SIMATIC Mobile Panels and IWLAN help you to keep a close eye on the process and the emergency stop button at all times.

Answers for industry.
Wireless operation and monitoring: complete security – anytime, anywhere

Whether during setup or maintenance, or in productive operation: flexibility and comprehensive information at the machine are important factors in order to reduce costs, improve production efficiency and increase availability throughout the system. The conditions for this are created by portable, wireless operating devices. These provide visual contact with the process and immediate access to precise information, making it possible to respond to specific situations instantaneously.

If additional safety functions need to be monitored – for humans, machines and the environment – it used to be possible only for wired operating devices to be used for mobile operation and monitoring. This does not have to be the case, as shown by the innovative SIMATIC Mobile Panels 277 IWLAN from Siemens.

A world first from the world market leader

As the world market leader in operating and monitoring, Siemens offers the SIMATIC Mobile Panel 277 IWLAN, the first wireless operating device with full HMI and safety functionality. This innovative Mobile Panel meets the highest requirements in terms of flexibility and security. It combines three technologies of Totally Integrated Automation, the open system architecture from Siemens: namely mobile operation and monitoring, Industrial Wireless LAN (IWLAN) and integrated safety.

Highlights at a glance

The SIMATIC Mobile Panel 277 IWLAN offers you a wealth of crucial benefits, regardless of sector or application:

- The latest IWLAN communication capability based on PROFINET, the leading industrial Ethernet standard
- Mobile use at all operating locations in the plant with direct visual contact to the process
- Safety Integrated – emergency stop and acknowledgment buttons for safe operation to SIL 3/PL e
- High availability due to extremely fast transfer of (safety-critical) radio signals from one access point to another (Rapid Roaming)
- Flexible configuration of effective ranges and zones using the display software SIMATIC WinCC flexible
The smart alternative for numerous applications

Continuous visual contact with the process, and emergency stop button always on hand in case of incidents: with our Mobile Panels 277 IWLAN you can rely on wireless operation and monitoring – even for safety-critical applications. Particularly in the case of extensive manufacturing facilities and system components that are difficult to access, this offers enormous advantages which, even today, are benefiting well-known companies – with a wealth of applications.

Samsonite: fail-safe mobile operation and monitoring in the logistics center

For around 100 years, Samsonite has been a world market leader in innovative travel products and accessories. The company’s European headquarters is in Oudenaarde in Belgium. This is also where the logistics center for the European market is based. A year after the successful modernization of a central sorter, Samsonite implemented an additional PROFINET-based automation solution in a new logistics center in Belgium – complete with safety system and wireless operation. A wireless, fail-safe SIMATIC Mobile Panel 277F IWLAN is now used for flexible, on-site operation of the sorter in the slow-mover warehouse.

Schnorpfeil: greater productivity in quarrying with SIMATIC Mobile Panel 277 IWLAN

The company Schnorpfeil in Treis-Karden on the Mosel operates one of the most modern quarries in Germany. Mosel graywacke, a material which is popular for representative internal and external masonry, is extracted there. The roughly hewn stones are individually worked by stone carvers and therefore retain their unique quality. Graywacke is also used in roadbuilding as bulk material of different granular sizes. The special feature of the bulk-material collecting process is an automation solution which enables the operators to achieve extraordinarily high productivity. The key to this is the SIMATIC Mobile Panel 277 IWLAN, with which IWLAN technology is used in a quarry for the first time.

Further references on the Internet at: www.siemens.de/simatic-mobile-panels
Examples of application

Set-up processes
Installation or set-up processes on machines can be carried out directly on site by a member of staff. In conventional solutions, two persons would be needed to do this – working on call, which always represents an increased safety risk.

Conveyor technology
Systems with extensive transfer sections and production lines, e.g. conveyer belt systems, can be operated with just one device. The unrestricted freedom of movement means that multiple stationary solutions are no longer necessary.

Large-scale production systems
Complex systems, e.g. overhead conveyers, can be operated via a single device. This is particularly useful for service and maintenance. Even areas that are difficult to access can easily be reached with the mobile operating devices.

Complex and encapsulated machines
Systems which are encapsulated as a requirement of the process, e.g. in the chemical industry, can be operated and monitored from all sides with just one device. By configuring zones and effective ranges, it is possible to define and operate clear operating areas in a targeted way.

Extreme environments
In applications with extreme environmental conditions, e.g. heavy soiling or extremes of temperature, the device is exposed to these conditions only during operation and monitoring. This increases the life of the panel.
SIMATIC Mobile Panel 277 IWLAN: ergonomic, efficient and robust

With the SIMATIC Mobile Panel 277 IWLAN you can rely on maximum flexibility and maximum user convenience. Thanks to its high IP65 degree of protection, it is dust-proof and splash-proof and its dual-walled construction and rounded casing make it extremely shock-resistant. This innovative device may be supplied with and without safety functionality and offers you a wealth of advantages.

Flexible
- Industrial wireless LAN communication supported by PROFINET / PROFIsafe
- Simple configuration of effective areas / zones with the innovative engineering software WinCC flexible
- Powerful batteries and flexible concept for replacing batteries
- 6 MB user memory – expandable via MMC/SD card slot

Robust
- IP65 degree of protection
- Particularly shock-resistant (from a height of up to 1.2 m) thanks to its dual-walled construction and rounded casing
- Emergency stop button with "protective collar" protects against unintentional triggering or damage if dropped

Safe
- Fail-safe variants with two 3-stage acknowledgment buttons (safety switch) and an emergency stop button
- Use of transponders to delimit the effective area or RFID technology for local identification of the device
- Definition of HMI authorizations for specific persons and locations
- Safety certification according to SIL 3 and PL e
- Key-operated switches guarantee authorized use

Convenient
- Brilliant 7.5" TFT touch display with 64,000 colors
- 18 function keys – these can also be configured as direct keys with rapid response time
- USB interface accessible from outside
- Ergonomically designed and lightweight for fatigue-free operation
- Clearly laid out and easily accessible operating elements
- Hand wheel for precise incremental operation
- Two ergonomic illuminated push-button keys for assigning to the most frequently used functions
New possibilities based on IWLAN

Wireless solutions based on IWLAN are becoming increasingly important in machines and systems. Where high demands are placed on communication, users rely on deterministic radio and the leading industrial Ethernet standard PROFINET. IWLAN and PROFINET, with fail-safe PROFIsafe profile, make safety-related communication possible – even wirelessly.

We offer you everything you need to implement reliable solutions on the basis of IWLAN. Our applications, tested by TÜV and IFA (institute for industrial health and safety), show that you can reliably reconcile safety and cost-savings with our range.

A plus for reliability: SCALANCE W

SCALANCE W is a complete product family for IWLAN with different Access Points and Client Modules as well as an extensive range of accessories. The robustness of all components sets the standard – whether used around machines, or in a demanding outdoor environment. The superior IP65 protection, resistance to vibration and reliable operation in temperatures ranging from -40 to +70 °C, are essential features of our product. It can even be expected to function perfectly in damp conditions.

SIMATIC Mobile Panels 277 IWLAN integrate superbly into the IWLAN infrastructure we offer – on the basis of the SCALANCE W Access Points. These enable WLAN networks of 2.4 GHz and 5 GHz, the latter especially designed for the industrial sector, to be constructed on the basis of PROFINET and PROFIsafe. In order to meet all industrial requirements, the standard WLAN may be expanded by a number of features. These include – for example – Rapid Roaming, i.e. the extremely fast handover of radio signals from one access point to another (also applies for safety-critical radio signals).

SINEMA E: plan IWLAN networks quickly and reliably

SINEMA E enables you to take complete control of your IWLAN network from planning through to start-up. The software generates complete topographies and three-dimensional scenarios, even for multi-story buildings. The simulation, which is accurate in every detail, makes it possible to determine the perfect interaction of all radio network users and to identify and take into account potential barriers - e.g. building-specific features such as partition walls or pillars, and other sources of interference – in a timely manner.
**Integrated safety function: SIMATIC Mobile Panel 277F IWLAN**

For applications with increased safety requirements for humans and machines, the SIMATIC Mobile Panel 277F (Failsafe) IWLAN with safety function is recommended. The device, which has IEC 61508 TÜV certification, facilitates compliance with the highest safety requirements according to the relevant standards: EN 954-1 to Category 4, EN 62061 to SIL 3 and EN ISO 13849-1 to PL e.

**Mobile operation and monitoring in IWLAN networks. The following variants are possible:**

- Operating and monitoring in entire IWLAN area
- Functionality as for stationary devices (user-oriented access protection).

**IWLAN range**
In the IWLAN range of the plant, the operating device communicates with a F-CPU in a fail-safe manner via a wireless local area network. The emergency stop button is effective in this range.

**Effective range**
The engineering software SIMATIC WinCC flexible can be used to define effective ranges within which the machine may be operated wirelessly. An effective range is physically formed using transponders which are installed in the vicinity of the machine. Each transponder transmits a unique ID, which is received by the operating device and enables it to determine the current position in the plant.

- Location-independent operation and monitoring possible: zones can be defined using transponders.
- In addition, operating and monitoring functions can be blocked or released – depending on the zone in which the user is located.

**Zone**
The user can define zones in which specific functions are configured - for example person-specific user authorizations for entering the zone. This is to ensure that specific parts of the machine are operated only by the employees authorized to do so. The project may be controlled on a location-dependent basis. For example, a picture change may be configured for entering or leaving a zone.

**As soon as the operating device is located within an effective range, the operator can log in with it. Following successful registration, failsafe operation of the part of the plant delimited by the effective range is possible using the acknowledgment buttons.**

**Rapid Roaming**
The device may also be used in large-scale plants that are covered by a number of Access Points. As soon as the contact to the currently connected Access Point deteriorates, it automatically switches to another one in range. This takes place by means of the iPCF-MC protocol (industrial Point Coordination Function with Management Channel) which was especially developed for this purpose, and which makes Rapid Roaming possible. Radio signals that are themselves safety-critical, such as from emergency stop or acknowledgment buttons, or direct keys, are transmitted so quickly that the smooth running of the application is not impaired by the roaming.
Your partner in IWLAN

We will support you in the planning and implementation of your IWLAN network and can help in all matters concerning safety requirements: with applicable fail-safe, TÜV-certified products and systems, and with our continuously updated knowledge of international standards and requirements. Below is an explanation of some of the terms used most frequently in connection with our IWLAN range.

Acknowledgment buttons and emergency stop
The device has two acknowledgment buttons with three switching stages integrated in the rear handle, and an emergency stop button which can be used in critical situations to deactivate the system instantaneously or to bring it to a safe state.

RFID tag device
For applications with alternative safety equipment (e.g. robot cells with fences, pressure-sensitive mats or light curtains), the SIMATIC Mobile Panel 277F IWLAN RFID tag device is available. The log-in for the relevant operating areas is done on the RFID tag by means of chip cards (Moby D Smart Cards). The cards are configured quickly and easily by means of a startup dialog in the Mobile Panel. All other device functions correspond to the transponder variants.

Fail-safe control and communication
The use of a fail-safe SIMATIC controller with the STEP 7 Distributed Safety optional package is necessary for the SIMATIC Mobile Panel 277F IWLAN. The controller allows standard and safety-related programs to be operated on just one CPU. The safety-related PROFINET profile, in combination with PROFINET, facilitates fail-safe communication via IWLAN to the SIMATIC Mobile Panel 277F IWLAN.

The following safety functions are available:

**EMERGENCY-STOP**
If the emergency stop button is activated, the F-CPU (for example) triggers the immediate shutdown of the machines allocated to it - irrespective of the effective areas.

**Shutdown**
If the F-CPU detects a communication fault on a Mobile Panel logged-in in the effective range, it (for example) triggers the immediate shutdown of the machines belonging to the effective area.

**Local rampdown**
If the Mobile Panel leaves the effective range for more than 25 seconds without logging off, the F-CPU (for example) triggers the rampdown of the machines in the effective range according to a defined procedure.

**Global rampdown**
In the event of a communication fault between F-CPU and Mobile Panel the F-CPU (for example) triggers a rampdown of the machine.

Safety Integrated: Highlights at a glance
With the SIMATIC Mobile Panel 277F IWLAN and the fail-safe SIMATIC automation system, you can take advantage of all the benefits of Safety Integrated: safety engineering that falls completely within the framework of Totally Integrated Automation. You will benefit from an integrated, total system of safety engineering and standard automation. Standardized engineering and continuous communication and diagnostics save considerable amounts of time and costs - in programming, startup and maintenance.

As your partner, we offer you support in all safety matters: not only with applicable fail-safe, TÜV-certified products and systems, but also with our continuously updated knowledge of international standards and requirements. We offer machine manufacturers and system operators an extensive range of training and services for the entire life-cycle of safety-related systems and machines.
Further information:
www.siemens.com/simatic-hmi