



## Technology Overview

Engineered to safeguard IoT and IIoT devices, the Terafence **TFG-1URP** employs Air-Gap technology to segment and isolate industrial end-devices from malicious or unauthorized malware attacks, ensuring complete protection against threats.

At the core of the solution is Terafence's proprietary FPGA hardware chip, developed and manufactured in Israel, which establishes a fully controlled data path between two network segments. While allowing normal protocol data to flow unidirectionally, the return path is entirely eliminated—effectively creating an Air-Gapped environment.

Acting as a Protocol Proxy, Terafence terminates TCP/IP sessions at both ends while transferring only raw data between the two unidirectional gateway interfaces. Since raw data is never stored within the unit, there is no need for encryption or additional data protection measures. As a result, Terafence eliminates the reliance on cryptographic security mechanisms and instead enforces security by preventing network access altogether.

Beyond protecting IoT and IIoT end-devices from cyber threats, the **TFG-1URP** also safeguards other network assets by preventing compromised devices from spreading malware, executing cyberattacks, or causing operational disruptions.

### Supported Protocols

The Terafence **TFG-1URP** supports multiple, simultaneous industrial and IT protocols, including:

- **SFTP/FTP/SMB** – Secure file transfers
- **SMTP** – Email relay
- **SYSLOG Forwarding** – Log event transmission
- **RTSP** – Live streaming for CCTV
- **HTTP/S** – File and data uploads to web servers or cloud platforms
- **Local SYSLOG Forwarding** – Internal log event management
- **Modbus** – Communication between multiple PLCs and HMIs
- **IEC-104** – Protocol for power utilities
- **MQTT** – Data brokering and publishing

## Why choose 1-URP?

### Key Features:

- Complete galvanic network isolation for enhanced security and protection.
- Proprietary Terafence hardware chip (FPGA).
- Secure HTTPS web-based GUI for configuration (accessible from the secure side only).
- Two dedicated CPUs for protocol support.

### Security Features:

- Hardened Linux operating system on accompanying CPUs.
- Core security hardware operates without an OS, MAC, or IP Address.
- Secure unit access via HTTPS GUI.

### Technical Specifications:

- **Data Throughput:** 1 Gbps
- **Power Supply:** Dual input voltage (100–240 VAC, 50/60Hz) with fully redundant, hot-swappable AC power supplies
- **Network Ports:** 2x RJ-45 CAT5E ports
- **Design:** No moving mechanical parts for increased reliability
- **Dimensions:** 440mm (W) × 44mm (H) × 260mm (D) (1U)
- **Mounting:** 19" 1U rackmount and desktop mounting options
- **Operating Temperature:** -40°C to +70°C
- **Usage:** Indoor use only
- **Compliance:** FCC Part 15, Subpart B, Class A

### Solution Highlights:

- Fully galvanic, physical network isolation with hardware based on the Terafence's proprietary FPGA chip
- Includes two dedicated CPUs for protocol support and termination (non-transparent proxy)
- Intuitive and straightforward configuration via a secure HTTPS GUI
- High-speed 1Gbps backplane
- Certified to IEC 62443-4-2 – SL2 and MIL-STD-810F Method 516.5 standards
- Designed for long-term reliability with a 20-year MTBF