GIoE
a powerful Edge Computer for IoT Ecosystems
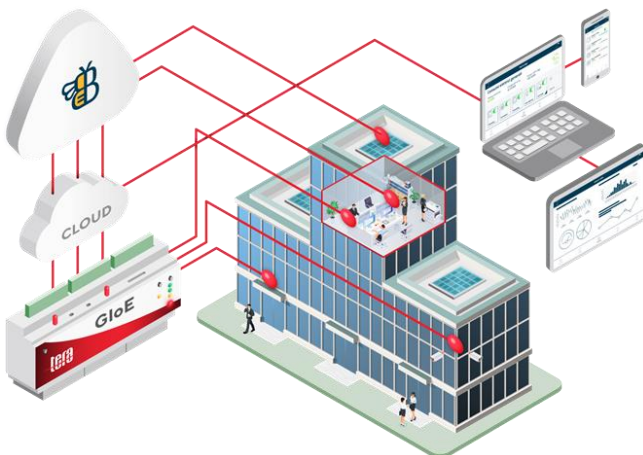
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Supported protocols and standards

GIoE application scenario in a Smart Building

Main features

- Multi-Protocol: wireless and wired
- Digital and Analog IOs on board
- Internal SIM card
- Compact and fan-less design
- Easy to install
- Powerful ARM Cortex A7 up to @1GHz
- Linux OS distribution
- Up to 2GB RAM and 128GB Flash
- External antenna connectors
- OTA Upgradable
- Interoperable with third-party SW middlewares, frameworks and tools

Typical applications

- Smart Grid and Building management
- Industrial automation, smart agriculture, smart cities
- Utilities: electricity, water, heating, gas
- IoT Networks

Description

Designed with Interoperability in mind, GIoE is a powerful multi-protocol edge computer that allows full configurability, modularity and scalability. GIoE can be used in combination with third-party software, running both locally or in the cloud, for the implementation of an integrated management and control system. It is compliant with «frameworks» such as OSGI OpenHab and tools (MQTT, REST / API, NODE-RED, HomeAssistant, OPC-UA, etc.), as well as with FIN FRAMEWORK by J2Innovations (a Siemens company), IBM Edge Application Manager, AWS IoT GreenGrass.

Thanks to its computational and storage capacity, It can run algorithms of all types and it is also able to receive and store data provided by 1G and 2G electricity meters via Power Line Communication can be used as an edge computer but also as a smart gateway/hub, equipped with up to 12 communication protocols (customizable outfitting, from basic to full version).

General Features	
	ARM Cortex A7 dual core @1GHz processor
	1 (up to 2) GB DDR3 RAM
	8 (up to 32) GB onboard Flash
	up to 128 GB microSDHC internal memory
	up to 128 GB microSDHC externally accessible (without removing enclosure)
	Real Time Clock (72 hours backup)
	Linux Embedded & JVM, OTA upgrade capable, OSGi compliant, FIN™ FRAMEWORK, IBM EDGE and other software package
	MQTT publication/subscription
	Web Server on board for a local interaction for: - gateway/hub/edge computer configuration - local device configuration - data monitoring
	3 push buttons (Power On/off, programmable function key, WPS)
	1 cold reset button
	1 RGB LED for smart visualization programmable events
	4 status LED: 1 power state (power on/battery low), LAN/Internet, LDN (Local Device Network), M2M connection
	1x RGB 40 pin connector for external RGB touch panel (custom adapter needed)
	1x HDMI 1.4 port
Connectivity	
Wired	1x Gbit Ethernet (RJ-45) + 1x Fast Ethernet [10/100 Mbps] (RJ-45)
	2x isolated (5kV) RS485 ports (female socket - mating with pluggable terminal block- screw type)
	1x CAN Bus
	4x USB 2.0 Host Ports *Note: one of this can be used to communicate with electricity smart meters 1G by e-distribuzione, by means of "Smart-Info", or also smart meters 2G using Beeta Power with custom cable; in case of 2G "chain2" (Band C, by e-distribuzione with the following features: C Band, Interface: H1, compliant with CEI CEN / CLC / ETSI / TR 50572 standards; EN 62056-7-5 (updateable for two-way mode); application layer compliant with the DLMS standard COSEM IEC 62056-5-3; data model compliant with the DLMS COSEM standard (IEC 62056-6-1 obis, classes of interfaces compliant with the IEC 62056-6-2 standard).*
Wireless	Embedded Wi-Fi 802.11b/g/n with internal antenna
	Embedded Bluetooth 2.1/3.0 EDR/4.2 BLE with internal antenna (same antenna as Wi-Fi)
	Embedded NB-IoT (cat NB1) or alternately 2G/3G/4G with SMA side connectors for antenna (diversity scheme); optional GPS inside (with its own SMA side connector for antenna)
	Embedded 169MHz WM-Bus with SMA side connector
Input/output	
Input	4xS0 female socket (mating with pluggable terminal block- screw type)
	2x Dry Contact inputs (internal pullup/down) female socket (mating with pluggable terminal block- screw type)
	4x programmable ADC inputs free combination programmable through software: 0-20mA / 0-40mA / 4-20mA @ 0-10VDC / 0-5VDC
	3x RTD sensors inputs (PT100 or PT1000 selectable by DIP-switch)
	2x K thermocouple connectors
Output	2x Open Collector (max 80 Vdc and 80 mA) 3,75 kVrms optical isolation, PWM capable (up to 4 kHz) female socket (mating with pluggable terminal block-screw type)
Environment	
Operating	Temperature Range -40÷85 °C, RH range 5%-55% not condensing *
Storage	Temperature Range -40÷85 °C, RH range 5%-90% not condensing
Power	
Input Power	5,5 ~ 24 Vdc input power (external 12 V with battery backup suggested; 3,8 A rated), female socket (mating with pluggable terminal block)
P2P Encryption	
Wired	Optional Trusted Platform Module (TPM 1.2) soldered chip
Case	
Material	Plastic (ABS or optionally other) 9M DIN-RAIL mount and screws wall mount
Dimensions	Dimensions: 159mm x 90mm x 58mm (without external antennas); weight 0,5 kg

* There could be a degradation of performance of wireless communication when it occurs between devices operating at the opposite extremes of the operating temperature range.

Note: Customizations of the product are available upon request, e.g. internal battery, WM-Bus @868MHz, 802.11ac Wi-Fi Module, Wi-Fi and Bluetooth Optional ipex connector for external antenna etc

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