



FIB-485A-S

RS485/422/232 to single-mode fiber converters Manual

The distance and speed of optical fiber transmission aren't related. Serial-interface fiber transmission resolves the contradiction of copper transmission's long-distance and high-speed communications because of its advantages such as high reliability, security and confidentiality and so on. The use of fiber as communication transmission medium completely solves the problems such as electromagnetic interference, ground loop interference and lightning damage. It has been used more and more in industrial automation, distributed data acquisition, intelligent transportation, electricity, water, banking and many other areas and become the preferred option for communications transmission.

FIB-485A-S is an industrial grade RS485/422/232 to fiber converter of Fourstar. It achieves RS485, RS422 or RS232 (TXD、RXD、GND) signal's transparent transmission on fiber, without changing the original communication protocols and software, plug and play, and directly replace copper Conductor transmission.

Product characteristics and major technical indicators

- voltage: 9 ~ 40 VDC wide-voltage power supply or 5 VDC power supply optional, isolate signal interface with external power within the product through DC / DC isolation module. Power consumption:

<1 W

- interface: RS232: DTE standard interface of DB9M pin-socket, use TXD, RXD, GND lanes, with ± 15kV ESD protection and surge protection

RS485: D +, D- connector, with 500 W TVS Lightning Protection and ± 15kV ESD protection

RS422: TXD +, TXD-, RXD +, RXD- connector, with ± 15kV ESD protection and surge protection

- communication rate: RS232:0 ~ 230 Kbps Adaptive;RS485/422:0~500Kbps Adaptive

- applicable fiber: single-mode 9/125、 10/125、 8.3/125um

- wavelength: 1310 nm

- power of launched light: -6 dBm

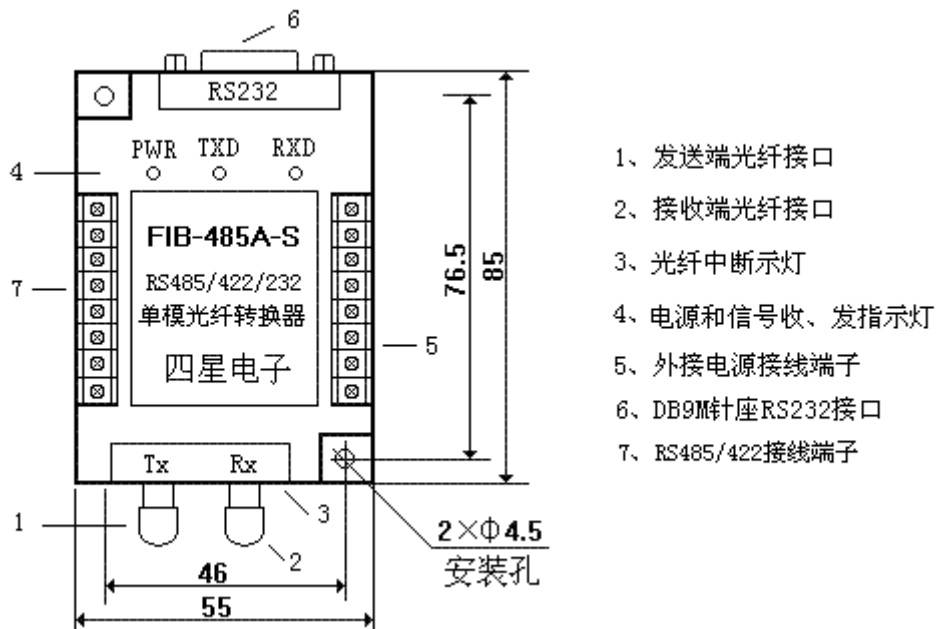
- receiving sensitivity: -22 dBm

- transmission distance: 0 ~ 20km

(Maximum to 60 km or 120 km, a statement is needed, with the standard FC connector)

- fiber interface: standard ST connector, SC and FC connector optional
- temperature: -40 ~ +85 °C
- Relative Humidity: 0 to 95 percent (not condensed)
- Dimensions: 85 × 55 × 25 (L × W × H), the standard rails installation with bolts hole
- Weight: 100 g

The structure and shape of products:



The signal rank of DB9M neilsbed and RS232 socket

Pin number	Signal-name	description
1	DCD	Not be used
2	RXD	RS232 signal receive
3	TXD	RS232 signal send
4	DTR	Not be used, to short with 6
5	GND	RS232 signal ground
6	DSR	Not be used, to short with 4
7	RTS	Not be used, to short with 8
8	CTS	Not be used, to short with 7
9	RI	Not be used

The signal rank of RS485/422connection terminal

Terminal signal-name	description
D+	RS485 signal positive
D-	RS485 signal negative
TXD+	RS422 signal sending positive
TXD-	RS422 signal sending negative
RXD+	RS422 signal receiving positive
RXD-	RS422 signal receiving negative
SG	RS485/422 signal ground
FG	Shielding ground (chassis)

Indicator light:

PWR power red always shine

TXD data sending yellow twinkle when sending data to fiber

RXD data receiving green twinkle when receiving data from fiber

FIB break off red be lighten when the fiber is broken

There is a LED indicator FIB besides the fiber connector Rx. When the fiber is broken, the fiber is not connected or the opposite party's fiber converters is turn off, FIB will be lit by receiving the matt signal, witch is very convenient to judge where the fault is.

External power: the right terminal is a two-group external power terminal, one is 9 ~ 40 VDC wide-voltage, and the other is 5 VDC fixed voltage. Any one of them is ok. You needn't to worry about the power fluctuations. Isolating signal interface with external power within the product through DC / DC isolation module. Thus the power supply can be taken from any power terminals of equipment or powers of different equipments, to avoid the ground loop interference caused by the ground of external power and RS485/422/232 signal, and generate the safety of equipment.

Connection of RS485/422/232

Link of RS232:For the RS232 interfaces with standard DTE way such as computer, you can directly use the RS232 socket with the product witch connect RS232 cable to fiber converters. For RS232 interfaces of non-DTE way (such as some industrial equipment's RS232 interface), users need a self-made cable to

connect the fiber converter and RS232 interfaces of equipment, and the connectivity principles are: connect sending to receiving, receiving to sending, ground to ground. Determine whether short the unused signal as the equipment's introduction book. RS232 cable's length can not be over 15 m.

RS485's connection: Connect the D + terminal of fiber converters to the RS485 interface's positive signal of equipment, D- to RS485's negative signal of equipment, when the distance is over 50 m, a 120 Ohm terminals resistance need to be parallel connected between D + and D- and the RS485 terminals of equipments apiece.

The allowed greatest cable length of RS485/422 at different baud rates : 2000m (9.6Kbps) 、 1.5km (19.2Kbps) 、 1.2km (115.2Kbps) 、 800m (187.5Kbps) 、 200m (500Kbps) 。

The positive and negative signs of some equipment's RS485/422 interface are marked as B negative and A positive (such as Mitsubishi PLC), some are marked as A negative and B positive (such as Siemens, Omron PLC), Please pay attention when connecting..

The RS232, RS485, RS422 of this fiber converter can not communicate with each other, only one of them can be used

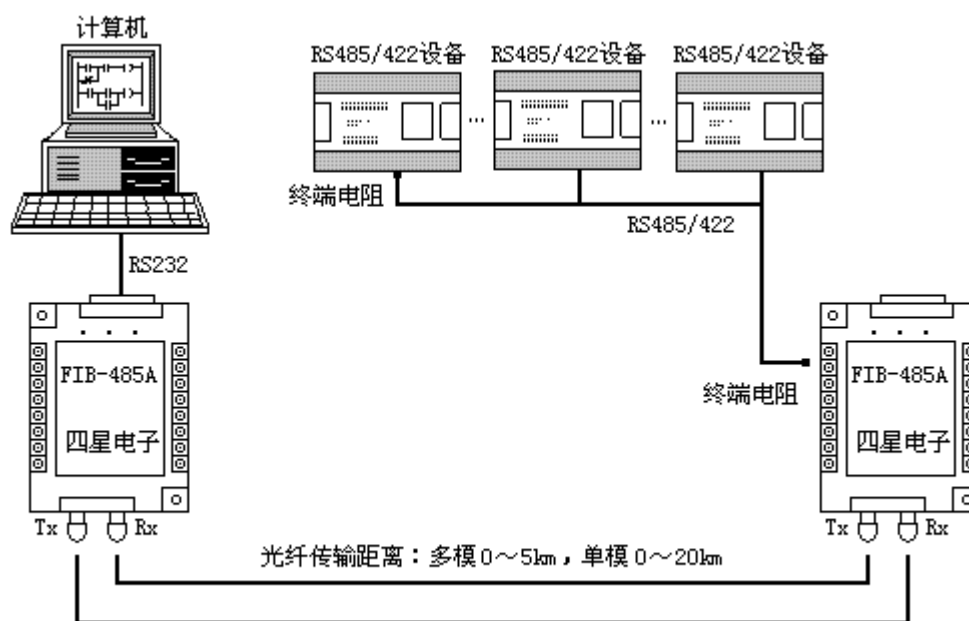
The use of the RS232, RS485, RS422 of this fiber converter is without the switch or the jumper switches, the direct use is very convenient

Use fiber to link the two fiber converters. Connect Tx to the other one's Rx, Rx to the other one's Tx. The bend radius when laying the fiber can't be less than the allowed one, or the core is easily broken.

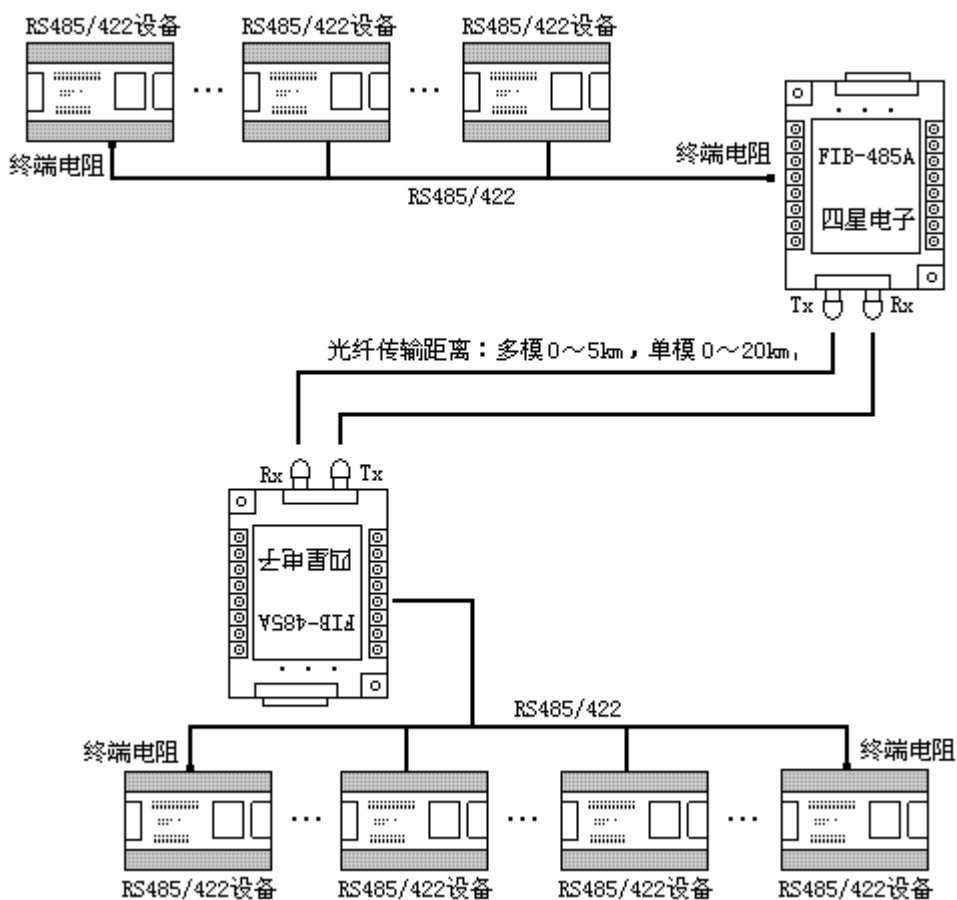
Please pay attention to maintaining the clean of fiber's interface socket. Please use the configured rubber to cover it when it isn't connected.

Typical applications map

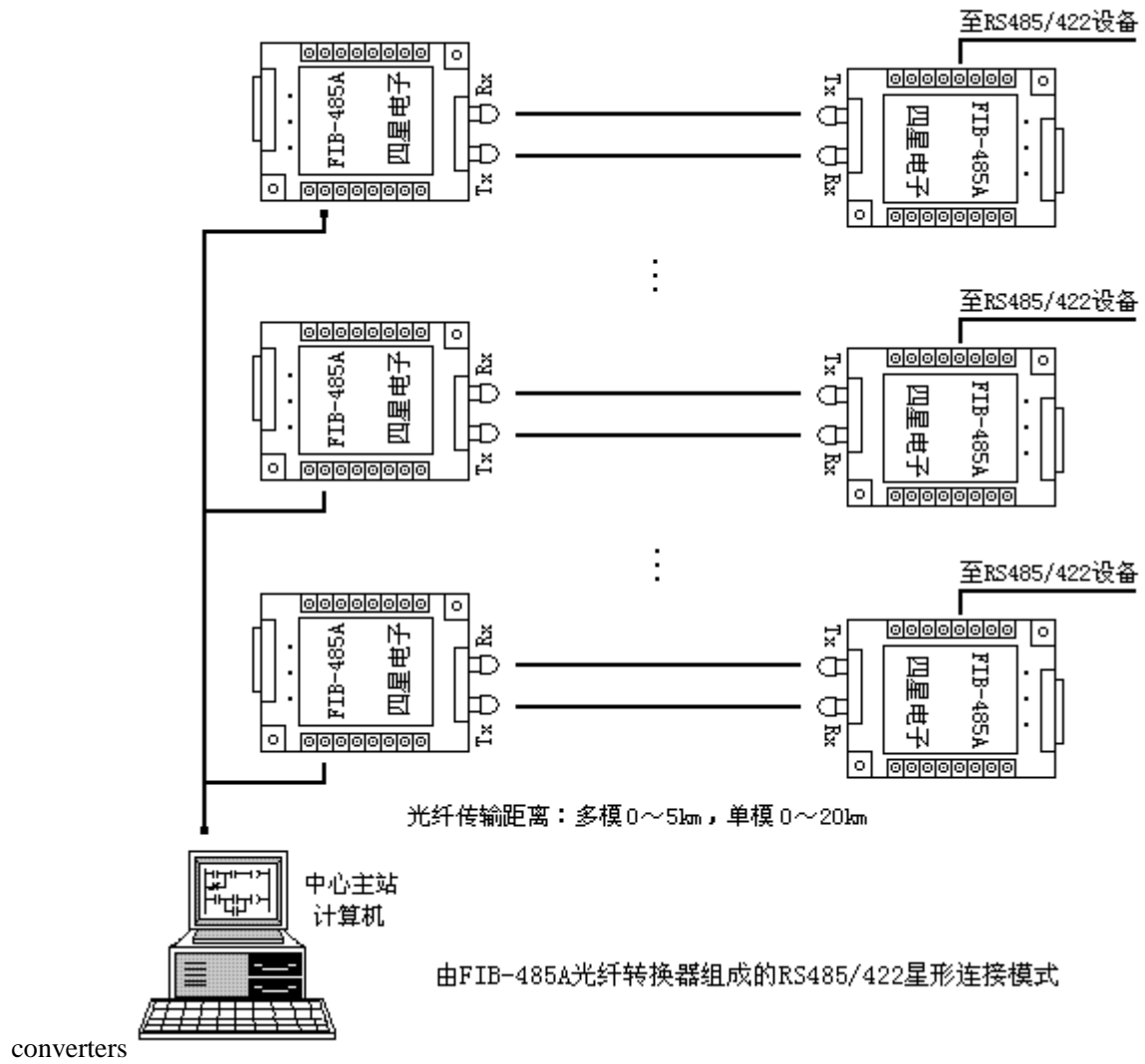
The RS485/422/232 point-to-point communication mode composed by FIB-485A fiber converters



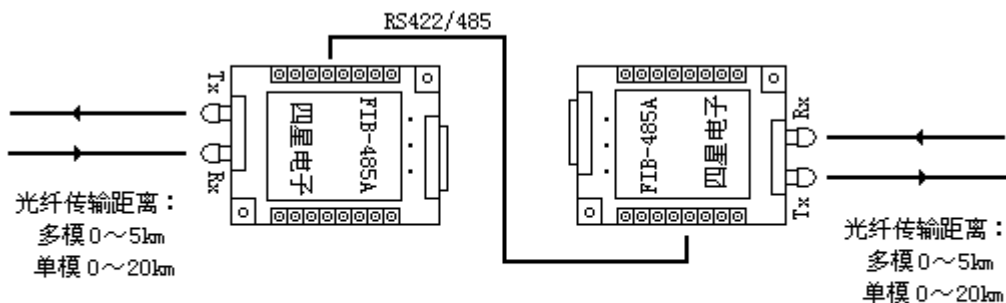
Connect two different zones' RS485/422 buses by FIB-485A fiber converters



RS485/422 star network (fiber HUB) composed by FIB-485A fiber



Fiber repeaters and fiber mode converters composed by FIB-485A



用两个背靠背的FIB-485A可组成光纤中继器，光纤传输距离延长一倍

用一个单模FIB-485A-S和一个多模FIB-485A-M背靠背的连接可组成多模—单模光纤的相互转换