ASY Electronics (Jiaxing) Co., Ltd

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Address：Room 302, Building 11, No. 79 Jinsui Road, Economic and Technological Development Zone, Jiaxing , Zhejiang P.R. China

Industrial Grade HD-PLC

KS900M DC Filter type manual 1.1

Industrial grade standards

Built-in filtering function

Independent dual-channel network ports and RS485

DC wide voltage is DC12V～48V

Operating temperature-40~85℃

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Catalogue

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Product Introduction

The Broadband Power Line Communication (PLC) Modem KS900M is an industrial-grade communication device based on the IEEE P1901 standard. It utilizes OFDM (Orthogonal Frequency Division Multiplexing) modulation/demodulation technology and complies with the EU EN-50561 standard. This modem leverages existing power lines or slip contact busbars (conductor rails) as the information transmission medium to achieve high-speed, long-distance data transmission. It features high communication rates, bidirectional transparent transmission, excellent transmission stability, strong scalability, and robust anti-interference capabilities.

The KS900M incorporates built-in LDPC (Low-Density Parity-Check) error correction codec and AES-128-bit encryption algorithms. It also features a built-in routing algorithm that enables automatic networking and supports various network topologies, including bus, star, and tree structures. This modem offers data transparent transmission functionality with a 100 Mbps bandwidth and an extended transmission distance. The point-to-point transmission distance can reach up to 500 meters over power lines and up to 2000 meters over coaxial cable.

The KS900M features independent dual-channel data interfaces, supporting simultaneous PLC communication via both Ethernet port and RS485 serial port data. To cater to different application scenarios, the KS900M is available in multiple versions. Hardware versions include the Standard Edition, High-Bandwidth Edition, Long-Distance Edition, and Broadcast Edition. Software versions include the High-Performance Edition, Relay Edition, and Slip Contact Line Special Edition.

Configuration of the KS900M is extremely simple, requiring only a one-click setting of Master and Slave via a DIP switch. When the DIP switch is set to the "M" position, the device acts as the Master. When set to the "S" position, it acts as a Slave. In a single network, there is one and only one Master. This Master can connect to either one Slave or multiple Slaves.

The KS900M meets industrial-grade standards and features a DIN-rail mounting method. Its power supply voltage is DC 12–48V, and it is suitable for PLC communication on power lines or slip contact lines rated below AC 380V or DC 500V. The product fully utilizes existing power line networks, eliminating the need for new signal cable installation and thereby optimizing the complex wiring processes typically associated with network setup.Applications

This product is widely used across various industries, including Intelligent Warehousing (High-bay warehouses, Three-dimensional storage),Automated Parking Systems,Logistics Sorting Systems,Smart Bridge Cranes (Traveling cranes),Inspection Robots,New Energy Battery Swapping Stations,Industrial Automation Control,PLC Control Systems

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Technical data

Classification	Technical indicators
PLC Power supply	DC 12-48V
PLC Signal port	AC380V or not exceeding DC500V power line、slip contact cord
Overload current	≤5A
Modulation type	OFDM
Carrier frequency	2～28 MHz
Ethernet bandwidth	10M/100Mbps
Serial port RS485	Modbus-RTU,baud rate is 1200~115200bps
Transmission distance	500 metres of point-to-point power lines
Data delay	Within 10ms
Packet loss probability	Less than 0.1‰
Overall power consumption	≤3W
Standard agreement	TCP/IP, UDP, Profinet, Home Plug, Home Plug AV, Modbus-TCP, Modbus-RTU, IEEE 802.3, IEEE 802.3U, IEEE 802.3ab, IEEE 1905.1, IEEE 1900，IEEE 1901etc
Way of encryption	AES-128bit
Multicast	Support IGMP multicast protocols,the maximum number of nodes is 128
Exterior dimensions	Size：90*35*130mm （L*W*H） Weight：400g Install：RAIL TS35/TS35 slideway
Environmental requirement	Operating temperature：-40℃～85℃ Operating humidity：20%-95%（No condensation） Storage temperature：-40℃～85℃
Working time	Industrial grade, supports 7*24 hours all-weather work

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Interface specification

Power port Channel interface	DC power input (12–48V)，Positive (left) / Negative (right) Left terminal for positive, right terminal for negative) PLC Channel Port：PLC signal communication port Compatible with power lines or slip contact lines (conductor rails) rated up to AC 380V or DC 500V Non-polarized / Polarity insensitive	**RS485 Serial port**	A：External equipment DATA+ B：External equipment DATA-
LED indicator	Master: Green light is the host’ s indicator，the indicator of host is on,the indicator of the slave is off. Power :The red light is the power indicator, Lights on with power, lights off without power.	**Master -slave dip switch**	Master-Slave setup switch, Dialing to M is the host, Dialing to S is the slave. Set up the master and slave before powering up.
RJ45 network port	Connect network devices such as computers, switches, network cameras, PLC devices, etc； E_link：Ethernet connection indicator, connected device normal green light flashes; P_link：PLC network indicator, network success yellow light is always on, otherwise the light does not light up.	**Grounding termin**	M4 screw earth wire connection
		Install way	TS35 rail mounting

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Connection schematic diagram

The operating voltage of the KS900M Broadband PLC Modem is DC 12–48V. It supports carrier communication via Ethernet port and RS485 signal over power lines or slip contact lines (conductor rails). The modem's operating mode can be set via a DIP switch: When the DIP switch is set to the "M" position, the device functions as the Master. When set to the "S" position, it functions as a Slave. In a single network, there must be one and only one Master. The master-slave configuration must be completed before powering on the device. If you need to change the master-slave settings while the device is powered on, you must perform a power cycle (restart) the modem for the new settings to take effect.

1、One Master and One Slave: The power port is powered by DC. The channel ports (N', L') are connected in parallel to the power line. Phase sequence discrimination is not required. The wiring diagram is shown below.

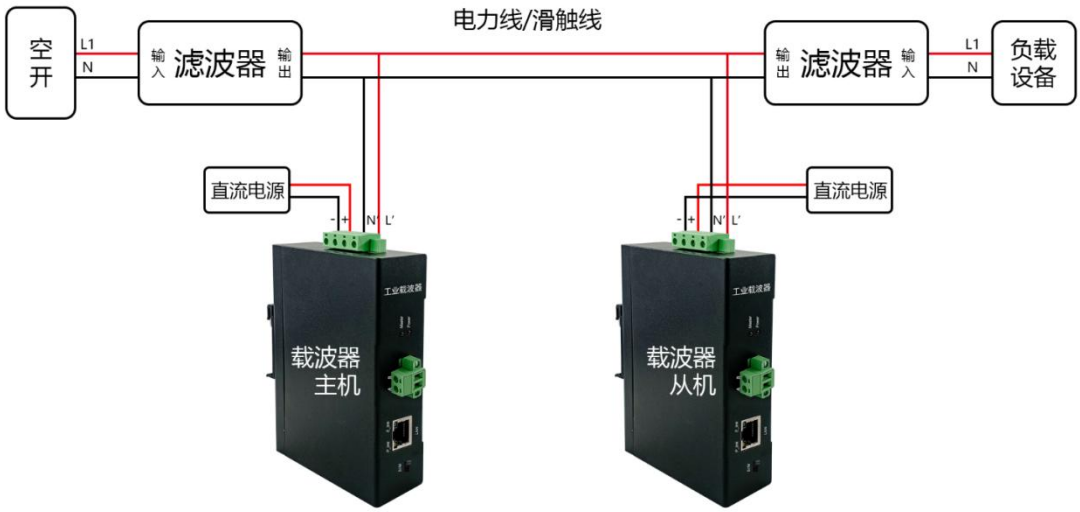

Figure 1

2、One Master and Multiple Slaves: The power port uses a DC power supply. The channel ports (N' and L') of all units are connected in parallel to the power line. Phase sequence discrimination is not required. The wiring diagram is shown in the figure below:

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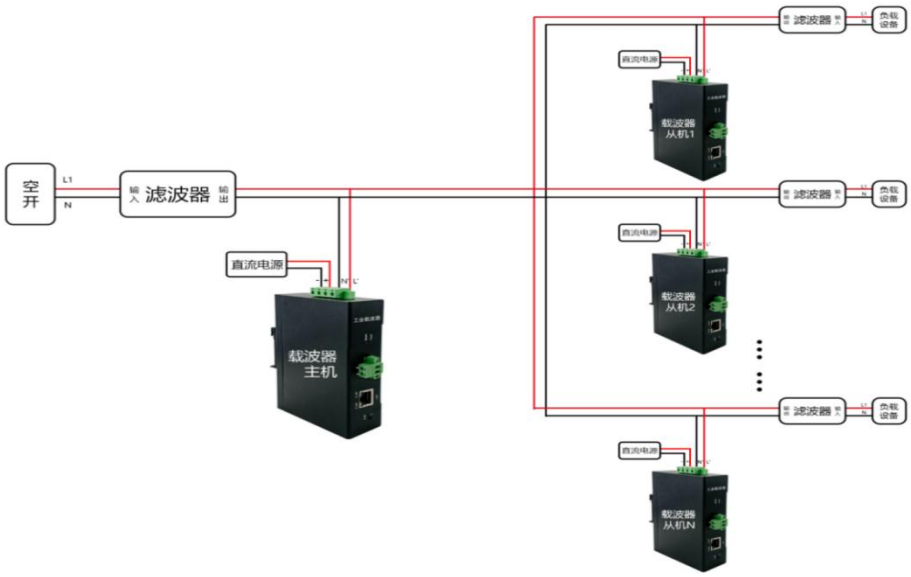

Figure 2

Notice:

1. The power interface of the KS900M Power Line Communication (PLC) modem is a DC power input, with a voltage range of DC 12–48V. The PLC channel interface supports power lines rated up to AC 380V or DC 500V, accommodating both AC and DC systems.
2. The master or slave mode of the modem can be set via a DIP switch. The master-slave configuration must be completed before powering on the device. If the settings are changed after power-up, the modem must be powered off and restarted for the new parameters to take effect. In a single network, there must be one and only one master, and there can be one or more slaves.
3. If significant interference sources exist on the power line—such as variable frequency drives (VFDs), servos, large motors, or high-capacitance capacitors—a dedicated PLC isolation filter must be installed to isolate these interference sources.
4. If the load is a VFD or servo, use a filter specifically designed for such devices. The PLC modem should be installed as far away as possible from the VFD or servo. Signal cables must be shielded twisted pair and must not be routed in parallel or crossed with the output lines of the VFD or servo.
5. The product is not waterproof. Ensure it is used in a dry environment.
6. Troubleshooting and Repairs

In the event of a malfunction, do not disassemble or attempt to repair the product yourself. Please contact the manufacturer or the point of purchase for support.

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7. Risk of electric shock. Do not work on the device while it is powered on. The broadband PLC modem is equipped with energy storage components. A voltage hazard remains for up to 10 seconds after power is disconnected. Do not touch the terminals immediately after power-off. Never short-circuit the output terminals or connect them to the enclosure.

Common problems troubleshooting

When installing and using a PLC， if the carrier network is disconnected or the communication is unstable，please follow these precautions，and as a reference to common problems troubleshooting，in order to minimize malfunctions and maintenance work during use.

1. Please connect correctly according to the connection diagram，the wiring should be secure.If the connection is wrong or loose, the network will be disconnected.

2. Check that the master and slave settings are correct.The master-slave dialing switch dialing to the M end is the host, and the switch dialing to the S end is the slave.Setting up the master and slave before powering up，if setting up a master-slave with power, be sure to power down and reboot the entire network.Ensure that the network has one and only one host and can have one or more slaves.

3. Check whether the power filter is correctly connected.PLC needs to be used with a special power filter，and the PLC mustn’t be separated from each other by power filters.The power filter needs to distinguish directions，the input end is connected to the power input or load, and the output end is facing the PLC.Pay special attention to the load side filter to reverse wiring，that is, the output side is facing the PLC，the input side is connected to the load.

4. Check that the power lines for carrier communication are on the same loop.PLC must be used under the same transformer，master and slave must be connected on the same loop，and the less branches the better.Try not to pass the electric meter , through the number of air switches, contactors, etc, the less the better.

5. Check whether there are strong interference sources such as frequency converters and large capacitors on the line.In strong interference environments, it is recommended to use shielded cables for power lines and data signal lines for carrier communications,and do not parallel or cross-wire with the source of interference, as far as possible away from the source of interference.

If you encounter problems in the process of use, you can always contact the manufacturer for technical support and assistance.Manufacturers provide professional technical support, including telephone, wechat, email, online remote support and other ways.

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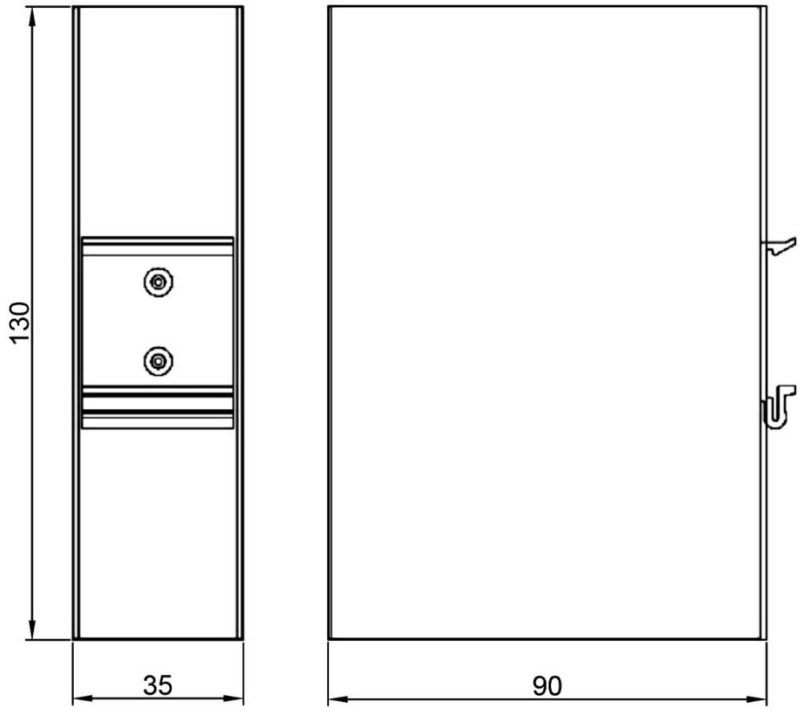
Exterior dimensions

The PLC ’ s length, width and height are：90x35x130mm（Without terminal），TS35 rail mounting method，

Dimensional drawings are as follows：



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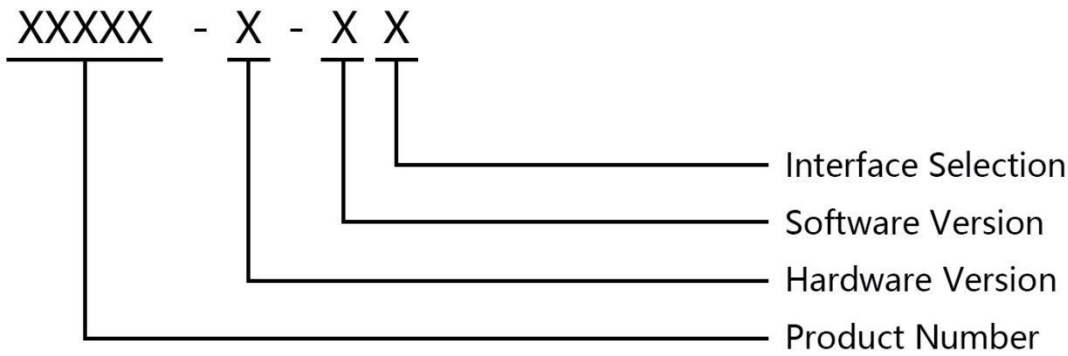
Model selection guide

Model specification description：



According to the actual application, you can refer to the following steps to select the model：

Product Type

DC filter type：KS900M	Operating voltage DC12~48V

Hardware Version

B：Standard module	Point-to-point 500 meters	Bandwidths：10/100Mbps
C：High bandwidth module	Point-to-point 300 meters	Bandwidths：10/100Mbps
D：Long distance edition	Point-to-point 1000 meters	Bandwidths：10/50Mbps
E：Broadcast version	Point-to-point 500 meters	Bandwidths：10/100Mbps
F： Extreme edition	Point-to-point 500 meters	Bandwidths：10/100Mbps

Software Version

E：High performance edition	The number of communication nodes is within 16 pcs
R：Relay version	The number of nodes ranges is from 16 to 999 pcs
W：Sliding touch version	Special for sliding touch line

Interface Selection

1.Single network RJ45	2.Network port+serial port RS485

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