



Industrial Grade HD-PLC

KS802N Gigabit type manual 1.1



Gigabit bandwidth

Highly versatile

Ultra-small volume

Industrial grade standard



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Catalogue

Product Introduction	3
Technical Data	4
Interface Specification	5
Connection Schematic	6-7
Notice	8
Appearance Dimension	9
Selection Guide	9
Contact Us	10



Product Introduction

High Definition- Power Line Communication KS802N is an industrial-grade, high-bandwidth, long-distance transmission power carrier communication device with excellent performance, based on IEEE P1901, using OFDM modulation and demodulation technology, industrial-grade bandwidth power line carrier communication equipment compliant with the European Union's EN-50561 standard specification. HD-PLC utilizes existing power lines or slip touch cord as the information transmission medium for high-speed, long-distance data transmission.

It is characterized by high communication rate, bi-directional transparent transmission, good transmission stability, strong scalability and strong anti-interference.

HD-PLC KS802N carrier rate physical layer bandwidth up to 1000Mbps, hundred megabytes of data layer bandwidth, normal power line transmission distance is 300 meter, conforms to HomePlug AV standard, supports ethernet data communication via power line carrier. Built-in algorithms, no need to set up master-slave, self-bring route, automatic networking; Flexible networking, supports bus, star, tree, and hybrid network topologies structure. Built-in LDPC error correction codec, AES-128bit data encryption, fully transparent data transmission, supports hot-swapping, plug-and-play.

According to the different ways of power supply, PLC KS802N is divided into general-purpose type KS802NT and DC type KS802NS. General-purpose type KS802NT requires DC power supply, the scope of power supply is DC12-48V, suitable for voltage AC 0-220V, DC 0-400V carrier communications over power lines, PLC channel port does not distinguish between phase sequence or positive and negative polarity. DC type KS802NS is suitable for DC 12-48V power line carrier communication, PLC channel port supports on-line power pickup, and the power port does not require a separate power supply.

HD-PLC KS802N industrial standards, ultra-small size, the length, width and height is 92*40*25mm. Products have been widely used in various industries, including inspection robots, pipeline robots, underwater robots, intelligent charging piles, intelligent street lighting, intelligent traffic monitoring and other fields.

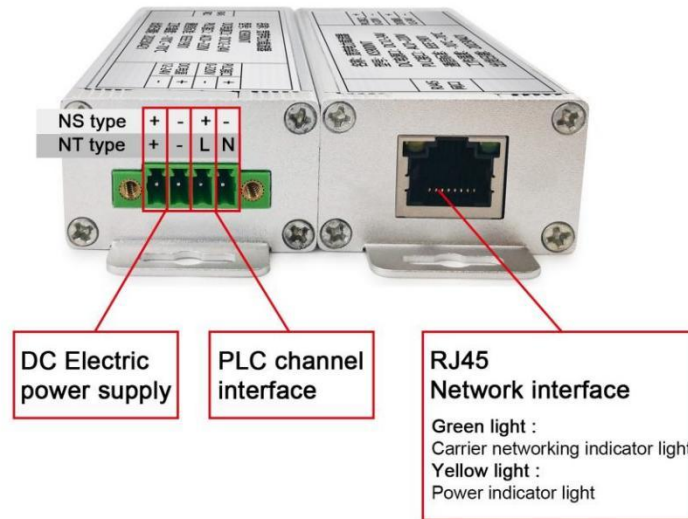


Technical data

Classification	Technical indicators	
Power supply	DC 12-48V	
PLC Signal port	NS type: DC12-48V	NT type: AC 0-220V or DC 0-400V
	Any two-core cable, power cable, parallel cable, twisted pair cable, coaxial cable, etc.	
Modulation type	OFDM modulation type	
Carrier frequency	1.8 ~ 86 MHz	
Ethernet bandwidth	10M/100Mbps self-adaption	
Transmission distance	Ordinary power lines is 300 meter	
Data delay	Within 10ms	
Packet loss probability	Less than 0.1%	
Overall power consumption	≤3W	
Standard agreement	TCP/IP, UDP, Profinet, Home Plug, Home PlugAV, 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: 92*40*25mm (L*W*H)	
	Weight: 200g	
	Install: Earhook	
Environmental requirement	Operating temperature: -40°C ~ 85°C Operating humidity: 20%-95% (No condensation) Storage temperature: -40°C ~ 85°C	
Working time	Industrial grade, supports 7*24 hours all-weather work	



Interface specification



<p>PLC channel interface</p>	<p>NS type: DC12-48V, distinguish between positive and negative poles. NT type: Support AC 0-220V or DC 0-400V AC, DC, or uncharged dedicated lines are available, does not distinguish between phase sequence or positive and negative polarity.</p>	<p>Power supply interface</p>	<p>Voltage power supply DC:12-48V Note: Distinguish between positive and negative poles</p>
<p>RJ45 network port</p>	<p>Connect network devices, such as computers, switches, network cameras, PLC devices, etc; Network port green light: Carrier networking indicator, networking success light is always on; Network port yellow light: Power indicator light, with power the light on.</p>	<p>Install way</p>	<p>Earhook: M4 screw*2</p>
		<p>Notice</p>	<p>KS802N type no need to set up a host or slave, self-organizing network, plug and play.</p>



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Connection schematic diagram

Carrier module KS802N is divided into DC type KS802NS and general type KS802NT , supports bus, star, tree, and hybrid network topologies structure.

DC type KS802NS is suitable for direct current DC12-48V carrier communications over power lines , according to the power line with the load situation is divided into two types of wiring with load and without load dedicated line.

1. DC type KS802NS power line with load , need to be used with filter.The power supply port is suspended and not connected , PLC channel port is connected in parallel to the DC power line , be careful to distinguish between positive and negative poles.Reference wiring schematic:

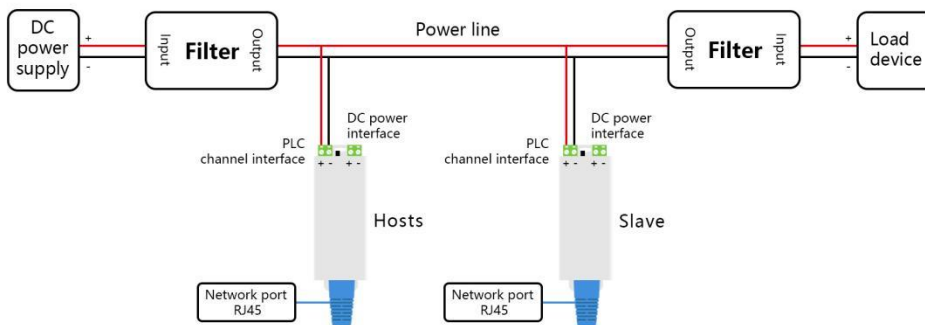


Figure 1

2. DC type KS802NS power lines without loads go on dedicated lines, the power port of the carrier on the power supply side is connected to a DC12-48V power supply , other carrier power supply port is suspended and not connected, The channel ports of all carriers are connected in parallel to the DC power line , be careful to distinguish between positive and negative poles.Reference wiring schematic:

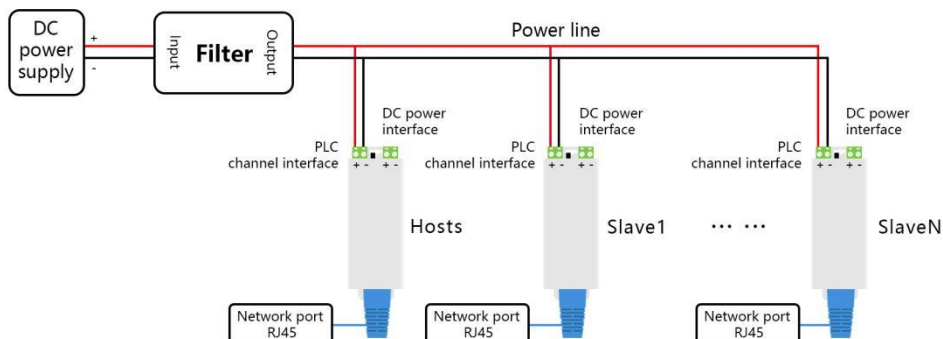


Figure 2



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General type KS802NT is suitable for alternating current AC 0-220V or direct current DC 0-400V power line carrier (PLC) communications , AC, DC, or uncharged dedicated lines are available. The PLC need separate power supply , supply voltage is DC12-48V. According to the power line with the load situation is divided into two types of wiring, with load and without load dedicated line.

3. General type KS802NT power line with load, need to be used with filter. The power port connects to a DC12-48V power supply , distinguish between positive and negative poles; PLC channel port is connected in parallel to the DC power line, no need to distinguish between phase sequence or positive and negative polarity. Reference wiring schematic:

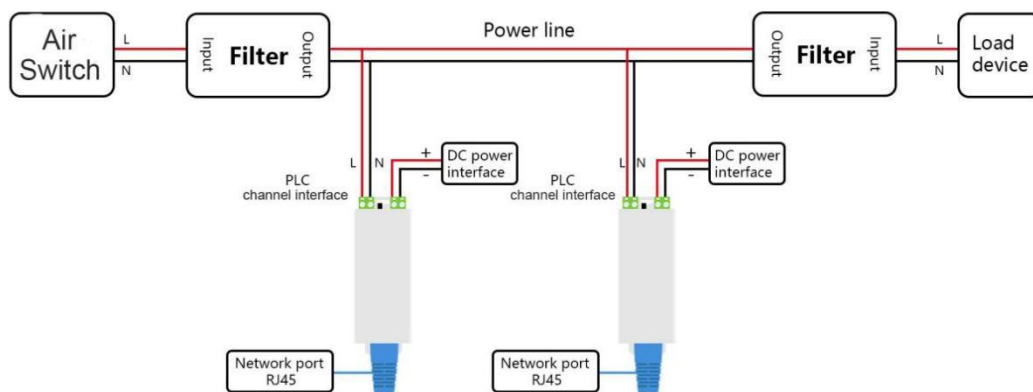


Figure 3

4. General type KS802NT power lines without loads go on dedicated lines, power port for DC12-48V power supply, distinguish between positive and negative poles; PLC channel port is connected in parallel to the DC power line, no need to distinguish between phase sequence or positive and negative polarity. Reference wiring schematic:

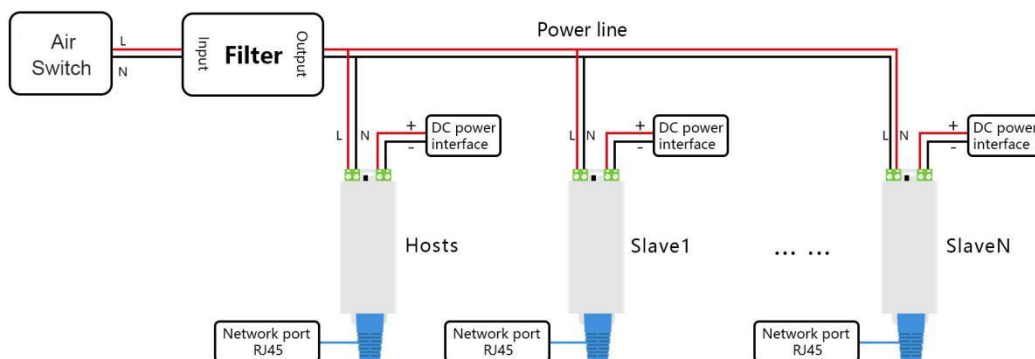


Figure 4



Notice:

1. PLC KS802N is no need to configure host and slaves by default , autonomous negotiation of host-slave relationship after power-up.Support for 1-to-1 or 1-to-multi-networking, recommended number of nodes is no more than 8.
2. The minimum operating voltage of PLC KS802N is DC12V, ensure that the power supply voltage for each carrier is above DC12V.
3. PLC KS802N is divided into DC type and general type , the power port and channel port of KS802NS need to distinguish between positive and negative polarity; General type KS802NT requires DC power supply , channel port does not distinguish between phase sequence or positive and negative polarity.
4. The physical layer of PLC KS802N is gigabit bandwidth , the data layer is hundred megabits of bandwidth.Normal power line transmission distance is 300 meters, shielded twisted pair transmission distance up to 500 meters.
5. When used on loaded power lines, need to use with a dedicated filter.The filter needs to distinguish the direction, filter input side is connected to power input or connected to a load, the output end is opposite to the carrier.Especially note that the input and output of the filter on the load side need to be reversed , the output end is facing the carrier, and the input end is connected to the load.
6. If the load has a servo or inverter, please use the special filter for the inverter, shielded wire is recommended for the PLC's power lines,and can not parallel with the frequency converter output line or cross the line.。
7. Please connect correctly according to the connection diagram, and the wiring should be reliable.If wiring is incorrect or loose, the network will not work.
8. 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.
9. The product is not designed to be waterproof, please ensure that the product is used in a dry environment.
10. If the product is malfunctioning, do not disassembled and repaired by yourself, please contact the manufacturer or purchase channel in time to deal with it.



Common problems troubleshooting

If you experience network disconnection or unstable communication during the installation and use of the PLC modem, please follow the precautions below and use them as a reference for common issue troubleshooting. This will help minimize operational faults and maintenance work.

1. Ensure all connections are made correctly according to the wiring diagram. All terminals must be securely fastened. Incorrect or loose wiring will result in network failure.
2. Verify that the isolation filter is correctly wired. The PLC modem must be used in conjunction with a dedicated isolation filter. The isolation filter is directional: The input side should be connected to the power source or the load. The output side must face toward the PLC modem. The modem should be installed between the output terminals of the isolation filter. Do not install an isolation filter in the circuit loop between modems.
3. Pay special attention: The filter on the load side must be connected in reverse orientation. That is, its output side faces the PLC modem, and its input side connects to the load.
4. Verify that the power lines used for PLC communication are on the same circuit. All modems (Master and Slaves) must be used under the same transformer and connected to the same loop. The loop should be as short as possible, with as few branches as possible. The number of devices on the loop—such as circuit breakers, contactors, and meters—should also be kept to a minimum.

If you encounter any issues during operation, please feel free to contact the manufacturer for technical assistance and support.

The manufacturer provides professional technical support through various channels, including: Phone, WeChat, Email, Online remote support



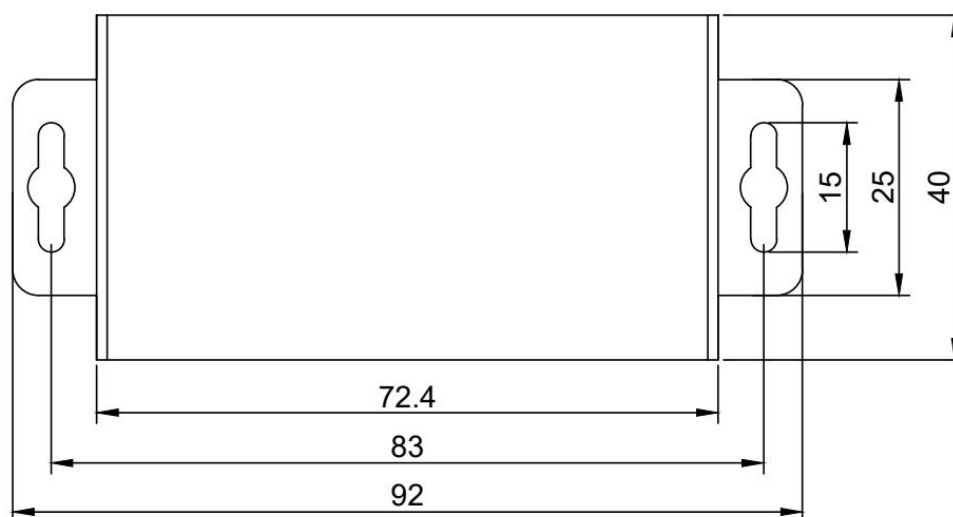
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Exterior dimensions

PLC KS802N' s length, width and height are: 92x40x25mm(with fixed ear), fixed hole spacing is 83mm, fix with M4 screw.The size diagram is as follows:



Model selection guide

Product type		
General type: KS802NT	Operating voltage : DC12~48V	PLC channel interface: AC 0-220V or DC 0-400V
DC type: KS802NS	Operating voltage : DC12~48V	PLC channel interface: DC12-48V



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