

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Peripheral Equipment

with type designation(s)

Router FL MGuard Series & Ethernet Switch FL NAT SMN 8TX-M

Issued to

Phoenix Contact GmbH & Co. KG
Blomberg, Germany

is found to comply with

DNV GL rules for classification – Ships

Application :

Product approved by this certificate are accepted for installation on all vessels classed by DNV GL.

Temperature	B
Humidity	B
Vibration	A
EMC	B
Enclosure	A

This Certificate is valid until **2021-03-20**.

Issued at **Hamburg** on **2016-03-21**

DNV GL local station: **Magdeburg**

Approval Engineer: **Heinz Scheffler**

for **DNV GL**

Duy Nam Le
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Product description

Router - FL MGUARD RS4000 TX/TX VPN-M

Router - FL MGUARD RS4000 TX/TX-P-M

Router - FL MGUARD RS4000 TX/TX-M

Interfaces

- Interface 1: Ethernet 10/100 MBit/s
Connection method RJ45
- Interface 2: Signal contact
Connection method Plug-in/screw connection via COMBICON
- Interface 3: VPN - release button
Connection method 24 V DC/250 mA can be connected as an option

Function

- Basic functions RS4000 TX/TX VPN-M: Router with intelligent firewall and VPN for 10 tunnels (up to 250 supported with optional additional license), CIFS Integrity Monitoring (as an option), metal housing, slot for SD memory card, extended temperature range, high-performance firewall/VPN: up to 124 Mbps/40 Mbps
- Basic functions RS4000 TX/TX-P-M & RS4000 TX/TX-M: Router with intelligent firewall (VPN, 10 tunnels as an option, up to 250 with additional license), CIFS Integrity Monitoring (as an option), metal housing, slot for SD memory card, extended temperature range, high-performance firewall/VPN (as an option): up to 124 Mbps/40 Mbps (as an option), P= Coated printed circuit board
- Supported browsers: HTTPS support required
- Status and diagnostic indicators: LEDs: P1, P2, Fault, State, Error, LAN, WAN
- Signal contact control voltage: 24 V DC (typical)
- Signal contact control current: 250 mA (short-circuit resistant)

Security functions

- Dynamic Host Configuration Protocol (DHCP) support: Server or Relay Agent
- Network Time Protocol (NTP) client: Client
- Link Layer Discovery Protocol (LLDP): As per protocol 802.2
- Remote Syslog Logging: On external server
- Virtual private network (VPN) throughput: max. 40 Mbps (Router mode, VPN bidirectional throughput) / max. 27 Mbps (Stealth mode, VPN bidirectional throughput)
- Encryption methods: DES, 3DES, AES-128, -192, -256
- Internet Protocol Security (IPsec) mode ESP tunnel / ESP transport
- Authentication: X.509v3 certificates with RSA or PSK
- Data integrity: MD5, SHA-1
- 1:1 Network Address Translation (NAT) in the VPN: Supported
- Firewall data throughput: max. 124 Mbps (Router mode, default firewall rules, bidirectional throughput) / max. 61 Mbps (Stealth mode, default firewall rules, bidirectional throughput)
- Firewall rules: Configurable stateful inspection firewall with full scope of functions
- Filtering: MAC and IP addresses, ports, protocols
- Protection against: IP spoofing, DoS and Syn Flood Protection
- Routing: Standard routing, NAT, 1:1-NAT, port forwarding

Router - FL MGUARD RS2000 TX/TX VPN-M

Interfaces

- Interface 1: Ethernet 10/100 MBit/s
Connection method RJ45
- Interface 2: Signal contact
Connection method Plug-in/screw connection via COMBICON
- Interface 3: VPN - release button
Connection method 24 V DC/250 mA can be connected as an option

Function

- Basic functions RS2000 TX/TX VPN-M: Router with simplified 2-click firewall and VPN for 2 tunnels (fixed), metalhousing, slot for any SD memory card, extended temperature range, high-performance firewall/VPN: up to 124 Mbps/40 Mbps
- Supported browsers: HTTPS support required
- Status and diagnostic indicators: LEDs:P1, P2, Fault, State, Error, LAN, WAN
- Signal contact control voltage: 24 V DC (typical)
- Signal contact control current: 250 mA (short-circuit resistant)

Security functions

- Dynamic Host Configuration Protocol (DHCP) support: Server or Relay Agent
- Network Time Protocol (NTP) client: Client
- Link Layer Discovery Protocol (LLDP): As per protocol 802.2
- Remote Syslog Logging: On externals On externals server
- Virtual private network (VPN) throughput: max. 40 Mbps (Router mode, VPN bidirectional throughput) / max. 27 Mbps (Stealth mode, VPN bidirectional throughput)
- Encryption methods: DES, 3DES, AES-128, -192, -256
- Internet Protocol Security (IPsec) mode ESP tunnel / ESP transport
- Authentication: X.509v3 certificates with RSA or PSK
- Data integrity: MD5, SHA-1
- 1:1 Network Address Translation (NAT) in the VPN: Supported
- Firewall data throughput: max. 124 Mbps (Router mode, default firewall rules, bidirectional throughput) / max. 61 Mbps (Stealth mode, default firewall rules, bidirectional throughput)
- Firewall rules: Simplified 2-click stateful inspection firewall
- Filtering: MAC and IP addresses, ports, protocols
- Protection against: Incoming or outgoing traffic
- Routing: Standard routing, NAT, 1:1-NAT, port forwarding

Industrial Ethernet Switch – FL NAT SMN 8 TX-M

Interfaces

- Interface 1: Ethernet 10/100 MBit/s
Connection method RJ45
- Interface 2: Serial (RS-232)
Connection method RS-232-C, 6-pos. MINI-DIN socket (PS/2)

Function

- Basic functions: Store and forward switch, complies with IEEE 802.3 2, priority classes in acc. with IEEE 802.1 P TCP/IP protocol, BootP-capable, integrated web server function, Rapid Spanning Tree (RSTP), router, 1:1 NAT router
- Management: Web-based management (HTTP) / SNMP v1/v2
- Diagnostic functions: RMON History / LLDP (Link Layer Discovery Protocol) / SNMP-Traps
- Filter functions: VLAN (up to 32 VLANs)
- Supported browsers: Internet Explorer 5.5 or higher
- Redundancy: RSTP (Rapid Spanning Tree Protocol) / FRD (Fast Ring Detection) / Large Tree Support / STP (Spanning Tree Protocol)
- PROFINET IO conformance class: Conformance-Class A
- Time synchronization MRP (Media Redundancy Protocol)
- Additional functions: Routing (1:1 NAT, Virtual NAT, Routing) / BootP / DHCP-Client
- Status and diagnostic indicators: LEDs: US1, US2 (power supply), Fail (alarm contact), 2 LEDs per Ethernet port (Link and switchable Activity/Speed/Duplex)
- Signal contact control voltage: 24 V DC (typical)
- Signal contact control current: 600 mA (maximum)

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV GL rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Type Approval documentation

Part List: FL MGUARD RS4000 TX / TX VPN M- 2702465_00_BOM.xls; FL NAT SMN 8TX-M- 2702443_00_BOM.xls

Datasheet: FL MGUARD RS2000 TXTX VPN-M_2702472; FL MGUARD RS4000 TXTX VPN-M_2702465; FL MGUARD RS4000 TXTX-M_2702470; FL MGUARD RS4000 TXTX-P-M_2702474; DB FL NAT SMN 8TX-M_EN_2702443

EMC Test Reports: E153443E1; E153443E2

Environmental Test Report: U153443E1

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2015.

Marking of product

The products to be marked with:

- model name
- manufacturer name
- serial number

Job Id: **262.1-020247-1**
Certificate No: **TAA000009T**

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE