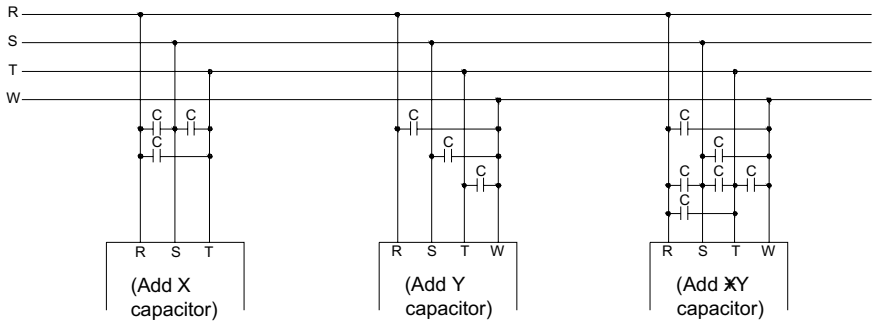
Strategies against Noise

When wiring for RS-485 network is implemented based on the described materials and rules or a 12 Ω terminating resistor is added, most noise situations are eliminated. However, if noise cannot be eliminated, it means that there are strong noise sources near the RS-485 network. Besides keeping cables far away from noise sources (e.g., electromagnetic valves, inverters, servo drivers, or other power units), the most effective way to solve the problem is to use noise suppression components. Refer to the description in Section 7.5 in the "Hardware Manual" for noise suppression of electromagnetic valves, relays and other devices with inductive load. The diagram below shows the noise suppression approaches for inverters, servo drivers, and other high-noise power units (i.e., add X capacitance or Y capacitance or X-Y capacitance).



C = 0.22μF~0.47μF / AC630V

⚠ Caution
• Hardware wiring for communication network and addition and removal of communication stations should be implemented with PLC disconnected. Don't work especially when PLC is running, or communication errors may occur to generate incorrect PLC output.

11.4 How to use FBs-PLC Communication Ports

The requirements for communication are that (1) hardware interfaces and mechanisms, (2) communication parameters and (3) software interfaces (i.e. the protocol) of the receiver/ sender must be consistent. The same are applicable to PLC. After the above three fundamentals are meet, PLC will communicate with other PLCs or peripherals. The following will describe these three fundamentals.

11.4.1 Matching of Hardware Interfaces and Mechanisms

In addition to USB, the rest of peripherals (RS-232 and RS-485) for FBs-PLC to communicate are EIA standard interface. As sections 11.2 and 11.3 described, you can use FBs-CM25C communication converter or self-made cables to match hardware interfaces with mechanisms of the peripherals to which you want to connect. Refer to the table below for definition of RS232 pins:

Signal Name / Pin / Connector Type		TXD	RXD	RTS	CTS	SG
9Pin D-sub	MALE	3	2	7	8	5
	FEMALE	2	3	8	7	5

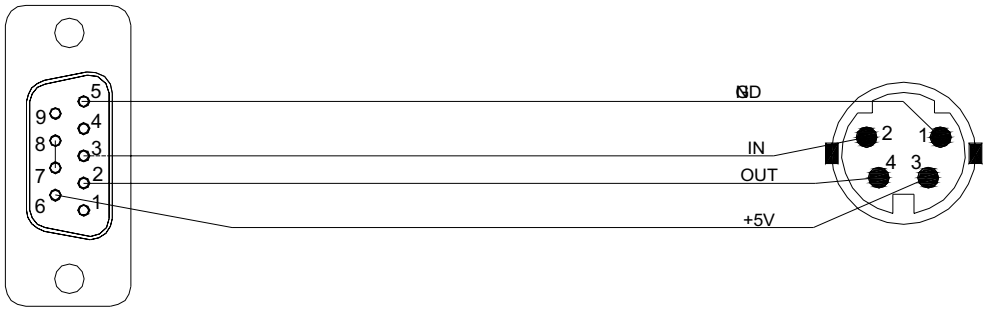
If you make RS-232 cables by yourself and the definition of each pin is not clear, use a multimeter for measurement to determine TXD and RXD.

9 Pin connector: The pin 5 is SG.

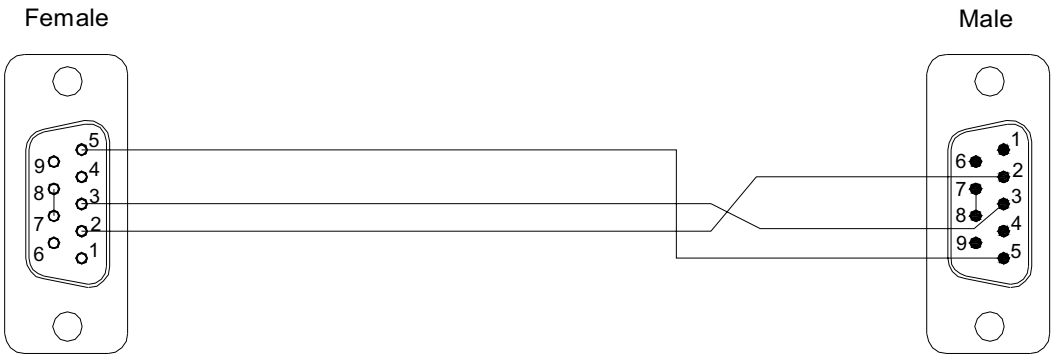
Measure the pin 2 (red probe) and the pin 5 (black probe) with a multimeter. If it is approximately -9V, it means that the pin 2 is the transmission pin; If it is approximately 0V, it means that the pin 2 is the receiving pin.

Measure the pin 3 (red probe) and the pin 5 (black probe) by a multimeter. If it is approximately -9V, it means that the pin 3 is the transmission pin; If it is approximately 0V, it means that the pin 3 is the receiveing pin.

(1). 9P D-SUB female and PLC Port 0 (RS232) wiring pin assignments :



(2). 9P D-SUB female and 9P D-SUB male (RS232) wiring pin assignments :



(3). 9P D-SUB male and 9P D-SUB male (RS232) wiring pin assignments :