# AP402-SCB Datasheet

Aiming to create better and safer working environments and life experiences through the products we deliver.


AVCOMM Technologies, Inc

www.avcomm.us

**Email:** info@avcomm.us

**Phone:** (713) 933-4534

**Address:** 333 West Loop North, Suite 460
Houston, TX 77024
United States

# Outdoor Smart City Box AIO Machine

## - PoE+, Firewall VPN Router, LTE/WLAN, Modbus Serial, DI/DO, USB
## - Private cloud – ATMS®; Public Cloud - AWS®/Azure®
## - Over-the-Air Software - ATMS OTA®

# AP402-SCB


The next-generation Smart City Box AP402-SCB integrates smart city and IIoT applications into an IP67 metal enclosure and includes two IEEE 802.3at PoE+ ports, a GbE WAN port. AP402A-SCB with an additional serial port, two DI and a DO weatherproof connector. Both are available in AC or DC powered models. Data can be stored locally in an internal USB or remotely connected to other wireless modules via wireless LTE Cat 4/6, LTE M1/NB1, wireless LAN 802.11 ac/a/n.

The outdoor AP402A-SCB as both an IoT gateway and controller through Modbus Serial, DIO, wireless LAN AP, cellular VPN/NAT/firewall routers, and PoE for IP cameras. Compared to traditional assembly cabinets, the AP402-SCB/402A is uniquely valuable in terms of saving time/cost of system integration and provides a user-friendly interface for large group deployment, management, and status visualization in your mobile devices. Data can be sent to public AWS/Azure or user-defined cloud servers, or AVCOMM private IoT platform ATMS.

GLONASS GALILEO -40~70°C IP67 MQTT ATMS

Lte LTE-M NB-IoT 5GHz 802.11a/n/ac 2.4GHz 802.11b/g/n PoE++ Modbus VPN Cyber Security amazon web services Microsoft Azure

### Waterproof IP67 Design

- IP67 metal housing, effective heat dissipation design for operating -40 ~ 70 °C environment
- 1xRJ-45 GbE WAN port and two PoE+ ports
- M8 5-pin connector for1x RS232/422/485 supporting Modbus sensor/meter
- M8 5-pin connector for two digital inputs for sensors or buttons
- M8 5-pin connector for a digital output for alarm or on/off M12 T-code connector
  - DC48V (46~57V) power input
  - AC100~240V input for internal USB for storage

### IIoT LAN and Cloud Management

- Various configuration paths, including CGI WebGUI, CLI, SNMP, and RMON*
- AVCOMM Software Utility
  -ANMS: Network management system with VLAN Visualization* and ERPS* Ring
  -AIAS: Configuration management
  - ATMS: Interactive monitoring dashboard via Modbus tab for collecting data from Modbus devices
  - ATMS OTA: Real-time maps show remote device status, signal strength, location, wireless bulk device registration, configuration and firmware updates*, critical event alerts to prevent downtime
- Support for MQTT protocol, AWS/Azure and private cloud brokers for cloud management
- LLDP* for topology control, automatic topology drawing, USB for field configuration and firmware updates, diagnostic tools including Ping, TFTP, SNMP Trap, E-mail Alert, and System Log
- LTE watchdog, automatically reconnects the cellular

### Dynamic Routing with Redundant Protection

- RIPv1&v2 and OSPFv1&v2 are used for intra-domain routing within autonomous systems
- Efficient unicast/multicast* static routing
- VRRP guarantees sustainable routing in a single point of failure
- Wireless redundancy: WAN to LTE redundancy

### Enhance Cyber Security for Critical Applications

- Firewall with stateful inspection
- DMZ, port forwarding, NAT for LAN protection
- OpenVPN, IPSec, L2TP, GRE for secure connections
- Port security
- HTTPS/SSH secure login, TACACS+

### Powerful PoE Power Supply

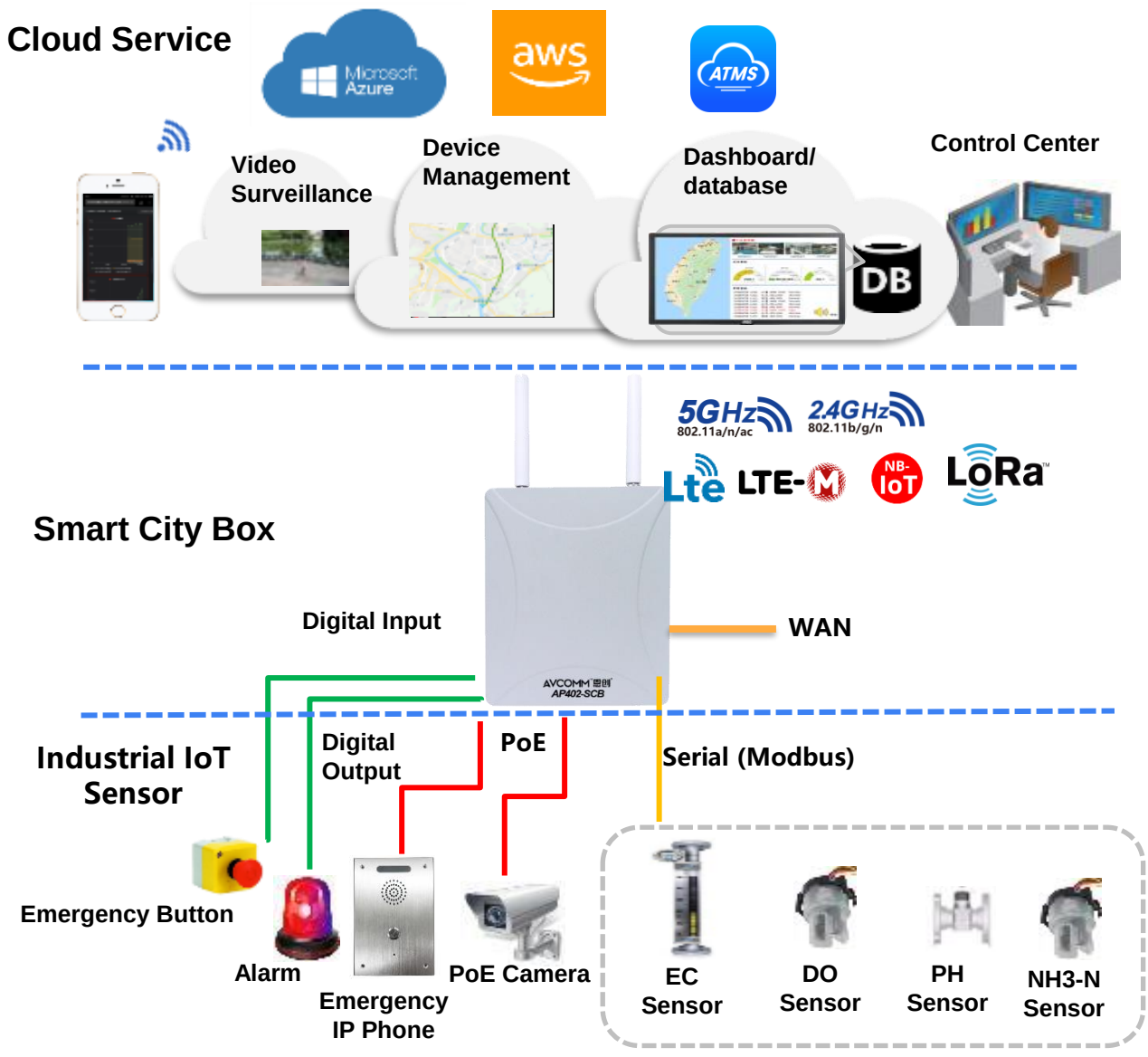
- 2x10/100M PoE+ 802.3at ports, each 30W
- M12 T-code high current power
- Complete PoE management, including per-port power budget control, PoE schedule, and PoE status
- AC110V or DC48V power supply
- Available in power budgets up to 60W

### Wireless extensions

- mPCIe and SIM slots for wireless expansion
- SCB LTE module and antenna kit
- LTE Cat.4 cellular module
- LTE/GPS antenna on the top of the box
- 150M uplink, 50M downlink, FDD/TDD-LTE
- SCB Industrial WLAN Module
- N-type antenna socket on the top of the box
- 5G/2.4G 802.11ac/n wireless network

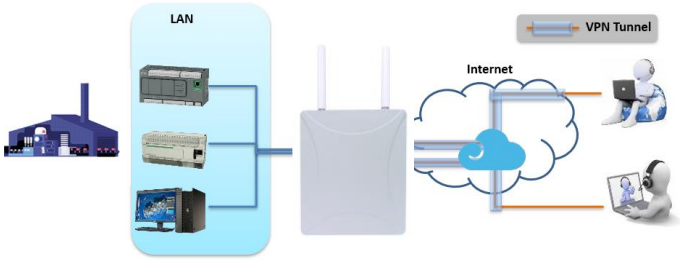
 Avcomm Technologies Inc. Add: 333 West Loop North Ste. 460, Houston, TX 77024

Tel: 713-933-4534 Web: www.avcomm.us Email: info@avcomm.us



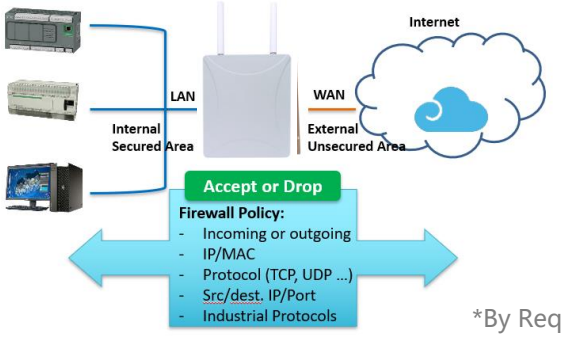

## ✓ Secure Remote Access Via VPN

AP402-SCB can as a VPN server for data encryption and dynamic remote access. Supports multiple VPN protocols such as IPSec, OpenVPN, GRE, and L2TP. Channels between multiple networks such as private/public/hybrid networks are completely secure and have authentication capabilities.




## ✓ Cyber Security

A stateful firewall can monitor the status of connection at any time. Multiple industrial fieldbus protocols such as Modbus TCP* and Ethernet/IP* are supported factory automation applications.



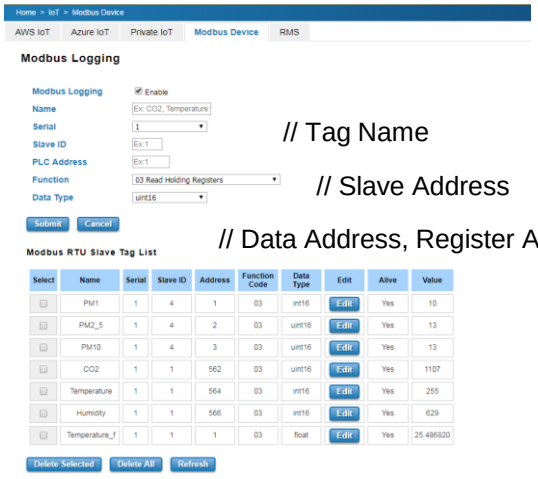

*By Request

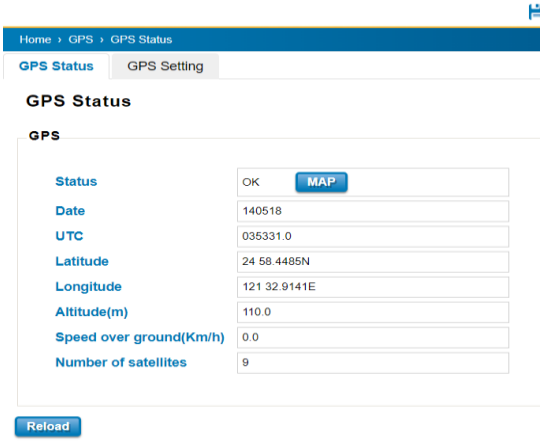
## Secure IoT Modbus Tags

| |
|---|
| Tag-based data acquisition with MQTT support |
| MQTT client acting as publisher and subscriber |
| The latest TLS encryption and X.509 authentication |
| Selectable serial port and data type. Sensor alive check and display sensor value. |

## GPS/BDS/GLONASS/Galileo

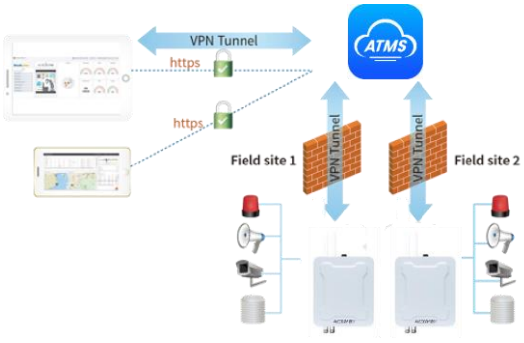
| |
|---|
| Latitude |
| Longitude |
| Attitude |
| Speed |



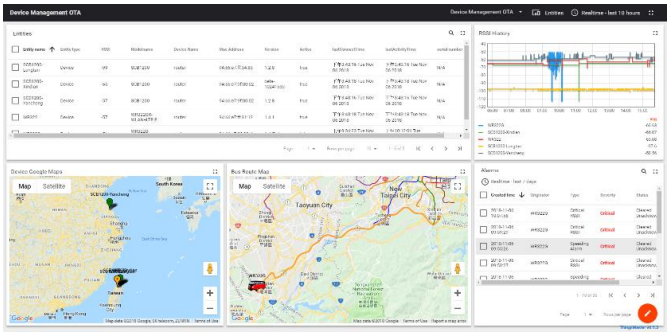

## Secured Multi-Sites Management

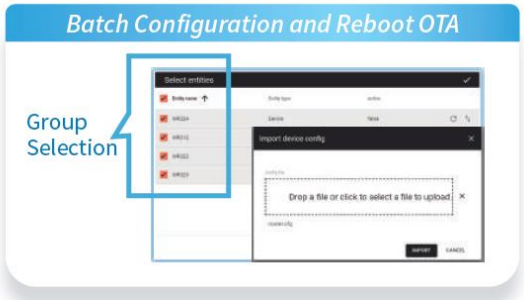
| |
|---|
| N to N VPN |
| Latest TLS encryption and X.509 authentication |




### ✓ ATMS OTA (Device Management Over-the-Air)

The OTA agent embedded in the AP402-SCB is managed via over-the-air upgrade devices, anywhere and anytime you want from your mobile device. ATMS OTA is a secure local OTA software that can be installed on private or public servers, or even QNAP NAS (Network Attached Storage). All device information can be displayed in real time via OTA, such as location, alarm events, etc. Maintenance, such as configuration reloading, or device restarts, can also run in groups.



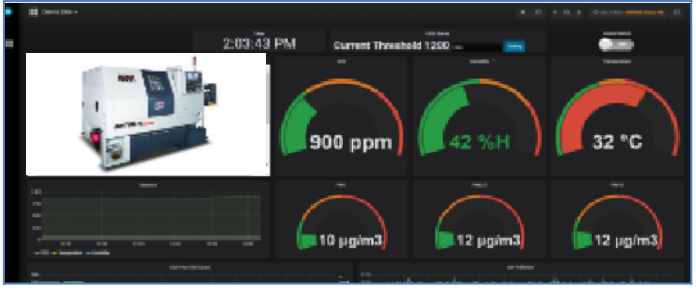




## Smart Energy Solution

**-Monitor meter voltage, frequency, power, current, energy consumption, etc.**


## Industrial 4.0 Solution

**Monitor machine downtime, speed, utilization rate, yield rate, productivity, etc.**




## Smart Farming Solution

**Monitor silos weights, silos temperature, silos humidity, etc**


## Smart Bus Tracking Solution

**Monitor bus route, speed, passenger count, fuel etc.**

## Smart Environment Solution

**Monitor PM1/2.5/10, CO2, temperature, humidity, radiation, wind speed, etc.**


## Smart Metering Solution

**Monitor district energy consumed, water consumed, etc.**

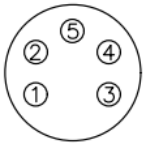
 Avcomm Technologies Inc. Add: 333 West Loop North Ste. 460, Houston, TX 77024

**Tel: 713-933-4534 Web: www.avcomm.us Email: info@avcomm.us**

## Ordering Information

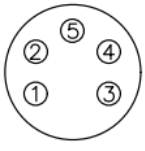
| Model Name | Description |
|---|---|
| **AP402-SCB** | Industrial Wireless IIoT Smart City Box, IP67, 2GT PoE, 1GT WAN, 1xCOM,2xDI,1xDO,Voice, 1xUSB, 8-32V DC or AC Input |

| Technology | |
|---|---|
| **Standard** | IEEE 802.11ac wireless local area network (WLAN), Backward support 802.11n/g/a/b Wireless LAN (By Request) |
| | 3GPP GSM/GPRS/EDGE/UMTS/HSPA/LTE (By Request) |
| | IEEE 802.3 10Base-TX Ethernet |
| | IEEE 802.3u 100Base-TX Fast Ethernet |
| | IEEE 802.3ab 1000Base-T Gigabit Ethernet copper |
| | IEEE 802.3af/at Power-over-Ethernet |
| | IEEE 802.1Q for VLAN |
| **Interface** | |
| **Ethernet Port** | AP402-SCB:<br>LAN: 2 x 10/100Base-TX 802.3at/af PoE+, Auto MDI/MDI-X, Weatherproof RJ-45 connector<br>WAN: 1 x 10/100/1000Base-T Ethernet, Auto MDI/MDI-X, waterproof RJ-45 connector<br>LAN: 2 x 10/100Base-TX Ethernet, Auto MDI/MDI-X,waterproof RJ-45 connector<br>WAN: 1 x 10/100/1000Base-T Ethernet, Auto MDI/MDI-X,waterproof RJ-45 connector |
| **Power Input** | 4-pin M12 T-code power connector<br>AC model: 100~240V AC<br>DC model: 48V, range from 46~57V |
| **Serial** | 1 x Software optional RS232/422/485 interface,<br>M8 5-pin connector<br>15 KV ESD protects all signals |



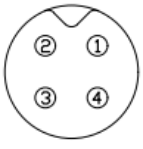

| Pin | RS232 | RS485-4w/422 | RS485-2w |
|---|---|---|---|
| 1 | - | TX- | Data- |
| 2 | TXD | RX+ | - |
| 3 | RXD | TX+ | Data+ |
| 4 | - | RX- | - |
| 5 | GND | GND | GND |

| | |
|---|---|
| **Digital Input/Relay** | M8 5-pin connector<br>2 x digital inputs, low: 0~1V, high: 2~30V<br>1x dry relay output, 0.5A/24VDC |



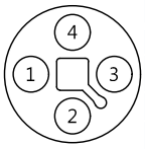

| Pin | DI | Relay |
|---|---|---|
| 1 | DI1+ | - |
| 2 | DI2+ | - |
| 3 | - | Relay |
| 4 | - | Relay |
| 5 | DI_GND | - |

| | |
|---|---|
| **Voice( optional by request)** | 1x audio line output, M5 4-pin connector |




| Pin | Power |
|---|---|
| 1 | Line+ |
| 2 | Not Connected |
| 3 | Not Connected |
| 4 | Line- |

| | |
|---|---|
| **mPCIe Socket (reserved for optional wireless)** | 2 mPCIe sockets<br>mPCIe/USB bus for LTE and 802.11ac/n/g/a/b WLAN extensions<br>Note: Select LTE or Wi-Fi module from the list of accessories |
| **SIM Socket (reserve)** | 2 internal NANO SIM sockets for SCB LTE models only<br>Reserve eSIM for project-based eSIM requirements |
| **Antenna Socket (reserve)** | N-type female sockets for SCB LTE or WLAN module expansion |
| **USB (reserve)** | Internal 1x USB A-Type socket inside the box<br>Optional by request: Industrial-grade USB flash drive as storage |

| Power Requirement | |
|---|---|
| **Power Connector** | 1 x 4 Pin IP66/67 M12 T-Code power connector   <table><tr><th>Pin</th><th>Power</th></tr><tr><td>1</td><td>V-</td></tr><tr><td>2</td><td>Not Connected</td></tr><tr><td>3</td><td>V+</td></tr><tr><td>4</td><td>Not Connected</td></tr></table> |
| **Power Input Voltage** | AC Model: 100~240VAC<br>DC Model: 48VDC (46~57VDC, 50~57VDC suggested for IEEE802.3at)<br>AP402-SCB-NP Series: 24VDC (8~32VDC) |
| **Reverse Polarity Protect** | Yes |
| **Power Consumption** | Max 12W@110VAC full traffic without PD loading, suggest reserving 15% fault tolerance |
| **PoE** | |
| **Power forwarding mode** | 802.3at Alternative A |
| **PoE Power Budget** | System: Max 60W@55°C, 30W@70°C<br>Port: 4-pair IEEE 802.3af/at, Max. 30W |
| **PoE Standard** | IEEE 802.3af/at |
| **Management** | System/Port Power Budget Control, PoE Scheduling, Priority, PD Alive Check, PoE Status |
| **Software** | |
| **Management** | CGI WebGUI, Command Line Interface (CLI), IPv4/IPv6*, Telnet, SNMP v1/v2c/v3, DDNS, DHCP server/client, DHCP Relay, TFTP, System Log, SMTP, ARP response over 802.2 LLC SNAP, Proxy ARP, DNS (client/proxy) |
| **Traffic Management** | Flow Control*, Traffic shaping |
| **Filter** | IEEE802.1Q VLAN* |
| **Security** | IEEE 802.1X/RADIUS, TLS v1.2, HTTPs/SSH, First login password management<br>WLAN AP Security: Share Key, WPA/WPA2-PSK(Pre-Shared Key), WPA/WPA2 Enterprise<br>Encryption: 64/128-bit WEP(Wired Equivalent Privacy), TKIP(WPA-PSK), AES(WPA2-PSK) |
| **Advanced Security** | TACACS+, Multiple-user authentication |
| **Time Management** | NTP, SNTP, Cellular Time |
| **Redundancy Protocol** | WAN/LTE Redundancy |
| **WAN/Routing/NAT/Firewall/ VPN** | Routing: RIPv2, OSPFv2, VRRPv2<br>NAT: 1-1 NAT, NAPT(SNAT/DNAT), DMZ<br>Firewall: Stateful Inspection firewall, IP/Port Filter, MAC Filter*<br>VPN: IPSec, OpenVPN, L2TP, GRE, PPTP* |
| **IIoT Industrial Protocol** | Modbus RTU, MQTT, RESTful API |
| **Private Cloud** | ATMS, ATMS OTA |
| **Public Cloud** | AWS Agent, Azure Agent |
| **Location** | Google map, Baidu map |
| **MIB** | MIB-II, Entity MIB, AVCOMM private MIB |
| **Utility** | AIAS, ANMS, Ping, Traceroute |
| **Serial Communication** | TCP Server/TCP Client/UDP mode, TCP Alive check, Force TX Delimiter/Timeout/interval/length, Long Distance Termination |
| **Cellular Configuration (optional modules)** | Radio on/off, 4G LTE/3G HSPA configuration, SIM Security, Connection Status, Cellular to Eth-WAN Redundancy, GPS positioning, Backup SIM Retry (1-10 times) |
| **WLAN Configuration (optional modules)** | WLAN Basic Settings: Radio on/off, 2.4G 11n/5G 11ac Frequency selection, SSID/Multi-SSID configuration, SSID broadcast, Cellular to WLAN Auto Offload and advanced WLAN settings, 802.1X |

| Mechanical | |
|---|---|
| **Installation** | Wall-mount, Pole-mount |
| **Enclosure Material** | Aluminum |
| **GND** | Grounding Nut with Washer |
| **Dimension** | 256 x 306 x 90mm (W x H x D) /without wall-mount poles |
| **Ingress Protection** | IP67 |
| **Weight** | AP402-SCB-AC/ AP402-SCB-NP-AC: ~3.8kg<br>AP402-SCB-DC/ AP402-SCB-NP-DC: ~3.6kg |
| **Environmental** | |
| **Operating Temperature & Humidity** | -40°C~75°C, 5%~95% Non-Condensing |
| **Storage Temperature** | -40°C~85°C |
| **MTBF** | >200,000 hours |
| **Warranty** | 5 years (DC Model), 3 years (AC Model) |
| **Approval** | |
| **CE/FCC** | CE (EN501214 Level) / FCC Part 15B |
| **Railway** | EN50121-4 Compliance |

## Function interface

**Antenna**
- 2x N-female

**Digital Input/Output**
- 2x DI, 3-pin
- 1x DO, 2-pin
- M8 5-pin connector

**audio output (optional)**
- M5 4-pin connector

**Power Connector**
- 1 x M12 4 pin T-Code

**Grounding**

**Ethernet Port**
- 2x 10/100M RJ45
- 802.3af/at PoE+

**Vent**

**Gigabit WAN port**
- 1x 10/100/1000M RJ45

**Serial Communication**
- RS232/422/485
- M8 5-pin connector

## Installation dimensions