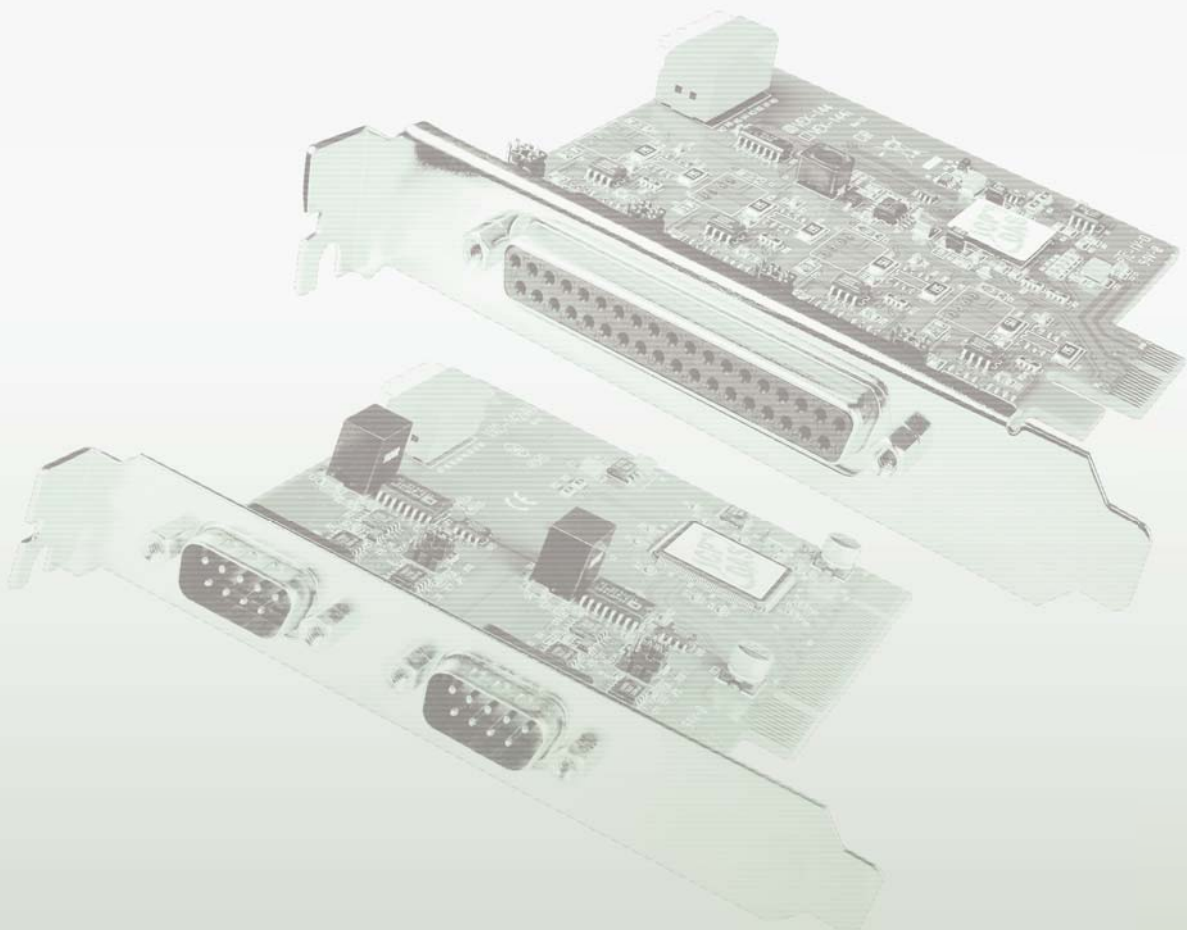


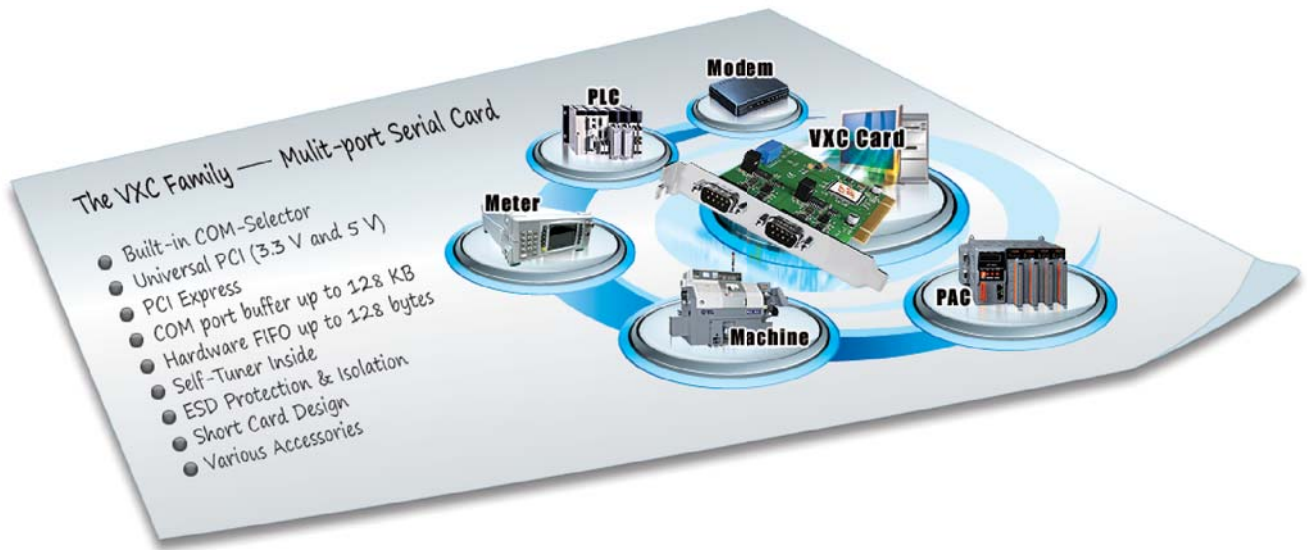
Multi-port Serial Cards



2-1 Overview -----2-1-1



2-1 Overview



● Overview

The VXC/VEX multi-port serial card enables user to increase additional communication ports on PCs. It's the on-top-of-the-list choice while you are managing to connect lots of outer devices through your PC; every VXC/VEX card ensures you smooth communication in both time-critical applications and industrial fields. With simply a VXC card, it has never been that easy to integrate a PC with lots of devices, such as PLCs, machines, meters, controller devices, laboratory instruments, modems, card readers, serial printers, RFID readers, bar code readers, sensors, etc.

● Features

COM-Selector

Each VXC/VEX card is equipped with a COM-Selector (DIP switch) for the COM port number selection. It supports two selection modes: Auto- and Manual-mode. The Auto-mode is the default setting (DIP switch is set as 0), and the uncertain COM port number will be assigned automatically by OS. The COM port number can be different after the PC reboot, and then may cause failures of an automation system. The Manual-mode of the COM-selector (DIP switch is set as 1 ~ 255) can force the card to use user-defined COM port number and eliminates the Auto-mode issues above. It's an important and innovative feature of the VXC/VEX family.

The Manual-mode of the COM-Selector provides the following advantages:

- Simplifies the COM port number selection without configuration utility.
- Specifies the COM port number directly, regardless of which PCI slot is plugged in.
- Avoids the confusion of uncertain COM port number that other PnP COM port devices use.
- Easy to replace a broken card just with the same DIP switch setting.

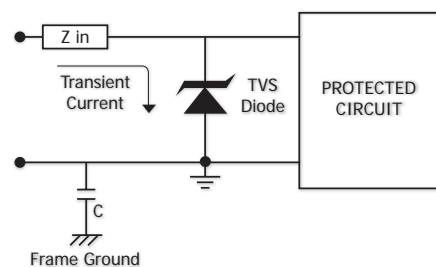


Easy COM Port Selection by DIP switch

ESD Protection

The VXC/VEX cards offer TVS diode ESD protection technology, protecting your system from being damaged by the high potential voltages.

Under normal operating conditions, the TVS diode presents high impedance (appears as an open circuit) to the protected component. When the voltage is beyond the limits, the TVS diode junction avalanches providing a low impedance path for the transient current. As a result, the transient current is diverted away from the protected components and shunted through the TVS diode. The device returns to a high impedance state after the transient threat passed.



Self-Tuner

The VXC/VEX card is equipped with a "Self-Tuner" chip to control the sending/receiving direction of RS-485 ports automatically.

Without the help of Self-Tuner, users need to enable RS-485 transmitter before sending, and disable the transmitter after finish sending. The timing to enable and disable transmitter (direction control) is the major issue on many communication problems, and it is very difficult to debug.

The built-in Self-Tuner on VXC/VEX cards effectively gets rid of this direction control issue and also simplifies software programming for communication applications.

Isolation

Some VXC/VEX cards offer photo isolation to protect your computer and equipment against damages in harsh environment.

Photo coupler is a device that uses a short optical transmission path to transfer a signal between elements of a circuit, typically a transmitter and a receiver. This keeping them electrically isolated — since the signal goes from an electrical signal to an optical signal, the electrical contact along the path is broken.

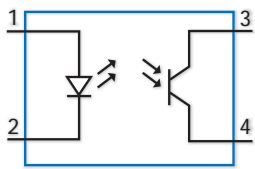
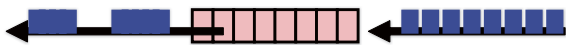


Photo Coupler Operation

It can help cutting down on ground loops, common mode voltages and block voltage spikes, provide electrical isolation, and offer significant protection from serious over-voltage conditions in one circuit affecting the other.

Hardware FIFO up to 128 bytes

FIFO stands for "First In, First Out", an abstraction in ways of organizing and manipulating data relative to time and prioritization. FIFO is used for buffering and flow control while data come from hardware to software. When using hardware FIFO (buffer), a little delay on software or operating system will not lose data at all.



Software gets data in dynamic timing.

Hardware puts data in fixed speed.

VXC/VEX Cards are equipped with 16- or 128-byte hardware FIFO for each port. Large hardware FIFO is useful to prevent data lost when your system works on heavy loading, and even helpful while you are running on a multi-task operating system, such as Windows, Linux... etc.

COM port buffer up to 128 KB

The VXC card driver for Windows features an up to 128 KB buffer for each port (default is 4 KB). It's practical for large file transmission.

Short Card Design

The "Short Card" design is suitable for compact-sized computer, especially for IPC (Industrial Personal Computer) and servers.

Universal PCI (3.3 V and 5 V)

The Universal PCI card works with both new 3.3 V PCI bus that has been widely-used in servers, and traditional 5 V PCI bus. The universal PCI interface will be the standard for every card from ICP DAS in the near future.

PCI Express

PCI Express (PCIe) is a computer expansion bus standard. A key difference between PCIe and earlier PC buses is a topology based on point-to-point serial links, rather than a shared parallel bus architecture. Conceptually, the PCIe bus can be thought of as a 'high-speed serial replacement' of the older PCI/PCI-X bus.

Various Accessories

There are a lot of optional accessories for the VXC/VEX cards, such as RS-232 cables and daughter boards. These tools make wiring much easily than ever.



DB-9 Cable



DB-9 Daughter Board



DB-9 Cable



DB-37 to 4-port DB-9 Cable



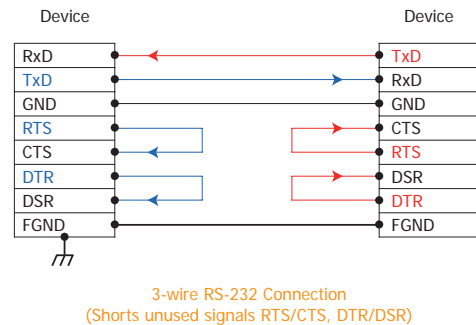
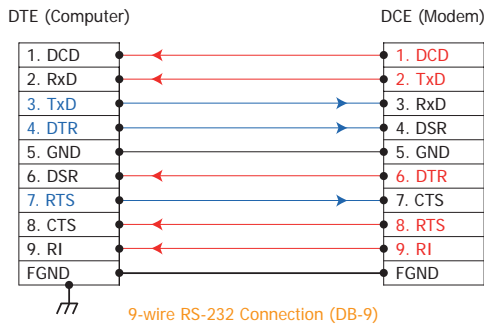
DB-37 Connector



DB-9 Connector

• Wiring Note for RS-232 and RS-422/485 Devices

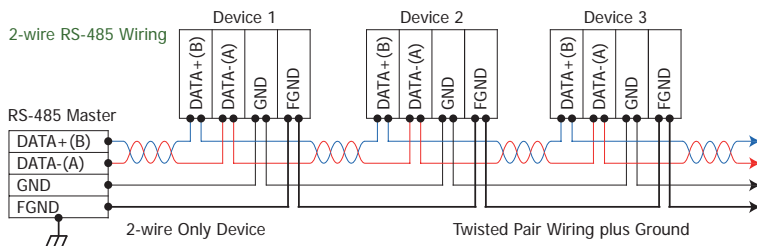
RS-232 Wiring



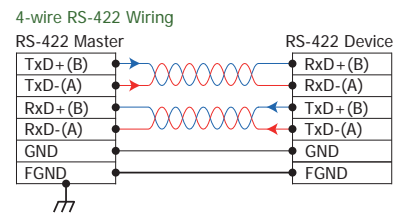
Note:

1. For 3-wire RS-232 connections, it is recommended to short unused signals such as RTS/CTS and DTR/DSR, since some systems may still check the CTS and DSR status.
2. FGND is the frame ground that soldered to DB-9 metal shield.

RS-485 Wiring



RS-422 Wiring



Note:

1. For non-isolated RS-422/485 ports, you should connect all signal grounds of RS-422/485 devices together. This reduces common-mode voltage between devices.
2. Twisted-pair cable must be used for the DATA+/- wires.
3. Both two ends of the cable may require a termination resistor connected across the two wires (DATA+ and DATA-). Typically 120 Ω resistors are used.