ELEMENTS™
ES1000

FREEWAVE

The FreeWave Elements portfolio provides a series of robust solutions for IIoT networks.

The first of the series, the Elements ES1000, is a configurable security appliance and LTE IoT gateway designed to fit to a variety of industrial IoT needs. The ES1000 is optimized to run compute intensive applications and can be customized with protocol converters, rules engines, automation, and other intelligence to apply to even the most unique industrial IoT challenges.

KEY FEATURES

> **Global Cellular Connectivity**
leveraging a single SIM with automatica carrier switching, global, cellular airtime with a single data plan, advanced security, future proof; over the air updates and single EPC,APN, PDN and VPN management.

> **Secure Connectivity**
Zentry's never trust, always verify, micro-segmentation enforcement and continuous verification of identity, device health, and context for every access request, reducing the risk of unauthorized access or compromised credentials being exploited.

> **Data Management Portal**
with FreeWave Insights and the Remote Connectivity Console data visualization is available anywhere, anytime.

> **Quad A53 Core Hardware**
allows parallel processing of data intensive applications providing segmented, secure connectivity with visibility to remote assets.

REMOTE SECURE CONNECTIVITY: MANAGE DATA, DEVICES, AND SECURITY FROM ANYWHERE, ANYTIME

Unlike other solutions, our ES1000 is a complete "out of the box" solution. Included is 200MB of cellular monthly airtime, Zentry, secure connectivity zero trust overlay adapted for the edge, data portal access to visualization and alerts and a quad-core processor to host your intensive applications. A true security appliance that increases your network's secure connectivity while reducing costs.

With FreeWave's Zentry solution, your gateway and endpoint connected devices can be securely managed from anywhere in the world. Configure access and networking to your needs, ensuring that your network is unreachable to threats because your data never touches the Internet. Our Remote Connectivity Console (RCC) allows you to manage granular access and networking over an encrypted connectivity overlay.

The ES1000 is optimized to run compute intensive applications and can be configured to your exact needs, even if using legacy equipment or proprietary protocols. Included in the ES1000 are four MPUs, one MCU, one GPU and one NPU to handle the performance power of this device. Secure boot prevents unauthorized boot into rogue operating systems; OS and over the-air upgrade packages are keyed to match the secure key.

The ES1000 integrates natively with the FreeWave Insights™ Data Portal, providing a quick solution for data management, device management, and OTA updates, giving you access to your raw data.

FREEWAVE ELEMENTS ES1000
TECHNICAL SPECIFICATIONS

POWER

Rated Voltage	9-30VDC
Average Power Consumption	9 W
Peak Power Consumption	17 W

ENCLOSURE

Dimensions (WxHxD) (excludes connectors)	2.323 W x 4.949 H x 4.764 D (in)
Weight	approx. 743 g
Mounting	Toolless DIN Rail
Operating Temperature	-20° to -70°C
Hazardous Locations	Future

COMPUTE

NXP i.MX 8M Plus

Quad-Core A53

NPU (2.3 TOPS)

4GB LPDDR4

32GB Flash

SOFTWARE AND CONFIGURATION

WebUI for configuration, monitoring and update functions

API for configuration, monitoring and update functions

Config file scheme for automation and scaling

Over-the-air updates: delta packages limiting network usage

Docker container environment

CONNECTIVITY

2x Ethernet (Bridged)

2x Serial Port RJ45

2x USB-A, 1x USB-C

4G/LTE Cellular/3G Fallback

2.4GHz WiFi (client or access point)

Route WAN priority via WebUI

DIGITAL AND ANALOG I/O

Available on a future release

GPS/GNSS

Available on a future release

SECURITY

Firewall: pre-configured and custom rules through WebUI

Secure Boot

Encrypted file system

Signed applications

Zero Trust Agent: Egress only on port 443

INFORMATION TO ORDER

Model Number	ES1000

> ES1000 Applications

OIL & GAS AGRICULTURE UTILITIES DEFENSE SCADA MINING FLEET MANAGEMENT MUNICIPAL ENTERPRISE

CONTACT US

5395 Pearl Parkway, Boulder, CO 80301
TF 866.923.6168 T 303.381.9200
For more information, visit www.freewave.com