



### The Instruction for Use of FS-CIF11

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 uses for CPM1A/2A, CQM1, C200H  $\alpha$  series PLC, and 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.

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

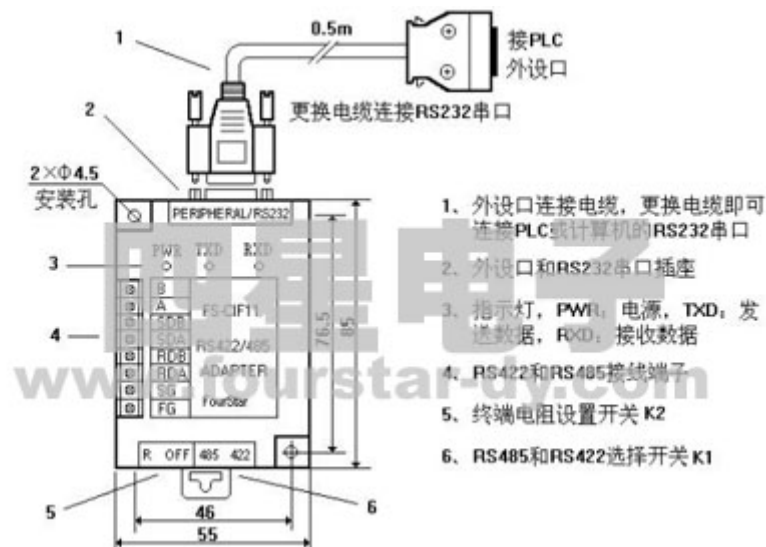
Module	FS-CIF11	CPM1-CIF11	CPM1-CIF12	NT-AL001
function				3G2A9-AL004-E
PLC and the connector	peripherals interface 、 RS232	Peripherals interface	Peripherals interface	RS232
And computer ports	RS232	No	No	RS232
Output interface	RS422 和 RS485	RS422	RS485	RS422
An external power supply	No	No	No	Need an 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<sup>2</sup>
- 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 400 W transient over-voltage, to mine, and the impact of electrostatic discharge
- 9, work temperature: -20 ~ 70 °C
- 10, installation: 35 mm standard rails installed and the installation bolt hole
- 11, Dimensions: 85 × 55 × 25

### The shape of product and the terminal signal definition



PERIPHERAL/RS232 socket (DB9M) signal definition

Pin number	Signal name	description
1	+5V	External connect 5v assistant power supply, not used
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 send
8	CTS	Allow to send
9	Not used	Not used

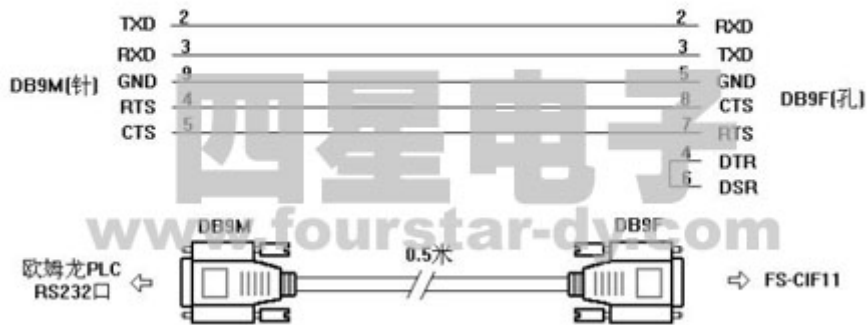
Signal definition of RS485/422 connection terminal

Signal name	description
B	RS485 signal, positive
A	RS485 signal, negative
SDB	RS422 signal sending,

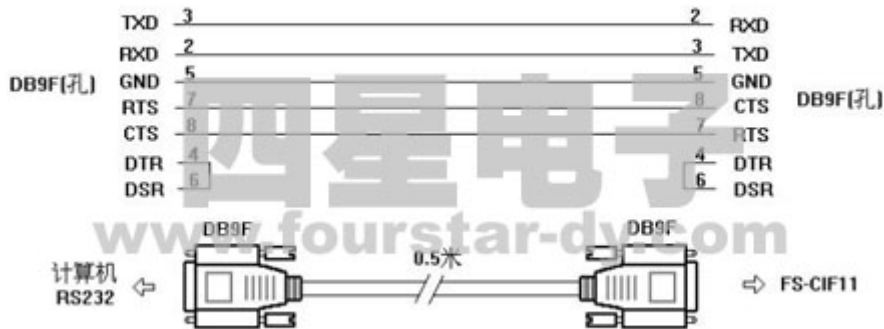
	positive
SDA	RS422 signal sending negative
RDB	RS422 signal receiving, positive
RDA	RS422 signal receiving, negative
SG	Signal ground
FG	Shield ground (chassis ground)

**FS-CIF11 and PLC or computer connections:**

All the connections of FS-CIF11 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-CIF11 to Omron CPM1A/2A, CQM1, C200H  $\alpha$ , and other PLC peripherals directly. The connection cable of FS-CIF11 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-CIF11到计算机的RS232口 (DB9) 适配电缆

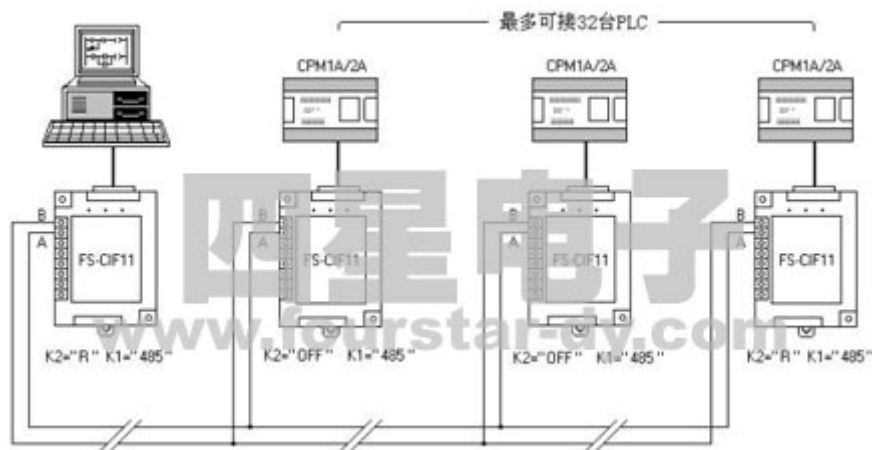


**The application of products:**

The use of FS-CIF11 adapter can connect up to 32 Omron CPM1A/2A, CQM1, C200H α 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-CIF11 "FG" on the terminal when use unshielded twisted pair.

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

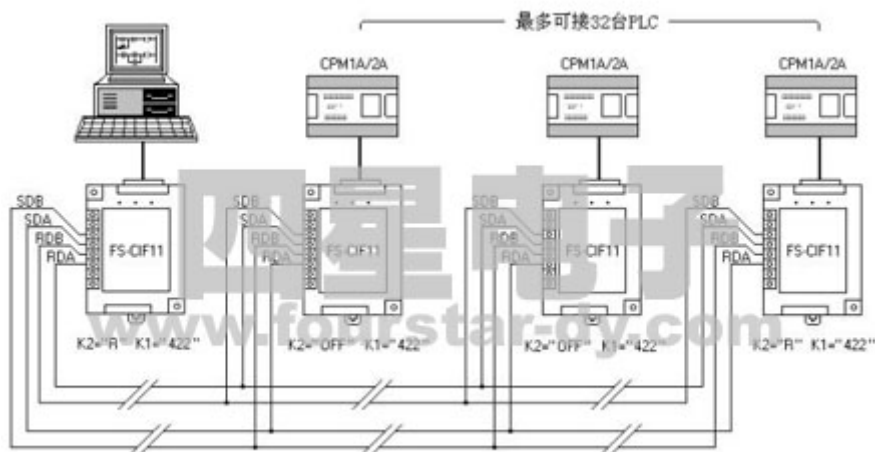
Turn the RS485 and RS422 selection switch K1 on the FS-CIF11 adapter to "485", and turn the terminal resistance setting switch K2 on the FS-CIF11 of the network start and end to "R", and turn the terminal resistance setting switch K2 on other FS-CIF11 of the network to "OFF".



## 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-CIF11 adapter to "422", turn the terminal resistance setting switch K2 on the FS-CIF11 of the network start and end to "R", turn the terminal resistance setting switch K2 on other FS-CIF11 of the network to "OFF".



## NOTES:

- 1, the communication lines should choose the unshielded twisted pair which cross-sectional area should be more than 0.5 mm<sup>2</sup> 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 mm<sup>2</sup> can be used to link up the signal ground "SG" of all FS-CIF11 to eliminate the potential difference between all nodes on the network.
- 3, the cable length(extension)of all FS-CIF11 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-CIF11 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-CIF11 on the communication lines start and end to "R" (access terminals 120EU resistance), and turn the resistance setting switch K2 on other FS-CIF11 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