Pysense®

PRODUCT:

Industrial IoT & Cyber Secured Gateway powered with Raspberry Pi
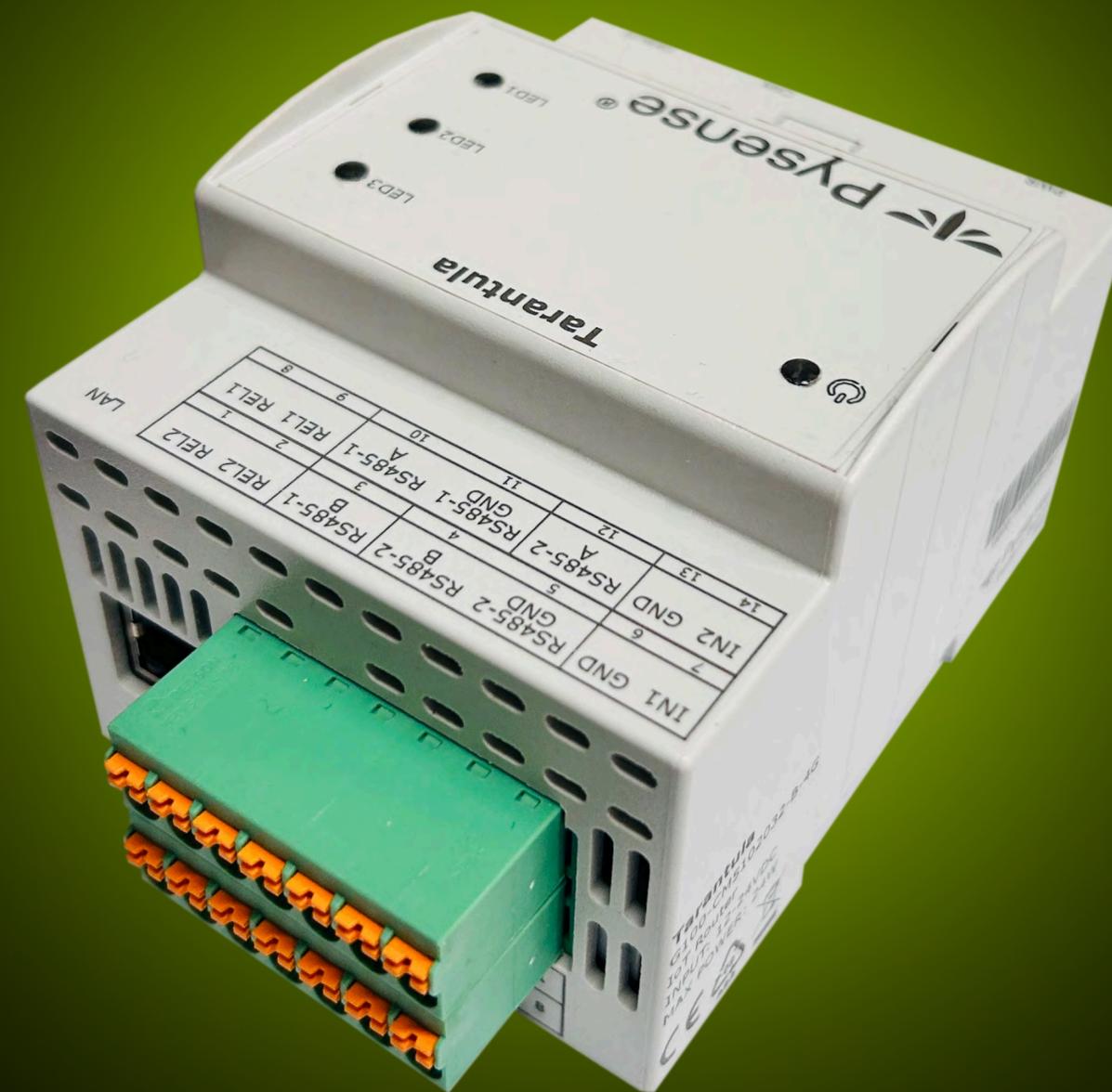
MODEL:

Tarantula G100

Tarantula G100 - Energy Management Gateway is not just an industrial Raspberry Pi CM5 based gateway – it is a high-performance European-designed edge computing platform built for critical energy and industrial applications.
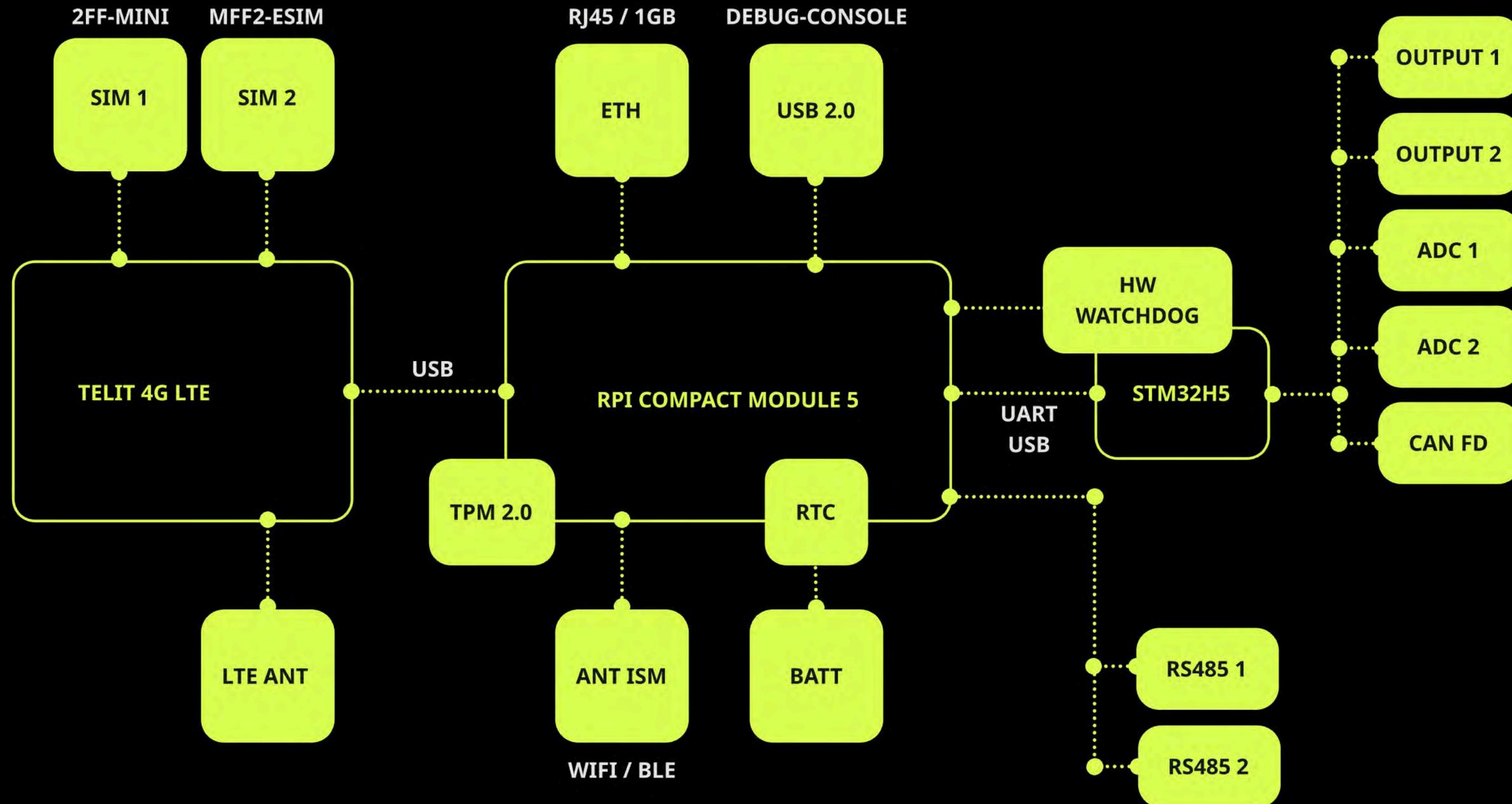
Engineered and manufactured in the EU, Tarantula combines robust industrial hardware, **built-in LTE connectivity**, rich industrial I/O interfaces and scalable edge computing capabilities in a single, compact device.

Powered by the **Raspberry Pi Compute Module 5** and supported by the extensive Linux ecosystem, it provides a secure and flexible foundation for smart automation, energy management systems (EMS), and Industrial IoT (IIoT) deployments.

Designed for demanding environments, Tarantula G100 ensures long-term availability, cybersecurity readiness and seamless integration with modern cloud-native infrastructures.

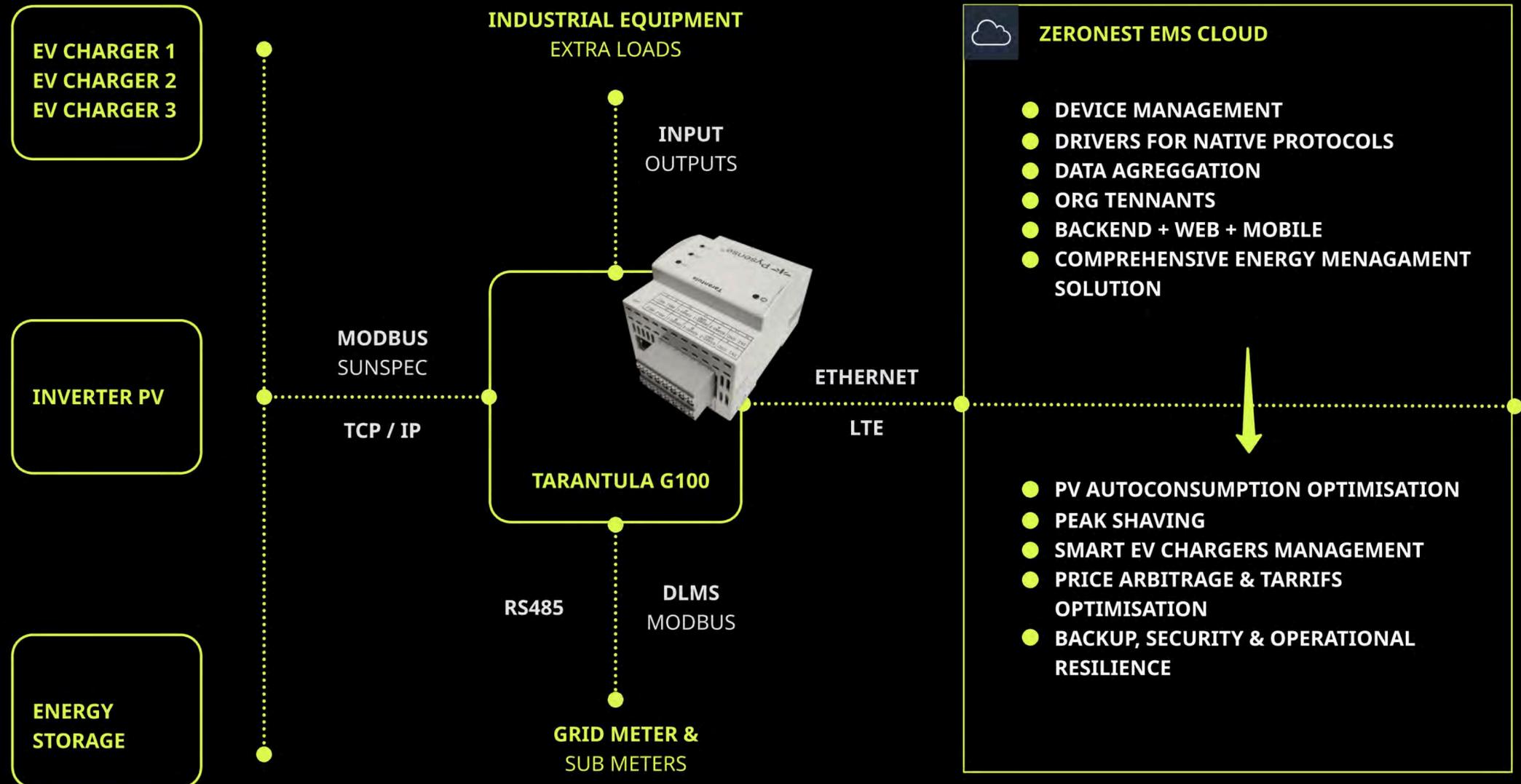Tarantula G100 Gateway - Block Diagram

Use Case - Zeronest Energy Management System for C&I Market

zeronest

Zeronest EMS is an advanced Energy Management System for Commercial & Industrial facilities integrating PV, battery storage (BESS), EV charging infrastructure, and grid connection into one intelligent ecosystem.

At the heart of the solution is the **Tarantula G100** gateway - an industrial edge controller enabling real-time data acquisition, local control logic, and secure communication with the **Zeronest Cloud Platform**. This ensures low-latency response and operational resilience.

Zeronest optimizes energy flows, reduces peak demand, maximizes PV self-consumption, and enables tariff and flexibility optimization - transforming energy from a fixed cost into a strategically managed asset.

EV CHARGER 1
EV CHARGER 2
EV CHARGER 3

INVERTER PV

ENERGY STORAGE

MODBUS
SUNSPEC

TCP / IP

RS485

INDUSTRIAL EQUIPMENT
EXTRA LOADS

INPUT
OUTPUTS

TARANTULA G100

DLMS
MODBUS

GRID METER &
SUB METERS

ETHERNET

LTE

ZERONEST EMS CLOUD

- **DEVICE MANAGEMENT**
- **DRIVERS FOR NATIVE PROTOCOLS**
- **DATA AGREGGATION**
- **ORG TENNANTS**
- **BACKEND + WEB + MOBILE**
- **COMPREHENSIVE ENERGY MENAGAMENT SOLUTION**

- **PV AUTOCONSUMPTION OPTIMISATION**
- **PEAK SHAVING**
- **SMART EV CHARGERS MANAGEMENT**
- **PRICE ARBITRAGE & TARRIFS OPTIMISATION**
- **BACKUP, SECURITY & OPERATIONAL RESILIENCE**

LTE CONNECTIVITY	TELIT LE910Q1-WW - LTE + EXT ANT
WIFI / BLUETOOTH	WIFI 2.4 / 5.0 GHZ, BLE 5.0 + EXT ANT
ETHERNET	1 x RJ45 - ETHERNET (1 Gbps)
CAN	1 x CAN FD
RS485	2 x RS485 HD - ISOLATED
INPUT / OUTPUT	2 x ADC INPUT, 2 x HSS OUTPUT
POWER SUPPLY	12 - 24 VDC @ MAX 25W
USB	1 x USB 2.0 C - DEBUG
SIM	1 x MFF2 (CHIP), 1 × 2FF (MINI) = DUAL
LED INDICATORS	1 x PWR, 3 x CUSTOM
HOUSING & DIMENSIONS	IP2X, DIN, 117.4 X 71.0 X 61.00 MM
ENVIRONMENTAL & SAFETY	OPERATING TEMP: -10°C to 50°C
MPU + MCU + MEMORY	BROADCOM BCM2712 (RPI CM5) + STM32H5 + 2GB RAM + 32GB EMMC
RTC	BATT BACKUP FOR CM5 RTC
HW WATCHDOG & SECURITY	EXTERNAL HW WATCHDOG + TPM 2.0
APPROVALS	RED (CE), ROHS, IEC 61140 CLASS III