Automation Solutions

Optimize your automation with u-mation Hardware and Software:

More Performance. Simplified.

Weidmüller

The easy way to Industrial IoT and automation

With our comprehensive and future-oriented portfolio

Innovative Industrial IoT and automation applications create significant added value for our customers. This value creation is primarily driven by software. Whether it's energy management, remote maintenance, predictive maintenance, asset management, or classic anomaly detection – all these use cases share a similar functionality: data is collected in the field, pre-processed at the machine (edge), converted into control commands, and communicated to a central location (cloud or on-premise system). There, the software visualizes and analyzes the data, turning it into added value. **From data to value.**

This approach works across various industry segments, from mechanical engineering and renewable energy to shipbuilding and smart agriculture. As an **enabler**, we offer you, our diverse customers, a comprehensive and universal **modular system** for Industrial IoT and automation. We cover all data levels „from data to value" with our **hardware, software, cloud applications and associated services.** Depending on the configuration and parameterization of individual components, different systems tailored to your application emerge.

Scalability

Everything is possible, nothing is mandatory – from individual components to a fully vertically integrated system. Scalability provides you with maximum flexibility and the ability to accommodate applications of varying complexity.

Openness

When it comes to partnerships, technologies and products, we believe in open source and de facto standards. In many of our Industrial IoT and automation projects we connect ecosystems, thus creating future-proof solutions and maximum flexibility.

Future-Oriented

By combining Industrial IoT and automation, we enable you to easily, efficiently and comprehensively unlock individual application areas and move step by step towards Industry 4.0.

Flexible Automation with Optional EDGE Applications

u-control WL2000 for compact and cost-optimized control

The u-control WL2000 controller is based on the compact design of the u-remote fieldbus coupler and offers maximum flexibility for implementing individual automation solutions. It is compatible with the u-remote portfolio and allows direct connection of I/O modules. Combined with our open operating system u-OS, it offers far more capabilities than just automation control.

The u-control WL2000 is equipped with an Ethernet-based fieldbus and one or optionally two TCP/IP interfaces. The controller also features an optional CAN interface. Furthermore, communication via Modbus TCP or OPC-UA protocols is possible through our u-OS operating system and the CODESYS Runtime App. A dual-core ARM A9 processor provides the computing power needed to handle simple EDGE functions alongside automation tasks. In addition to the battery-backed real-time clock, it also has a microSD card slot with up to 32 GB of storage space for your projects.

- Dual-core technology allows the separation of real-time applications and non-time-critical applications
- 512 MB RAM, 8 GB flash memory, and space for a microSD card with up to 32 GB
- I/O modules directly adaptable

Connecting OT and IT in perfect harmony

Modular controllers for industrial automation and IoT applications

As part of automation, more and more physical devices are being integrated into networks, promoting the trend of convergence between IT and OT systems.
The new modular control systems u-control M3000 and M4000 are paving the way for the future.

M3000 or M4000 – Which controller suits you?

With u-control M3000, automation solutions can be seamlessly integrated into the IoT. This powerful controller also functions as an edge device, providing local information within the network and can be expanded by connecting functional modules. u-control M4000 offers two additional CPU cores, four Ethernet interfaces, and more RAM, NV-RAM and extensive flash memory for complex edge computing in automation.

- Optional expansion with additional interfaces (fieldbuses, WiFi, LTE)
- Simple option to connect additional functional modules
- Multicore technology for independent installation
- M3000 with two CPU cores & M4000 with four CPU cores

Approvals:

Planned Approvals:

Discover modular control systems:
www.weidmueller.com/controls

Optimal Visualization and Operation

u-view Touch Panels: brilliant image quality – thoughtful design

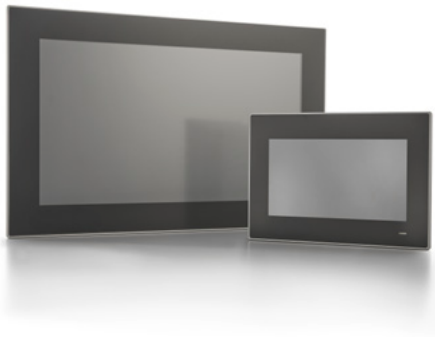
Touch panels make it easy to comfortably monitor and control machines and systems. Weidmüller's web-based HMIs and u-view, offer excellent image quality, performance and simple configuration. It can be used unrestrictedly in industrial environments due to their robust design and HTML5 support for various web servers.

The u-view product family includes two product lines:

Eco Line

Entry-level models with screen diagonals of 4.3", 7", and 10.1", resistive touch, 1x 10/100 Mbit/s Ethernet

- Optimised for standard web applications, economical design
- Durable plastic front with IP66 protection rating
- Simple and intuitive configuration



Advanced Line V2

Performance models with screen diagonals of 7", 10.1", 15.6", and 21.5", capacitive multitouch (gesture recognition), 2x 10/100/1000 Mbit/s Ethernet, 2x USB

- ARM® Cortex® A53 quad-core CPU-High performance and various interfaces
- Robust industrial quality with hardened glass front in protection class IP66 for harsh environments
- High graphic resolution with capacitive touch and gesture control
- Connection to several web servers simultaneously, different browser operating modes
- High-performance visualisation of even complex, web-based content, e.g. via PROCON Web

Approvals:

Discover u-view:
www.weidmueller.com/touch-panels

Maximum Efficiency in Decentralized Automation

u-remote offers more performance with increased flexibility

The modular I/O system is equipped with PUSH IN contacts throughout, enabling efficient and time-saving connection signal wiring. Conductors with a cross-section of up to 1.5 mm² can be connected to the 16 contacts per module. With a module width of 11.5 mm, this allows a very high connection density and a compact overall design. There is a general status LED at the top of all modules and a channel LED directly at the connection points, so that module and switching statuses can be recognized at a glance and the source can be identified as quickly as possible in the event of problems! With over 10 fieldbus/network protocols supported by the u-remote fieldbus couplers, comprehensive integration of existing field devices into almost all target systems is possible. This provides full flexibility for an adaptable I/O architecture and offers a comprehensive system for a wide range of applications.

- Identify problems immediately
- Fix issues faster through greater transparency
- Avoid system downtime

u-remote meets a broad spectrum of approvals and certifications worldwide, making it suitable for use in demanding target applications.

Approvals:

Discover IP20 I/O systems:
www.weidmueller.com/u-remote

Weidmüller's remote I/O system u-remote forms the reliable interface between the controller and the field level in automation. The modular system is built on various components: a fieldbus coupler, over 100 different I/O modules with various functionalities, optional power supply modules, and practical accessories like potential distribution modules.

The fieldbus coupler serves as the central link between the I/Os and various fieldbus/network standards. The innovative power supply concept allows a galvanic isolated input of 2 x 10 A at the coupler. Up to 64 active modules can be used per station. Each user has direct access to the u-remote station via a web server, without needing to install additional software. This allows for easy system configuration and checking/parameterizing inputs and outputs at any time. Necessary settings can be conveniently made through the appropriate development environments of the control systems and the device description files available online, such as GSDML, ESD, or XML.

Independence and Flexibility for your Machines and Systems

u-OS – the open operating system for Industrial IoT and automation

A significant development in digitalization is the convergence of various device classes. In automation, we can also observe how controllers, routers, and gateways increasingly blend together. In this context, the operating system plays a key role. Only if the latter allows integration of hardware and software as well as cloud and on-premises solutions the possibilities of automation and Industrial IoT can be combined in one device. u-OS, the open and independent operating system from Weidmüller, takes such a path.

u-OS fully realizes its potential on Weidmüller automation hardware, u-mation. Our approach is clear: u-OS is not just another ecosystem, but a platform that connects different ecosystems. This is the only way to integrate the possibilities of an edge application as diversely as simply. For example, benefit from efficient data preprocessing and precise control directly at the machine – easily – with u-OS in your individual OT/IT stack.

u-OS Apps:

The Linux-based operating system u-OS provides interfaces between custom software, industrial IoT, and automation technology. The app manager gives an overview of all installed apps and the option to install additional applications on u-OS. In addition to a range of Weidmüller products, solutions from our Weidmüller partners, such as Codesys as the largest independent ecosystem for automation, are also available. The apps work together without significant programming effort, saving time and reducing costs. Additionally, custom applications can be adapted on u-OS via API interfaces.

u-OS Data Hub

The basis for seamless linking between applications is the u-OS Data Hub, which forms the foundation for simple data exchange between individual applications.

Discover u-OS:
www.weidmueller.com/u-os

Open

Open interfaces at all levels ensure easy integration of custom applications, communication drivers, runtime environments, and cloud connections in u-OS.

Flexible

u-OS is expandable and allows customisation to individual needs. It covers the requirements of OT and IT applications on an OS in equal measure. The App Manager enables the simple installation of various automation and IOT applications.

Independent

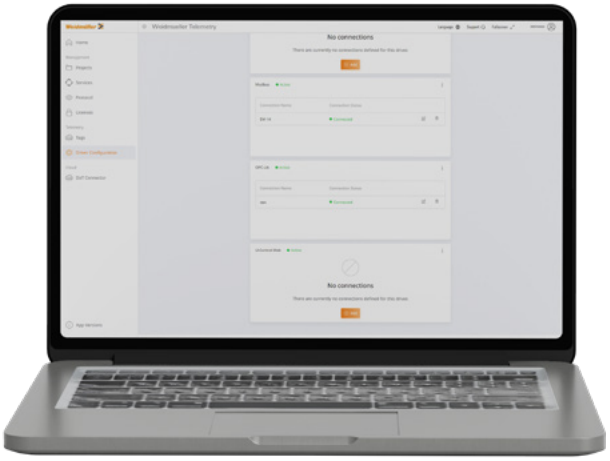
The use of established open standards such as Linux, container software, or OPC UA makes u-OS independent and future-proof. Dependence on a single vendor is avoided.

PROCON-Connect

Simple acquisition, preprocessing, and communication of data

Our PROCON-Connect enables the acquisition of machine data from different controllers. It also allows for local preprocessing and the use of machine data in other software systems, including through connectors and APIs.

PROCON-Connect facilitates various data- and service-oriented IIoT use cases. Connections to controllers, databases and interfaces to other software solutions are conveniently configured in the browser. In addition to the extensive driver portfolio for connecting controllers, PROCON-Connect relies on industrial-grade standards (e.g., InfluxDB or MQTT) and enables the use of machine data in Weidmüller solutions such as ResMa® and easyConnect.



Platform-Independent App

Easiest installation under u-OS via the App Manager, as well as on any hardware using Docker containers.

Open Standards and Interfaces

The communication drivers, database technologies, APIs, and cloud interfaces of PROCON-Connect are based on open standards (e.g., OPC UA, InfluxDB, or MQTT) and allow for seamless integration into the IIoT infrastructure in addition to our APIs.

Intuitive Web Engineering

Our PROCON-Connect can be completely parameterized in the browser at runtime. It supports engineering through project import and export functionality and provides extensive feedback to the user.

Discover PROCON-Connect:
www.weidmueller.com/procon-web-connect

Future-Proof Visualizations for IIoT Applications

PROCON-WEB Embedded Systems – the platform-independent HMI software

PROCON-WEB Embedded Systems is a platform-independent visualization solution that is ideal for use in modern IIoT applications. Due to its low system requirements it can be used on many different devices and is additionally available on Weidmüller controllers of the u-OS family through the app manager. Access to the HMI is conveniently done via HTML5-compatible browsers, allowing it to be accessed from various end devices.

Web-Based

Dynamic web interface with adaptive design and customizable control elements for preprocessing and visualization.

Configure Instead of Program

Simple engineering through the design tool, without web and programming knowledge. Portable and easy-to-parameterize HMI and IIoT solutions.

Platform-Independent Solution

Hardware independence leads to high performance with low resource requirements.

Discover PROCON-WEB Embedded Systems:
www.weidmueller.com/procon-web-es

Control Machines and Systems via Browser Interfaces

PROCON-WEB SCADA – the future-proof visualization solution

PROCON-WEB SCADA, as a Windows application for complex tasks, simplifies the design of modern multitouch-capable user interfaces for automation. The integrated web server allows the use of all HTML5-compatible browsers without special plug-ins.

The extensive portfolio of communication drivers facilitates connections with all common control systems. Standardized open interfaces ensure seamless integration into any IT environment.

Easy Creation of User Interfaces

Creating modern user interfaces is possible without knowledge of web technologies. Additionally, it features an adaptive design and customizable control elements.

Individual Control of Processes

Possible user management with user and rights management, including geographical rights assignment.

Future-Proof Solution

An intuitive user interface, supported by adaptive UX design and the use of the latest web technologies makes the solution particularly future-proof.

Discover PROCON-WEB SCADA:
www.weidmueller.com/procon-web-scada

Edge ML – Automated Machine Learning

Deploy ML models independently of hardware and operating systems

edgeML offers the possibility of integrating ML models into automation systems in a particularly simple and flexible way. A decisive advantage here is the complete independence from the underlying hardware. This allows systems or processes to be monitored continuously and efficiently with the help of machine learning. Our end-to-end industrial IoT and automation solutions therefore offer you comprehensive support in the areas of data acquisition, pre-processing, communication, data visualisation and analysis.

Easy integration on controllers

edgeML is available as an app for Weidmüller's open operating system u-OS and can be conveniently installed via the App Manager. In addition, edgeML is available as a Docker container, making it possible to install on third-party hardware.

Intuitive operation

edgeML supports MLOps for seamless integration into enterprise workflows. Its runtime also allows intuitive model management, including import and administration features.

Compatible with ONNX ML models

Alongside models created with Weidmüller's ModelBuilder, edgeML also enables the execution of ML models in the open ONNX standard.

Discover edgeML:
www.weidmueller.com/news-automl

ResMa® Software for Process and Energy Optimization

Optimize your processes holistically with the intelligent integration of energy management and Industrial IoT

ResMa® is an energy management software and a highly scalable solution that centrally collects data through connectors (data collectors) and offers a range of intelligent analysis and visualization options. This transforms raw data into valuable insights, moving from data to value. The capabilities of ResMa® extend far beyond simple energy management.The purpose is versatile and includes, among other things, the use as energy management software according to DIN EN ISO 50001, as product optimisation on the basis of production data and the possibility of integrating process visualization/HMI integration and data provision for external evaluation options such as AI tools. The software also contributes to reducing CO_2 emissions.

Transparency of Production

For all recorded measurement values, ResMa® provides comprehensive statistics for analysis, including metrics such as minimum, maximum, average, sum, and more.

Simple and Efficient Process Analysis

Detailed analysis with interactive, customizable charts enables the generation of meaningful key figures by incorporating production parameters or specifically applying energy usage and other production metrics.

Less Effort, More Control

Automated Evaluation:

- Visualization of energy flows through diagrams
- Use of mobile devices for quick notifications and status inquiries
- Centralized monitoring of all production halls or branches

Discover ResMa®:
www.weidmueller.com/resma-sl

u-link Remote Access Service – A Tool for Every Need

Enhanced Functions for Convenient Remote Access Management

Remote maintenance of machines and plants is often cumbersome and time-consuming. Additionally, there is a demand for targeted and secure functional integration with the associated IT systems. For many users, these two challenges pose significant obstacles to the global connectivity of installations.

u-link guarantees quick and secure access to machines and plants while enabling efficient management of production facilities, user clients, access rights, and firmware versions. You have the choice: Use u-link classic as a web-based portal application or u-link on easyConnect, our cloud-based Industrial Service Platform.

Minimal Configuration Effort

Thanks to the intuitively operable interface, devices and clients can be connected easily and without detailed IT knowledge. This allows for quick networking of multiple installations with u-link.

Secure Remote Access and Diagnostics

Remote access to machines and systems is achieved through a secure VPN connection – globally and regardless of location. Through high-availability servers, you always have secure access to your installations.

Condition Monitoring and Status Reporting

With the Weidmüller Heartbeat, the availability of a router connected to u-link can be reported. This facilitates condition monitoring and enables status notifications from the installed router.

Discover remote access:
www.weidmueller.com/u-link

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Weidmüller – Your partner in Smart Industrial Connectivity

As experienced experts we support our customers and partners around the world with products, solutions and services in the industrial environment of power, signal and data. We are at home in their industries and markets and know the technological challenges of tomorrow. We are therefore continuously developing innovative, sustainable and useful solutions for their individual needs. Together we set standards in Smart Industrial Connectivity.

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