



## Industrial Grade HD-PLC

# KSF710L Single-phase filter type manual 1.2



**High bandwidth long distance**

**Built-in filtering function**

**Support single-phase, DC power line carrier communication**

**Operating voltage: AC85-300V or DC100-400V**

**Industrial standard: -40°C~85°C**



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## **Product Introduction**

Broadband carrier KSF710L is an industrial-grade bandwidth power line carrier communication device based on IEEE P1901, adopting OFDM modulation and demodulation technology, and conforming to the European Union's EN-50561 standard specification. It uses the existing power lines or slip contact cord as the information transmission medium for high-speed and long-distance transmission of data, and has the features of high communication rate, bi-directional transparent transmission, good stability of transmission, and strong scalability.

Broadband Carrier KSF710L is a 100Gbps high bandwidth long-distance communication device with self-routing algorithm, automatic network formation, built-in LDPC error correction codec, AES-128bit encryption algorithm, fully transmissible data, plug and play. Hundred megabit bandwidth, communication rate of 10Mbps/100Mbps adaptive bandwidth. Long transmission distance, power line point-to-point transmission distance up to 500 metres, coaxial cable transmission distance up to two or three thousand metres. Networking mode supports bus, star, tree, and hybrid network topology.

Broadband carrier KSF710L is an industrial standard, internal integrated filtering function, suitable for AC85-300V or DC100-400V power line or sliding contact line carrier communication, make full use of the existing power line network, do not need to rewire,optimize the cumbersome wiring of network networking to the greatest extent. Used in all kinds of video transmission systems and industrial control systems, such as inspection robots, logistics sorting system, intelligent overhead crane, railway communication monitoring system, mine monitoring system, new wind energy, new energy power station, industrial video monitoring and so on.



## Technical data

Classification	Technical indicators
Power supply port PLC Signal port	AC85-300V or DC100-400V power line、slip touch cord
Overload current	≤3A
Modulation type	OFDM modulation type
Carrier frequency	2 ~ 28 MHz
Ethernet bandwidth	10M/100Mbps self-adaption
Transmission distance	Power line point-to-point 500 meter, coaxial cable 2-3 kilometer
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 128
Exterior dimensions	Size: 86*35*110mm (L*W*H) Weight: 400g Mounting: RAIL TS35/TS35 guide rail
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

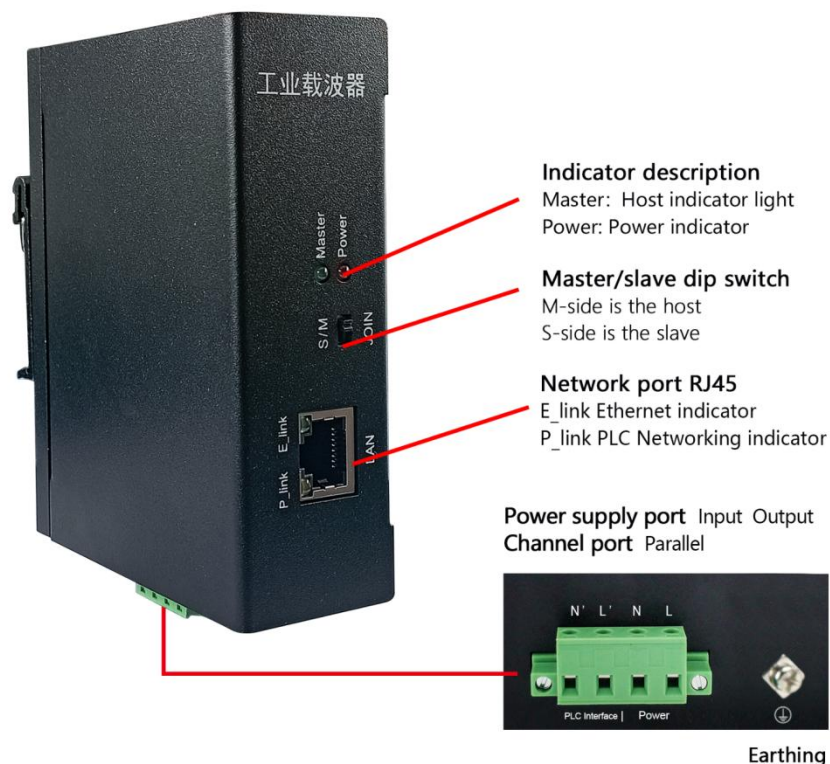


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## Interface specification



<p><b>Power supply port</b></p> <p><b>PLC channel interface</b></p>	<p>Power supply port: Power input or output, working voltage AC: 85~300V or DC: 100~400V. PLC channel interface: Carrier signal communication port. Note the distinction between phase sequence or positive and negative poles.</p>	<p><b>RJ45 Network interface</b></p>	<p>Connects to network devices, such as computers, switches, webcams, PLC devices, etc; E_link green light: Ethernet connection indicator. Connecting devices normal green light; P_link yellow light: PLC networking indicator, the yellow light is always on when the networking is successful, otherwise the light is not on.</p>
<p><b>LED Indicator</b></p>	<p>Master: Host Indicator Light, The master light is on and the slave light is off. Power: Power indicator, lights on with power, lights off without power.</p>	<p><b>Master/slave dip switch</b></p>	<p>Setting the master-slave switch. Dialed to the M side is the master. Dialed to the S side is the slave. Be sure to set the master and slave before powering up.</p>



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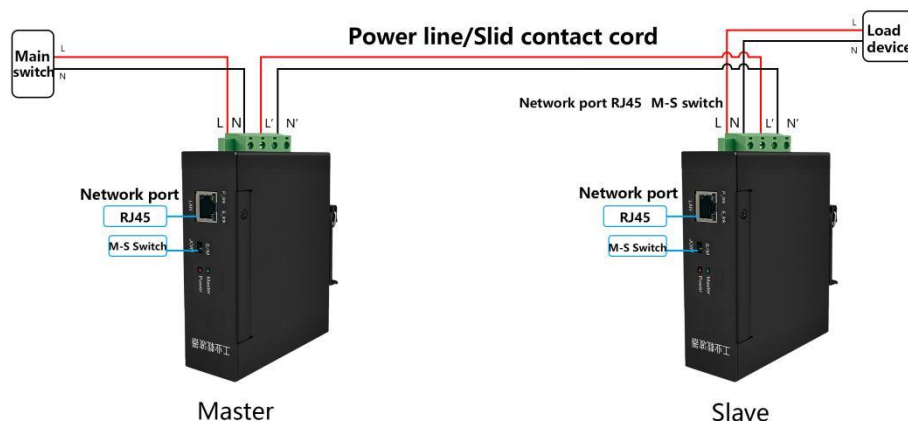
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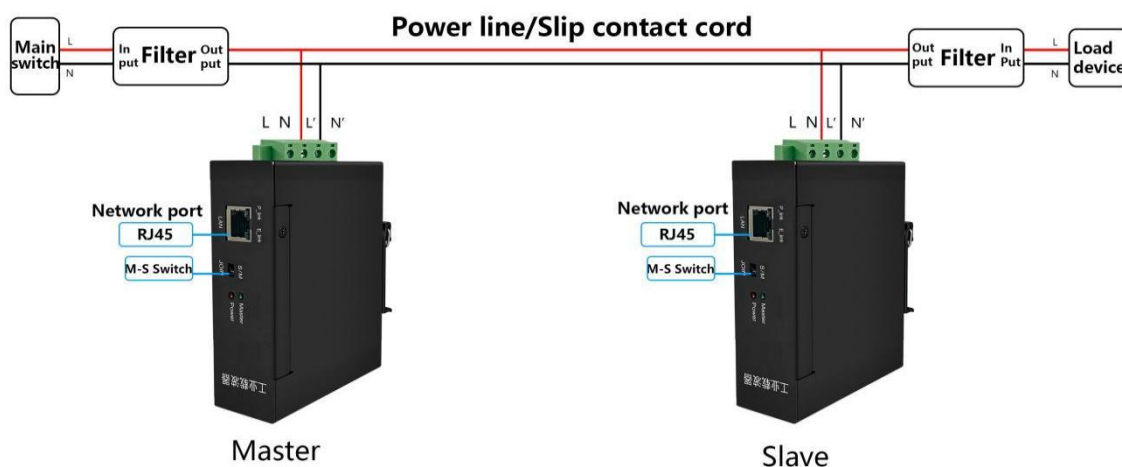
## Connection schematic diagram

HD-PLC KSF710L supports carrier communication on AC85-300V or DC100-400V power lines or slid contact cord with network port signals. It is necessary to set up the master-slave, master-slave dip switch is dialled to the M terminal for the master, and to the S terminal for the slave. Be sure to set up the master slave before powering up. A network must have and can only have one master.

**1、 Built-in filter wiring: power line load current within 3A, power port connected to the power supply or load, channel port N'L' parallel connection on the power line, need to distinguish the phase sequence. The wiring diagram is as follows:**



**2、 External filter wiring: power line load current is greater than 3A, the power line needs to be connected in series at both ends of the filter, the channel port N'L' is connected in parallel to the power line, without distinguishing the phase sequence. The power port N,L can be suspended without connection. The wiring diagram is as follows.**





**Notice:**

1. The PLC is divided into master and slave, make sure to set up the master and slave before powering up. If you set the master and slave after powering up, you need to restart the carrier after powering down to make the setting parameters take effect. A network must have and can only have one master.
2. Power line load current is within 3A, carrier power port is for power input or output, PLC channel port is in parallel.
3. If the load current of the power line is greater than 3A, the power line needs to be installed with a filter. The PLC channel is connected in parallel to the power line, and the power port is suspended.
4. External filters need to be wired in different directions, with the filter input side is connected to the power input or load, and the output side is faced to the carrier. Pay special attention to the load side of the filter input and output should be reversed wiring, the output side is faced to the carrier, the input side is connected to the load.
5. 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.
6. The product is not designed to be waterproof, please ensure that the product is used in a dry environment.
7. 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

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.



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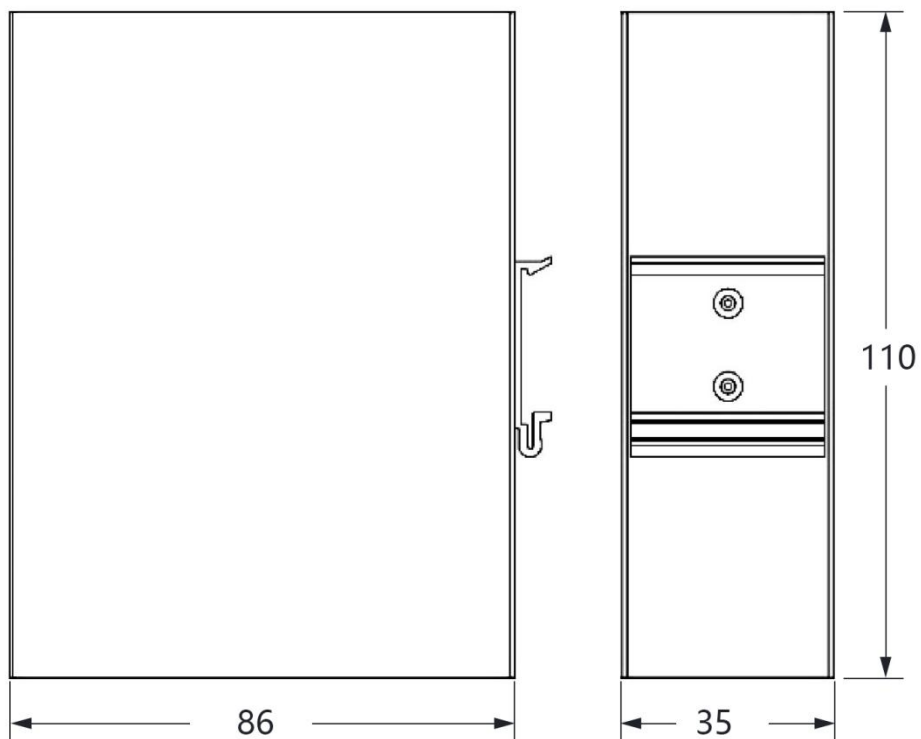
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## Exterior dimensions

The PLC' s length, width and height are: 86x35x110mm (without terminals) ,  
TS35 rail mounting method,

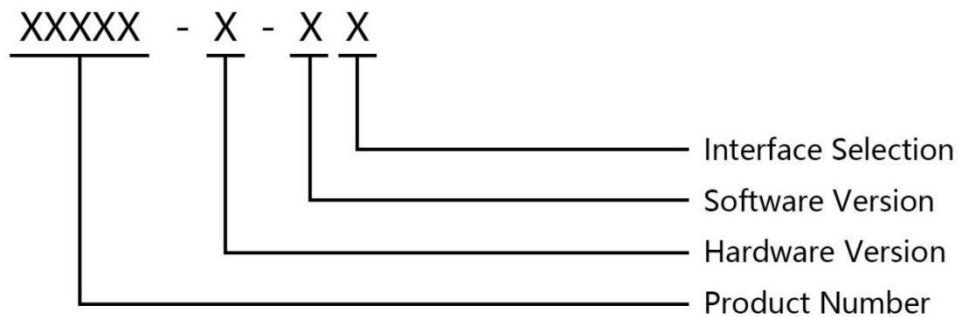
Dimensional drawings are as follows:





## Model selection guide

Model specification description:



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

### Product Type

Single-phase filter type: KSF710L	Operating voltage: AC85-300V, DC100-400V
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### 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



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