FS-CIF13 Manual

FS-CIF11 is the peripherals mouth and RS232 to RS422/485 interface module that Fourstar develop for Omron PLC. Its functions include more than Omron's CPM1-CIF11 (peripheral mouth to RS422), CPM1-CIF12 (peripheral mouth to RS485), NT-AL001 (RS232 to RS422), 3G2A9-AL004-E (RS232 to RS422) module. It can directly use to CS / CJ, CQM1H, CPM2C series PLC, eliminating the trouble that it needs CS1W-CN114 adaptor when use of CPM1-CIF11 or CPM1-CIF12! It can connect PLC peripherals mouth or RS232 communication mouth (automatic identification), the output is RS422 (4-wire full-duplex) or RS485 (second-line half-duplex). The product without an external power supply, communication distance can be up to two kilometers. Communication range of up to two kilometers.

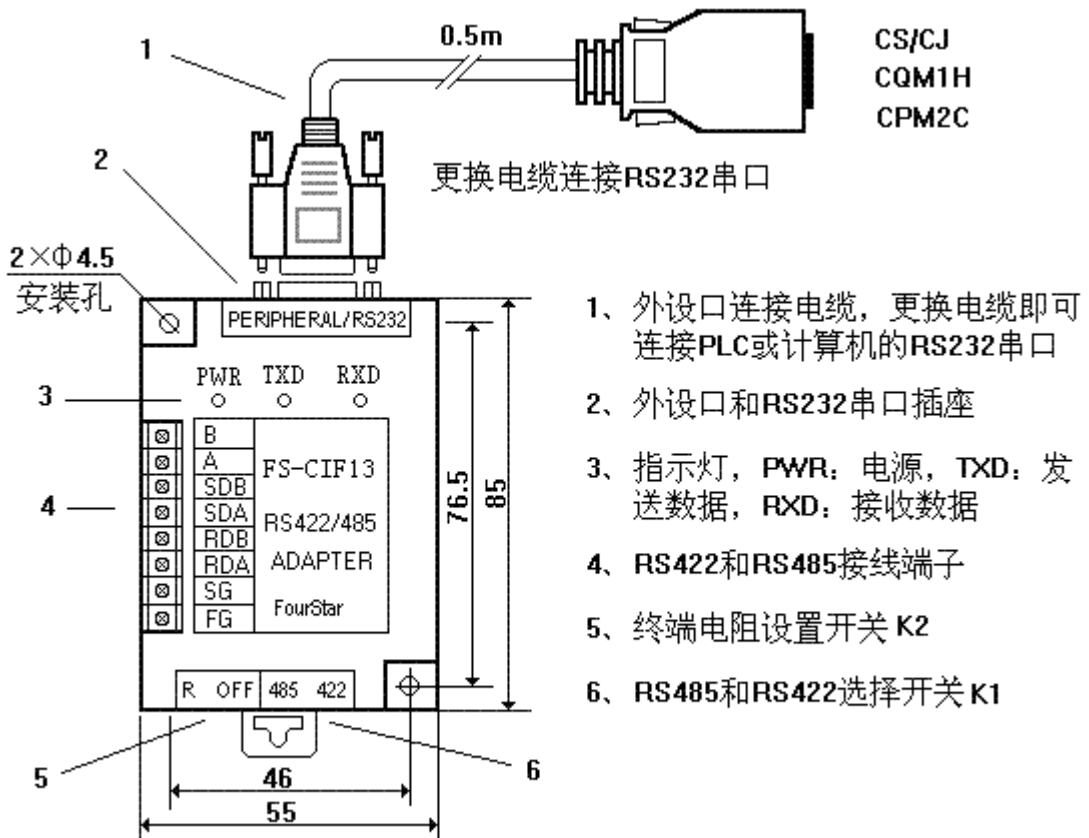Below are the FS-CIF13 and Omron CPM1-CIF11, CPM1-CIF12 and NT-AL001 comparison:

module function	FS-CIF13	CPM1-CIF11	CPM1-CIF12	NT-AL001 3G2A9-AL004-E
the connector with PLC	Peripherals interface 、RS232	peripherals interface	peripherals interface	RS232
the connector with computer	RS232	no	No	RS232
Output interface	RS422 and RS485	RS422	RS485	RS422
An external power supply	No	no	no	Need an external power supply
Communication transceivers indicator	yes	no	no	No
The greatest distance	2000m	500m	500m	500m
The largest group site points	32	32	32	32

Technical details:

1, peripheral mouth, RS232 serial port and computer and other equipment Serial RS232 which can connect with the PLC

2, outputting is the four-full-duplex RS422 interfaces and second-line half-duplex RS485 interfaces

3, no external power

4, communication lines choose the unshielded twisted pair which cut-off area is over 0.5 mm^2

5, the largest communication distance is 2,000 meters

6, the largest group site points is 32(the hardware of the product itself can support 128 sites)

7, the largest communication rate is 115.2 Kbps, baud rate adaptive

8, a transient voltage suppression, can withstand the power of up to 600 W transient over-voltage, to mine, and to resist the impact of ±15KVelectrostatic discharge

9, work temperature: -20 ~ 70 ℃

10, installation: 35 mm standard rails installed and the installation bolt hole

11, Dimensions: 85 × 55 × 25

shape of product and terminal signal definition:

Signal definition of RS485/422 connection terminal

0.5m

CS/CJ
CQM1H
CPM2C

更换电缆连接RS232串口

1
2
2×Φ4.5
安装孔

PERIPHERAL/RS232

PWR TXD RXD

3

4

B
A
SDB
SDA
RDB
RDA
SG
FG

FS-CIF13

RS422/485

ADAPTER

FourStar

76.5 85

R OFF 485 422

5   46   6

55

1、外设口连接电缆，更换电缆即可连接PLC或计算机的RS232串口

2、外设口和RS232串口插座

3、指示灯，PWR：电源，TXD：发送数据，RXD：接收数据

4、RS422和RS485接线端子

5、终端电阻设置开关 K2

6、RS485和RS422选择开关 K1

PERIPHERAL/RS232 socket（DB9M） signal definition

Pin number	Signal name	description
1	+5V	External connect 5V assistant power supply，not use
2	RXD	RS232 signal receive
3	TXD	RS232 signal send
4	DTR	Get data terminal ready
5	GND	Signal ground

6	DSR	Get data device ready
7	RTS	Request to send
8	CTS	Allow to send
9	Not use	Not use

Signal definition of RS485/422 connection terminal

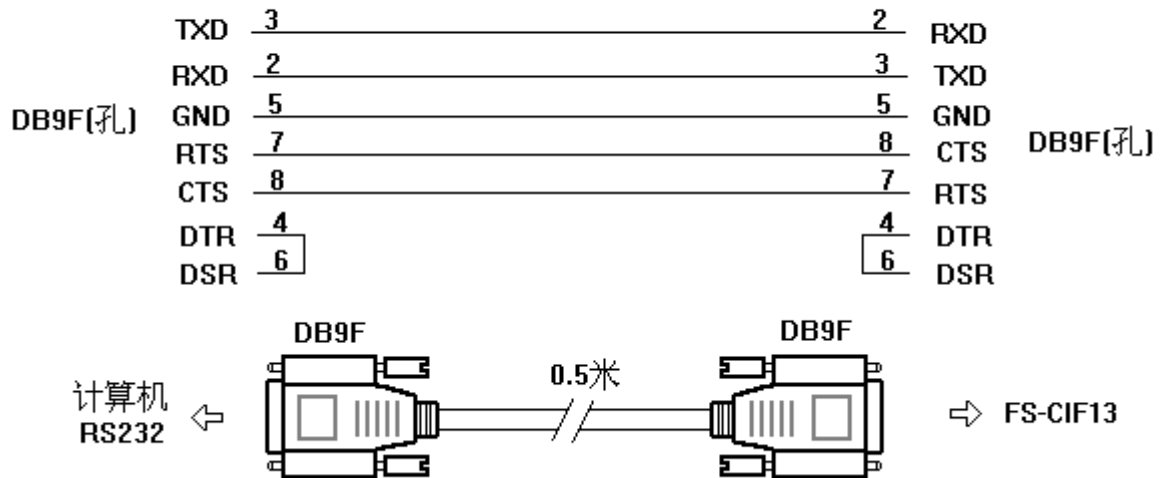| Signal name	description
B	RS485 signal positive
A	RS485 signal negative
SDB	RS422 signal sending positive
SDA	RS422 signal sending negative
RDB	RS422 signal receiving positive
RDA	RS422 signal receiving negative
SG	Signal ground
FG	Shield ground（chassis ground）

FS-CIF13 and PLC or computer connections:

All the connections of FS-CIF13 and the PLC peripheral mouth, RS232 Serial and computer

RS232 serial port use PERIPHERAL/RS232 socket (DB9M). The products internal circuit will

automatically identify the peripherals and RS232 serial peripherals. With the use of peripheral

connection cable which products equipped can connect the FS-CIF13 to Omron CS/CJ、CQM1H、

CPM2C, and other PLC peripherals directly. The connection cable of FS-CIF13 and PLC RS232

Serial or computer RS232 need users to make, referring to follow pictures. If use the shielded

cable, please weld the shield layer on the cover of the two plugs.

FS-CIF13 到欧姆龙PLC的RS232口（DB9）适配电缆

DB9M(针)			DB9F(孔)
TXD	2 ———— 2	RXD
RXD	3 ———— 3	TXD
GND	9 ———— 5	GND
RTS	4 ———— 8	CTS
CTS	5 ———— 7	RTS
	4	DTR
	6	DSR

DB9M   0.5米   DB9F

欧姆龙PLC
RS232口 ⇐   ⇒ FS-CIF13
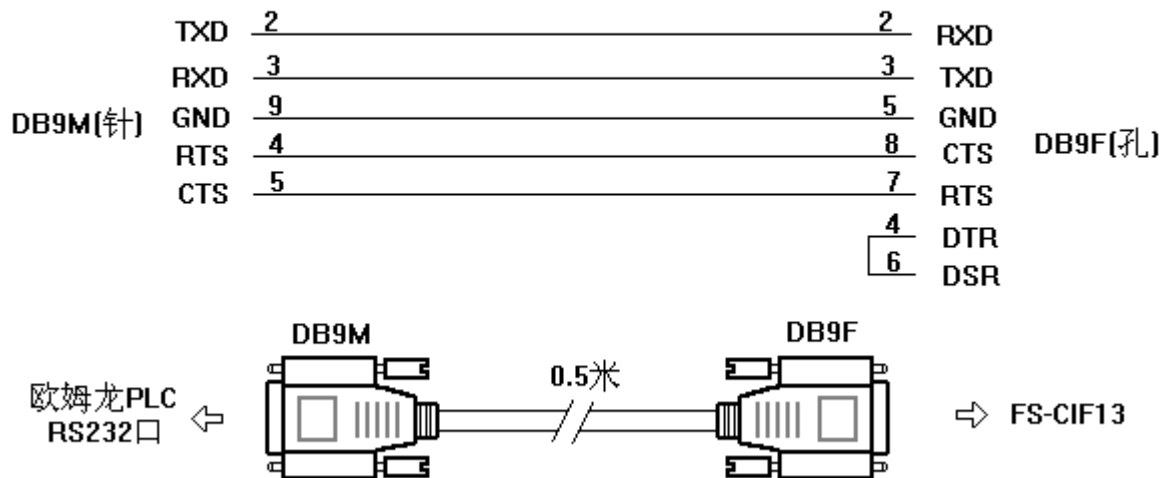
FS-CIF13到计算机的RS232口（DB9）适配电缆

```
          TXD   3 ──────────────────────────── 2   RXD
          RXD   2 ──────────────────────────── 3   TXD
DB9F(孔)  GND   5 ──────────────────────────── 5   GND
          RTS   7 ──────────────────────────── 8   CTS   DB9F(孔)
          CTS   8 ──────────────────────────── 7   RTS
          DTR   4 ┐                          ┌ 4   DTR
          DSR   6 ┘                          └ 6   DSR
```

```
              DB9F                            DB9F
计算机                    0.5米
RS232  ⇐                  //                        ⇒ FS-CIF13
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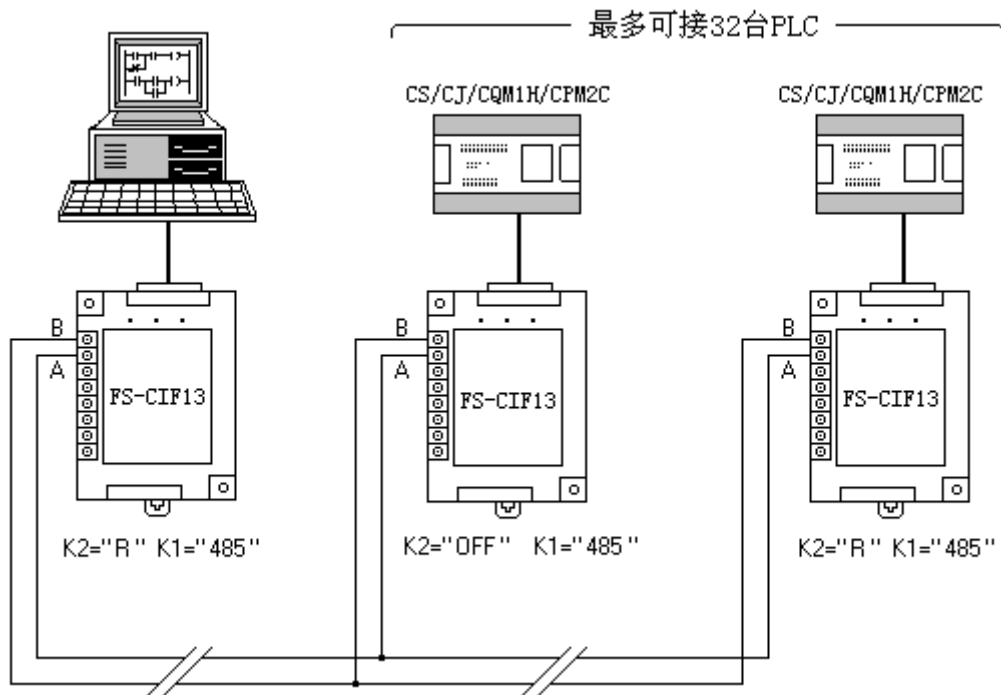
The application of products:

The use of FS-CIF13 adapter can connect   up to 32 Omron CS/CJ、CQM1H、CPM2C and other PLC   as -RS485/422 top communications network ,and connect PLC peripherals mouth, RS232 serial port or both mixed-use, the communication distance can be up to 2,000 meters. Connect shield with the FS-CIF13 "FG" on the terminal when use unshielded twisted pair.

1,second-line half-duplex RS485 communications network:

This way equals to Omron CPM1-CIF12 plus CS1W-CN114 and NT-AL00.

Turn   the RS485 and RS422 selection switch K1 on the FS-CIF13 adapter to "485", and turn the terminal resistance setting switch K2 on the FS-CIF13 of the network start and end to "R", and turn the terminal resistance setting switch K2 on other FS-CIF13 of the network to "OFF".
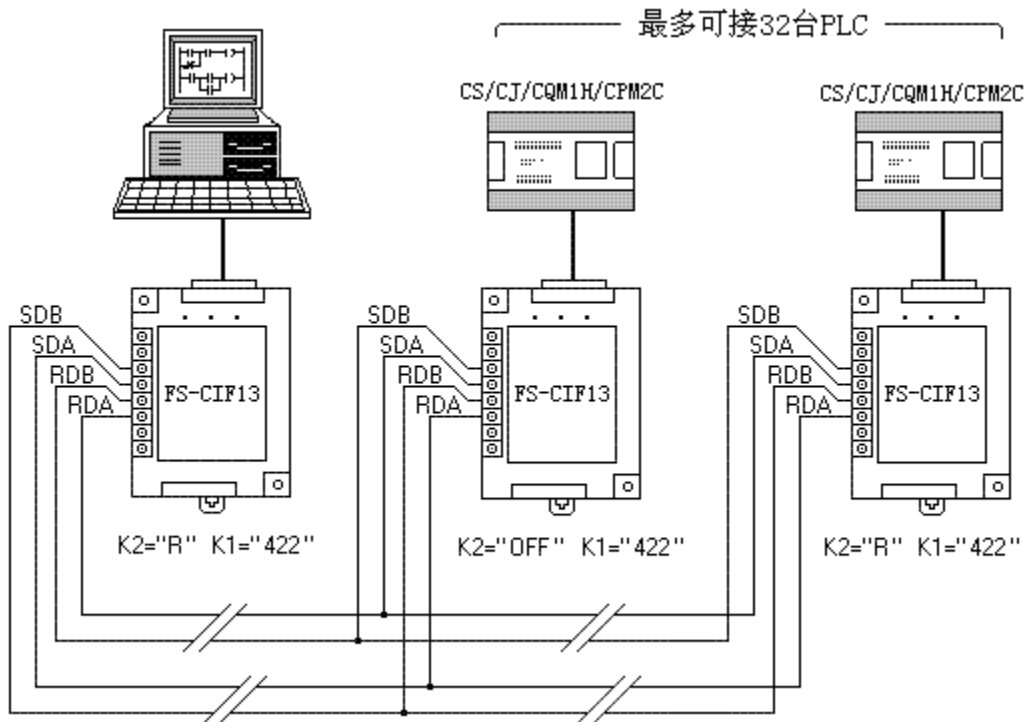
最多可接32台PLC

CS/CJ/CQM1H/CPM2C

CS/CJ/CQM1H/CPM2C

FS-CIF13

FS-CIF13

FS-CIF13

K2="R" K1="485"

K2="OFF" K1="485"

K2="R" K1="485"

2, 4-wire full-duplex RS422 communications network

This way equals to Omron CPM1-CIF11 and NT-AL001.

Turn the selection switch K1 on the RS485 and RS422 of FS-CIF13 adapter to "422", turn the

terminal resistance setting switch K2 on the   FS-CIF13 of the network start and end   to "R", turn

the terminal resistance setting switch K2 on other FS-CIF13 of the network to "OFF".

最多可接32台PLC

CS/CJ/CQM1H/CPM2C

CS/CJ/CQM1H/CPM2C

SDB
SDA
RDB
RDA
FS-CIF13

K2="R" K1="422"

SDB
SDA
RDB
RDA
FS-CIF13

K2="OFF" K1="422"

SDB
SDA
RDB
RDA
FS-CIF13

K2="R" K1="422"

NOTES:

1, the communication lines should choose the unshielded twisted pair which cross-sectional area should be more than 0.5 mm2 and 120-ohm impedance.

2, in order to prevent RS485/422 interface of the common mode voltage impact beyond the permitted range and even damage the reliability of communication interfaces,   low resistance wires which cross-sectional area is 1 mm2 can be used to link up the signal ground "SG" of all FS-CIF13 to eliminate the potential difference between all nodes on the network.

3, the cable length(extension)of all FS-CIF13   to the bus can't be over 15 meters, otherwise they will have echoes, affecting the normal communications of the system. The best option is connecting FS-CIF13 with the RS485/422 bus directly.

4, about the settings of the terminal resistance, the function of the terminal resistance is to eliminate the waveform distortion caused by the signal reflection in the communication lines , turn

the termination resistor setting switch K2 on the FS-CIF13 on the communication lines start and end to "R" (access terminals 120EU resistance), and turn the resistance setting switch K2 on other FS-CIF13 of the communication lines to "OFF" (not-to-end resistance).

5, when the communication procedures used at full-duplex mode, can only use four-full-duplex RS422 connection; when the communication procedures used half-duplex mode, they can use second-line four-or half-duplex RS485 full-duplex RS422 connection. Please refer to PLC use manuals, communication manuals and other related information about programming.

6, when connect the RS232 serial port, if your RS232 is no power serial port or the output current is small(as some PDA), you can add i5 V auxiliary power between 1pin and 5pin on the DB9 outlet of the FS-CIF11, 1pin to straight. 5pin to negative.

7, Annex: equip a peripheral connection cable with product