



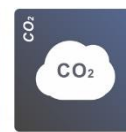
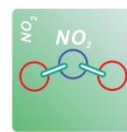
DLG01-L



DL10Q-L



TA692-L



## LoRaWAN® for IoT

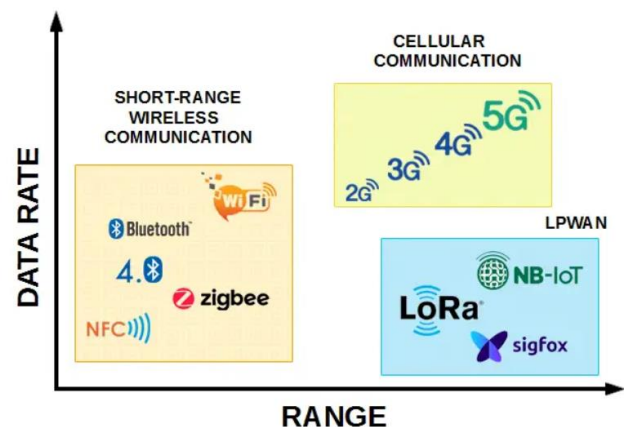
Leveraging on low-power wide area network, Avantec sensors with embedded LoRaWAN® modules monitor indoor air quality, ambient temperature and relative humidity throughout the building. Real-time data transmitted to building management system effortlessly keep facility managers up-to-date, enables automated controls and enhances operational efficiency. Predictive analytics and occupancy-based modeling are essential to proactive algorithm for HVAC energy optimization in large-scale buildings.

## IoT in Italia

According to LoRa Alliance®, the Italian government “turbocharged the advancement of IoT by opening commercial LoRaWAN® deployments” in 2020. “Business IoT services for manufacturing ... the energy, gas, and water supply service sector ... expected to be the first markets for LoRaWAN, with billions of Euro ready to be invested.”

## Advantages of LoRaWAN®

- **Hassle-free:** easy deployment of private and secure network. Zero disruption to your existing LAN or Wi-Fi setup
- **Standardized:** high interoperability with gateways and cloud platforms in the market
- **Deep indoor penetration:** ideal for building management
- **Affordability:** pay-as-you-go cloud platform subscription
- **Remote link:** bi-directional communication between controller and administrator



“Comparison between LoRa and other wireless technologies” by Aaron Wong, Mokolara Technology Ltd.

## Sensor Specifications

### Carbon Dioxide | CO<sub>2</sub>

Operating Principle	Non-dispersive infrared (NDIR) absorption
Operating Temperature	3°C ~ 45°C (37.4°F ~ 113°F)
Operating Humidity	0% ~ 95% R.H.
Measuring Range	400 ~ 5,000ppm
Accuracy	±50 ppm ±3% of reading @ 25°C / 77°F
Warmup Time	5 minutes
Calibration	Periodic Automatic Calibration (ACDL) or manual to 400ppm
Pressure dependency	0.13% of reading per mm Hg (normal atmospheric conditions of ~100Kpa)
Storage temperature	-30°C to 70°C (-22°F ~ 158°F)
CO <sub>2</sub> Traffic Light	<b>0 ... 750ppm</b> <b>750 ... 1250ppm</b> <b>1250 ... 4000ppm</b>

### Particulate Matters | PM

Operating Principle	Laser scatter method sensor
Operating Temperature	3°C ~ 45°C (41°F ~ 113°F)
Operating Humidity	5% ~ 89% R.H.
Particles Target size	2.5 µm
Effective Concentration	0 ~ 1,000µg/m <sup>3</sup>
Resolution	1µg/m <sup>3</sup>
Accuracy	±10 µg/m <sup>3</sup>
Particle count rate	65,500/o.1L max.
Response Time	5 seconds
Storage temperature	-30°C to 70°C (-22°F ~ 158°F)

### Nitrogen Dioxide | NO<sub>2</sub>

Range	0° ~ 50°C / 32° ~ 122°F
Resolution	0.1°C at 25°C / 0.2°F at 77°F
Accuracy	±0.3°C from 0° ~ 50°C / ±0.54°F from 32° ~ 122°F
Drift	< 0.1°C per year / 0.18°F per year
Ambient temperature	High-precision NTC 10K thermistor with ±1% tolerance in B-value
External temperature	External temperature sensor cables in various lengths
Display unit	°C / °F switchable

## Deployment

### Integration

Companies worldwide are putting in-place monitoring tools available on popular IoT platforms. Others build it on their own by utilizing open-source libraries. Pre-configured IoT integration is key to deployment

### Network Server

Flexibility and scalability are among the many benefits offered by hosted service. Renowned network servers in the IoT arena are recognized for their reliability. Alternatively, IT managers may often choose their own, they host and manage the database and take advantage of the existing infrastructure, enjoying full security and version control.



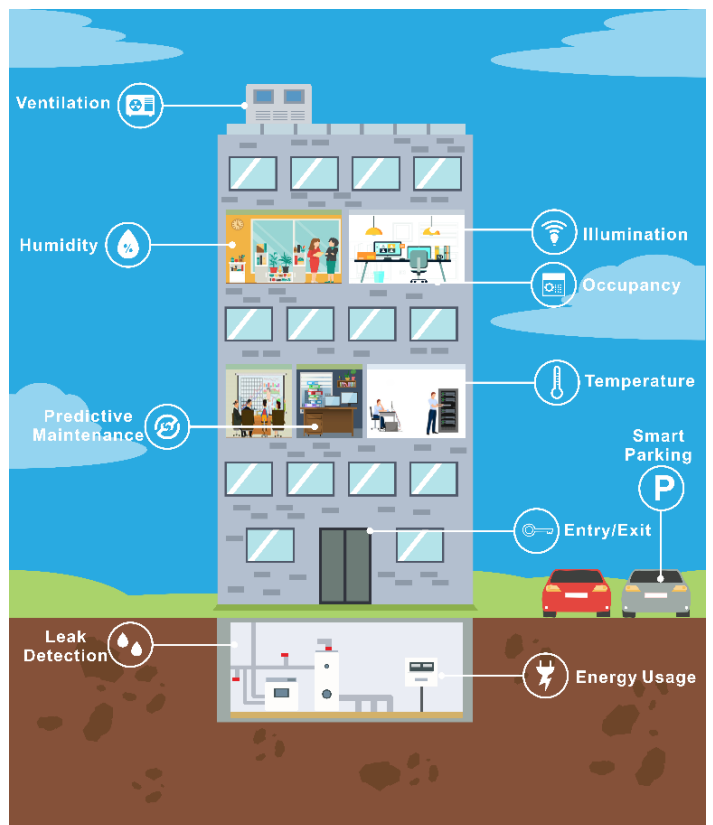
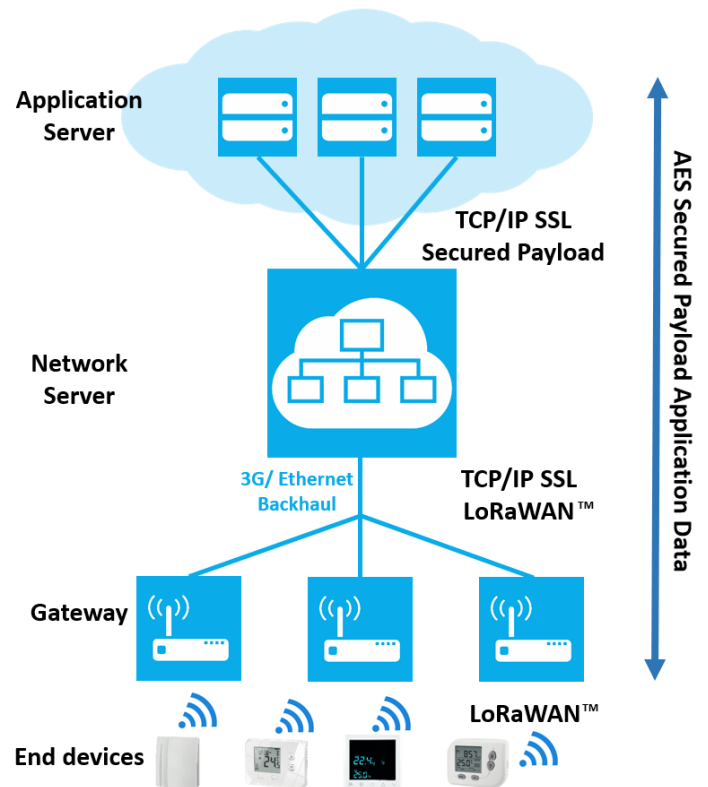
### Gateway

Interoperable with major IoT gateway manufacturers, Avantec LoRaWAN® sensors and controllers are tested with MultiTech Conduit® Access Point and RAK LoRaWAN WisGate.



### End Device

Pick and choose from our wide offering of LoRaWAN® Class C sensors and controllers. We cover indoor air quality monitoring, temperature and humidity. Sensing and control.



# Semtech Loracloud Dev Portal



DEVELOPER PORTAL

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Network Server

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Network Server

Regions

Tenant

Dashboard

Users

API keys

Device profiles

Gateways

Applications

☐ Last seen

DevEUI

Name

Device profile

Battery

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Network Server

Regions

Tenant

Dashboard

Users

API keys

Device profiles

Gateways

Applications

Received

RSSI

SNR

Received / frequency

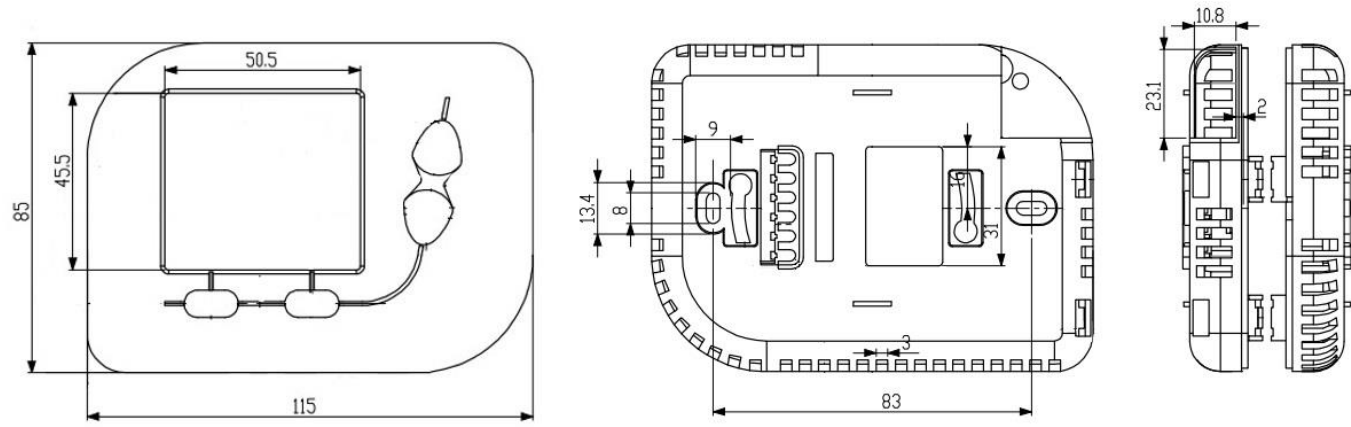
Received / DR

Errors

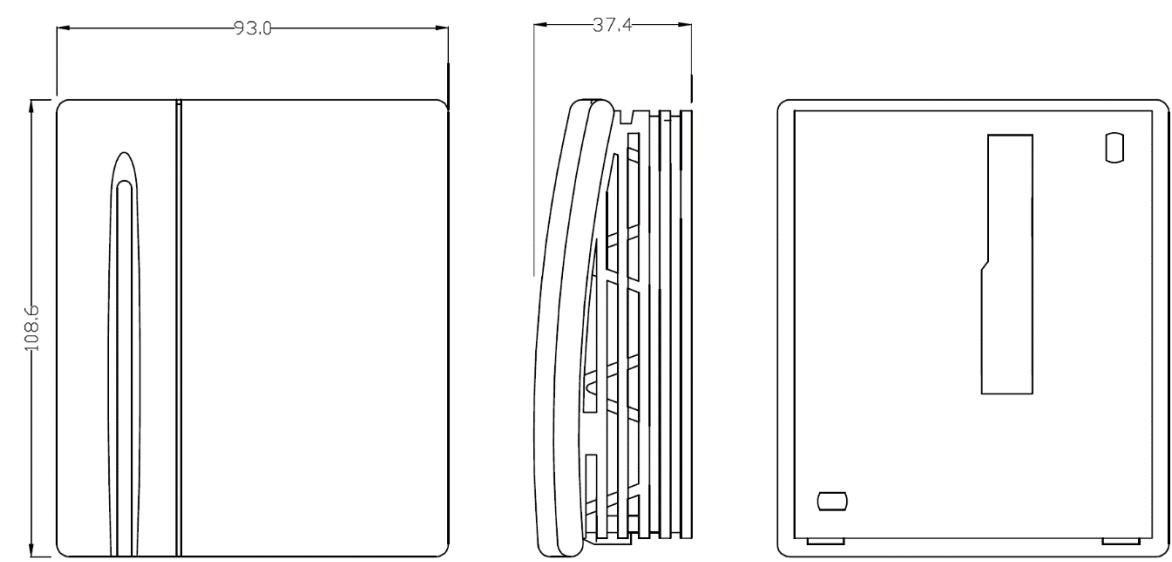
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# Product Dimensions

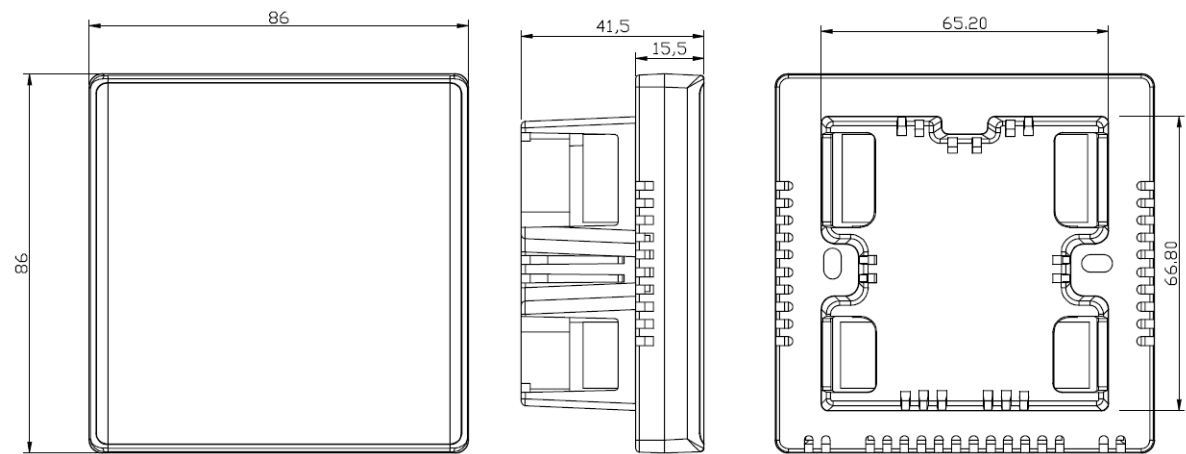
## DLG Series
















## DL10 Series



## A69 Series



Type	#	Sensing Elements					Outputs		Power Supply			Display	
							0~10V <sub>DC</sub>	On/Off				Mono	Backlight
Sensors	TA670-L	•								•	•	3.4"	•
	HA670-L		•							•	•	3.4"	•
	CA670-L			•						•	•	3.4"	•
	QA670-L				•					•	•	3.4"	•
	NA670-L					•				•	•	3.4"	•
	WR252T-L	•						•			•	2.7"	
	WR252H-L		•					•			•	2.7"	
	WR252C-L			•				•	•			2.7"	
	WR252Q-L				•			•	•			2.7"	
	WR252N-L					•		•	•			2.7"	
Controllers	DL10T-L	•					•		•				
	DL10H-L		•				•		•				
	DL10C-L			•			•		•				
	DL10Q-L				•		•		•				
	DL10N-L					•	•		•				
	DLG01T-L	•						•	•			2.7"	
	DLG01H-L		•					•	•			2.7"	
	DLG01C-L			•				•	•			2.7"	
	DLG01Q-L				•			•	•			2.7"	
	DLG01N-L					•		•	•			2.7"	
	TA692FC-L	•					•	•	•			3.4"	•
	HA692-L		•				•	•	•			3.4"	•