

EXYS9200-SNG



Multi-protocol Sensor Network Gateway

The EXYS9200-SNG is a smart multi-protocol Gateway with unique hybrid characteristics, targeting applications in Home Automation, e-Health, Robotics (ROS) and the Internet of Things. Its main features include supporting of the most modern domotic communication protocols (Z-Wave, Bluetooth, ZigBee), a wide range of data communication technologies, cabled and wireless (Wi-Fi, Ethernet, USB), a security by design architecture, a local semantic database and advanced AI algorithms processing capabilities, together with intuitive easy-to-use Web-based remote configuration software and management UI.

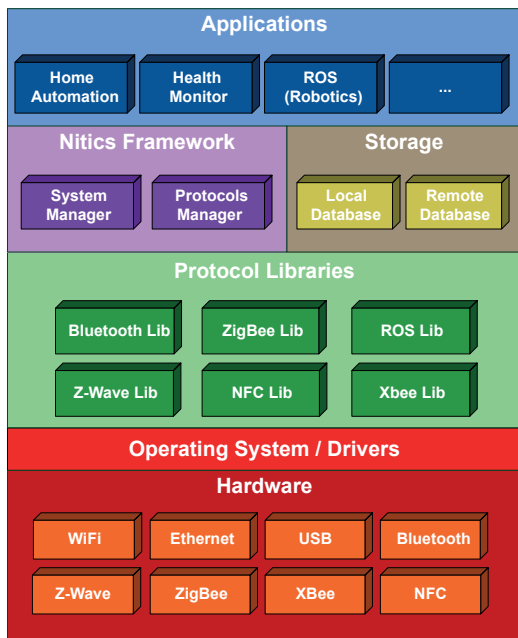
Modular and expandable architecture

The EXYS9200-SNG is conceived to be highly modular and expandable. Its intrinsic modularity is architected having in mind the customer's request of customized sensor networking solutions, and with the aim to satisfy the operator's specific system and business needs. The system is designed to be a composition of functional modules, which can be selected and individually managed based on specific needs and requirements, allowing the end user to easily configure a system containing only the necessary components.

Features

- Based on a performing state-of-the art embedded platform.
- Hybrid technology, aimed at applications in Domotics, e-Health, and IoT.
- Fully compliant with ROS (Robot Operating System).
- LAN, WAN, USB, Wi-Fi connections.
- Integration of local semantic database empowered by machine learning / AI algorithms.
- Communication with external servers and clouds.
- Flexible modular architecture, allowing to add new hardware/software modules and services.
- Secure by design conception.
- Secure communication (VPN).
- Authentication, privacy and cryptography.
- Unified open source web-based management user interface.

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Layered architecture and Component modules

The EXYS9200-SNG adopts a rigorous layered architecture, assuring system integrity and availability.

AI module

The EXYS9200-SNG integrates a fast semantic database and a configurable rule-based AI expert system, enabling all the applications to react to stimuli in a planned way. Optionally, a machine learning algorithm allows the rules to be autonomously assimilated by the system.

Security

Communication at all levels is securized: from sensors to the gateway and from the gateway to users and to IoT systems (https, VPN). Encryption of personal information, user authentication is supported.

Specifications

Communication protocols

- Z-Wave module.
- ZigBee module.
- Xbee module.
- Bluetooth 2, 3, 4 and LE.
- Near field communication (NFC).
- Wi-Fi 802.11 a/b/g/n.

Hardware

- CPU: AMD G series T40E APU, 1 GHz dual core, 64 bit support, 32K data, 32K instruction, 512KB L2 cache per core.
- DRAM: 4 GB DDR3-1066 DRAM with 64 bit bus.
- Storage: 16GB m-SATA SSD.
- Expansions: 2 miniPCI express.
- Connectivity: 3 Gigabit Ethernet ports, 2 USB-3 ports.
- Power supply 12V 1500mA.

Applications

Home Automation

The EXYS9200-SNG allows to design, configure and manage domotic sensor networks, based on state of the art protocols like Z-Wave and ZigBee. The system supports bidirectional communication, enabling data gathering from sensors as well as activation of actuators. Several network topologies are supported, enabling the user to create effective Home Automation ecosystems.

e-Health

The EXYS9200-SNG is compliant with the Bluetooth Health Device profile (HDP-BT), which supports the vast majority of existing e-Health equipments. The BT 4 LE (Low Energy) is particularly adapted to applications where wearable devices are needed. Encrypted communication guarantees secured data communication between the gateway and the devices.

Robotics and Internet of Thing

The EXYS9200-SNG supports the widespread openHAB 2 automation platform and uses the openHAB IoT-bridge plugin to establish a bidirectional communication with IoT systems. The same module enables the gateway to talk with the Robot Operating System. The EXYS9000-SNG fully supports ROS, which is a de facto standard in modern personal robotics.

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