FIB-CAN-M

CAN bus to muti-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 it's 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.

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FIB-CAN-M is an industrial grade CAN to fiber converter of Fourstar. It achieves CAN signal's transparent transmission on fiber, without changing the original communication protocols and software, plug and play, and directly replace copper conductor transmission. This product is based on binary diqit transparent transmission of data, thus more suitable for the communication protocol whose physical interface is CAN.

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: CAN physical interface, two pairs of CANH, CANL wiring-terminal, built-in anti-lightning and anti-surge protection, repeatable capacity of surge: Ipp = 100A (10/700us, 4KV),standards: ITU-TK20/21, VDE 0433. ± 15KV ESD (electrostatic) protection

● communication rate: normal mode：0～1Mbps adaptive；enhanced mode：0～50Kbps adaptive

● the unique enhanced-drive circuit, the voltage can be doubled when outputting signals, CAN can be used for long-distance transmission of smaller communications lines

● applicable fiber: multi-mode 62.5/125 um, 50/125um

● wavelength: 1310 nm

● power of launched light: -6 dBm

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● receiving sensitivity: -22 dBm

● transmission distance: 0 ~ 5 km

● fiber interface: standard ST connector, SC and FC connector optional

● temperature: -40 ~ +85 ℃

● 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:

1、发送端光纤接口
2、接收端光纤接口
3、光纤中断示灯
4、电源和信号收、发指示灯
5、外接电源接线端子
6、CAN 接线端子
7、终端电阻开关
8、驱动增强选择开关
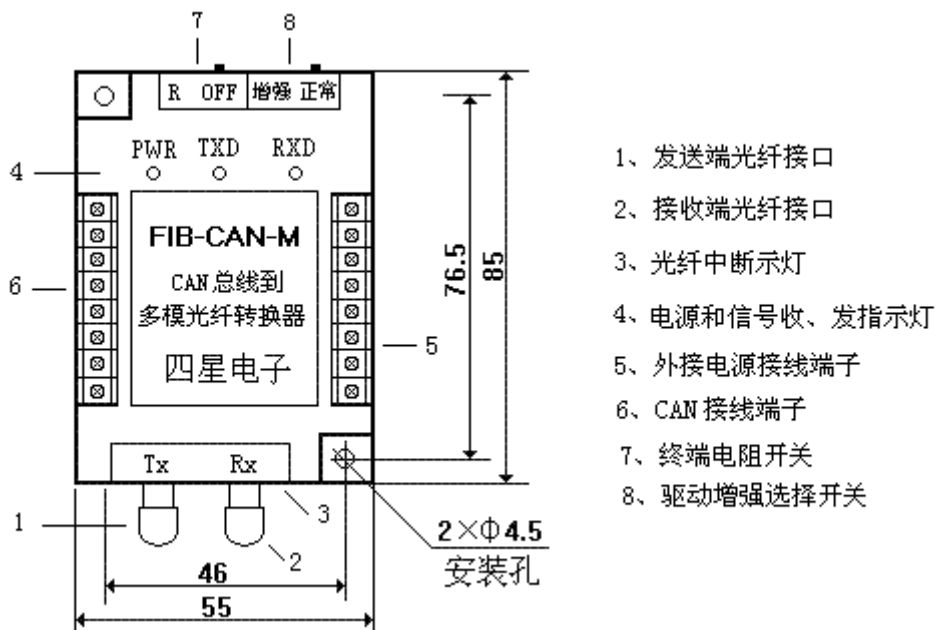
The signal rank of CAN connection terminal

Terminal signal-name	description
CANH	CAN signal is high，the inside connect with other terminal CANH
CANL	CAN signal is low，the inside connect with other terminal CANH
CANH	CAN signal is high，the inside connect with other terminal CANH
CANL	CAN signal is low，the inside connect with other terminal CANH
SG	CAN signal ground
FG	Shielding ground（chassis ground）

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

Terminal resistance switch: OFF ---- no termination resistor, R ---- with 120 Ohm terminal resistance.

Enhanced-Drive selection switch: enhancing ---when CAN sent signal, voltage is doubled; the normal --- standard CAN level when CAN sending signals

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 CAN signal 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 CAN signal， and generate the safety of equipment.

Connection of CAN signal

Two pairs of CANH, CANL wiring-terminal are designed for this product's CAN port, witch can be used to eliminate the extension problems of CAN and avoid the waveform distortion caused by the signal echo on extension

采用一对端子有支线产生回波   采用两对端子没有支线
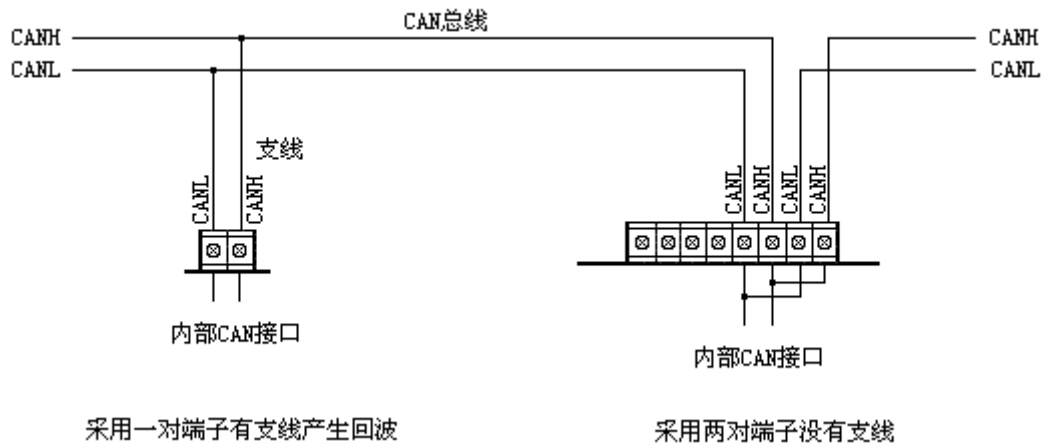
The following table is the twisted pair's cross-sectional area of the CAN's different communication distance:

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

The settings of enhanced-drive selection switch: When the length of CAN cable is less than 5 km (two-line resistance is less than 120 Ohm), transfer the switch to "normal" position. When the length of cable is more than 5 km (two-line resistance is greater than 120 Ohm), transfer switch to "enhanced" position, at this time the relay output double-voltage signal, but will cause greater signal reflection and

waveform distortion too. So thicker twisted pair is better for long-distance communications (cross-sectional area is no less than 2 mm2). Setting the switch in the "normal" working method.

When fiber converter is in the CAN bus terminal, terminal resistance switch should be transferred to R location. In other locations of the bus, the terminal resistance switch should be transferred to OFF position.

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

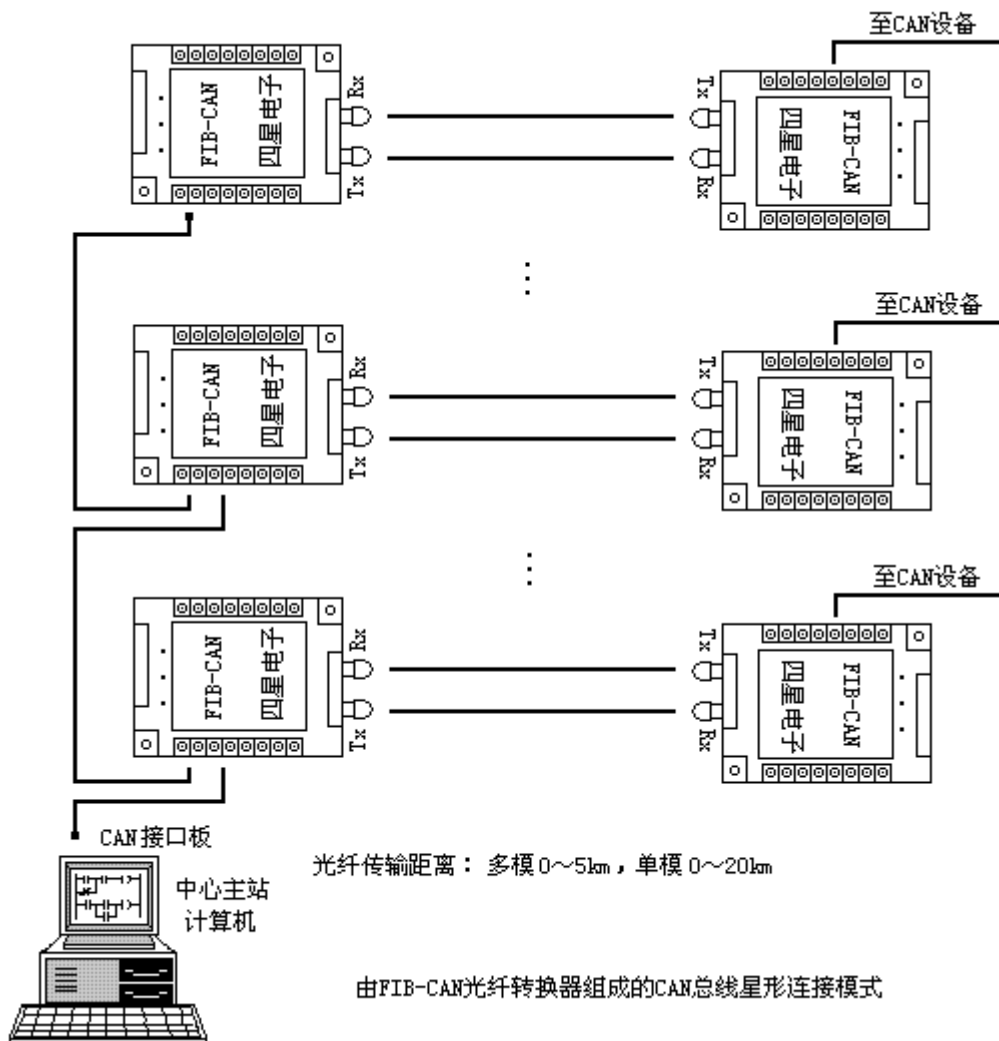use the configured rubber to cover it when it isn't connected.

Typical applications as map

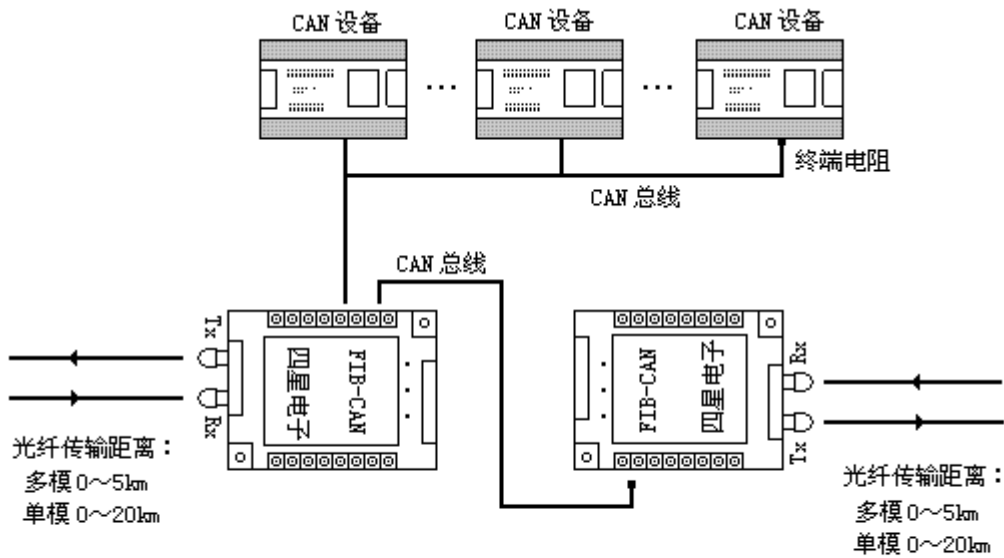Connect two different zones' CAN buses by FIB-CAN fiber converters

终端电阻开关拨到R

光纤传输距离：多模 0～5km，单模 0～20km

终端电阻开关拨到OFF
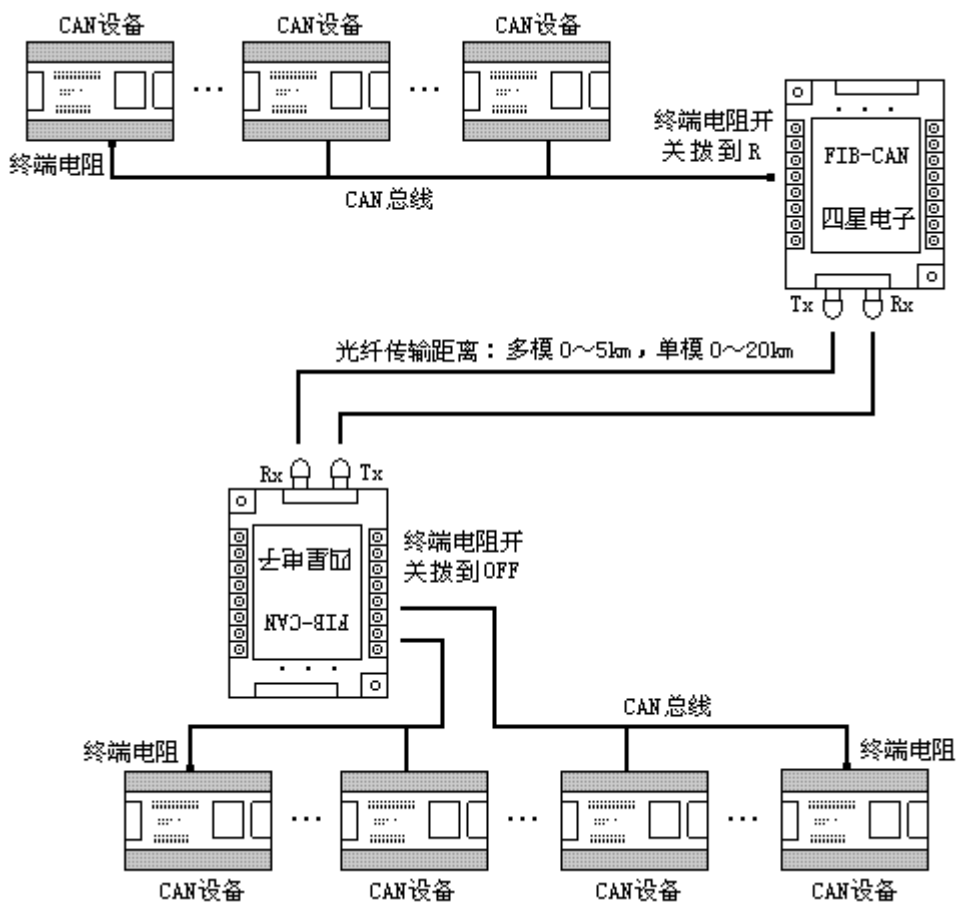
CAN star network (fiber HBU) composed by FIB-CAN fiber converters

光纤传输距离：多模0～5km，单模0～20km

由FIB-CAN光纤转换器组成的CAN总线星形连接模式

Fiber repeaters and fiber mode converters composed by FIB-CAN

用两个背靠背的 FIB-CAN 可组成光纤中继器，光纤传输距离延长一倍

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