



## FEATURE HIGHLIGHTS

- Industrial Communication mode combines advanced features such as Flash Roaming, PROFINET Transparent, and VLAN Tagging
- Engineered for Extreme Condition(-30°C to 70C) with Advanced EMC Design
- Versatile Operating Modes for Tailored Connectivity (WDS Bridge and AP Client)
- Seamless Wi-Fi Connectivity with Sub-30ms Flash Roaming
- Standard Wi-Fi Roaming(802.11r) with Sub-100ms Roaming Time
- Reliable 32ms PROFINET I/O Transmission over Wi-Fi
- PROFINET Transparent Mode for Addressing NAT & PROFINET Deployment
- Streamline Device Management with NIMBL Centralized Software
- Security Compliance with IEC 62443-4-2 Standards\*

\*In Development Plan

## PRODUCT DESCRIPTION

### Wide application



AW5601 is a rugged, industrial-grade wireless access point suited for harsh conditions. Utilizing the 5GHz frequency band, AW5601 causes minimal interference with existing wireless devices, allowing easy upscaling of systems. Besides basic AP/Client modes, an additional WDS Bridge mode allows distribution from a WDS Root to multiple WDS Hybrids and wireless devices. WDS Root and Hybrids have the same wireless MAC address, SSID, and wireless channel settings, forming a larger, more flexible wireless network than simple APs.

### High efficiency



Developed specifically with industrial automation in mind, the AW5601 features Flash Roaming and PROFINET transparency, empowering AGV/AMR applications with less latency, simpler topologies, and higher efficiency, which can be further enhanced with PoE PD support.

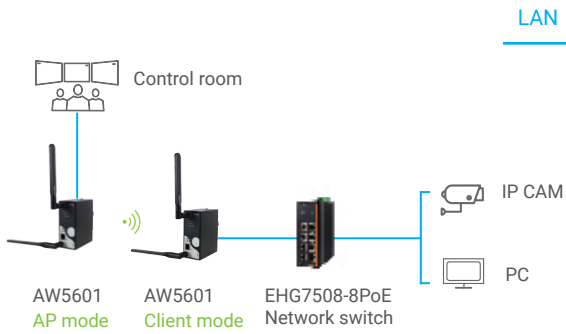
### Simply secure



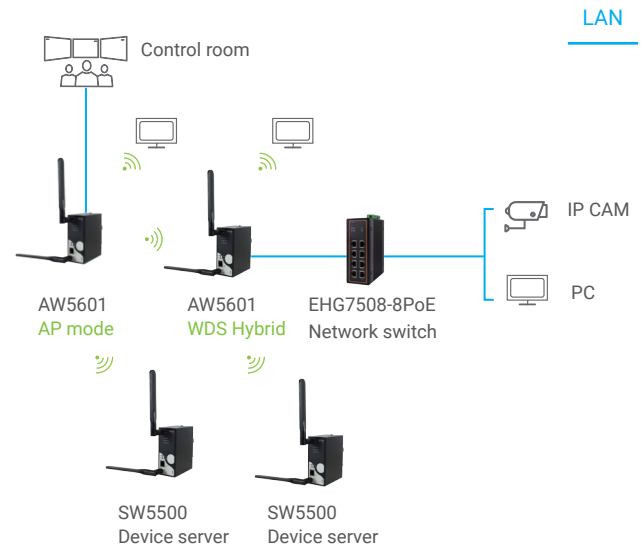
Security is also vital in AW5601's design. State-of-the-art encryption complements the ability to create a virtual network among wireless clients, enabling easy and intuitive communication control between clients while imposing restrictions on data and excluding malware. And finally, AW5601 embodies a robust wireless network manager to help your network deliver optimal performance.

# APPLICATION CASES

## AP mode and Client mode



## WDS mode



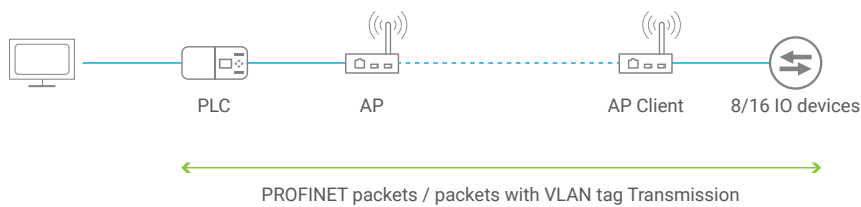
## Industrial Communication Mode

The AW5601-IC model includes a built-in Industrial Communication Mode, which combines advanced features such as Flash Roaming, PROFINET Transparent, and VLAN Tagging. Under this mode, packet transmission over wireless also differs from regular transmission. See the below diagram for details.

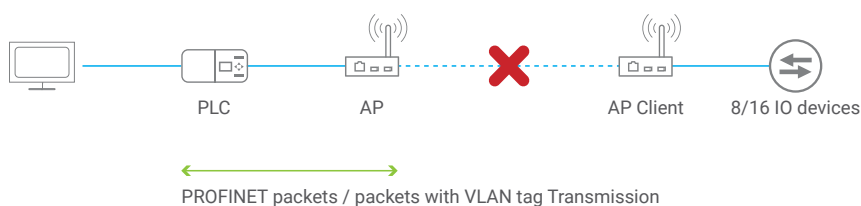
### Features on Industrial Communication Mode:

1. Flash Roaming
2. PROFINET Transparent and over-NAT Application
3. VLAN tag
4. PROFINET QoS
5. Other Industrial Protocols (by request)

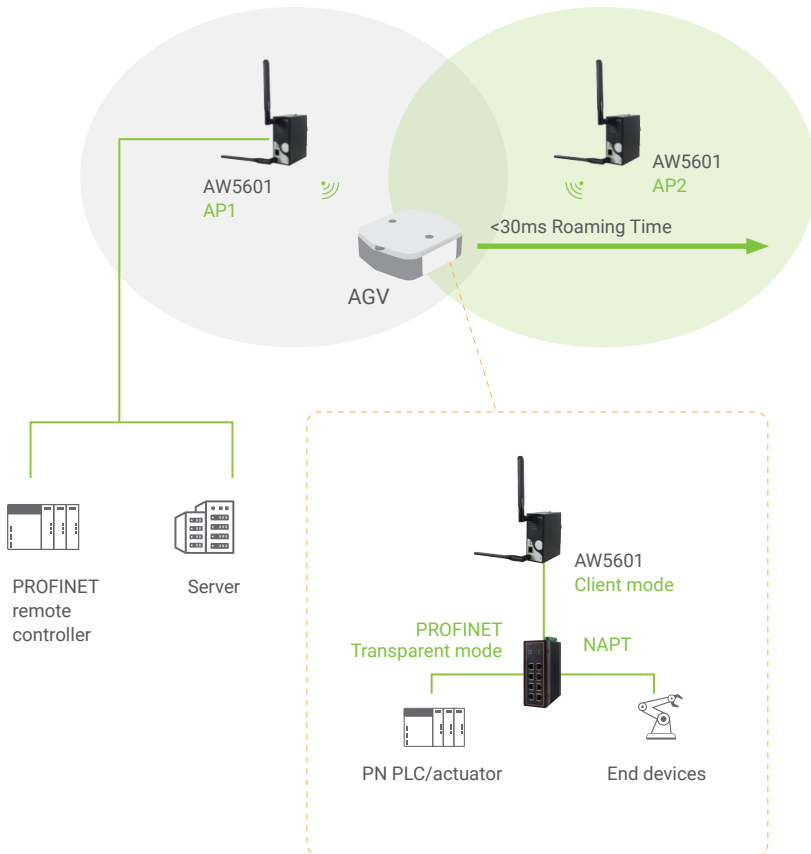
### Industrial Communication Mode



### Regular (Non-IC) Mode



## Application on AGV with Flash Roaming and PROFINET Transparency



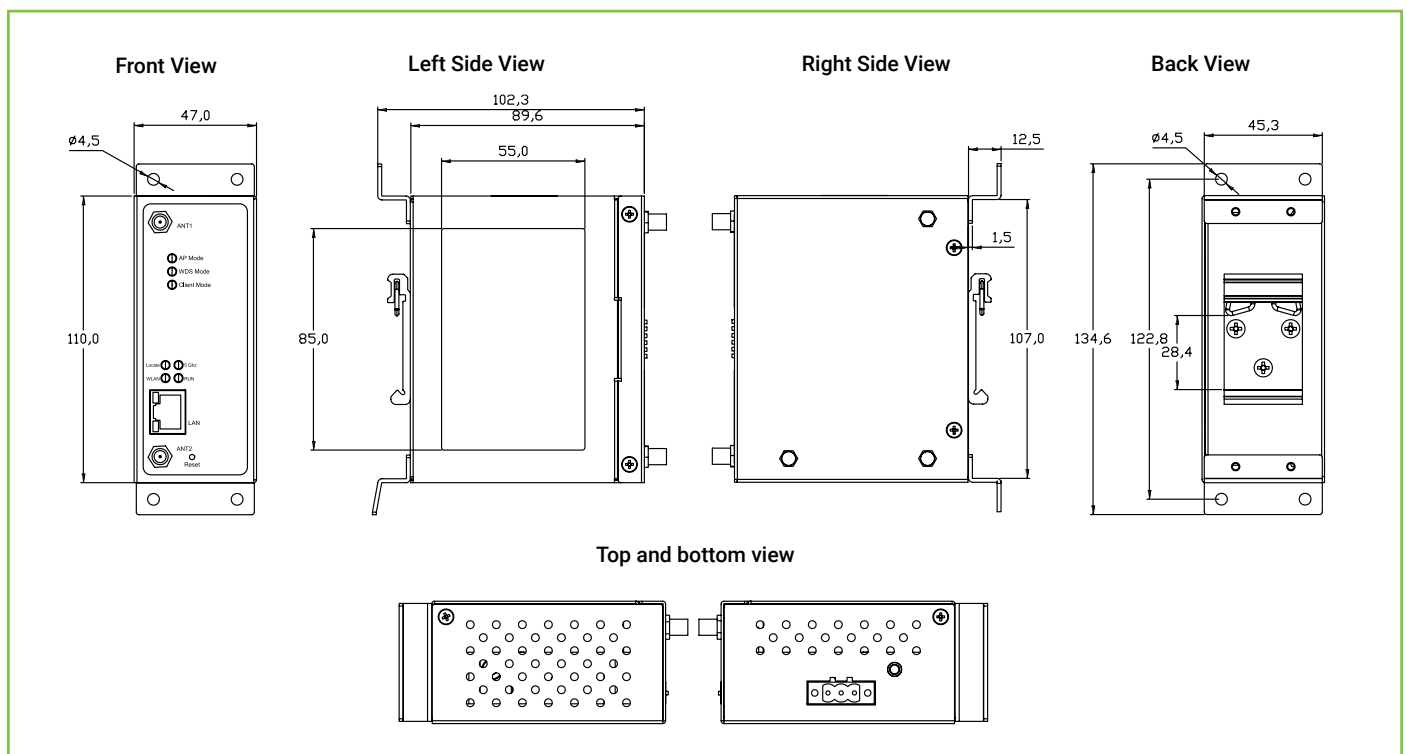
AGVs and other mobile systems can move beyond the range of a single AP. Yet, for processes that operate in transit, the latency due to network handover can be crucial. AW5601 offers Flash Roaming that achieves handover with less than 30ms signal switching latency, causing minimal impact on operation.

An AGV is a small system incorporating several controlled devices and a CPU or PLC for management. Considering the number of total devices in a site, AGV networks are usually set as small LANs, with end-device traffic undergoing network address translation (NAT/NAPT) to conserve the number of globally valid IPs.

Many PLCs, however, work with PROFINET packets under a NAT/NAPT environment, which will be lost through address translation. Therefore, AW5601 supports a PROFINET Transparent mode to allow explicitly permitted PROFINET communications to pass through under a NAT/NAPT environment, achieving both efficiency and effectivity in AGV systems.

\* The data is the result of tests conducted in a standard lab.

## DIMENSIONS & LAYOUT



## SPECIFICATIONS

Technical Specifications	
Model Name	AW5601
Connectivity	
Wi-Fi Parameter	802.11a (5.0GHz), 802.11g (2.4GHz) 802.11n (2.4GHz/5.0GHz), 802.11ac (5.0GHz)
Ethernet Port	1x 10/100/1000Mbps (802.3at PoE PD; optional)
Software Characteristics	
Watchdog	Yes
Operation Modes	AP, Client, WDS, WDS Hybrid (Repeater), Industrial Communication
Wireless Security	WPA/WPA2/WPA3 PSK/Enterprise
Network Security	Client isolation, firewall/filtering
Alert Events	E-mail, SNMP Trap
Support Protocol	ICMP, TCP, UDP, DHCP Server/Client, DNS, SNMP, NTP, SMTP, HTTP, IPv4, SNMP v1/v2, NTP, SNTP, SMTP/Syslog, HTTP/HTTPS, IPv4, TFTP, ICMP, NAT/NAPT/Static NAT, ARP, STP/RSTP(forwarding)
Configuration	ATOP Management Utility, Web UI
Diagnostic Functions	System status
Others	Flash roaming, PROFINET transparent
Wireless Characteristic	
Tx / Rx	2T2R MIMO
Standard Conformance	802.11a/g/n/ac
Antenna (5GHz)	2x RP-SMA(M) connectors, 5dBi
Data Rate	
802.11a/g	54Mbps
802.11n	300Mbps
802.11ac	867Mbps
Antenna	
Gain	2.4GHz(3dBi), 5G(5dBi)
Connector	2x RP-SMA(M) connectors

### Output Power & Sensitivity

#### 802.11g

Data Rate	Tx +/- 2dB (1TX)	Rx Sensitivity +/- 2dB
1~11Mbps	20dBm	-90dBm
6Mbps	21dBm	-90dBm
9Mbps	21dBm	-89dBm
12Mbps	21dBm	-88dBm
18Mbps	21dBm	-87dBm
24Mbps	21dBm	-84dBm
36Mbps	20dBm	-81dBm
48Mbps	19dBm	-77dBm
54Mbps	18dBm	-75dBm

#### 802.11n/2.4GHz

	Data Rate	Tx +/- 2dB (1TX)	Tx +/- 2dB (2TX)	Rx Sensitivity +/- 2dB
HT20	MCS 0	21dBm	24dBm	-92dBm
	MCS 1	21dBm	24dBm	-92dBm
	MCS 2	21dBm	24dBm	-90dBm
	MCS 3	20dBm	23dBm	-86dBm
	MCS 4	20dBm	23dBm	-83dBm
	MCS 5	20dBm	23dBm	-79dBm
	MCS 6	18dBm	21dBm	-77dBm
	MCS 7	16dBm	19dBm	-75dBm
HT40	MCS 0	20dBm	23dBm	-89dBm
	MCS 1	20dBm	23dBm	-89dBm
	MCS 2	20dBm	23dBm	-87dBm
	MCS 3	19dBm	22dBm	-83dBm
	MCS 4	19dBm	22dBm	-79dBm
	MCS 5	19dBm	22dBm	-76dBm
	MCS 6	18dBm	21dBm	-75dBm
	MCS 7	16dBm	19dBm	-73dBm

#### 802.11a

Data Rate	Tx +/- 2dB (1TX)	Rx Sensitivity +/- 2dB
6Mbps	20dBm	-92dBm
9Mbps	20dBm	-90dBm
12Mbps	20dBm	-89dBm
18Mbps	20dBm	-86dBm
24Mbps	20dBm	-83dBm
36Mbps	18dBm	-80dBm
48Mbps	16dBm	-76dBm
54Mbps	15dBm	-75dBm

802.11n/5GHz				
	Data Rate	Tx +/- 2dB (1TX)	Tx +/- 2dB (2TX)	Rx Sensitivity +/- 2dB
HT20	MCS 0	19dBm	22dBm	-94dBm
	MCS 1	19dBm	22dBm	-91dBm
	MCS 2	19dBm	22dBm	-89dBm
	MCS 3	18dBm	21dBm	-85dBm
	MCS 4	18dBm	21dBm	-82dBm
	MCS 5	17dBm	20dBm	-77dBm
	MCS 6	16dBm	19dBm	-76dBm
	MCS 7	14dBm	17dBm	-74dBm
HT40	MCS 0	18dBm	21dBm	-90dBm
	MCS 1	18dBm	21dBm	-89dBm
	MCS 2	18dBm	21dBm	-86dBm
	MCS 3	17dBm	20dBm	-82dBm
	MCS 4	17dBm	20dBm	-79dBm
	MCS 5	16dBm	19dBm	-75dBm
	MCS 6	15dBm	18dBm	-73dBm
	MCS 7	14dBm	17dBm	-72dBm

802.11ac				
	Data Rate	Tx +/- 2dB (1TX)	Tx +/- 2dB (2TX)	Rx Sensitivity +/- 2dB
VHT20	MCS 0	19dBm	22dBm	-94dBm
	MCS 1	19dBm	22dBm	-92dBm
	MCS 2	19dBm	22dBm	-89dBm
	MCS 3	18dBm	21dBm	-85dBm
	MCS 4	18dBm	21dBm	-82dBm
	MCS 5	17dBm	20dBm	-77dBm
	MCS 6	16dBm	19dBm	-76dBm
	MCS 7	14dBm	17dBm	-74dBm
	MCS 8	13dBm	16dBm	-70dBm
VHT40	MCS 0	18dBm	21dBm	-90dBm
	MCS 1	18dBm	21dBm	-89dBm
	MCS 2	18dBm	21dBm	-87dBm
	MCS 3	17dBm	20dBm	-82dBm
	MCS 4	17dBm	20dBm	-79dBm
	MCS 5	16dBm	19dBm	-75dBm
	MCS 6	15dBm	18dBm	-73dBm
	MCS 7	14dBm	17dBm	-72dBm
	MCS 8	13dBm	16dBm	-68dBm
	MCS 9	13dBm	16dBm	-66dBm
VHT80	MCS 0	18dBm	21dBm	-88dBm
	MCS 1	18dBm	21dBm	-85dBm
	MCS 2	18dBm	21dBm	-83dBm
	MCS 3	17dBm	20dBm	-79dBm
	MCS 4	17dBm	20dBm	-76dBm
	MCS 5	16dBm	19dBm	-72dBm
	MCS 6	15dBm	18dBm	-70dBm
	MCS 7	14dBm	17dBm	-68dBm
	MCS 8	13dBm	16dBm	-64dBm
	MCS 9	13dBm	16dBm	-62dBm

Mechanicals	
Dimensions	47x110x90 mm
Installation	DIN-Rail, wall mount (optional kit)
Reset Button	Yes
Ingress Protection Rating	IP30 Protection
Environmental Limits	
Operating Temperature	-30°C to +70°C
Storage Temperature	-40°C to +85°C
Ambient Relative Humidity	5% to 95%, 55°C (Non-condensing)

## REGULATORY APPROVALS

Regulatory Approvals				
EMC	EN55032: 2015/A11:2020, EN61000-6-4:2007+A1:2011 (Level) EN55035:2017/A11:2020, EN61000-6-2:2005+AC:2005 (Level) CNS15936			
Radio	FCC 15 15.247, FCC 15E 15.407, EN 301893, EN 300328, NCC LP0002, Japan: MIC Radio law (Telec)			
EMF	EN 62311: 2008			
Test	Description		Test Levels	Levels
EN61000-4-2	ESD	Contact Discharge Air Discharge	±4KV ±8KV	3 3
EN61000-4-3	RS	Radiated (Enclosure)	10 (V/m), 80-1000 MHz 3 (V/m), 1.4-6.0 GHz	3
EN61000-4-4	EFT	DC Power Port Signal Port	±1.0KV@ 5.0kHz ±1.0KV@ 5.0kHz	3 3
EN61000-4-5	Surge	DC Power Port DC Power Port Signal Port	Line-to-Line±0.5 KV Line-to-Earth±1.0 KV Line-to-Earth±1.0 KV	3 3 3
EN61000-4-6	CS	DC Power Port Signal Port	10 V, 150 kHz-80 MHz, 80% AM 10 V, 150 kHz-80 MHz, 80% AM	3
EN61000-4-8	PFMF	(Enclosure)	30A/m (r.m.s), 50Hz or 60Hz	4
Safety	IEC/EN 62368-1, CNS15598-1			
Shock	IEC 60068-2-27			
Freefall	IEC 60068-2-32			
Vibration	IEC 60068-2-6			
Warranty	5 years			
RoHS	Yes			

## ORDERING INFORMATION

Ordering information						
Model Name	Part number	PROFINET Transparent (PROFINET packet forwarding under NAT environment)	PROFINET packet forwarding (under non-NAT environment)	VLAN forwarding	Flash Roaming	General Roaming
AW5601	1P1AW560100001G	-	-	-	-	•
AW5601-P	1P1AW560100002G	-	-	-	-	•
AW5601-IC	1P1AW560100003G	•	•	•	•	•
AW5601-P-IC	1P1AW560100004G	•	•	•	•	•

Optional Accessories		
Model name	Part number	Description
AG05-1500-2S-B	59902221G	WiFi Antenna; RP-SMA(M); IP67
UN315-1212 (US-Y)	50500151120003G	Y-Type power adapter, 100~240VAC input, 1.25A @ 12VDC output, US plug, LV6
UNE315-1212 (EU-Y)	50500151120013G	Y-Type power adapter, 100~240VAC input, 1.25A @ 12VDC output, EU plug, LV6
UN315-2465 (US)	50500161240002G	Y-Type power adapter, 100~240VAC input, 0.65A @ 24VDC output, US plug, LV6
UNE315-2465 (EU)	50500161240012G	Y-Type power adapter, 100~240VAC input, 0.65A @ 24VDC output, EU plug, LV6
WMK-454-Black	70100000000043G	Black Aluminum Wall Mount Kit