



AI Workplace Occupancy Sensor Featuring LoRaWAN® VS121



VS121

VS121-P

Milesight VS121,

is an AI workplace sensor designed to monitor occupancy and utilization in modern workspace, which can reach up to 98% recognition rate based on its AI algorithm. Milesight VS121 has dual versions transmitting data through LoRaWAN® or Ethernet for different applications.

Based on standard LoRaWAN® protocol, VS121 can work with Milesight LoRaWAN® gateway and mainstream LoRaWAN® network servers. They are equipped with Wi-Fi for easy configuration without any configuration tools.

With Ethernet transmission, VS121-P is available to provide more applications. Rich serial interfaces such as DI, DO, and RS485 are provided in VS121-P for various scenarios. VS121-P supports data push via HTTP for easily integration and allows for remote management via Milesight DeviceHub.

FEATURES

Shared Values

- Recognition rate is up to 98% based on advanced AI identification and analysis technologies
- Wide installation height and detection range with two versions for various scenarios
- Support both region people counting and region occupancy detection
- Support up to 16 mapped regions for detection
- Allow for bi-directional line-crossing people counting and people flow analysis
- Smart U-turn counting to filter redundant counting of people wandering around the area
- Support normal or blur mode and privacy masks up to 8 regions

LORAWAN® VERSION ONLY

- Compliant with GDPR without images collected, free from privacy concerns
- Equipped with Wi-Fi for web GUI configuration
- Support Milesight D2D protocol to enable ultra-low latency and directly control without gateway
- Function well with standard LoRaWAN® gateways and network servers

POE VERSION ONLY

- Support scheduled detection
- Support Milesight DeviceHub management remotely
- Adapt to more applications with rich industrial interfaces
- DC or PoE power supply optional
- Support transmitting people counting and occupancy data via MQTT(S) and HTTP Post

SPECIFICATIONS

MODEL	VS121	VS121-P
People Counting		
Field of View	Standard Version: 190 ° Horizontal, 112 ° Vertical High Ceiling Mount Version: 129.4 ° Horizontal, 68.4 ° Vertical	
Full Monitored Area	Standard Version: 78m ² (R = 5m, H = 3m) High Ceiling Mount Version:126m ² (L=18m, W=7m, H= 7m)	

Installation Height	Standard Version: 2.5m to 4m High Ceiling Mount Version: 5m to 7m
Detection Rate ¹	Region Counting: Up to 95% Line Crossing Counting: Up to 98% People Flow Analysis: Up to 98%
Advanced Feature	Mapped Detection Region Customization, Filter U-Turns, Privacy Mask

LoRaWAN® Transmission

Protocol	LoRaWAN®, Milesight D2D	---
Frequency	CN470/IN865/RU864/EU868/US915/AU915/KR920/AS923	
Tx Power	16 dBm (868 MHz)/20 dBm (915 MHz)/19 dBm (470 MHz)	
Sensitivity	-137 dBm @300bps	
Mode	OTAA/ABP Class C	

Ethernet Transmission

Ethernet Port	-	1 × RJ45 10/100 Mbps (PoE PD)
Network Protocol	-	MQTT(S), HTTP, RTSP, NTP, SSH, etc.

Other Interfaces

Wi-Fi	IEEE 802.11 b/g/n, 2.4GHz (AP Mode for configuration)	-
DI/DO	-	1/1
Serial Interface	-	1 × RS485
Button	1 × Reset Button, 1 × Wi-Fi Button	1 × Reset Button
LED Indicators	1 × Wi-Fi	1 × Status
Power Input	-	2-pin 3.5 mm Terminal Block

Physical Characteristics

Power Supply	5VDC / 1.5A by Type-C Port	1. 5VDC / 2A by Terminal Block 2. 802.3af PoE
Power Consumption	3.5W	1. DC:3.5W 2. POE:4.5W
Operating Temperature	-5°C ~ +55°C	
Storage Temperature	-20°C ~ +60°C	
Relative Humidity	0 ~ 95% (Non-condensing)	

Color&Weight	White/Black (Optional), 126.9g	White, 186g
Dimension	85 × 85 × 20 mm (3.35 × 3.35 × 0.79 in)	85 × 85 × 30 mm (3.35 × 3.35 × 1.18 in)
Installation	Ceiling Mounting	

Approvals

Regulatory	CE, FCC, RoHS
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INSTALLATION HEIGHT

To better utilize the advantage of AI algorithm, it's recommended to follow the below installation heights:

OBJECT	HEIGHT	NOTE
Sitting object	>2.5 m (8.2ft)	Commonly used for region people counting
Standing object	> 3 m (9.8ft) (the optimum height is 3m)	Commonly used for line cross counting

It's recommended to refer to below detection ranges² for people counting at different heights for accurate recognition:

Installation Height (m)	Detection Range (m ²)
2.5	3.0 × 4.0
3.0	4.4 × 5.7
3.5	4.9 × 6.4
4.0	5.6 × 7.4

For high ceiling mount version, the detection ranges are as below:

Installation Height (m)	Detection Range (m ²)
5.0	3.5 × 10.0
6.0	4.5 × 12.0
7.0	5.5 × 14.0

¹ Tested under the recommended detection range.

² The actual detection range may vary based on the height of the target individual.