

## I . Summary

FC422/485-R is the optoelectronic isolated RS-422/RS-485 data transmission communication equipment. It can extend RS-422/RS-485 network transmission distance, and can increase 128 bus network equipments of RS-422/RS-485. Without any joinhands signal, the optoelectronic isolation data repeater of FC422/485-R can auto judge the data flow direction and control the corresponding flow direction to compose the RS-485 network. This kind of flow direction control is entirely transparent and do not need the software modification to the previous working method's network of RS-422/485. The built-in optoelectronic insulation and DC/DC direct current inverter can provide 3500V isolation voltage. The quick transient voltage suppresser (TVS) can suppress the lightning and ESD effectively. In order to prevent the lightning and share earth disturbance, each wire has 600W lightning surge protection.

## II . Performance parameter

- 1 、 Interface feature: interface compatibility EIA/TIA the standard of RS-485/RS-422
- 2 、 Electric interface: the interface of RS-422/RS-485 is DB9.
- 3 、 Transmission medium: twisted-pair or shielding wire.
- 4 、 Working method: Asynchronous semiduplex or asynchronous full duplex.
- 5 、 Signal indication: Three signal indicators TXD.RXD .PWR.
- 6 、 Separation : Isolation voltage 3500V RMS ,500VDC continuous .
- 7 、 Transmission rate: From 115.2K BPS to 1.2KM, From 38.4K BPS to 2.4KM, From 9600 BPS to 5KM.
- 8 、 Protection level: RS-422/RS-485

interface, 600W lightning surge protection of each wire.

9 、 Extend distance: 0-5

kilometer (115200-9600BPS).

10 、 Dimension: 125 mm x 54 mm x 25 mm

11 、 Operating environment: From -25 . to 70., relative humidity is 5% to 95%.

## III. Connector and signal

The two terminals of RS-422/RS-485 of FC422/485-R are adopted DB9 connection,

T- , T+, R+, R- and shifter FGND, two terminals interface definition of RS-422/RS-485 are shown as in Table 1.

Table 1 DB9 interface definition

DB9 (Female)	RS-422 Definition	RS-485 Definition
Pin1	T-	485-
Pin2	T+	485+
Pin3	R+	NC
Pin4	R-	NC

## IV. Installation and application

Before installing FC422/485-R, please read this manual carefully and insert the attached power transformer into the socket +9V. The male or female leading feet of DB9 two terminals, according to the definition instruction, connect RS-422 or RS-485 network equipments.

FC422/485-R allows the following three kinds of relay communication method:

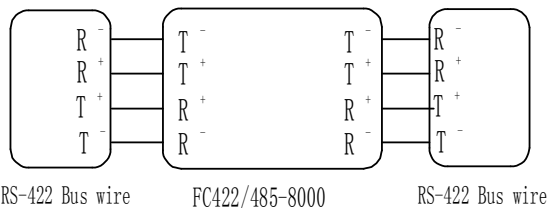
1. RS-422/ Four-wire full duplex relay
2. RS-485/ Two-wire semiduplex
3. Four-wire RS-485 turns to two-wire RS-485 relay, Select RS-422 to RS-422 relay, JP1, JP2 need to jump to position 1-2; Select RS-485 to RS-485 relay, JP1, JP2 need to jump to position 2-3; Select four-wire RS-485 turn to two-wire RS-485 relay, JP1 need to jump to position 1-2, JP2 need to jump to

position 2-3.

The corresponding interface of JP1 viz. four-wire RS-485 terminal (RS-422/485 OUT),the corresponding interface of JP2 viz. two-wire RS-485 terminal (RS-422/485 IN).

## V. Sketch map of communication connection

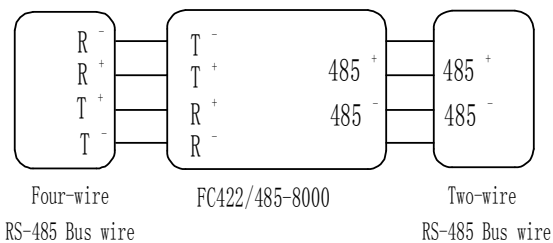
### 1 、 RS-422 Four-wire, full duplex data relay



### 2 、 RS-485 Two-wire, semiduplex data relay



### 3 、 Four-wire RS-485 turn to two-wire RS-485 data relay



## VI. Power supply and earth protection

### 1 、 Out connected power supply

FC422/485-R power supply could adopt the attached DC9V power supply and also can adopt other direct current power supply, viz. supply voltage from 9 to 12V, current 100mA, wire connect to 9 foot of DB9 joint, 5 foot connect to earth.

### 2 、 Ground protection

The ordinary repeater is not equipped the large power of protective device, the circuit detects the transient voltage electric power on

the interface data wire, it will release energy from the minimum resistance path of the equipment, to the earth, that is easy to damage the interface appliance. FC422/485-R can provide 600W lightning surge protection power of each wire, quick transient voltage suppresser can suppress the lightning and ESD effectively, therein, the 6th foot of DB 9 joint P is ground protection. In user's operation, in order to ensure the safe communication, it should be reliably earthed to avoid suspending.

## VII. Trouble shooting

### 1 Data communication failure

A、 Check whether RS-422 interface connection is correct or not.

B、 Check whether RS-485 interface connection is correct or not.

C、 Check whether supply voltage and polarity are correct or not.

D、 Check whether JP1, JP2 wire jumper are in the correct relay mode or not

### 2 、 Data lost or error

Check whether two terminals data speed, format of communication equipment are accordant or not.