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Industrial Grade HD-PLC

KS704Q Four LAN type manual 1.1



Fast Ethernet

Network Interface: Four LAN

Standard: Industrial Grade

Power over Ethernet



Catalogue

Product Introduction	3
Technical Data	4
Interface Specification	5
Connection Schematic	6-7
Common Problems Troubleshooting	8
Appearance Dimension	9
Selection Guide	10
Contact Us	11



Product Introduction

Integrated Power & Data over One Cable

It achieves synchronous 100Mbps data transmission and power delivery over a DC power line (utilizing any two-core conductors such as parallel wires, twisted pair, slip ring wires, or coaxial cable). Operating in a DC power environment below 56V, it supports point-to-point transmission distances up to 1000 meters. This eliminates the need for additional signal cables, enabling simple, plug-and-play installation.

Intelligent Networking, Flexible Topology

Featuring a master/slave (M/S) DIP switch for quick configuration, it supports one-to-one and one-to-many communication modes. Equipped with a built-in intelligent routing algorithm, it automatically constructs bus, star, tree, and hybrid networks for true plug-and-play smart networking.

Data Transparency & Rich Interfaces

Data Transparency: Built-in multiple network protocol stacks ensure complete data transparency without the need for protocol conversion.

Rich Interfaces: Integrates 4 parallel Ethernet ports, allowing simultaneous connection of up to four network terminal devices.

Encryption & Security: Features encrypted data transmission to ensure communication stability and privacy security.

Industrial Grade, Stable & Reliable

The KS704Q broadband PLC device operates within an extended temperature range of -40°C to 85°C, complying with stringent industrial environmental standards. It offers strong anti-interference capability and high stability, ensuring reliable performance even in complex electromagnetic environments.

The KS704Q is ideal for industrial communication scenarios requiring long-distance transmission, multiple nodes, and high real-time performance, such as underwater robots, inspection robots, mine video surveillance, and industrial automation. Its design features easy lug mounting for straightforward installation.



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Technical data

Classification	Technical indicators
Power supply port	DC12-56V
PLC Signal port	DC 0-56V Any Two-Core Conductor,power line, slip touch cord, slip ring cable etc
Modulation type	OFDM modulation type
Network Interface	4 x Standard RJ45 Ports
Ethernet bandwidth	10M/100Mbps self-adaption
Transmission distance	Shielded Twisted Pair (STP): Up to 1000m,Standard Power Line: Up to 500m,Slip Ring Line / Conductor Rail: Up to 300m
Data delay	Within 10ms
Packet loss probability	Less than 0.1‰
Overall power consumption	≤3W
Standard agreement	TCP/IP, UDP, Profinet, Home Plug, Modbus-TCP, 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 8
Exterior dimensions	Size: 147*94.4*29mm (L*W*H) Weight: 350g Mounting: Bracket Mounting Type
Environmental requirement	Operating temperature: -40°C ~ 85°C Operating humidity: 20%-95% (non-condensable) Storage temperature: -40°C ~ 85°C
Working time	Industrial grade, supports 7*24 hours all-weather work

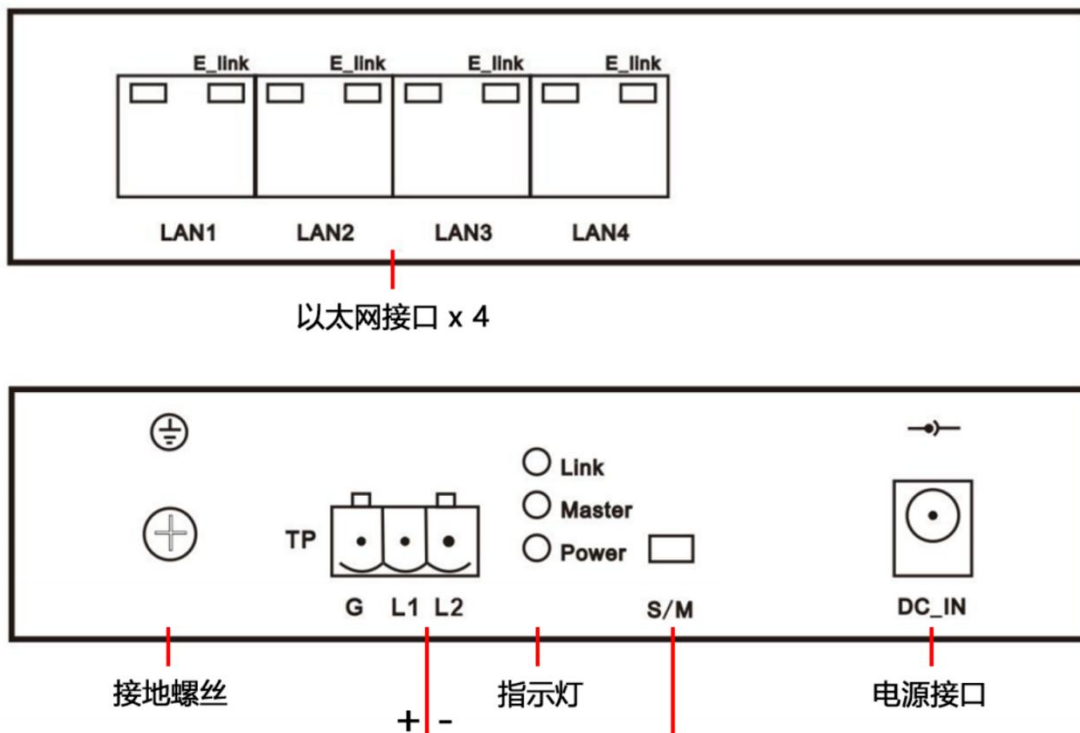


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Interface specification



<p>PLC channel interface</p>	<p>DC Power Input (0-56V) via Power Line or Slip Wire Polarity Requirement: L1 (+) Positive, L2 (-) Negative Note: Polarity must be observed / Polarity-sensitive</p>	<p>DC Power Input</p>	<p>DC:12-56V Operating Voltage: DC 12-56V DC Barrel Jack (5.5mm x 2.5mm / 2.1mm) Center Positive, Sleeve Negative</p>
<p>LED Indicator</p>	<p>LED Indicators Link (Yellow) – PLC Network Status (ON = Connected) Master (Green) – Master Mode (ON = Master, OFF = Slave) Power (Red) – Power ON</p>	<p>Master/Slave DIP Switch</p>	<p>Master/Slave Setting Switch Set to "M" for Master mode Set to "S" for Slave mode Important: Configure the Master/Slave settings before powering on the device.</p>
<p>RJ45 Network interface</p>	<p>Connect to Network Devices Such as computers, switches, IP cameras, PLC devices, etc. E_link LED (Green): Ethernet Link/Activity Indicator Flashing Green when link is established and data is active</p>	<p>Mounting</p>	<p>Mounting Lugs / Lug Mounting Two mounting lugs (left and right), each with 2 mounting holes Secure with M3 screws</p>



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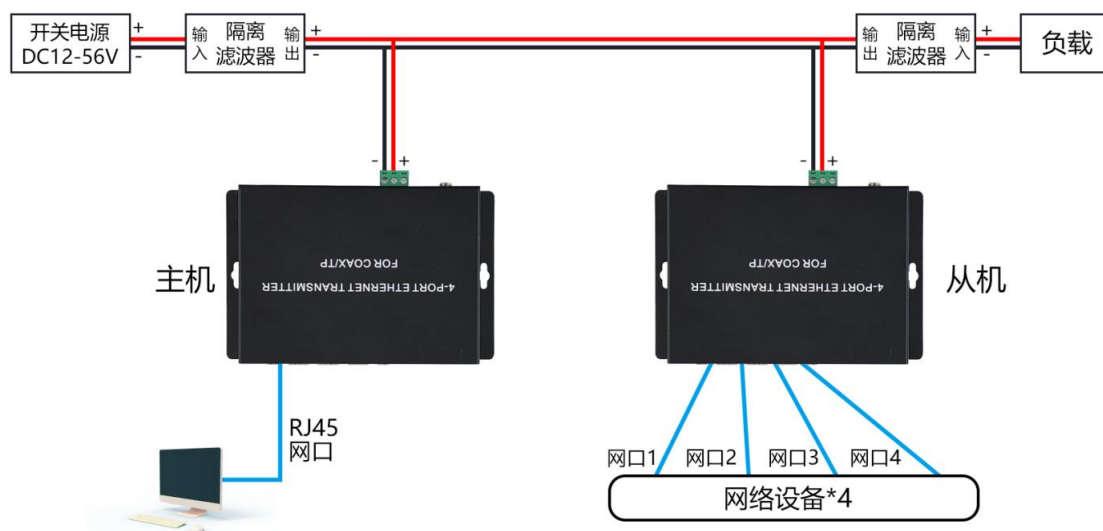
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Connection schematic diagram

The KS704Q operates with a DC 12–56V power supply and enables two-wire carrier communication on power lines rated up to DC 56V. When the PLC channel port draws power directly from the power line, the power port does not require an external power supply. Please note polarity: The power lines connected to the PLC channel port are polarity-sensitive. The modem supports multiple network topologies, including bus, star, and tree configurations.

The wiring diagram for a one master and one slave setup is shown in the figure below:



Notice

1. The modem's operating mode (Master or Slave) is 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.
 2. The KS700Q PLC modem has a minimum operating voltage of DC 12V and a maximum voltage of DC 56V. Ensure that each modem is used within the specified voltage range. If the voltage is too low, the modem will not function properly; if the voltage exceeds the limit, the modem may be damaged.
 3. The KS700Q supports two power supply methods: When power is supplied via the power port, the same voltage will be present at the PLC port. When power is drawn directly from the DC power line through the PLC channel port, no external power supply is needed at the power port.
 4. The modem must be used in conjunction with an isolation filter. The isolation filter effectively isolates interference caused by switching power supplies and loads on the carrier signal.
 5. 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.
 6. 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.
7. 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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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 dip switch to the M side is the host, and the switch to the S side 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.

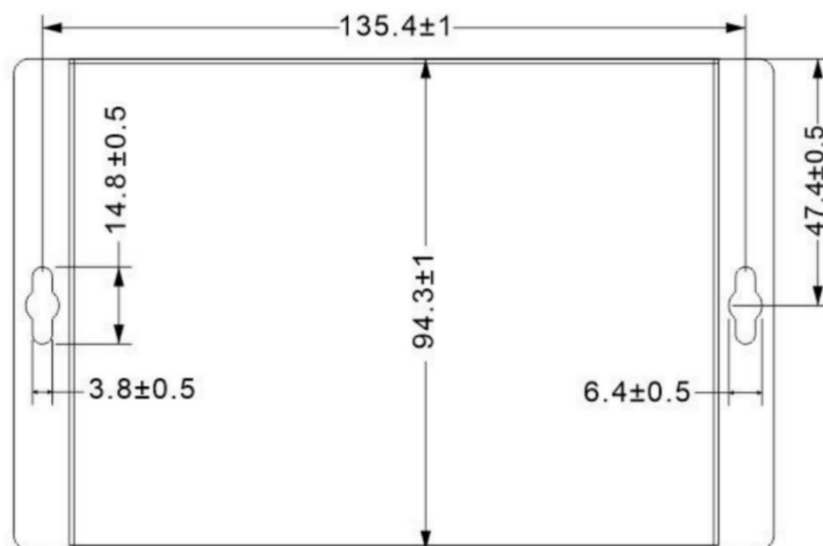
5. Check whether there are strong interference sources such as frequency converters and large capacitors on the line. In strong interference environments, it is recommended to use shielded cables for power lines and data signal lines for carrier communications. And do not parallel or cross-wire with 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's length, width and height are: 147*94.4*29 mm (without terminals), The device features two mounting ears, each with two mounting holes. Secure the device using M3 screws.

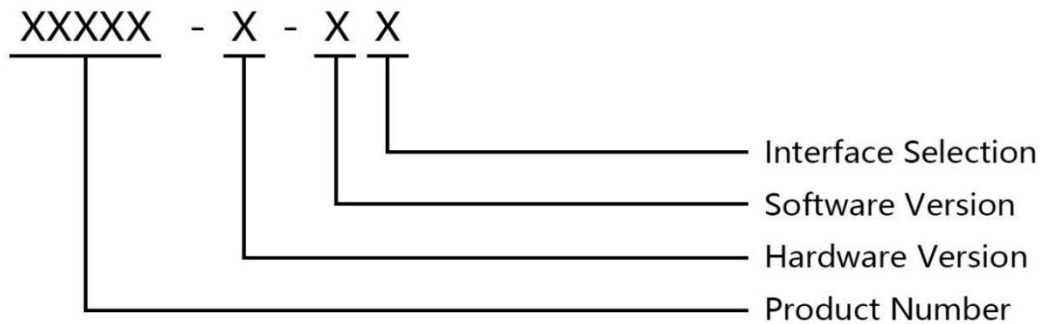
Dimensional drawings are as follows:





Model selection guide

Model specification description:



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

Product Type

Four LAN : KS704Q	Operating voltage: DC12~56V
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Hardware Version

B: Standard module	Point-to-point 500 meters	Bandwidths: 10/100Mbps
D: Long distance edition	Point-to-point 1000 meters	Bandwidths: 10/50Mbps
F: Extreme edition	Point-to-point 500 meters	Bandwidths: 10/100Mbps

Software Version

E: High performance edition	The number of communication nodes is within 8 pcs	
R: Relay version	The number of nodes ranges is from 32 pcs	
W: Sliding touch version	Special for sliding touch line	



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