



ASY Electronics (Jiaxing) Co., Ltd

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Gigabit Bandwidth

KS1000M Gigabit type manual 1.1



Industrial ethernet transparency propagation

Gigabit bandwidth 4 8 0 M b p s

Transmission distance 800M Anti-Surge A C 4 0 0 0 V

Operating temperature - 4 0 ~ 8 5 °C

Rail-type installation



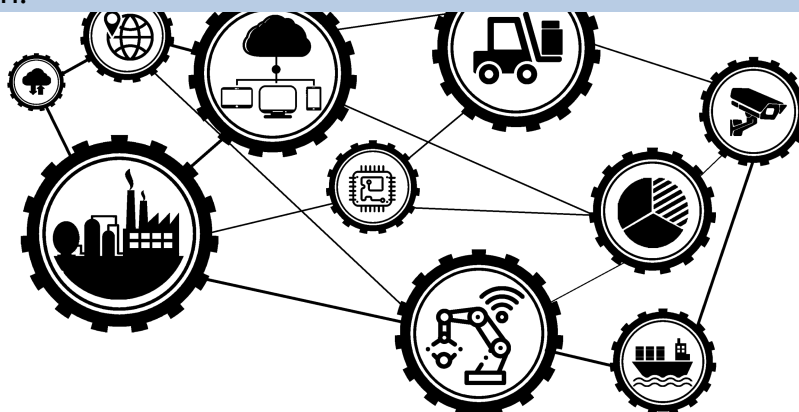
Production Introduction

High Definition- Power Line Communication KS1000M is a gigabit bandwidth power carrier communication equipment based on IEEE P1901, using OFDM modulation and demodulation technology, and conforming to the EU EN-50561 standard. High Definition- Power Line Communication (For short HD-PLC). A type of communication that communication refers to the high-speed transmission of data through existing power lines or slip contact cord as a medium for information transmission, with high communication rate, two-way real-time transmission, strong anti-interference, good stability, scalable, strong scalability and other advantages.

HD-PLC KS1000M is a gigabit bandwidth power carrier, meet HomePlug AV/AV2 standard, self-contained routing algorithm, self-routing, self-organized network, AES-128bit encryption algorithm, fully transparent dissemination of data, plug-and-play. Supports a variety of networking methods, bus, star, tree, and hybrid network topologies structure.

HD-PLC KS1000MA is adopt dual power supply design, it can be powered either through the power supply port or through the PLC channel port line to take power. When using the power supply port to offer power supply, the power supply port voltage is DC12 ~ 48V, PLC channel port support power line or slid contact cord carrier communication below AC 500V or DC 700V. When the voltage of power line or slip contact cord is AC85~500V or DC100~700V, the carrier can be picked up the power on power lines or slid contact cord via the PLC channel port.

HD-PLC KS1000M is an industrial grade power line carrier, suitable for industrial communication scenarios in harsh environments, including mines, oilfields, warehousing, logistics sorting, three-dimensional parking garages, railway and metro communications, industrial automation control and other fields, through the existing power lines or slip contact cord for bidirectional, real-time, high-speed, long-distance data transmission.





Technical data

Classification	Technical indicators
Power supply	MS type: DC 12-48V, also can be taken the power from the PLC port line MT type: DC 12-48V
PLC channel interface	MS type AC: AC85V ~ 528V, 50Hz/60Hz DC: DC100V ~ 745V MT type AC: 0-500V
Overall power consumption	≤5W
Modulation Type	OFDM
Ethernet	10M/100M/1000Mbps self-adaptation
Transmission bandwidth	Max is 480Mbps
Transmission distance	Power line up to 800 meters, coaxial cable maximum 3000 meters
Carrier frequency	2 ~ 68 MHz
Data delay	With 10ms
Packet loss probability	Less than 0.1‰
Standard agreement	IEEE 1900, IEEE 1901, IEEE 1905.1, IEEE 802.3, IEEE 802.3U, IEEE 802.3ab, Home Plug 1.0, Home Plug AV, Home Plug AV2, TCP/IP, UDP, Profinet, Modbus-TCP, QAM, QPSK, BPSK, ROBO, HS-ROBO, Mini-ROBO
Way of encryption	AES-128bit
Multicast management	Support IGMP multicast protocols,the maximum number of nodes is 64
Exterior Dimensions	105.2*53.5*136mm (L*W*H)
Environmental requirement	Operating temperature: -40°C ~ 85°C Operating humidity: 10%-95% (Non-condensation) Storage temperature: -40°C ~ 85°C
Working time	Industrial grade, supports 7*24 hours all-weather work
Installation method	RAIL TS35/TS35 installation of steel rail



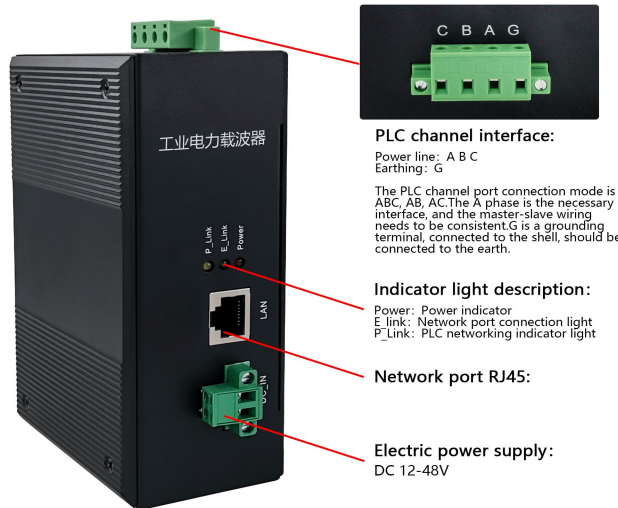
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Interface specification



PLC channel interface:

Power line: A B C
Earthing: G

The PLC channel port connection mode is ABC, AB, AC. The A phase is the necessary interface, and the master-slave wiring needs to be consistent. G is a grounding terminal, connected to the shell, should be connected to the earth.

Indicator light description:

Power: Power indicator
E_Link: Network port connection light
P_Link: PLC networking indicator light

Network port RJ45:

Electric power supply:
DC 12-48V

Power port	Power supply DC:12-48V, Note: Distinguish between positive and negative poles.
Indicator light	Power : The red light is the power indicator
	E_Link :The green light is the network port connection light.
	P_Link :The yellow light is networking communication light.
PLC Channel interface	MT type: 0-500V, both AC and DC are available
	MS type: AC 85-528V or DC100-745V, both AC and DC are available
Wiring instructions	The wiring method is: ABC/AB/AC, A phase is the necessary interface; PLC Channel port wiring needs to in phase. G is earth wire
Installation method	TS35 rail mounting



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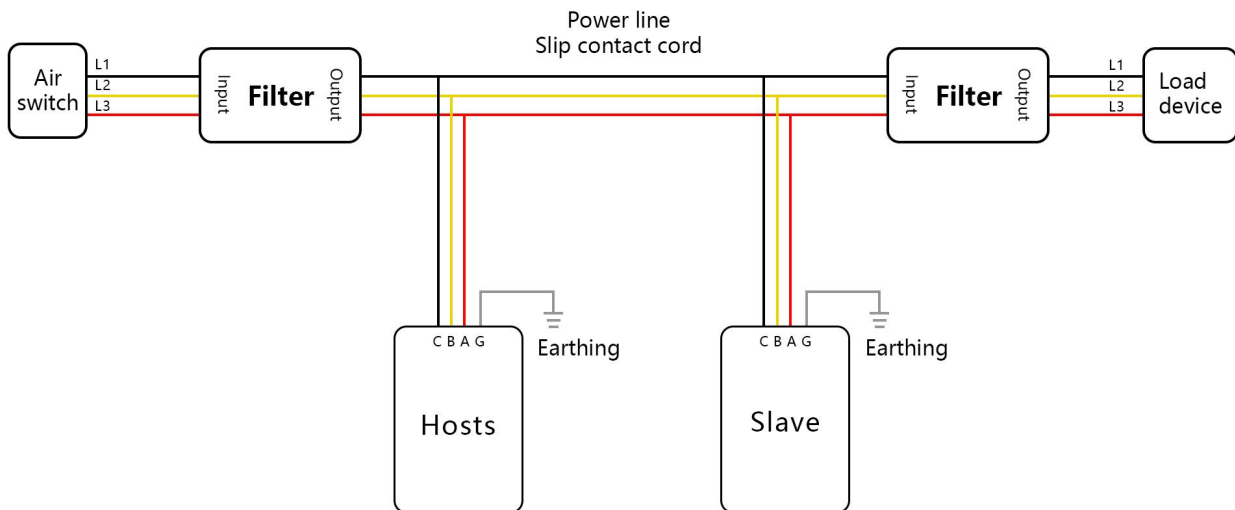
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Connection schematic diagram

Online electricity withdrawal KS1000MS: The power supply port does not need to be powered separately, PLC channel port both AC and DC are available, supports AC 85-528V / DC 100-745V power line carrier communication. Phase A is a mandatory interface, and the wiring methods are: ABC/AB/AC, need to in phase. The wiring diagram is as follows:

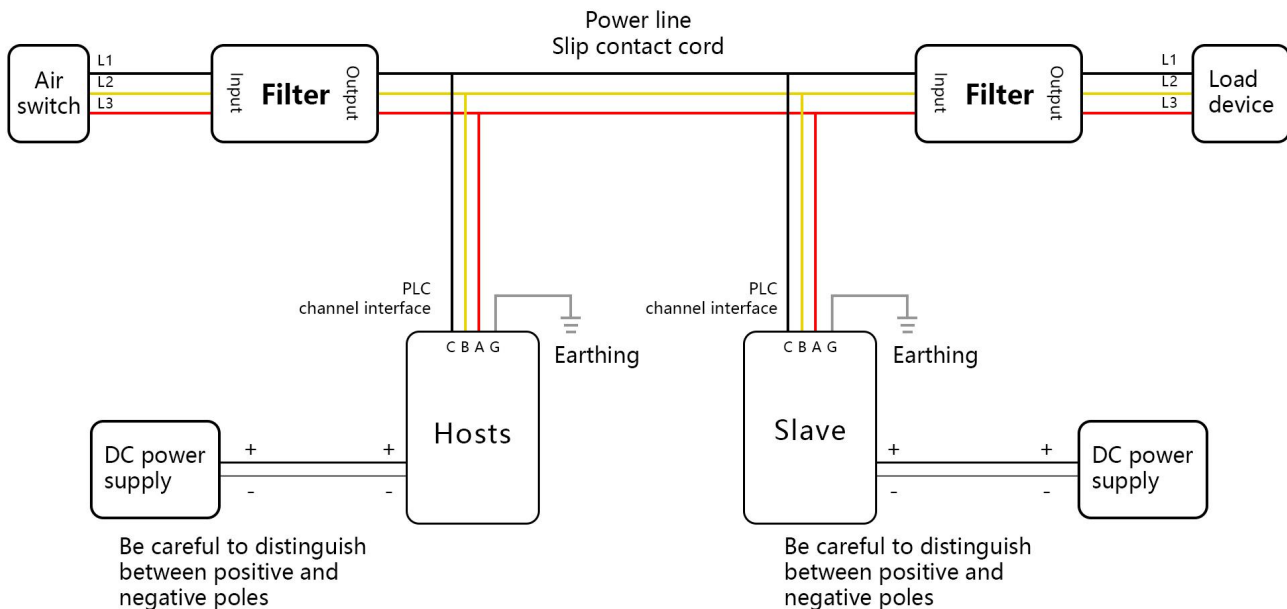
Online electricity withdrawal type KS1000MS wiring diagram





Power supply type KS1000MT : Power supply voltage of power port : DC12-48V , PLC channel port is available for both AC and DC , supports power line carrier communication below 500V.Phase A is a mandatory interface, and the wiring methods are: ABC/AB/AC, need to in phase.

Power supply type KS1000MT wiring diagram





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Notice

1. PLC KS1000M :There is no need to configure the host and slave by default , after power on, autonomously negotiate the master-slave relationship.Support 1 pair 1 and support 1-to-many networking , it is recommended that the number of nodes should not exceed 16.
2. PLC channel interface A is a mandatory interface , can connected A/B/C , also can connect A/B or connect A/C.Full access to A/B/C can get higher bandwidth.
3. In practical application, the PLC needs to be used with a power filter.The filter needs to distinguish directions, special note that the input and output of the load side filter need reverse wiring, output side is facing PLC, input side is connected to the load.
4. 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.
5. Troubleshooting of common network failure : Check whether the wiring is correct and reliable , is the PLC channel port in the same loop on the road , is the power supply within the working voltage range , whether there are interference sources on the cable without filter isolation, etc.
6. 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.
7. The product is not designed to be waterproof, please ensure that the product is used in a dry environment.
8. 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.



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Communication rate table of dedicated line test:

Testing environment:

Two power line carriers supply power independently , PLC channel port is directly connected through a dedicated line, the power line does not carry any load.

Power line	Distance (米)	Sending rate(Mbps)
Shielded twisted pair-3 core	10	480
Shielded twisted pair-3 core	100	248
Shielded twisted pair-3 core	200	200
Shielded twisted pair-3 core	300	146
Shielded twisted pair-3 core	400	110
Shielded twisted pair-3 core	800	50



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.

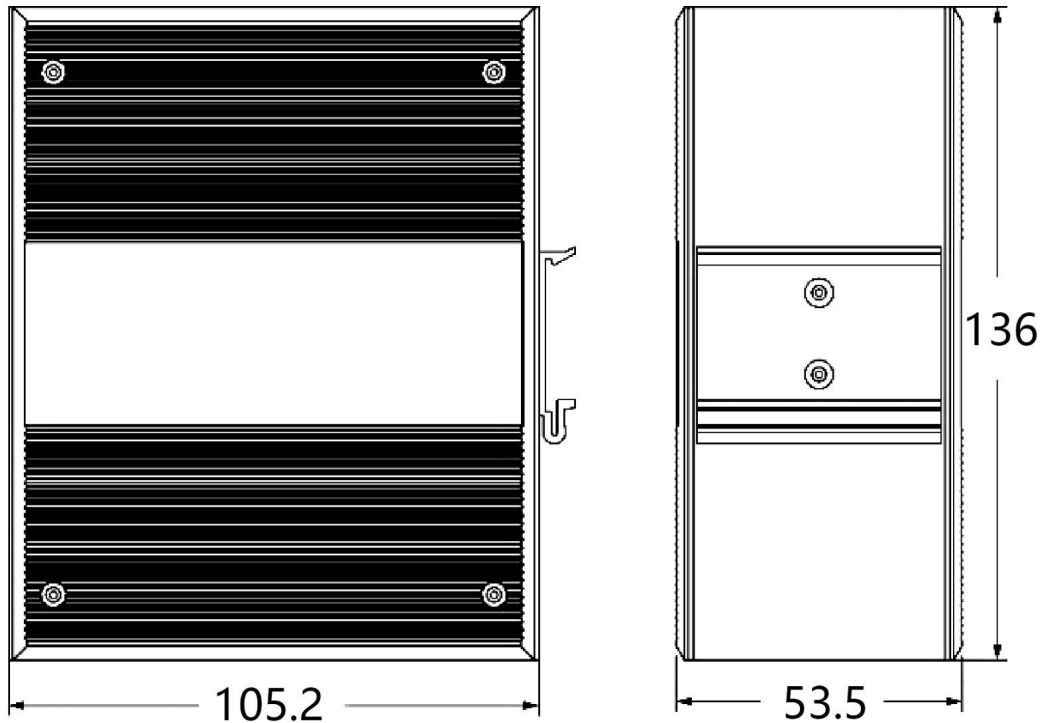
4.Check that the power lines for carrier communication are on the same loop.PLC must be used under the same transformer, master and slave must be connected on the same loop, and the less branches the better.Try not to pass the electric meter , through the number of air switches, contactors, etc, the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

Exterior dimensions

The PLC(KS1000MS) ' s length, width and height are: 105.2*53.5*136mm, rail mounting, dimensional drawings are as follows:



Model selection guide

Product type	The way of taking electricity	Channel port support voltage	Size(mm)
KS1000MS	Get electricity online	AC85-528V DC100-745V	105.2*53.5*136
KS1000MT	Direct current DC12-48V	0-500V	105.2*53.5*136

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