



Industrial Grade Power Line Carrier(PLC) Modem KS500L Serial port version specification 1.0



Transparent transmission of high-bandwidth data

Long range up to 3 kilometres

Supports up to 1000 nodes

Support RS232,RS485 serial port data

Working voltage: AC85-300V or DC70-430V

Industrial standard: -40°C~85°C



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Product Introduction

Power line carrier KS500L is a high-performance industrial power line carrier communication equipment based on SOC processor , adopt OFDM modulation technology, subcarriers support BPSK, QPSK, 16QAM modulation, compliance with the EU EN-50561 standard specification , the carrier frequency band is 700KHz ~ 2MHz.Using the existing power line as the information transmission medium for high-speed long-distance data transmission , with high communication rate 、 two-way transparent transmission、 good transmission stability、 strong scalability and other characteristics.

Power line carrier KS500L supports serial port RS485, RS232 and other data through the power line long-distance transmission communication,built-in routing algorithm, automatic network, built-in LDPC error correction codec, AES-128bit cryptographic algorithm, the data is fully transparent, plug and play.Power line point-to-point transmission distance up to 3000 meters , the networking mode supports bus type, star type, tree type, and hybrid network topology structure.

The KS500L power line carrier is an industrial standard, it is suitable for AC85-300V or DC70-430V power line carrier communication , make full use of existing power line network without rewiring,maximize the optimization of network networking cumbersome wiring.

Main areas of application:

Power grid meter reading

Industrial control

Instruments and apparatus

Intelligent transformation

Intelligent street light

Intelligent parking lot



Technical data

Classification	Technical indicators
Power port Channel interface	AC85-300V or DC70-430V power line
Data interface	RS485、RS232
Modulation type	OFDM, BPSK、QPSK、16QAM
Carrier frequency	700KHz~2MHz
Communication speed	2400bps-1Mbps
Transmission distance	Power line point to point 3000 meters
Networking capability	The maximum support for 1000 nodes
Gain	100dB
Overall power consumption	≤2W
Way of encryption	AES-128bit
Exterior dimensions	Size: 79.3x35x100mm (L*W*H) Weight: 280g
Environmental requirement	Operating temperature: -40°C ~ 85°C Operating humidity: 20%-95% (Non-condensation) Storage temperature: -40°C ~ 85°C
Working time	Industrial grade, supports 7*24 hours all-weather work

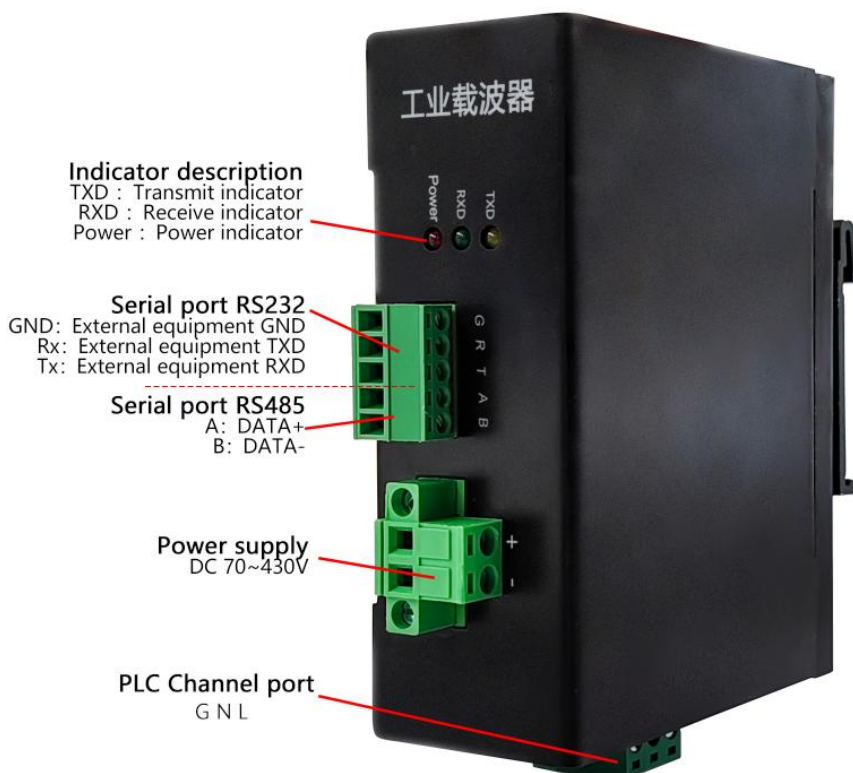


Business inquiries: +86 181 5734 3325

E-mail: sales@king-sen.com Website: www.asyjx.com

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

Interface specification



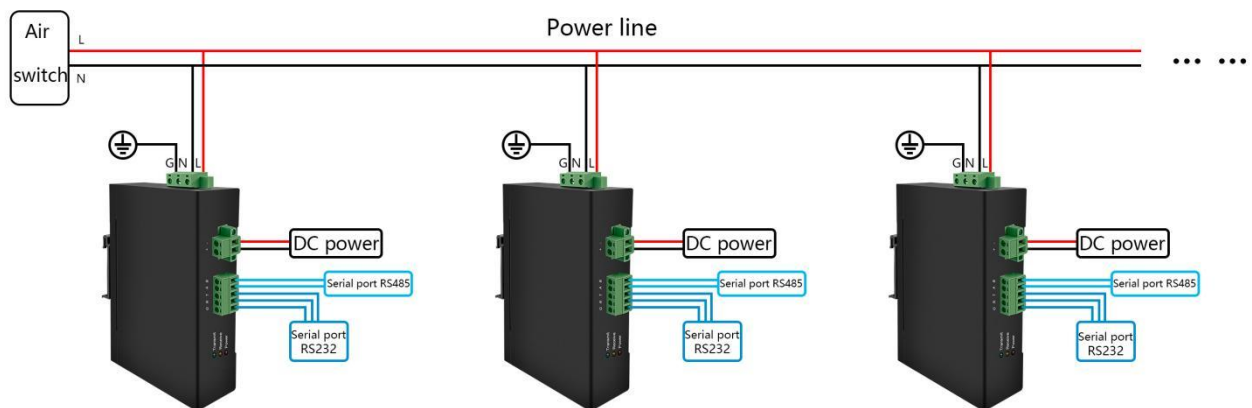
Channel interface	AC:85~300V , do not distinguish between phase sequence or positive and negative.	Serial port	RS485: A vs A, B vs B ; RS232: Rx vs Tx, Tx vs Rx,GND vs GND
Power port	DC: 70~430V	LED indicator	RXD:Receive indicator TXD:Transmit indicator Power:Power indicator



Connection schematic diagram

Power Carrier KS500L supports carrier communication on AC:85-300V or DC:70-430V power line. The power port is connected to DC power supply, and the PLC channel port is connected to the power line in parallel, which is self-networking, self-routing and data transmission. A network must have and can only have one master, a master can take one slave or multiple slaves.

Refer to the wiring diagram, as follows :



Notice:

1. Carrier is divided into host and slave, before leaving the factory will set up master and slave, a network has and can only have a host.
2. The power carrier is connected in parallel to the power line and supports on-line power pickup when the power line has AC 85-300V.
3. If there are large interference sources on the power line, such as frequency converter, large motor, large capacitor, etc., it is necessary to add power filter to isolate the interference source.
4. Do not operate with electricity, do not touch the output terminals directly, and do not short the output terminals or connect them to the housing.
5. The product is not designed to be waterproof, please ensure that the product is used in a dry environment.
6. If the product malfunctions, it cannot be disassembled and repaired by yourself, please contact the manufacturer or purchase channel in time to deal with it.



Common problems troubleshooting

When installing and using the carrier, if the carrier network is not available or the communication is unstable, please follow the following precautions and use them as a reference for troubleshooting common problems in order to reduce faults and maintenance inspections during use.

1. Please follow the connection diagram to connect the wires correctly, and the wiring should be secure. If the wiring is incorrect or loose, the network will not work.
2. Check that the power filter is wired correctly. The carrier needs to be used with a dedicated power filter, and there should be no power filter between the carriers. The power filters need to be wired in different directions, with the input terminal connected to the power input or load, and the output terminal is face to the carrier. Pay special attention to the load side filter should be reversed, that is, the output terminal if face to the carrier, the input terminal is connected to the load.
3. Check whether the power line of carrier communication is in the same loop. The carrier must be used under the same transformer, and the master and slave must be connected to the same circuit, and the fewer branches, the better. As far as possible without the meter, the less the number of air switches, contactors, etc., the better.
4. Check whether there are strong interference sources such as inverters and large capacitors on the line. In a strong interference environment, it is recommended to use shielded wires for power lines and data signal lines of carrier communication, and not to parallel or cross the wires with the interference sources, and try to stay away from the interference sources.

If you encounter problems during use, you can always contact the manufacturer for technical support and help. The manufacturer provides professional technical support, including telephone, WeChat, email, online remote support and other ways.



Business inquiries: +86 181 5734 3325

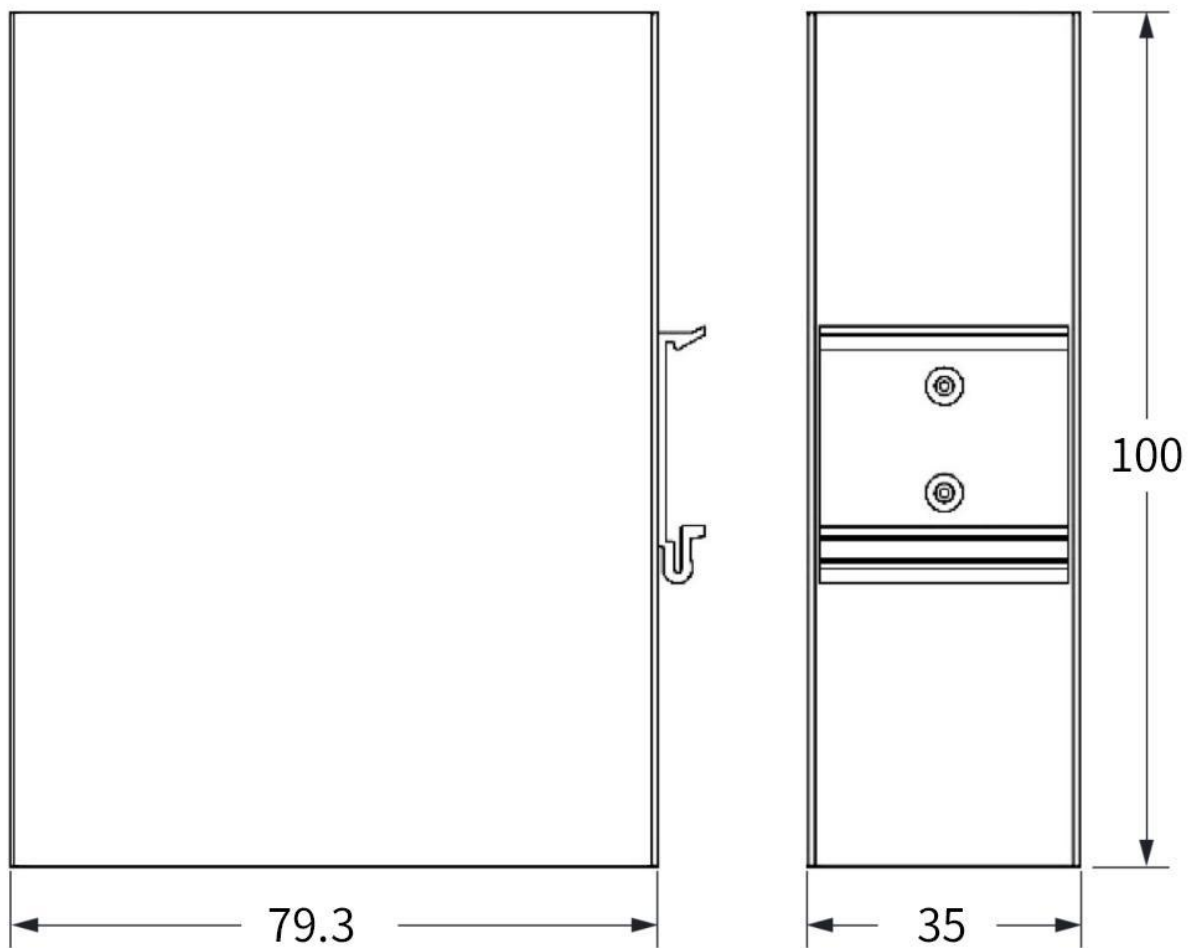
E-mail: sales@king-sen.com Website: www.asyjx.com

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

Exterior dimensions

The PLC ' s length, width and height are: 79.3x35x100mm (Without terminal) ,

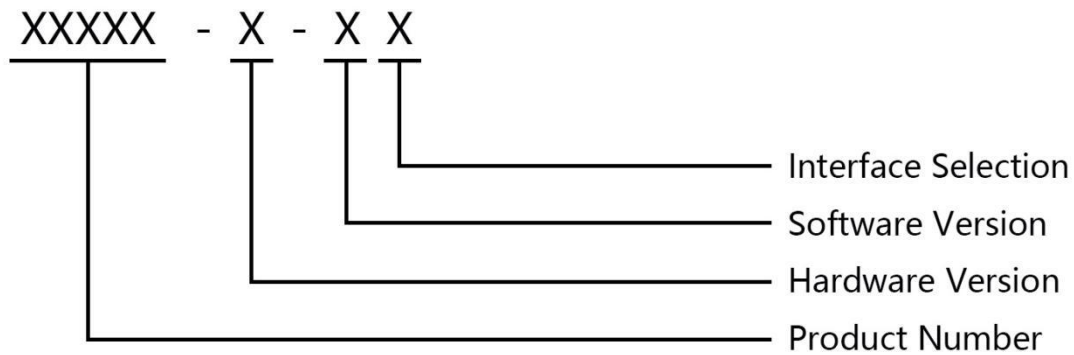
Dimensional drawings are as follows:





Model selection guide

Model specification description:



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

Product Type

Serial port single-phase type host :	KS500LM
Serial port single-phase type slave:	KS500LS

Hardware Version

TS : On-line electricity supply	Power port : 0 V	PLC Channel port : AC: 85~300 V
TP : Electricity supply type	Power port : DC: 70~430 V	PLC Channel port : AC: 0~300 V

Software Version

E: High performance edition	The number of communication nodes is within 32 PCS
R: Relay Edition	The maximum number of nodes is 1000 PCS

Interface Selection

1.Serial port: RS232	2.Serial port: RS485
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ASY Electronics (Jiaxing) Co., Ltd

Business inquiries: +86 181 5734 3325

E-mail: sales@king-sen.com Website: www.asyjax.com

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

Contact Us



Business Phone: 18157343325 Lila Xu

Technical Phone: 18057302496 Wailly Yang

E-mail: sales@king-sen.com

Office website: www.asyjax.com

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

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