



CAN-485G

RS485/422 Light-isolated ultra-long-range driver

RS485 interfaces are widely used in the communication between a lot of devices. Such differential signal can improve the anti-jamming performance and the communications distance of system. But in practice, short circuit often happens which is caused by the outputting of opposite polarity signals from more than two RS485 node at the same time. This will damage interfaces. In addition, the communication distance of RS485 interfaces can only reach 1.2 km. Repeaters should be added if the distance is longer. The CAN-485G light-isolated ultra-long-range driver which is developed by Fourstar completely solve the problems above. We use the CAN (Controller Area Network) bus technology which does not change the RS485/422 communication protocol to extend the RS485/422 communication distance to 10 km, and solve

the power need of using repeater in field. can ensure it suits for all the RS485/RS422 software without changing the original software.

Technical details:

1, optical isolated voltage: 1000 VDC (up to 3000 VDC, a statement is required when ordering)

2, Power: external 5 V, 1W DC power supply

3, communication distance: 10 km (4800bps), 5km (9600bps), 2km (38400bps), 600m (115200bps)

4, communication rate: a maximum 230 kbps, the Baud rate is automatically adaptive without setting

5, communication protocol: Using half-duplex CAN bus without change the original RS485/422 protocol (software)

6, the network nodes: can compose the multi-machine communication network with 110 nodes

7, transmission lines: twisted pair witch is 0.75 mm² above, the cross-sectional area of twisted pair should be more than 1.5 mm² and the capacitance between line should be less than 60 pf / m when the length of lines are more than 1km

8, interface protection:

CAN port: Anti-lightning and anti-surge protection, repeatability surge capacity: Ipp = 100A (10/700us, 4KV)

standards: ITU-TK20/21, VDE 0433.

RS232 port: surge protection.

Power port: 500W TVS anti-lightning protection, anti-polarity of power protection.

9, Dimensions: 85 × 55 × 25

10, installation: installation of 35 mm standard rail and bolt hole

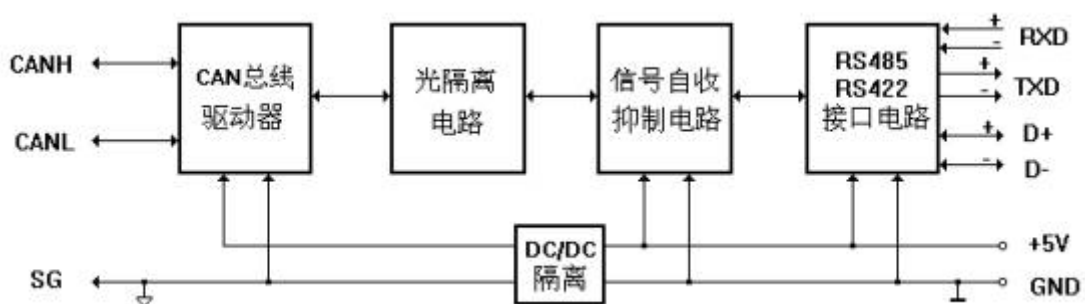
11, Weight: 100g

12, the working temperature: -20 ~ 75 °C

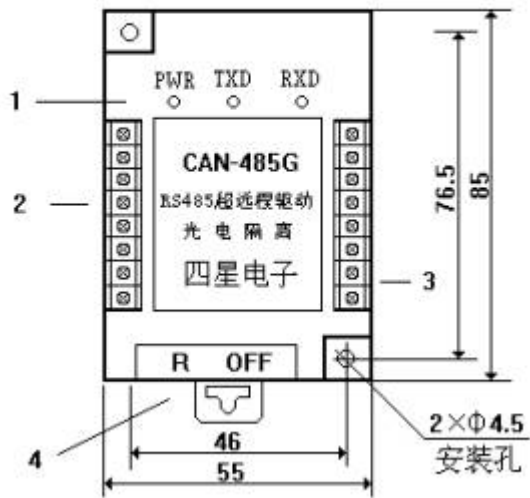
13, the humidity: 0 to 90%

How it works:

As shown, the RS485/422 signal of the equipment convert into TTL level through RS485/422 interface circuit. the equipment will not receive the signal witch is sent by its own and the CAN signal witch is output by CAN bus driver after photoelectric isolation. The working power of this product can be provided by the equipment or obtained separately from external. Isolated power modules are used in the internal of the product, the signal and power is isolated to ensure the safety of anti-jamming performance of the system.



Products' shape and definition of terminal signals:



- 1、指示灯，PWR：电源，TXD：发送数据，RXD：接收数据
- 2、CAN总线接线端子
- 3、RS485/422和电源接线端子
- 4、终端电阻设置开关K
“R”：接入120欧终端电阻
“OFF”：不接终端电阻

Definition of connection terminal signal

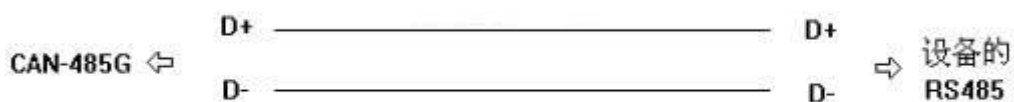
CAN terminal (left)		RS485/422 terminal (right)	
Signal-name	description	Signal-name	description
CANH	CAN high	D+	RS485 signal positive
CANL	CAN low	D-	RS485 signal negative
CANH	CAN high	TXD+	RS422 signal sending positive
CANL	CAN low	TXD-	RS422 signal sending negative
SG	Signal ground	RXD+	RS422 signal receiving positive

FG	Shield ground	RXD-	RS422 signal receiving negative
	Not be used	+5V	External connect 5V power supply anode
	Not be used	GND	Power ground (RS485 signal ground)

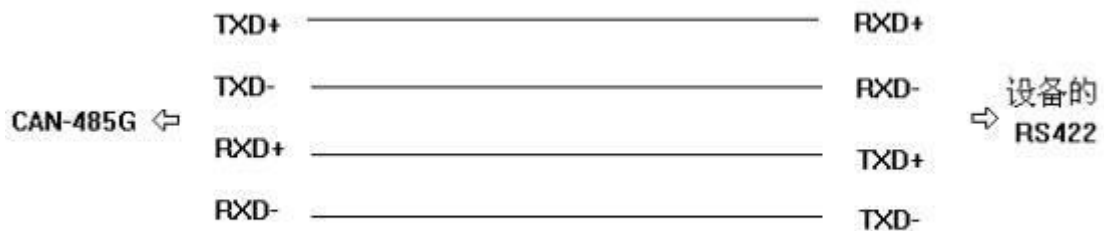
Description: The two pairs of CANH and CANL terminal is to facilitate the connection with bus in networking. The use of RS422 or RS485 doesn't need switch or jumper choice because this product will automatically identify.

The link of CAN-485G and the RS485/422 interface of equipment:

Connect send with receive, receive with sent, positive with positive and negative with negative.



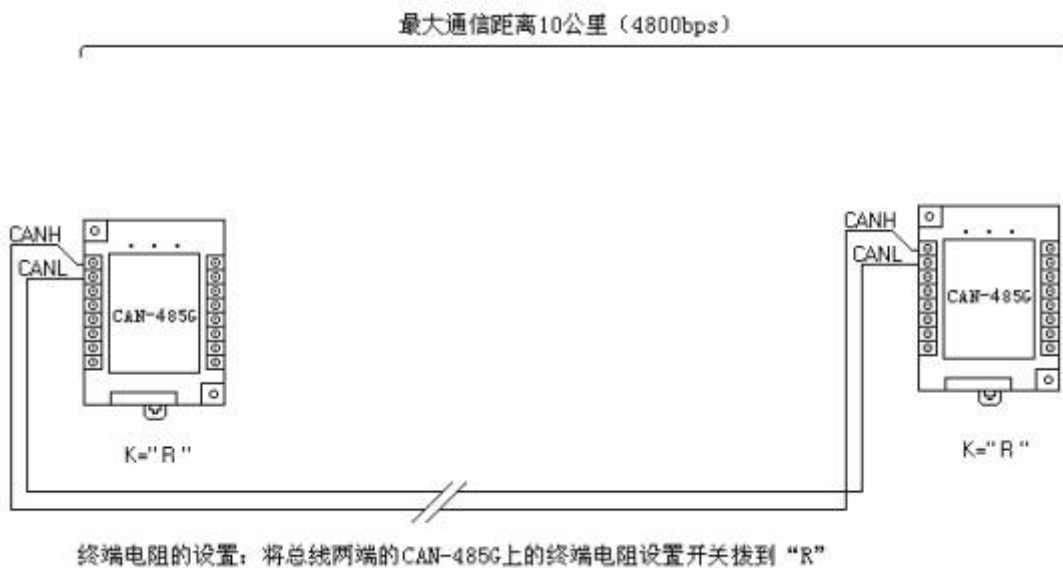
CAN-485G与设备的RS485（二线）通信口连接



CAN-485G与设备的RS422（四线）通信口连接

How to use:

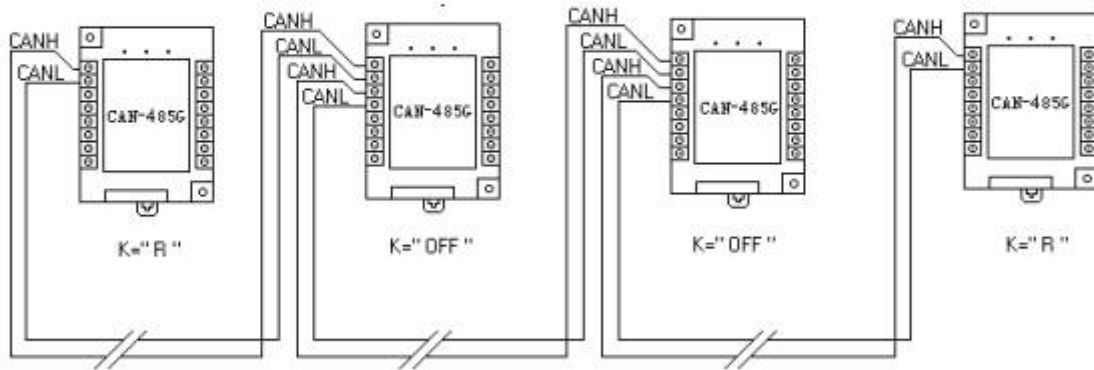
1, RS485/422 point-to-point communication



2, RS485/422 multi-machine communication

CAN-485G can realize the multi-machine communication network which is composed of 110 RS485/422 nodes; the largest communication range is 10 km (4800bps). The address of each node is determined by the procedures in the equipment.

最多110个节点，最大通信距离10公里（4800bps）



终端电阻的设置：将总线两端的CAN-485G上的终端电阻设置开关拨到“R”，其它节点拨到“OFF”

description:

1, The cut-off size of communication lines is often overlooked by the users. Because the CAN receiver's effective level (0.8 V) is higher than the RS485 receiver's (0.2 V), the requirement of communication lines' cross-sectional area is high. And farther the communication distance is, the greater the cross-sectional area should be. The twisted pair best be the one whose impedance is 120 Ohm, and the capacitance between line is less than 60 pf / m. The following table is the twisted pair's minimum cross-sectional area of different communication distance:

Communication distance(km)	2	5	10
Cross-sectional area of twisted pair (mm ²)	1.0	1.5	2.0

These are the cross-sectional areas of communication lines which are required by the Fourstar's CAN interface product with unique driven-enhanced circuit. The communications lines' cross-sectional area may be doubled from the table values as for other companies' CAN interface products.

2, When use shielded twisted pair, please connect the shield to the "FG" terminal of CAN-485G, and to land finally.

3, The cable's length of CAN-485G to bus(extension) cannot be more than 15 m, otherwise they will have echoes, affecting the normal communication of system. Of course, there will be no extension problem if you use two pairs of CANH, CANL video for connection as the map showing.

4, For the setting of terminal resistance, the role of terminal resistance is to eliminate the waveform distortion caused by the reflection of signal in the communication lines. Please turn the termination resistor setting switch K which is on the CAN-485G of the communication line's terminal and start to "R" (connect 120 Ohm terminal resistance), the terminal resistance setting switch K of other CAN-485G to "OFF" (terminal resistance is unacceptable).

5, The second-line half-duplex communication way is used in this product, the address of node is determined by the equipment's memory. The programming method is completely same with second-line half-duplex RS485. CAN bus controller agreement is not used.