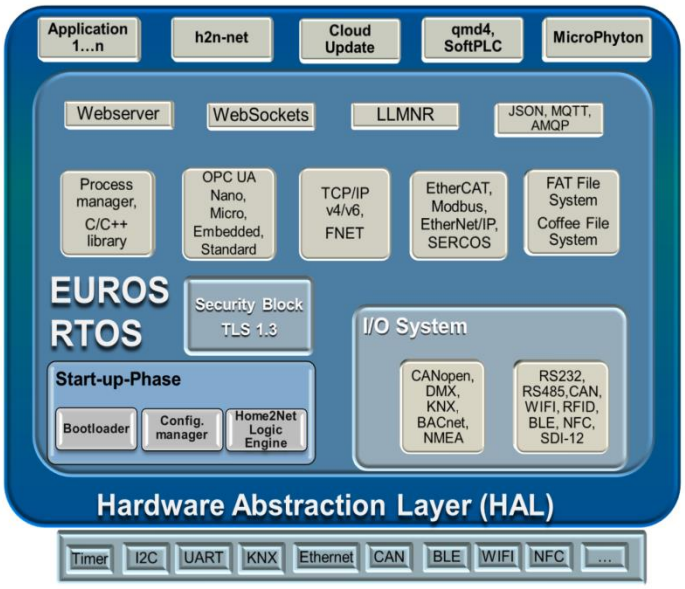
Industrial IoT Suite

EUROS Embedded Systems GmbH offers a complete solution for the requirements of the Industrial Internet of Things (IoT) of tomorrow: Full integration between embedded home or industrial automation devices and powerful cloud services.

The offered Industrial IoT platform comprises the required system software running on the low power cloud-enabled device of the company home2net, a cloud infrastructure supporting TLS 1.3 security connection and a corresponding app control interface.



It is complemented by both a scalable embedded OPC UA Server and a SoftPLC using a standard HTML5 browser for programming.

Since the connection to the cloud operates without using gateways, this solution provides the highest possible end-to-end level of security.

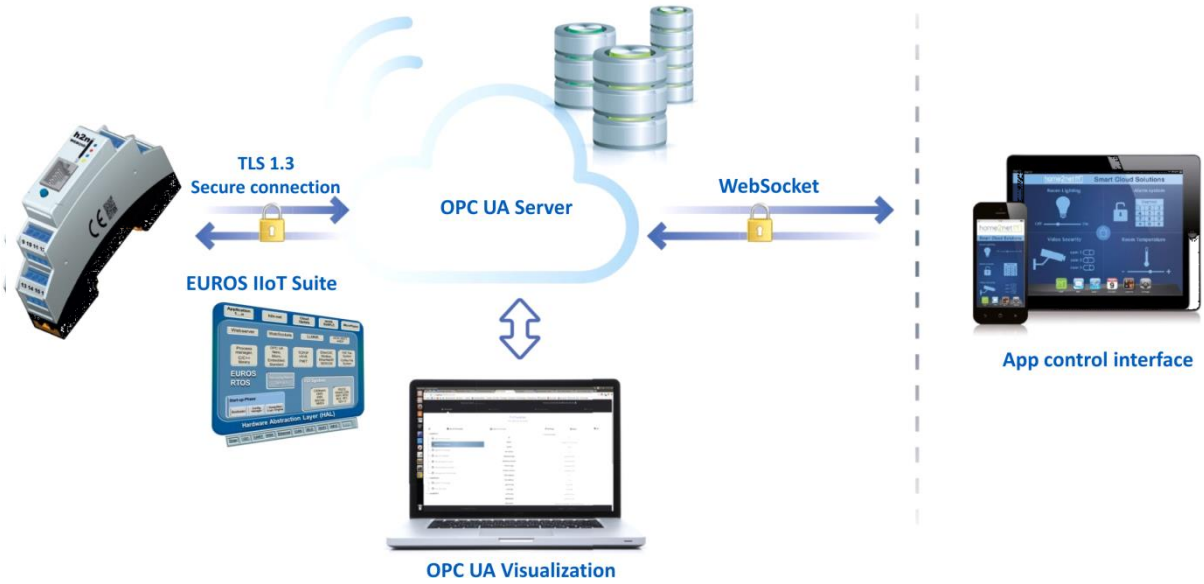
The offered OPC UA stack is available in two implementations: As a scalable embedded solution providing Nano, Micro, Embedded or Standard profile and as a cloud-based solution. In the second case all kind of data gathered from the connected device are transmitted to the OPC UA server and can be controlled and monitored as classified OPC UA objects directly from the cloud.

The provided embedded hardware device - referred to as web@ctrl1 - routes serial interfaces (RS232/RS485), digital or analog inputs to the Ethernet and connects in this way the available peripherals to the cloud. Additional Interfaces like CAN, I2C, 1-Wire, KNX are available for OEM versions of the product. The web@ctrl1 device can optionally support protocols like Wi-Fi®, Bluetooth® Low Energy, Modbus, DMX, etc.

Cloud-based device configuration and software downloads to multiple devices are also supported. In contrast to conventional products, which respond to arbitrary connections from the Internet - a circumstance imposing a high security risk - the offered embedded device establishes a secure connection only to a known cloud server either on the local network or on the Internet. The server then allows for a safely connection to the device using state of the art encryption technology. This enables private interconnection of multiple controllers and offers sophisticated visualization and services that are not possible with traditional control devices.

The user interface runs on a smartphone or tablet which is connected to the cloud via a preconfigured app. In addition, a universal cross development environment referred to as EUROS Embedded Studio®, comprising project management, debugging facilities as well as additional profiling tools, facilitates the system configuration. The developer can easily configure an individual, application-specific set-up of the required system software, including the scalable RTOS EUROS, all driver packages, network protocols, middleware, etc. Since the EUROS Embedded Studio® is Esclipse-based it can be run either on Linux or Windows hosts. It speeds up the development process and at the same time minimizes errors in the entire development cycle – from automatically generating code and board support packages to performing static and dynamic analysis on the application code.

By using cloud services the developed PLC code can be downloaded to the target PLC device. On site, a PLC runtime system – referred to as q4PLC – takes the responsibility for scheduling and running the PLC code and providing access to the physical world via sensors and actuators. Because of its inherent design build around the HTML5 standard, a software installation of the q4Logix on the user devices is not necessary. The application is simply loaded from a web server. The latter can be hosted in different environments. One alternative is to run the server in your local network, clearly separated and not accessible from the outside world. It is even possible to install and run the web server on your local computer.



This shortens the development time significantly while at the same time increasing the development productivity.

In addition, any modern web browser supporting HTML5 can be used for development, programming and online-debugging of PLC applications. Even tablet computers and smartphones can be used for those purposes, being limited only by the size of their displays and the lack of mouse and keyboard.

The EUROS Industrial IoT solution offers a flexible, unified platform for all applications requiring cloud connectivity. Key feature for the universal fit of the EUROS Industrial IoT suite is the fine granular scalability of the EUROS RTOS complemented by a large number of firmware adaptations. Furthermore the offered easy to use, secure cloud access - without having to rely on maintenance-intensive gateways – adds ready to use cloud integration resulting in a higher availability and lower total cost of ownership.