

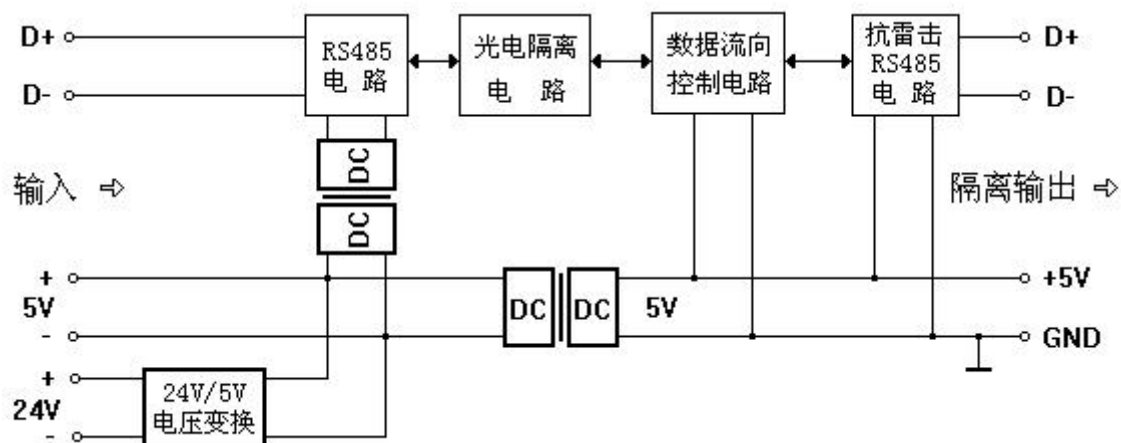


BH-485G Description of the optical isolated protection of RS485 interfaces

BH-485G is a optical isolated protection of RS485 interfaces witch is designed to solve the interference problem in the communications and protect interfaces. It applies to any standard RS485 interface, with high-speed photoelectronic segregation, anti-static, anti-lightning strikes, extending the communication distance, increasing Group number of web sites and other functions. This product will greatly enhance the anti-jamming performance, reliability and safety of communication systems, system RS485 particularly. Completely solve the easily-damaged problem of interface.

Working principle:

As the map, through the match of RS485 circuit, RS485 signal of equipment is sent into photoelectric isolated circuit to realize photoelectric isolation. The signal after isolation can output standard RS485 signal from industrial-level anti-lightning RS485 chip after being processed. On the contrary, the signals Input and output processes are roughly the same. This product use 2 Mini DC / DC isolated power, and realize the all-round isolation between RS485 signals, the signal and power. It also provides 24 VDC and 5 VDC external power input channels; users can choose input Voltage based on the actual situations. The external power supply can be obtained from the device or connect externally separately.



Technical details:

1. power: 9-40VDC external, 1W or 5VDC, 1W optional
2. max distance of communication: 3500m (4.8Kbps) 、 2000m (9.6Kbps) 、 1500m (19.2Kbps) 、 800m (187.5Kbps) 、 200m (500Kbps) 、 100m (1.5Mbps、 3Mbps) 、 50m (6Mbps)
3. max rate of communication:0~10Mbps,automatically adaptive
4. The bus can link 32 RS485 transceivers (more than 32 need statement, No more than 512)

5. With transient voltage suppression, can withstand the transient over-voltage whose power is up to 600 W, anti-lighting and anti- static discharge impact

6. Protection of receiver input open-fault

7. A thermal shutdown feature

8. Isolated voltage: 1000 VDC (up to 3000 VDC, statement is required when ordering)

9. Temperature: -20 ~ 75 °C

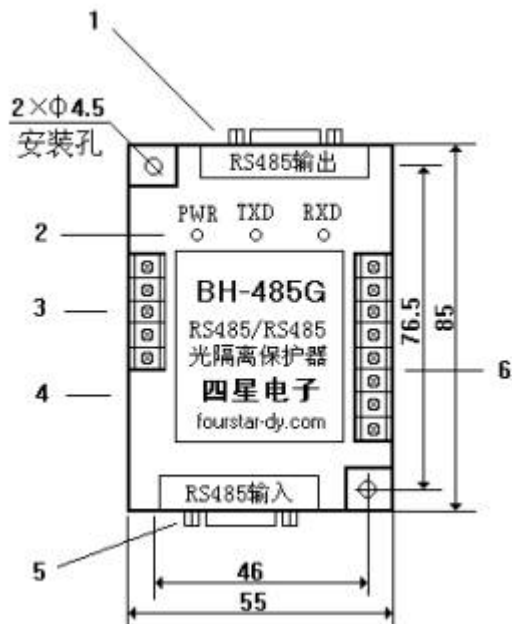
10 Weight: 100 g

11. Dimensions: 85 × 55 × 25

12. Installation: installation of 35 mm standard rail and bolt hole

Products shape and definition of video signals:

The input and output ends of this product use the wiring terminals way and DB9 outlet way. The same signals of these two ways are parallel connected. The pin signals' definition of DB9 socket is the same with Siemens S7-200 series PLC's RS485 communications mouth. Users can use it arbitrarily according to the actual situations. The DB9 socket is more convenient for some RS485 connectors (e.g. the PLC communication mouth) with power.



- 1、DB9F插座，RS485隔离输出
- 2、通信指示灯：PWR：电源，TXD：发送数据，RXD：接收数据
- 3、RS485隔离输出端子
- 4、终端电阻设置开关K
- 5、DB9M插座，RS485输入
- 6、RS485输入端子和电源输入端子

RS485 isolated output (left terminal)		RS485 input (right terminal)	
Signal-name	description	Signal-name	description
D+	RS485 signal positive	D+	RS485 signal positive
D-	RS485 signal negative	D-	RS485 signal negative
D+	RS485 signal positive	+ (5V)	External connect 5V power supply anode
D-	RS485 signal negative	- (5V)	External connect 5V power supply cathode

SG	Signal ground	+ (24V)	External connect 9-40V power supply anode
		- (24V)	External connect 9-40V power supply cathode
			Haven't been used
			Haven't been used

Definition of DB9 socket stitch signal

RS485 isolated output (upside DB9F socket)		RS485 input (downside DB9M socket)	
Stitch number	description	Stitch number	description
1	Not be used	1	Not be used
2	Not be used	2	External connect 9-40V power supply cathode
3	RS485signal positive	3	RS485 signal positive

4	Not be used	4	Not be used
5	Signal ground	5	External connect 5V power supply cathode
6	Isolated output 5V power supply anode	6	External connect 5V power supply anode
7	Not be used	7	External connect 9-40V power supply anode
8	RS485 signal negative	8	RS485 signal negative
9	Not be used	9	Not be used

The link of BH-485G and RS485 of equipment:

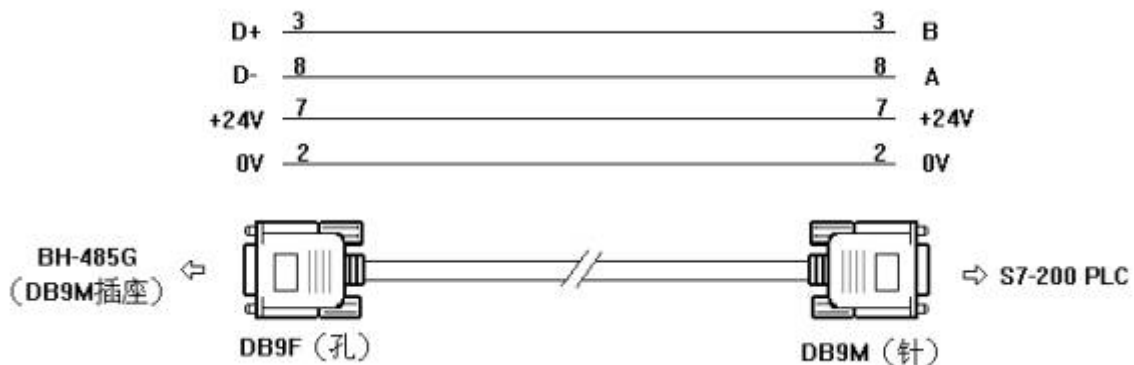
The link of RS485 of this product's input end and the RS485 communication mouth of equipment(use terminal or DB9M socket optional) follow the "signals are positive to positive and negative to negative," principle. The length of this period of lines can't be more than 50 m. And there shouldn't be terminal resistance and pull-up/pull-down resistors in the RS485 mouth of equipment. The RS485 of equipment must be interfaces witch in line with EIA/TIA-485 standard. The RS232/RS485 converters without power

in the market will not apply to this product. Power can be taken from equipment. Or you can use a separate regular power supply.

If the device'RS485 mouth with a power, a self-made cables witch connect equipment and DB9M socket will be very convenient, simple, and beautiful. for examples:

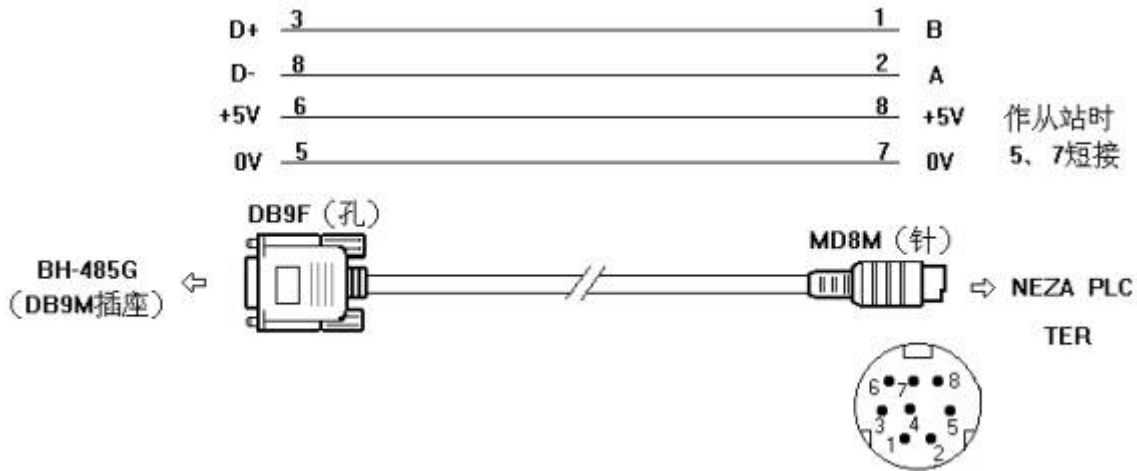
1, Connection of BH-485G and Siemens S7-200PLC:

The 7-pin and 2-pin on the RS485 interface (DB9F) of S7-200PLC is 24 VDC power output, the 6-pin and 5-pin is 5 VDC power output, but it can not be used because there is a 100 Ohm current-limited resistance witch is parallel connected in this 5 VDC power.



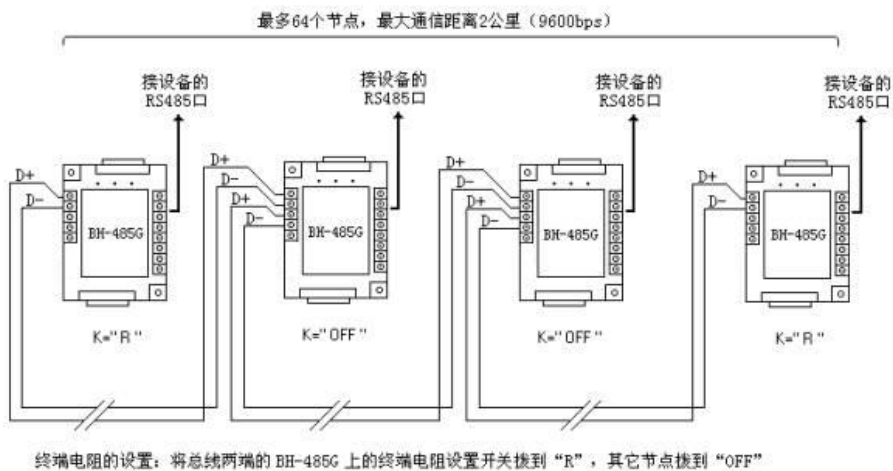
2, The connection of BH-485G and Schneider NEZA series PLC:

The 8-pin and 7-pin on the MD8F Communications mouth of Schneider NEZA series PLC is 5 VDC power output, the 1-pin and 2-pin is RS485 signal, thus a self-made MD8M/DB9F cables can be used.



How to use:

BH-485G can make 64 RS485 nodes into isolated RS485 communication network, the largest communication range is 3.5km (4.8 Kbps), 2km(9.6 Kbps), 1.5km(19.2 Kbps), 800m (187.5 Kbps), 200m (500 Kbps), 100m(1.5 Mbps, 3Mbps), 50m(6 Mbps), and without changing the existing communications software, as shown. Please turn the termination resistor setting switch K witch is on the BH-485G of the two ends of net to "R" (connect terminal resistance), the terminal resistance setting switch K of other nodes to "OFF" (terminal resistance is unacceptable).



NOTES:

- 1, For the communication lines, the cross-sectional area should be more than 0.5 mm², the characteristic impedance is twisted pair with is 120-ohm.
- 2, In order to prevent the common mode voltage of RS485 interfaces from being beyond the permitted range and reduce the reliability of communications even damage the interface, a low resistance wires whose cross-sectional area is 1 mm² can be used to link up each BH-485G signal ground "SG" to eliminate the potential difference of each node on the network.
- 3, Connect the BH-485G importing termination with the RS485 mouth of equipment, and each BH-485G can only connect one RS485 equipment mouth. Connect the output termination of BH-485G with RS485 bus network, and the two can not work in the wrong direction.
- 4, The length from each BH-485G to the bus cable (extension) can't be more than 15 m, otherwise they will have echoes, affecting the normal communications of the whole system. Of course, there will be no extension problem if you used two pairs of D +, D-terminal connection as the map.
- 5, For the settings of terminal resistance: the role of terminal resistance is to eliminate the waveform distortion caused by the reflection of signal during the communication; the terminal resistance setting switch K of the BH-485G on the terminal and before ends should be turned to "R" (120 Ohm terminal Resistance should be connected)and terminal resistance setting switch K of other BH-485G in the communication lines should be transferred to "OFF" (terminal resistance is unacceptable).