



E485GA

RS485/422 light-isolated repeater Manual

E485GA light-isolated repeater is used to achieve the isolation and relay to enlargement of RS485 and RS422 signals. When RS485/422 communication distance is longer than 1.2 km, this repeater is required in order to realize signal amplification and extend communication distance. The products have characteristics such as high-speed, two-way extending, automatically switching the flow of signals and automatically adaptation of baud rate. All their industrial-grade devices are anti-static and anti-lightning, make them work stably in the poor industrial environment.

Technical details:

★ relay range is up to 2 km(9.6Kbps) ,1km(115.2Kbps)

- ★ light-isolated voltage: 1000 VDC (up to 3000 VDC, statement required when ordering)

- ★ communication rate: 0 ~ 500 Kbps Adaptive

- ★ 64 RS485 transceivers can be linked to bus

- ★ work way: Two-wire half-duplex (RS485) and four-wire full-duplex (RS422) optional, automatic identification of RS485 signal flows, and zero delay two-way automatic switching

- ★ slope-limited driver, to minimize electromagnetic interference, and can reduce the reflection caused by the not match of transmission line terminal

- ★ transmission lines: cross-sectional area is 0.75 mm² above, the twisted pair with 120 Ohm impedance

- ★ 600 W built-in anti-lightning protection and 1500 V built-in anti-static protection

- ★ external 5 V, 1W DC power supply, the internal DC / DC isolated power supply

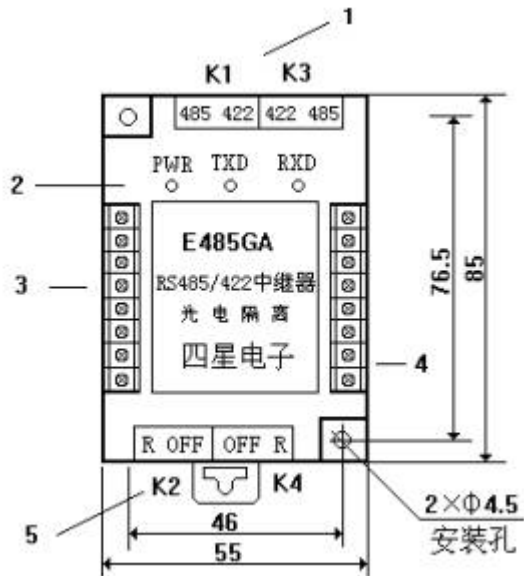
- ★ temperature: -20 °C ~ +75 °C

- ★ Dimensions: 85 × 55 × 25

- ★ installation: installation of 35 mm standard rails and the bolt hole

- ★ Weight: 100 g

Products' shape and definition of terminal signals:



- 1、RS485、RS422切换开关K1、K3
- 2、指示灯，PWR：电源，TXD：发送数据，RXD：接收数据
- 3、RS485/422接线端子
- 4、RS485/422接线端子和电源端子
- 5、终端电阻设置开关 K2、K4
“R”：接入120欧终端电阻
“OFF”：不接终端电阻

Definition of connection terminal signal

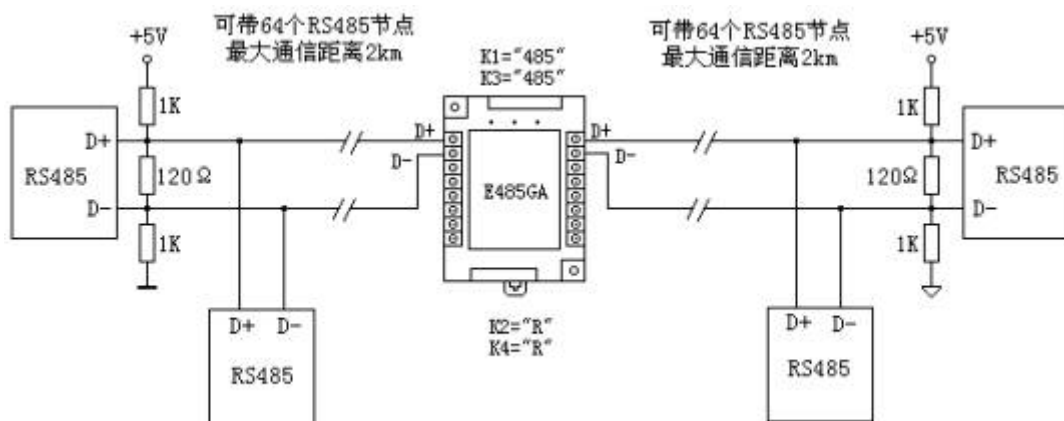
RS485/422 terminal (left)		RS485/422 terminal and power terminal (right)	
Signal-name	description	Signal-name	description
D+	RS485 signal positive	D+	RS485 signal positive
D-	RS485 signal negative	D-	RS485 signal negative
TXD+	RS422 signal sending positive	RXD+	RS422 signal receiving positive
TXD-	RS422 signal	RXD-	RS422 signal receiving

	sending negative		negative
RXD+	RS422 signal receiving positive	TXD+	RS422 signal sending positive
RXD-	RS422 signal receiving negative	TXD-	RS422 signal sending negative
SG	Signal ground	+5V	External connect 5V power supply anode
FG	Shield ground	GND	Power ground (RS485 signal ground)

Notes: The anode and cathode can't be connected wrong, or the product will be damaged.

E485GA used as second-line half-duplex RS485 repeaters:

Turn the RS485, RS422 switch K1 and K3 on E485GA to "485" position, the terminal resistance setting switch K2 and K4 to "R" (connect in 120 EU terminal resistances). Connect wires as the following map can extend 2 km of the communication distance in two ways.

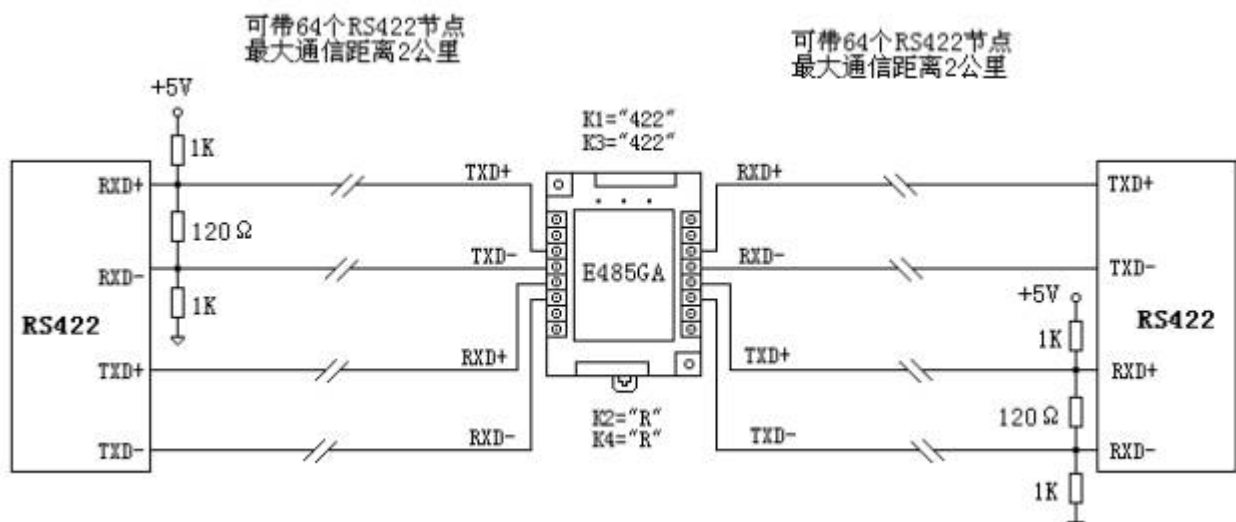


The 120 Ω resistances in the picture is terminal resistance. They are to prevent the signal reflection in the line. 1 K resistance is the pull resistance. Its role is to ensure the line is logic "1" when the line is in leisure so that the data bits in cease - to prevent the reception error. Users must connect in above resistance in the line's terminal as the map shown.

Except for the signal relay, E485GA can also be used as RS485 isolator, the signal isolation rate is up to 500 Kbps, better than other similar products.

E485GA used as the four-wire full-duplex RS422 repeaters:

Turn the RS485, RS422 switch K1 and K3 on E485GA to "422" position, the terminal resistance setting switch K2 and K4 to "R" (connect in 120 Ohm terminal Resistance).. Connect wires as the following map can extend 2 km of the communication distance in two ways and support full-duplex multi-machine communication.



The 120 Ω resistances in the picture is terminal resistance. They are to prevent the signal reflection in the line. 1 K resistance is the pull resistance. Its role is to ensure the line is logic "1" when the line is in leisure so that the data bits in cease - to prevent the reception error. Users must connect above resistance in the line's terminal as the map shown.

Except for the signal relay, E485GA can also be used as RS422 isolator, the signal isolation rate is up to 500 Kbps, better than other similar products.

E485GA also can be used as two-way converter from RS422 to RS485 or RS485 to RS422

NOTES:

1, Shielded twisted pair with above 0.75 mm² cross-sectional area and 120-ohm impedance should be used as the communication lines,

2, In order to prevent the common mode voltage of RS485/422 interface beyond the permitted range witch would impact the reliability of communication or even damage interfaces, you can use a low resistance wire whose cross-sectional area is 1 mm² to connect the signal ground "SG" and the power ground "GND" of E485GA with the RS485/422 nodes' signal ground on their respective side.

3, When use shielded twisted pair, please connect the shield to the "FG" terminal of E485GA, and to land finally.

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 connect terminal resistance

and pull resistance into the start and end of communication lines as the picture. And turn the termination resistor setting switch K2 and K4 of E485G to "R" (connect 120 Ohm terminal resistance). But the terminal resistance is not acceptable for other RS485/422 nodes in line.

5, when composing the four-wire full-duplex RS422 multi-machine communication network, each RS422 node must be DE control node. That is, data TXD +, TXD- should be the closed high-impedance state when not sending data.