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EcoStruxure™ Triconex® - Tofino Firewall

Defense in depth for your Tricon controller

Product at a glance

EcoStruxure Triconex® - Tofino Firewall is the first true OPC (OLE for Process Control) classic security solution designed to maximize system robustness and minimize vulnreabilities. It offers superior security over conventional firewall or tunneler solutions and it is designed specifically for use with EcoStruxure Triconex - Tricon controllers right out of the box. Combined with the Tricon Communications Module (TCM) and inherent security features, the Tofino Firewall creates the ideal defense-in depth solution for better safety integrated system reliability and security.

Secure OPC

Your Tricon controller is critical to the continued safe operation of your plant. But the growing complexity and connectivity of DCS control systems, as well as their reliance on of-the-shelf PC and networking technology, bring with them the potential to disrupt the operation of the safety system due to excessive or improper network traffic. A multi-layered defense in depth strategy is recommended to isolate your Tricon from computer cyber threats, network device failures and human error.

The Tofino Firewall protects the Tricon Communications Module (TCM) from potential disruption due to abnormal or excessive network traffic. It permits only the specific types and rates of network communications that are required for correct system operation,

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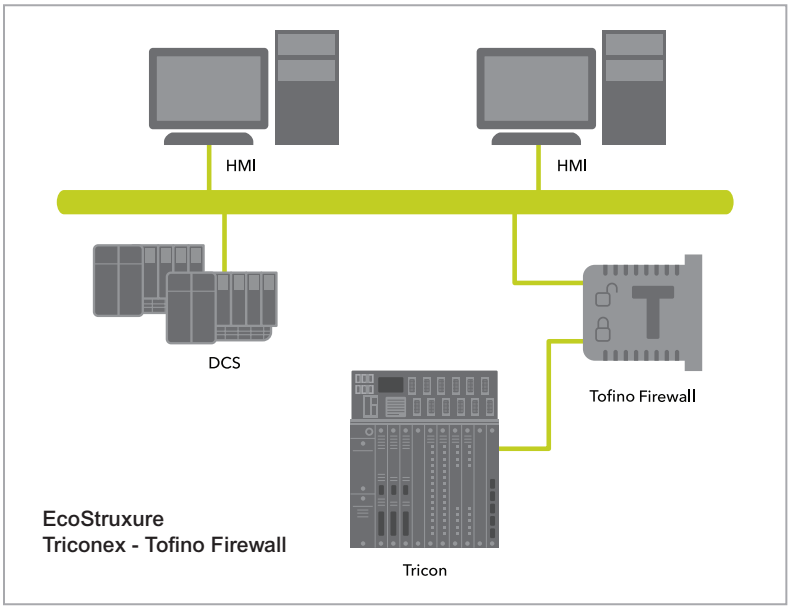
and prevents all other types of network traffic from reaching the TCM. This provides an additional layer of protection to your safety instrumented system, further enhancing the overall safety and reliability of your facility. Any security events, e.g., blocked network traffic, detected by the EcoStruxure Triconex - Tofino Firewall are logged internally on the device and saved for later review by operations or security personnel.

Many control systems use Microsoft's® OPC (OLE for Process Control) technology. The firewall protects the Tricon OPC server by tracking the OPC client data requests and dynamically opening only the minimum required ports to permit these data connections to pass through. All other unnecessary ports are blocked, resulting in significantly enhanced security for the Tricon OPC server.

The Tofino Firewall is easy to install. Simply apply DC power and connect the device in-line in the network connection to the EcoStruxure Triconex communications module. The Tofino Firewall is pre-configured to work in most installations without changes. If the TCM has been configured to use nonstandard network ports, then the firewall configuration may be easily modified to match the TCM configuration using the firewall configuration utility.

Features

- Tofino Firewall permits only those types of network traffic required for correct system operation. All other unnecessary traffic is blocked.



- Tracks OPC (OLE for Process Control) client requests to Tricon OPC server and dynamically opens only the minimum required TCP ports in the Triconex Tofino Firewall for data connections.
- All traffic that is permitted through the Triconex Tofino Firewall is rate-limited to prevent overload of the Tricon communications module.
- All security events, including blocked network traffic, are logged on the appliance for subsequent analysis.
- Security event logs may be offloaded via USB storage device.
- Pre-configured — no configuration required for most Tricon installations.
- 10/100 BaseT network interfaces — direct connection to TCM models 4351A, 4351B, and 4353.
- Plug and play installation — no changes required to external equipment, network design or network IP addresses.

Specifications

Network Interfaces

- Two 10/100 Base T Ethernet twisted-pair interfaces — "Trusted" (closed padlock symbol) and "Untrusted" (open padlock symbol).

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- "Trusted" network interface connects to 10/100BaseT interface on Tricon 4351A, 4351B and 4353 Communications Module.
- "Untrusted" network interface connects to external control interface.
- Network link speed and duplex auto-negotiated with link partner.
- Auto-MDX adapts to straight-through or cross-over connections.

Permitted network traffic

- Tricon protocols: TSAA, TriStation, TMI, Downloader, Control (Time Sync), Peer-to-Peer
- Modbus TCP (master and slave)
- Simple network time protocol (SNTP) (Tricon client, external server)
- Network printer access (Tricon client to external print server)
- OPC (bidirectional)
- ICMP 'ping' (echo request) — incoming only
- Address resolution protocol (ARP)
- Incoming traffic rate limit: 5,000 packets per second
- Port numbers are adjustable via Triconex Tofino Firewall Configuration Utility to match any custom TCM configuration

Power

- 9-32 VDC; 24 VDC nominal
- 170 mA typical, 350 mA max. at 24 VDC
- Dual redundant power inputs; 24-12 AWG screw cage terminals
- Dual power-fail indicator digital inputs (security event log entry generated on state change)

EMI Radiation and Immunity

- EN 55022 Class A
- EN 61000-4-2, EN 61000-4-3

Environmental

- Operating temperature: -40° C to +70° C
- Storage temperature: -40° C to +85° C
- Relative humidity: 10%-90% (non-condensing)
  Vibration and Shock
- IEC 60068-2-6: 1 g @ 20-500 Hz
- IEC 60068-2-27: 30 g for 11 ms shock
- EN 61326: EMC Annex A
- EN 61010-1

Mechanical

- Protection class: IP20
- Mounting: 35 mm DIN rail
- Dimensions (mm): 42 W x 146 H x 138 D
- Weight: 290 g

Certifications

- Class I, Div 2 hazardous environments
- CE mark (EMC compatibility)
- MUSIC 2009-1 security certification (Foundation level)
- Certified Modbus compliant by Modbus-IDA

Notes

Each Tofino Firewall provides protection for a single 10/100BaseT network interface. One Tofino Firewall is required for each TCM network interface to be protected.

Schneider Electric

35 rue Joseph Monier
92500 Rueil-Malmaison, France
Tel: +33 (0)1 41 29 70 00

schneider-electric.com/triconex

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