Quick Installation Guide

LoRa Modbus Analog I/O Controller
AP100-LM/AP144-LC

www.avcomm.cn

· Overview

The AP100-LM/AP144-LC utilizes the latest Low Power Wide Area (LPWA) technology to build Modbus/RTU communication for long- distance, wide-coverage, and low power consumption wireless IoT applications. Multiple analog inputs and outputs are supported in AP144-LC, such as voltage inputs and outputs, current inputs and outputs, PWM output and one RS-485 port for Modbus RTU slave. One AP100-LM RS485 Modbus RTU can connect up to 250pcs AP144-LC LoRa end nodes for two-way communications where field site analog signals are sent from AP144-LC and controlled by AP100-LM. The LoRa wireless distance can reach up to 3-6KM distance depending on the environment. The AP100-LM/AP144-LC offers great flexibility in wireless IoT applications, such as LED light control, environment sensors and meters reading for Smart City Applications such as Lighting, Smart Farming, Smart Environment Monitor, etc.

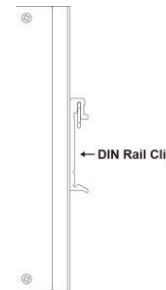| Model Name	Description
AP100-LM	LoRa /Modbus RTU Client Agent 1 x RS-485 Slave 2-wire, 1 x SMA Antenna Connector
AP144-LC	LoRa End-Node, 8CH AIO, 1 Modbus RTU 485 Host 2 x 0~10V input, 0.2% accuracy 2 x 4~20mA input, 0.3% accuracy 1 x 0~10V Output, Open Collect (O.C.) Type, 0.2% accuracy 1 x 4~20mA Output, 0.3% accuracy 1 x PWM Output (0~5V), 200mA (max), 0.2%Duty_Cycle Accuracy @1khz 1 x PWM (0~10V), Open Collect (O.C.) Type, 200mA, 0.2% Duty Cycle accuracy @1Khz, 10V(Max) 1 x RS485 Host, 2-wire, 1 x SMA /LoRa Antenna Connector

· Package Checklist

- 1 x Product Unit
- 1 x 3-pin Removable Terminal Connector
- 1 x Antenna
- 1 x Quick Installation Guide

Optional Accessory (for detailed information please refer to the Datasheet)
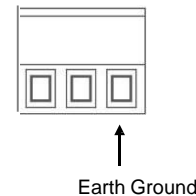
· Installation

DIN Rail mount
To mount the router on the DIN Rail track, insert the upper end of the DIN-Rail clip into the back of the DIN-Rail track from its upper side and lightly push the bottom of the DIN-Rail clip into the track. The DIN Rail should comply with DIN EN50022 standard. Using wrong DIN rail may cause unsafe installation.
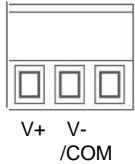
← DIN Rail Clip

Wiring the Grounding
The earth ground is located on the top side of the rdevice. For avoiding system damage by noise or electric shock, establish a direct connection between the ground screw and the grounding surface prior to connecting devices.
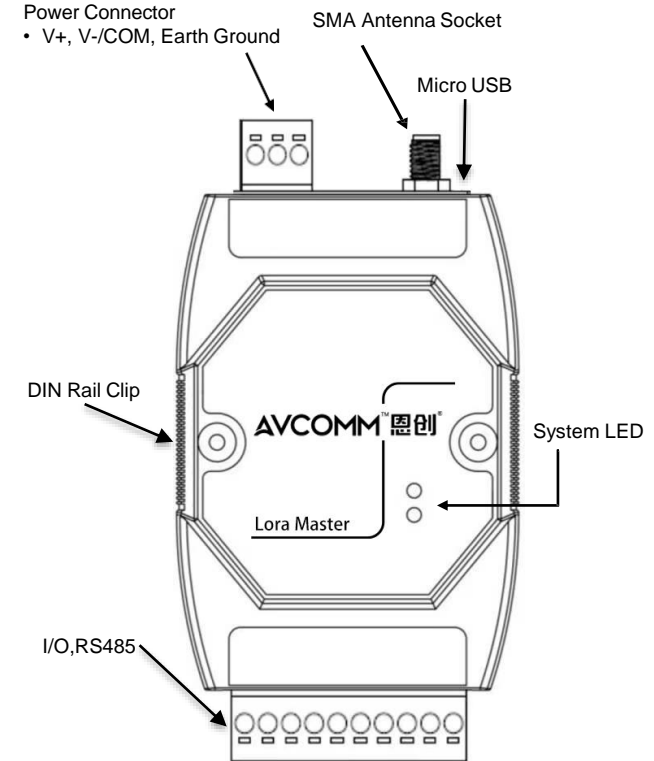
Earth Ground

Wiring the Power Input (10~30V)
1)Insert the positive and negative wires into the V+ and Com contact on the terminal block connector. V-/COM is a share negative pole.
2) Tighten screws when the wire is connected.
3)Connect the power wires to suitable DC Switching type power supply.

V+   V-/COM

· Appearance

Power Connector
• V+, V-/COM, Earth Ground

SMA Antenna Socket

Micro USB

DIN Rail Clip

System LED

Lora Master

I/O,RS485

· LED Indication

LED	Status	Description
Power	Green On	DC-IN Power is On
	Off	No Power in DC-IN
LoRa	Green Blinking	LoRa RF Signal on Communication
	Off	No Signal on Communication

・Antenna

The device supports 1 antennas sockets. The product attaches a black LoRa antenna.

・Safety Precautions

➢ Turn off DC power input source before connecting the DC Power supply module to the terminal block connectors. Do not turn-on the source of DC power module and make sure all connections were well established, then power on the DC source to powering the device.
➢ Do make sure that models connect to the corresponding supply voltage. The device is to be supplied by Limited Power Supply.
➢ The device is designed for Industrial IoT, ITS, wayside surveillance application.
➢ Never install or work on/with the equipment or the cabling during the period of its lightning activity.

・Management

This device supports AVCOMM End-Node Utility management.

1. Connect the Micro USB interface on the device to the PC through Micro USB cable
2. Open AVCOMM End-Node Utility on PC.
3. Key in the username and password in login screen. The default user name and password are ***admin***
4. Utility automatically identifies the COM interface or select correct COM manually，then clicks on "Connect" to connect to the device. When the utility is connected to the device, "Model Name" will display device model name connected to Utility and "Connect" will change to "Disconnect"。

◆ **For further feature configurations, please refer to User Manual.**
◆ **Please download latest AVCOMM End-Node Utility from the website: www.avcomm.cn**

・Support

At AVCOMM，you can use the online service forms to **request the support**. The submitted forms are stored in server for AVCOMM team member to assign tasks and monitor the status of your service. Please feel free to write to sales@n-tron.com.cn if you encounter any problems.

・Warranty

5-year Global warranties are available for AVCOMM products assuring our customers that the products shall remain free from defects in workmanship or materials and conform in all material respects to AVCOMM specifications, or Purchaser's supplied and accepted specifications. The warranty is limited to the repair and/or replacement, at AVCOMM' sole discretion, of the defective product during its warranty period. The customer must obtain a **Return Merchandise Authorization (RMA)** approval code prior to returning the defective Product to AVCOMM for service. The customer agrees to prepay shipping charges, to use the original shipping container or equivalent, and to ensure the Product or assume the risk of loss or damage in transit. Repaired or replaced products are warranted for ninety (90) days from the date of repair or replacement, or for the remainder of the original product's warranty period, whichever is longer.

・Disclaimer

AVCOMM reserves the right to make changes to this QIG or to the product hardware at any time without notice. It is the user's responsibility to determine whether there have been any such updates or amendments herein.
Defects, malfunctions, or failures of the warranted Product(s) caused by damage resulting from unforeseeable incidents (such as lightings, floods, fire, etc.), environmental and atmospheric disturbances, other external forces such as power line disturbances and surge, host computer malfunction and virus, incorrect power input, or incorrect cabling, incorrect grounding and damages caused by misuse, abuse and unauthorized alteration or repair are not warranted.