

Industrial wireless

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Wireless communications are preferred when working with moveable applications or difficult-to-reach areas. Currently, wireless LAN can be used for industrial manufacturing plants or facilities; it is ideal for use anywhere where traditional cabling is not suitable or where a mobile network connection is required. For example in logistics AGB (automatic guide vehicles) are connected over WLAN. Here it is important that roaming between different radio cells is possible, thereby creating an individually configurable radio coverage.

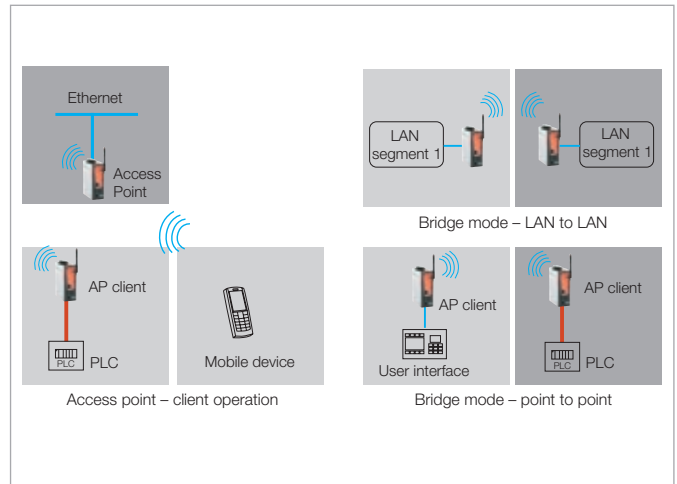
Weidmüller's versatile WLAN module can be used as an access point, bridge or client. It is quite simple to integrate into existing infrastructures because it has an alternative Power over Ethernet supply (using the data cable for the power supply).

Support for RADIUS services and WPA2 secure encryption guarantees that your data is fully protected. Multiple wireless zones can be set up so that clients can move with versatility by quickly roaming between the different radio/wireless cells. Multiple zones can be specified (multiple SSIDs) and different VLANs can be assigned for each wireless cell. This allows you to implement a one-to-one forwarding of the cable-based infrastructure to the wireless zone.



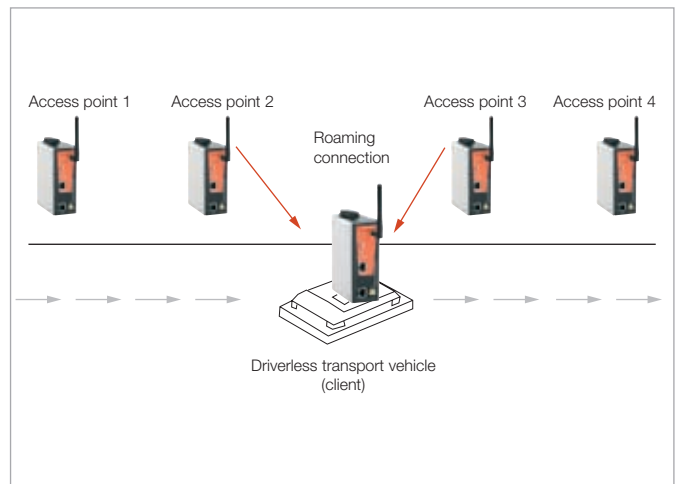
Wireless operating modes

The most common operating mode for wireless networks are AP client mode (Access Point) and bridge mode. A WLAN access point is needed and set up to create a Basic Service Set (BSS) for a wireless connection in AP client mode. The AP can be used to create a wireless LAN, or to connect an existing WLAN with a wired network. Bridge mode offers a simple way to connect two Ethernet devices over a point-to-point connection wirelessly with one another.



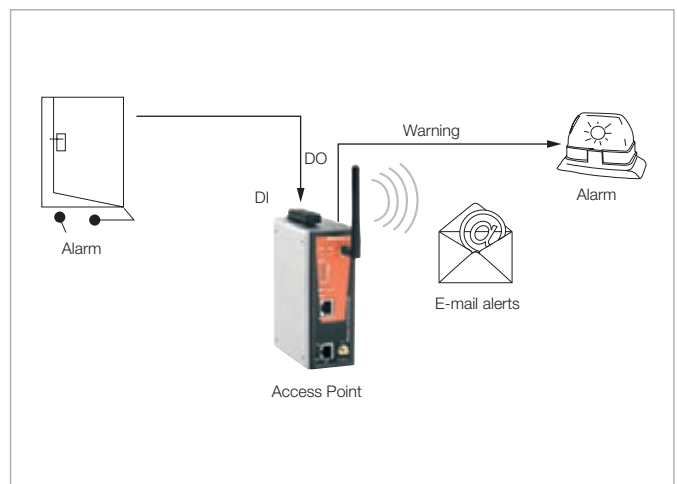
Turbo roaming for uninterrupted connections

A WLAN radio cell has a limited range depending on the antenna used. To maintain communications between devices which move over a long distance requires the connection to be passed from one access point to another. Performance can be affected where there are many moving devices and a large number of transfer points without powerful roaming technology. The roaming technology offers a seamless wireless connection and permits a swift change between different wireless access points without the risk of an interruption to the data communication.



Integrated digital inputs / outputs

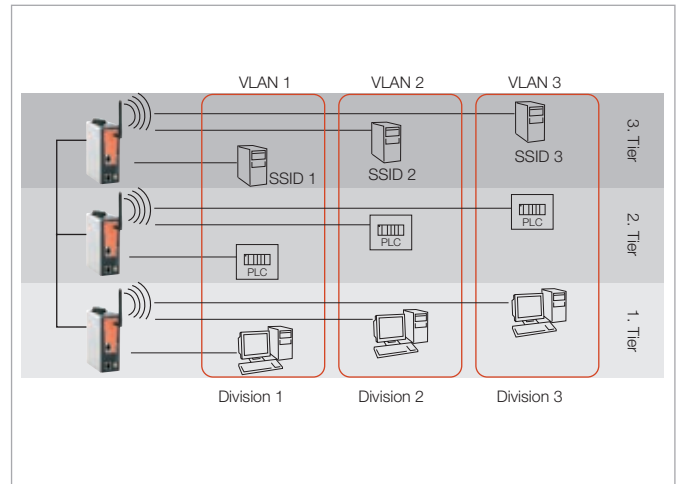
Wireless access points are often located in distant or inaccessible places in an industrial plant. This makes monitoring the status of a device or its environment by the system administrators a difficult task. Weidmüller's WLAN access points therefore have an integrated digital input/output which sends alarm messages over the network in real time to the responsible maintenance personnel when errors, like power supply failure or link breaks occur.



Wireless VLAN (Multi-SSID)

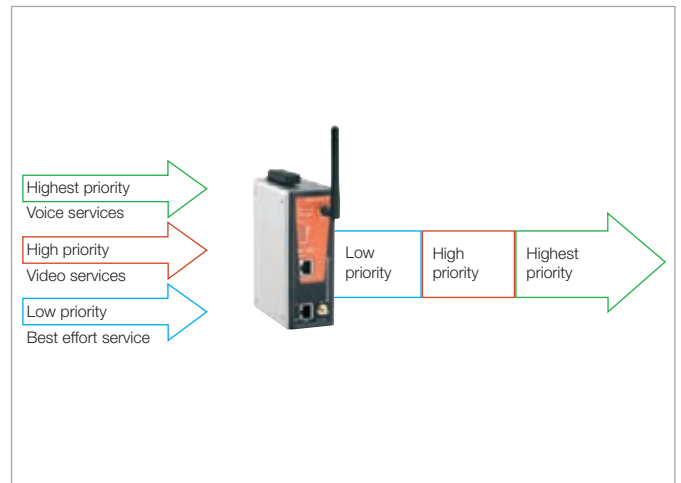
VLAN stands for virtual LAN. It is a network structure with all the characteristics of a normal LAN, but not geographically constrained.

Based on the SSID two or more clients can be added into a VLAN and integrated into a LAN independently of their geographical location. Without the use of routers, a level 2 switch in conjunction with Weidmüller WLAN access points can distinguish broadcast domains from each other. In this way VLANs offer administrators flexibility regarding network security, network management and scalability.



WMM for prioritising communications

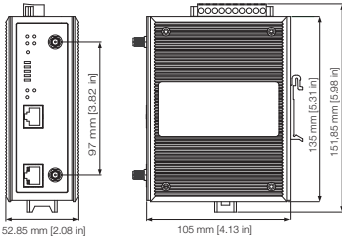
Quality of Service (QoS) is a network term for controlling and measuring data transmission rates, throughput and error rates. It is an essential part of wireless communication when transmitting multimedia data like audio and video. Important data, for example, require a high priority with respect to the data throughput and low error rates. WMM (Wi-Fi multimedia) is based on the IEEE 802.11e protocol which was designed to integrate QoS functionality into a WLAN. The advantages lie in the prioritising of important data and the associated improvement of the communication quality.





Industrial Wireless - AP/bridge/client

- IEEE 802.11a/b/g compliant
- Power input by redundant 24 V DC power inputs or Power-over-Ethernet
- Multi-SSID and VLAN support
- Turbo Roaming for seamless wireless connections
- Integrated DI/DO for on-site monitoring and warning
- QoS (WMM) support



Technical data

| WLAN Interface | |
|--|--|
| Standards | IEEE 802.11a/b/g/h for Wireless LAN IEEE 802.11i for Wireless Security IEEE 802.3u for 10/100BaseT(X) IEEE 802.3af for Power-over-Ethernet IEEE 802.1D for Spanning Tree Protocol IEEE 802.1w for Rapid STP IEEE 802.1Q VLAN |
| Spread Spectrum and Modulation (typical) | <ul style="list-style-type: none"> • DSSS with DBPSK, DQPSK, CCK • OFDM with BPSK, QPSK, 16QAM, 64QAM • 802.11b: CCK @ 11/5.5 Mbps, DQPSK @ 2 Mbps, DBPSK @ 11 Mbps • 802.11a/g: 64QAM @ 54/48 Mbps, 16QAM @ 36/24 Mbps, QPSK @ 18/12 Mbps, BPSK @ 9/6 Mbps |
| Operating Channels (central frequency) | US: 2.412 to 2.462 GHz (11 channels) 5.18 to 5.24 GHz (4 channels) EU: 2.412 to 2.472 GHz (13 channels) 5.18 to 5.24 GHz (4 channels) |
| Security | <ul style="list-style-type: none"> • SSID broadcast enable/disable • Firewall for MAC/IP/Protocol/Port-based filtering • 64-bit and 128-bit WEP encryption, WPA /WPA2-Personal and Enterprise (IEEE 802.1X/RADIUS, TKIP and AES) |
| Transmission Rates | 802.11b: 1, 2, 5.5, 11 Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps |
| TX Transmit Power | 802.11b: Typ. 23±1.5 dBm @ 1 to 11 Mbps 802.11g: Typ. 20±1.5 dBm @ 6 to 24 Mbps, Typ. 19±1.5 dBm @ 36 Mbps, Typ. 18±1.5 dBm @ 48 Mbps, Typ. 17±1.5 dBm @ 54 Mbps 802.11a: Typ. 18±1.5 dBm @ 6 to 24 Mbps, Typ. 16±1.5 dBm @ 36 to 48 Mbps, Typ. 15±1.5 dBm @ 54 Mbps |
| RX Sensitivity | 802.11b: -97 dBm @ 1 Mbps, -94 dBm @ 2 Mbps, -92 dBm @ 5.5 Mbps, -90 dBm @ 11 Mbps 802.11g: -93 dBm @ 6 Mbps, -91 dBm @ 9 Mbps, -90 dBm @ 12 Mbps, -88 dBm @ 18 Mbps, -84 dBm @ 24 Mbps, -80 dBm @ 36 Mbps, -76 dBm @ 48 Mbps, -74 dBm @ 54 Mbps 802.11a: -90 dBm @ 6 Mbps, -89 dBm @ 9 Mbps, -89 dBm @ 12 Mbps, -85 dBm @ 18 Mbps, -83 dBm @ 24 Mbps, -79 dBm @ 36 Mbps, -75 dBm @ 48 Mbps, -74 dBm @ 54 Mbps |
| Protocol Support | |
| General Protocols: | Proxy ARP, DNS, HTTP, HTTPS, IP, ICMP, SNMP, TCP, UDP, RADIUS, SNMP, PPPoE, DHCP |
| AP-only Protocols: | ARP, BOOTP, DHCP, dynamic VLAN-Tags for 802.1X-Clients, STP/RSTP (IEEE 802.1D/w) |

| Interface | |
|---------------------------------|--|
| Default Antenna | 2 dBi dual-band omni-directional antenna, RP-SMA (male) |
| Connector for External Antennas | RP-SMA (female) |
| LAN Port | 10/100BaseT(X), auto negotiation speed (RJ45-type) |
| Console Port | RS-232 (RJ45-type) |
| LED Indicators | PWR1, PWR2, PoE, FAULT, STATE, signal strength, CLIENT MODE, BRIDGE MODE, WLAN, 10M, 100M |
| Alarm Contact | 1 relay output with current carrying capacity of 1 A @ 24 V DC |
| Digital Inputs | 2 electrically isolated inputs <ul style="list-style-type: none"> • +13 to +30 V for state "1" • +3 to -30 V for state "0" • Max. input current: 8 mA |

| Physical Characteristics | |
|--------------------------|---|
| Housing | Metal, IP30 protection |
| Weight | 850 g |
| Dimensions | 53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in) |
| Installation | DIN-Rail mounting |

| Environmental Limits | |
|---------------------------|------------------------------|
| Operating Temperature | 0 to 60 °C (32 to 140 °F) |
| Storage Temperature | -40 to 85 °C (-40 to 185 °F) |
| Ambient Relative Humidity | 5% to 95% (non-condensing) |

| Power Requirements | |
|-----------------------------|---|
| Input Voltage | 12 to 48 V DC, redundant dual DC power inputs or 48 V DC Power-over-Ethernet (IEEE 802.3af compliant) |
| Connector | 10-pin removable terminal block |
| Power Consumption | <ul style="list-style-type: none"> • 0.121 to 0.494 A @ 12 to 48 V DC • 0.3 A @ 24 V DC |
| Reverse Polarity Protection | Present |

| Regulatory Approvals | |
|----------------------|---|
| Safety | EN60950-1, UL60950-1 |
| Radio | EN300 328, EN301 893, |
| EMC | EN301 489-1/-17, FCC Part 15 Subpart B Class B, EN55022/55024 |
| Hazardous Location | UL/cUL Class I, Div. 2; ATEX Class I, Zone 2 |
| MTBF | 392,209 hrs |
| Warranty | |
| Warranty Period | 5 years |

| Ordering Information | | | |
|---|-----------------------|-----------------------|------------|
| Models | Model Type | Operating Temperature | Order No. |
| IEEE 802.11a/b/g wireless AP/ Bridge/Client for european market | IE-WL-AP-BR-CL-ABG-EU | 0 to +60 °C | 1242100000 |
| IEEE 802.11a/b/g wireless AP/ Bridge/Client for american market | IE-WL-AP-BR-CL-ABG-US | 0 to +60 °C | 1242110000 |

| Accessories | | |
|-----------------------|------------|------------|
| | Model Type | Order No. |
| 19" Rack Mounting Kit | RM-KIT | 1241440000 |