SIEMENS

WIRELESS COMMUNICATION

Industrial Wireless LAN (IWLAN) –

WLAN for industry

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Unlimited communication

The Industrial Wireless LAN from Siemens

Reliable, high-performance wireless communication provides the foundation for a completely new dimension in flexibility and efficiency in industrial settings – and thus for future-proof plants and applications that fully tap the potential of the IIoT (Industrial Internet of Things). Wireless LAN connections make machines and devices freely movable, enabling them to be positioned to meet any requirements. This pays off right from the plant and process planning stage and provides tangible benefits in operations in all industries.

Industrial requirements for wireless communication networks, however, far exceed the capabilities of standard commercial WLAN. Special industrial protocols like PROFINET, PROFIsafe, and EtherNet/IP need to be supported in order to enable field devices to communicate smoothly with each other. At the same time, real-time communication and redundancy are frequently indispensable for reliably meeting the critical requirements of demanding industrial applica-

tions, ensuring high-availability transmission of data, and guaranteeing _personal safety_. And it goes without saying that communication also has to function reliably at all times, even in particularly harsh conditions.

It's precisely these high demands posed by the industrial environment that Industrial Wireless LAN (IWLAN), which Siemens helped to develop, is designed to meet. With the SCALANCE W IWLAN components, additional industrial features (iFeatures), and _professional services_, you get an end-to-end, scalable portfolio of hardware, software, and services – a precisely customized solution for indoor and outdoor Industrial WLAN. It's a multi-industry portfolio that covers the _automotive_, _intralogistics_, healthcare, and _transportation_ environments in addition to crane applications, overhead monorails, and automated guided vehicle systems (AGV).

Decisive benefits for industrial applications

Maximum flexibility

IWLAN releases the full potential of digitalization and Industry 4.0. It paves the way for the modular factory and mobile devices like robots and automated guided vehicle systems (AGV), enables innovative mobile control solutions, and eliminates rigid plant configurations. This means that you can respond significantly faster to new market demands.

Maximum scalability

IWLAN grows along with you. From a small sub-application with a single Access Point and a single Client Module to wireless communication throughout a complete factory with central management: Every possible custom configuration can be implemented, with no need to make system changes. This means that you can easily modify your IWLAN at any time to suit your current needs.

Maximum future-proofing

WLAN is based on the international WLAN standard IEEE 802.11, which benefits from continuous innovation and is the world's most widespread wireless standard. Its main focus is on compatibility: for example, WLAN clients using an older standard can be used in current networks and can also be seamlessly integrated into Ethernet-based networks. The long-term availability of IWLAN components and spare parts supplied by Siemens – which is vital for enabling industrial cycles – and the high quality of the components developed and manufactured in Germany guarantee the hardware's high level of availability.

Why IWLAN from Siemens?

As a company that's every bit at home in industrial automation as it is designing and implementing communication networks, Siemens has recognized the potential of wireless communication for industry for more than 20 years. We have spent this time doing pioneering work to develop optimal IWLAN solutions specifically focused on the demands of applications in industrial settings. A special highlight from Siemens is the ability to implement critical _safety applications_ via WLAN. That's why IWLAN products and solutions from Siemens are impressing customers with their unique industrial compatibility, even under the toughest conditions. And that's worldwide, since all devices come with the necessary international approvals, and both OEMs and end customers benefit from direct on-site support in their own countries.

Wi-Fi 6 –
The next generation of WLAN

The WLAN standard _IEEE 802.11ax_, also known as Wi-Fi 6, enables much better performance. Higher data rates can be achieved with a significantly better balance between the constantly growing number of network participants. This means that net data rate is distributed more evenly between participants. And data transmission is even more efficient. _Wi-Fi 6_ thus opens up new opportunities for applications like wireless networking between mobile robots and autonomous logistics systems with extensive automated guided vehicle (AGV) fleets.

Redundancy via IWLAN

With _iFeatures_, Siemens is expanding Wi-Fi 6 to include key additional industry-specific functions. One example is the IWLAN iFeature iPRP (_industrial Parallel Redundancy Protocol_). It expands PRP redundancy technology – which has been proven in cable-based Ethernet – to cover wireless data transmission. That enables high-availability applications with redundancy over IWLAN. With SCALANCE W Access Points and Client Modules for Wi-Fi 6, you can be confident that your flexible wireless applications will be future-proof – and you can start immediately.

Smart functions for many industries

Complete IWLAN solutions from a single source

Both the hardware and software in the network components need to meet special requirements for industrial wireless communication. Professional service and support are also indispensable.

Our _SCALANCE W_ product range and _professional services_, certified solution partners, and our in-house experts create a secure foundation for developing and operating an IWLAN solution tailored to your specific requirements. The offering is complemented by another in-house product, _Certification Trainings_.

At the heart of our extensive hardware portfolio are the two core components of an industrial wireless LAN: Access Points and Client Modules uniquely suited for industrial use that provide the desired performance even in the harshest conditions.

The large variety of components and wide range of use cases gives you a product selection that will perfectly suit your specific requirements in terms of scope of services and features – for price-sensitive applications and also for high-performance applications with the most demanding specification profile.

The devices are equipped with slots for practical PLUG and CLP removable storage media. This makes replacing devices easy and also lets you activate the _iFeatures_ that we developed for the industry. Our perfectly coordinated antennas and RCoax radiating cables are tested to guarantee that they work well together and that you get a reliable site survey for all use cases.
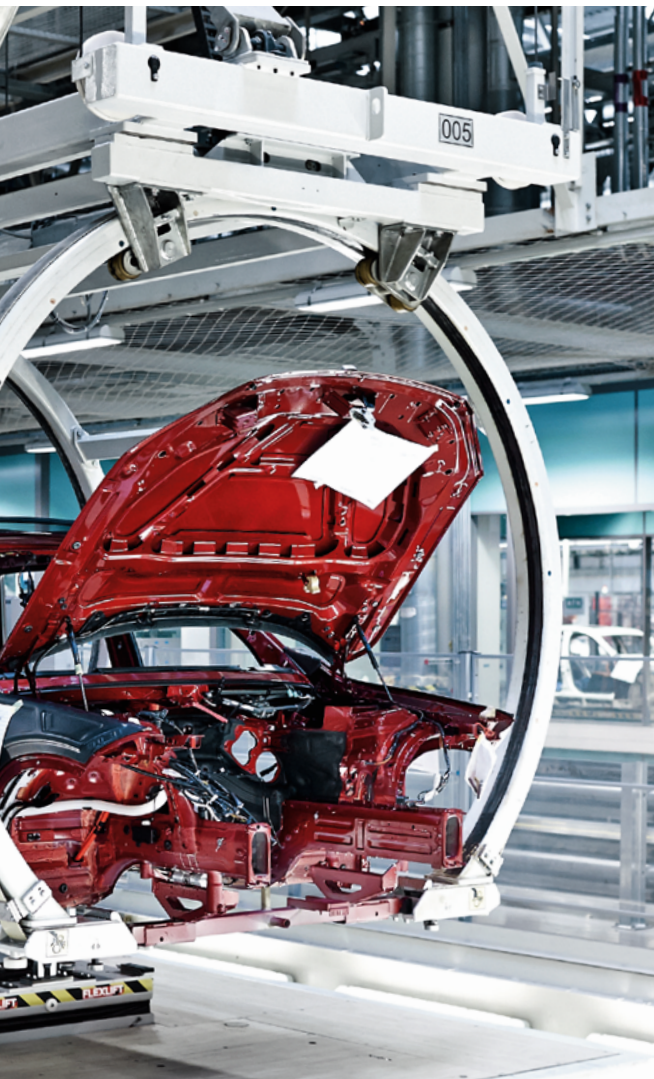
Supported frequencies

You have a choice between two frequency bands, 2.4 GHz and 5 GHz, in wireless networks in compliance with the IEEE 802.11 standard.

Data transmission rate

With our SCALANCE W components, you can master all data volumes. Whether it's 150 Mbit/s, 300 Mbit/s, 450 Mbit/s, or even as high as 1,733 Mbit/s, our SCALANCE W portfolio offers you the full range of data transmission rates to meet your requirements.

Perfectly coordinated antennas and accessories

Omnidirectional antennas, directional antennas, and a low-maintenance RCoax solution for special applications: Our SCALANCE W portfolio contains the right antennas and accessories for every application.

Clever additional industrial functions

Our iFeatures were especially developed for industrial applications and substantially expand the options offered by IWLAN. For example, iPCF/iPCF-MC enables reliable (PROFINET) real-time communication via WLAN in applications with freely movable clients. It even comes with PROFIsafe for safety communication when personal safety is a factor. With iPRP you can also achieve a high level of availability thanks to seamless redundancy via WLAN.

Resistance

IWLAN needs to function reliably at all times, even in extremely harsh environmental conditions or outdoors. Our robust devices feature a high degree of protection and special certifications that cover extended environmental conditions, including rail applications and potentially explosive areas – allowing you to manage even the most challenging demands.

Safety over Wireless – scalable

PROFIsafe communication that guarantees personal safety is critical in many applications. Our IWLAN solutions make this safety communication scalable to any level you require – even universally for major systems.

Network management, services, and training courses

The integrated, web-based management of our SCALANCE devices makes it remarkably easy to set up, configure, and operate your IWLAN network. But if you want to configure and monitor several devices centrally using policy-based principles, our Network Management System *SINEC NMS* will make things even easier. Our experts will also provide you with individual support if required when designing, implementing, and maintaining your IWLAN. Our *professional services* include consulting on all aspects of your network design, commissioning, and servicing. The result is extra security and reliability thanks to a comprehensive solution comprising hardware, software, accessories, services, and network management – all from a single source.

If you want to build IWLAN skills in your business, you can obtain expertise direct from the manufacturer in our many *training sessions and certifications for industrial networks*. You will learn how to plan and implement industrial data networks and connect them to a corporate network. When you pass the test at the end of the course, you will receive a certificate as proof of your newly acquired knowledge.

Making the most of air

The unique SCALANCE W portfolio

SCALANCE W760 and W720

SCALANCE W770 and W730

SCALANCE W780 and W740

SCALANCE WAM760 and WUM760

1. Easy, compact solutions

For WLAN from the control cabinet

You can implement wireless networking of machines via WLAN easily and economically – with *SCALANCE W760 Access Points and SCALANCE W720 Client Modules*. The narrow, practical SIMATIC design lets you save space when installing the SCALANCE components in the control cabinet. This allows automation components like a *SIMATIC ET 200SP* to be easily and seamlessly integrated into an IWLAN network.

2. Demanding solutions

For indoors, outdoors, and harsh environments

SCALANCE W Access Points and Client Modules for demanding solutions can be used in many ways. In conjunction with additional industrial features (iFeatures), they create opportunities for utilization that far exceed those of standard WLAN – like wireless real-time communication that includes safety-based communication with a focus on personal safety or redundancy via WLAN.

Transfer data wirelessly from the control cabinet, or you can even use our devices in protection class IP65 outside the control cabinet. We also offer dedicated EEC versions of these products for use in very harsh or extended environmental conditions that require special certification (like rail applications).

Depending on where they are used and the application's communication requirements, different device classes prove extremely effective: The *SCALANCE W770 Access Points and SCALANCE W730 Client Modules* in a SIMATIC design reliably and flexibly implement wireless communication between the controller and an I/O system like the SIMATIC ET 200MP.

The *SCALANCE W780 Access Points and SCALANCE W740 Client Modules* with protection class IP30 are suitable for use in the control cabinet, whereas IP65 devices are also perfect for use outside the control cabinet and outdoors in harsh environmental conditions.

With the *SCALANCE WAM760 Access Points and SCALANCE WUM760 Client Modules*, you can transmit data in accordance with the current WLAN standard IEEE 802.11ax at up to 1,201 Mbit/s.

SCALANCE W1780 and W1740

SCALANCE WAM760 and WUM760

3. High-performance solutions

For particularly high bandwidths

You can use *SCALANCE W1780 Access Points and SCALANCE W1740 Client Modules* in accordance with WLAN standard IEEE 802.11ac Wave 2 (Wi-Fi 5) or *SCALANCE WAM760 Access Points and WUM760 Client Modules* in accordance with IEEE 802.11ax (Wi-Fi 6) even in harsh industrial environments to implement applications like high-performance video transmission, which requires very high bandwidths.

Multi-User MIMO technology lets you structure data flows for even more efficient data throughput. iFeatures can also be used to activate the additional industrial function iPRP on the devices. This allows you to create seamless redundancy via WLAN, which is important for mobile applications like autonomous guided vehicles (AGV) and rail applications.

We offer dedicated EEC versions of these products for use in particularly harsh or extended environmental conditions that require special certification (including rail applications).

IWLAN accessories

Antennas

Antennas that are coordinated with our Access Points and Client Modules and designed for industrial use ensure optimal signal reception and reliable communication in all applications. They are suitable for any type of wireless field architecture, either indoor or outdoor, and for special requirements. Our extensive range of omnidirectional, directional, and sector antennas lets you design your wireless network flawlessly right from the start. This means that you will avoid dead spots from the outset, and you will benefit from extremely fast commissioning.

↗ *Find out more about our antennas*

↗ *Even more details, including ordering overview*

↗ *Information on assembly accessories and IWLAN cabling systems*
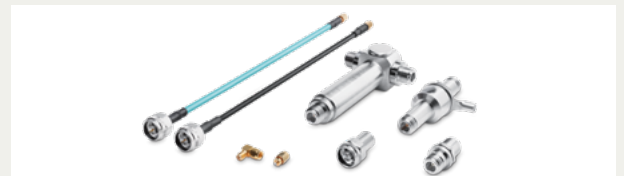

RCoax radiating cables

With RCoax technology, you can get the most out of the performance offered by wireless LAN even in technically demanding environments and applications. The robust, easy-to-install RCoax radiating cables are laid along the route used by the relevant network participants equipped with Client Modules, where they provide a reliable wireless connection thanks to their special radiation properties.

RCoax solutions – which can also be installed in potentially explosive areas (Zone 2) – are especially suitable for crane applications, elevators, and rail vehicles like overhead monorails.

↗ *Find out more about radiating cables*

↗ *Even more details, including ordering overview*
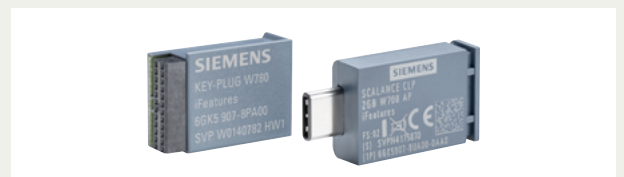
PLUGs for Access Points and Client Modules

The C-PLUG, KEY-PLUG, and SCALANCE CLP removable data storage media let you replace SCALANCE devices with no need for either specialist knowledge or reconfiguration: Just remove the media from the faulty device, install the replacement device, and reinsert the removable media. This saves time and ensures a high level of availability by keeping downtime to a minimum.

CLPs and KEY-PLUGs also let you activate our smart iFeatures (additional industrial functions) designed especially for industrial applications.

↗ *Find out more about PLUGs and CLPs*

Subject to changes and errors. The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.

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Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement and continuously maintain a holistic, state-of-the-art industrial security concept. Siemens' products and solutions only form one element of such a concept. Customer is responsible to prevent unauthorized access to its plants, systems, machines and networks.

Systems, machines and components should only be connected to the enterprise network or the Internet if and to the extent necessary and with appropriate security measures (e.g. use of firewalls and network segmentation) in place. Additionally, Siemens' guidance on appropriate security measures should be taken into account. For more information about industrial security, please visit

siemens.com/industrialsecurity

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends to apply product updates as soon as available and to always use the latest product versions. Use of product versions that are no longer supported, and failure to apply latest updates may increase customer's exposure to cyber threats.

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