber)
- switch as managed or unmanaged version

## 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..

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.

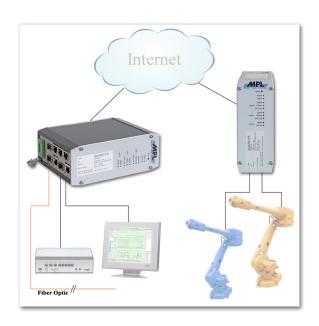
\* Typically 10 years or more, 20+ years repair-ability



Firewall/Router used in sensitive environment



GUARD used as frontend in maintenance monitoring system



MPL AG is an ISO9001 certified company





# **Technical Features**

Interfaces		
Memory / Firmware	512MByte DDR2 / 512MByte NAND Flash	Soldered OnBoard
Processor	RISC SoC 1.2GHz	Low Power CPU
Board Key Data		

Firewall ports or 2 x SFP Slot 100Base-FX or 1000Base-LX SFP Modules \*4 x RJ45 copper ports or Either 10BaseT /100BaseTX / 1000BaseTX or Switch ports

100Base-FX or 1000Base-LX SFP Modules \*2 x RJ45 and 2 x SFP

\* configuration depends on version ordered

For WLAN, GPRS, UMTS, etc. Mini PCI-Express Minicard Slot

**Management Software** 

Management supports: Port Based VLAN • IEEE 802.1Q VLAN

> • IEEE 802.1X MAC Address Checking Quality of Service (QoS)

• IEEE 802.1D RSTP support · Port monitoring

 Telnet · Easy configuration via web interface

Physical / Power

Chassis Compact rugged chromated Aluminum with stainless steel plates, no ventilation holes

62.1 x 162.1 x 118 mm 0.94kg / 2lb including housing Size & Weight

8 - 36VDC Power consumption < 9 W, reverse polarity protection Power

**Environment** 

-20°C to +60°C optionally -40°C to +85°C No fan, no openings, values at full CPU load Temperature Range

Humidity 5% - 95% none condensing Optional coating available

**Standard Compliance** 

The GUARD-FS is designed to meet or exceed the most common standards. Particular references are:

**FMC** EN 55022, EN 55024, EN 61000, MIL-STD-461E

Shock & Vibration EN 60068

Environmental & Safety EN 50155, MIL-STD-810G, EN 60601, EN 60950

### **Software**

The GUARD-FS comes preinstalled with an adapted version of OpenWrt (www.openwrt.org). This Linux based embedded distribution provides all functionality required for operation as IPV4 and/or IPV6 firewall and router. The vast amount of additional packages available in conjunction with MPL support allows you to create a solution for every routing or firewall project.

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.

Functions and protocols:

TCP/IP V4 and V6, IPsec

· QoS (Quality Of Service) capable

SIIT(IPV4-over-IPV6 translation)

• Miredo/Teredo (IPV6 over IPV4 tunneling)

• PPP (Point-to-Point Protocol)

· Network address translation

Multi WAN Setup (failover and load balancing)

· DHCP Server for IPV4 and IPV6

DNS server/forwarder

Support for dynamic DNS providers

OpenVPN support

· OpenConnect client support

· Firewall based on Linux iptables

· SSH and telnet device access

Snort (lightweight intrusion detection)

Routing daemons (OSPF, RIP, BGP, ...)

### **Packaging**

Chassis version	footprint	height	weight		
DIN Rail	62 x 120mm	162.1mm	1.2 kg (2.7 lb.)	custom color or foil available	
Flange	62 x 123mm	198.05mm	1.25 kg (2.8 lb.)	custom color or foil available	
Open Frame	min. 102 x 153mm	min. 23mm	0.6 kg (1.32 lb.)	custom cooling plate available	
IP67 MIL	175 x 182mm	min. 66mm	2.1 kg (4.66 lb.)	custom housings and connectors available	
The aluminum housings are internally chromated, externally powder coated or anodized, no ventilation holes					

MPL AG is an ISO9001 certified company





