

# Introduction

# 1

## 1.1 Local Communication and Networking Solutions

P1-1-1



- Multi-port RS-232/422/485 Communication Cards P1-1-1
- RS-485 Bus Repeater, Converter and Hub P1-1-2
- USB to RS-232/422/485/CAN bus Converters P1-1-2
- Ethernet Switch P1-1-2
- Programmable Serial to Ethernet Device Server P1-1-3
- CAN Bus in Industrial Automation P1-1-3
- PROFIBUS in Industrial Automation P1-1-3

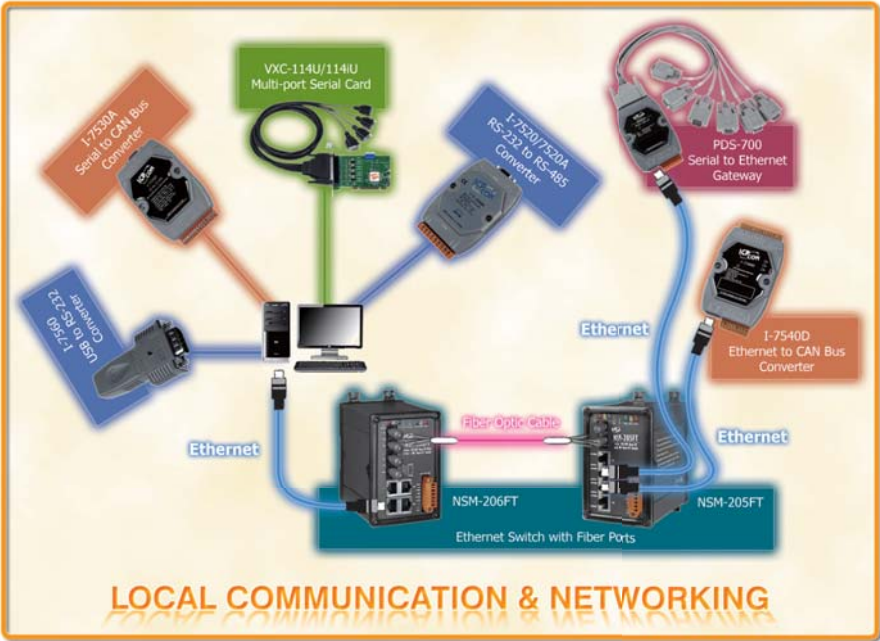
## 1.2 Wireless Networking Solutions

P1-2-1



- Wireless LAN Converter P1-2-2
- Wireless Modem P1-2-2
- GPRS/GSM External Modem P1-2-3
- Industrial GSM/GPRS Modems P1-2-3
- Intelligent GPRS/GSM Alarm Modules P1-2-3
- Multi-function GPRS/GSM PACs P1-2-4
- ZigBee Converter and Repeater P1-2-4

# 1.1. Local Communication and Networking Solutions



## ● Multi-port RS-232/422/485 Communication Cards

## Chapter 2

The VXC series card features Universal PCI (3.3 V and 5 V) or PCI Express interface, provides multiple RS-232 or RS-422/485 communication ports and offers 128-byte hardware FIFO for each port. The VXC series card enables user to install additional communication ports on PCs.

Users can select a specified COM port number manually by setting COM-Selector (DIP switch), or let the driver to choose an available number automatically. The driver provides a maximum of 128 KB software buffer for each COM port under Windows. It's practical for large file transmission.

It's the best choice for time-critical and reliable communications and controls in industrial environments, like communication with PLC, FAB machine, meter, console management of devices, laboratory instruments and Modem link, etc.



## ● RS-485 Bus Repeater, Converter and Hub

## Chapter 4

RS-485 is an electrical specification of a two-wire, half-duplex, multipoint serial communications channel. Since it uses a differential balanced line over twisted pair (like RS-422), it can span relatively long distances (up to 4,000 feet (1,200 m)).

RS-485 is widely used in the computer automation systems, such as building automation, machine automation and factory automations etc. Used for low cost low-speed data communications, it requires minimal wiring, and shares the wiring among several nodes.

ICP DAS provides total solutions on RS-485 bus, such as addressable RS-485 to RS-232/422 converter, RS-485 repeater, RS-232 to RS-485 converter, USB to RS-485 converter, RS-232/422/485 to fiber optic converter and RS-485 Hub... etc.



## ● USB to RS-232/422/485/CAN bus Converters

## Chapter 4

Universal Serial Bus (USB) is designed to allow many peripherals to be connected by using a single standard interface socket, and to improve the plug-and-play capabilities by hot swapping. In brief, devices can be connected and/or disconnected without rebooting the computer or turning off the device.

Currently USB ports are becoming standard interface to external devices on many computers. By using ICP DAS USB converters, users can access industrial RS-232/422/485 serial devices and CAN bus devices through the existing USB ports easily.



## ● Ethernet Switch

## Chapter 8

Ethernet is an ideal medium to transport large volumes of data, at fast speed, across great distances. Previously, multiple networks carrying specific protocols were installed side by side to carry out unique tasks. This inevitably led to project costs increasing as additional fiber optic or copper cables were installed to deal with the increasing volume of data. Using Ethernet, a single fiber optic cable can carry multiple protocols. Furthermore, manufacturers are exporting their legacy protocols onto Ethernet, designing new IP based communication protocols and providing embedded Web-Pages within devices that offer real-time information by simple tools like Internet Explorer and Netscape Navigator.

A switch, like a hub, has to forward and receive packets from one network or device to another. The switch forwards all packets, but if this is the case it shall have similar behavior to a hub. It becomes more intelligent if the switch only forwards packets which needs to travel from one network or device to another.



● Programmable Serial to Ethernet Device Server

Chapter 3

Programmable Device Server (PDS) is a series of Serial-Device to Ethernet gateways. It connects every of your RS-232/422/485 serial devices, such as PLC, bar code reader, RFID reader, meters and motion controllers... etc., to Ethernet that usually is the existing network in office and factory.

VxComm Driver creates virtual COM ports on Windows NT 4.0, 2000/XP/2003 and Vista32 (32-bit) and maps them to physical serial ports on PDS remotely. The user's serial client programs need only to change to the virtual COM port to get the access of serial devices that are allocated in the Internet or Ethernet network via the PDS.



● CAN bus in Industrial Automation

Chapter 6

The Controller Area Network (CAN) is a serial communication way, which efficiently supports distributed real-time control with a very high level of security. It provides the error process mechanisms and message priority concepts. These features can improve the network reliability and transmission efficiency. Furthermore, CAN supplies the multi-master capabilities, and is especially suited for networking "intelligent" devices as well as sensors and actuators within a system or sub-system.

To seek an industrial environment with higher performance and stability, ICP DAS provides you a new communication way (CAN bus). We have a team with strong technical background and experiences, and have been developing and studying CAN bus for years. ICP DAS will always secure your industrial safety and stable automation system as our mission.



● PROFIBUS in Industrial Automation

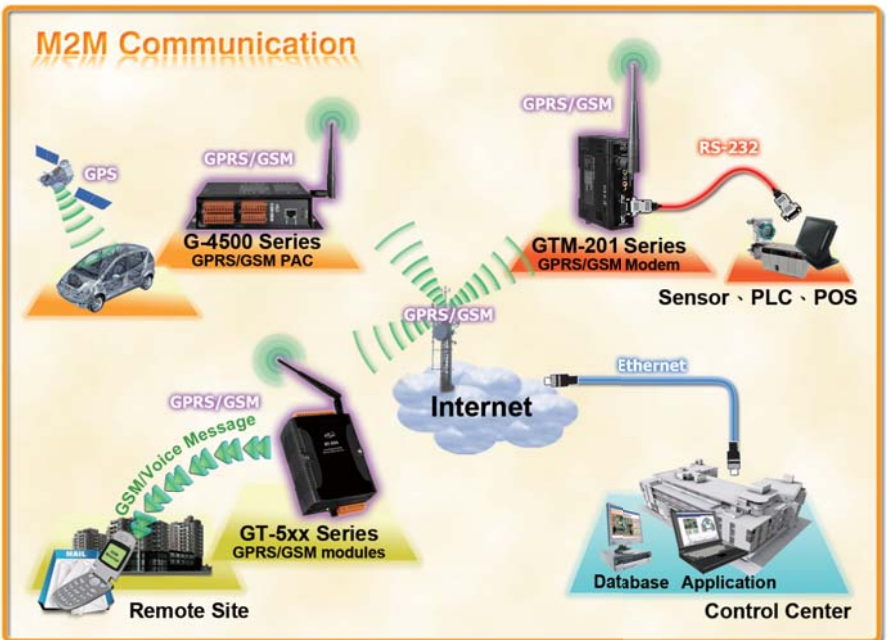
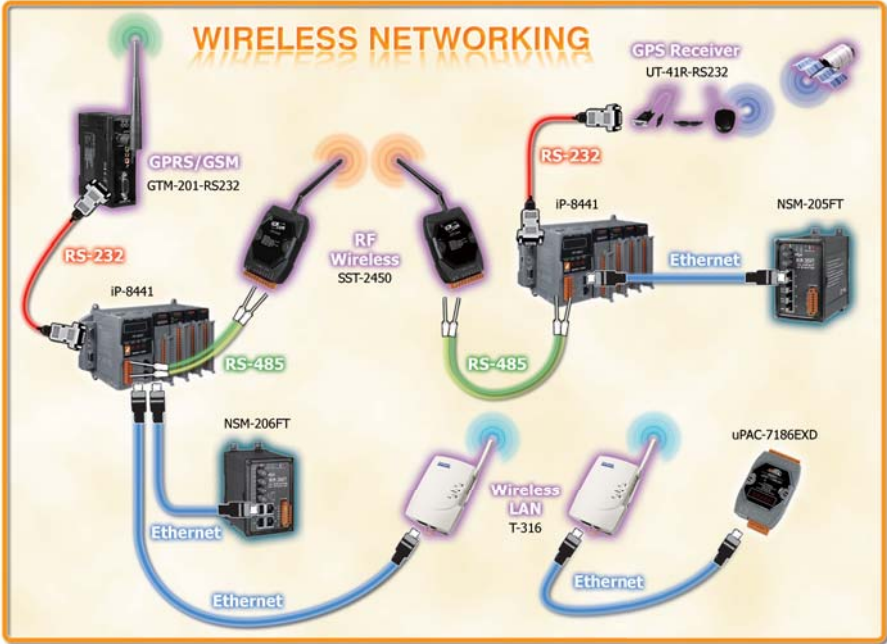
Chapter 6

PROFIBUS (PROCESS FIELD BUS) which is anchored in the international standards IEC 61158 and IEC 61784 is an open, digital communication system with a wide range of applications, particularly in the fields of factory and process automation. It is suitable for both fast, time-critical applications and complex communication tasks.

To let user can use this powerful communication system more easily, ICP DAS provides kinds of PROFIBUS DP products. We have been developing and studying PROFIBUS DP for years. ICP DAS will always secure user's industrial safety and stable automation system as our mission



## 2.2. Wireless Networking Solutions



## ● Wireless LAN Converter

## Chapter 5

The applications of 802.11b wireless LAN are getting more and more popular by more and more mature technology. It's not only faster than the industrial traditional transmission i.e. RS-232, RS-485, RS-422 etc, but also able to reduce the troublesomely wiring works. It also has higher mobility than Ethernet network.

Our T-316 is an Ethernet LAN to wireless LAN converter. In addition to the above advantages, it doesn't need to install any software or drivers when you use it. The setting process is very simple. Users don't need to modify the current hardware system or current running program to enjoy the benefits of wireless transmission.



## ● Wireless Modem

## Chapter 5

SST-2450 is a spread spectrum radio modem with an RS-232/RS-485 interface port. It is designed for data acquisition and control applications between a host and remote sensors. It is also useful for those applications where the installation of cable wire is inconvenient. The SST-2450 can be used not only in peer-to-peer mode, but also in a multi-point structure.

The SST-2450 is based on a direct sequence spread spectrum and RF technology, operating in the ISM bands with a Frequency Range of 2410.496 MHz ~ 2471.936 MHz. The Channel Spacing is 4.096 MHz.

SST-900 is a radio frequency modem with an RS-232/RS-485 interface port. It supports both peer-to-peer and multi-point structure modes. The SST-900 operates in the ISM bands with a Frequency Range of 902 MHz ~ 928 MHz. The Channel Spacing is 1.5 MHz.



## ● Industrial GSM/GPRS Modems

## Chapter 5

The GTM-201 series is industrial Quad-band GSM/GPRS modems with RS-232 and USB interfaces that work on frequencies of GSM 850 MHz, EGSM 900 MHz, DCS 1800 MHz and PCS 1900 MHz. The modems utilizes the GSM/GPRS network for convenient and inexpensive data transfer from remote instruments, meters, computers or control systems in either live data or packet data. GTM-201 series has the integrated TCP/IP stack so that even simple controllers with serial communications ports can connect to the modem without the need for special driver implementation.



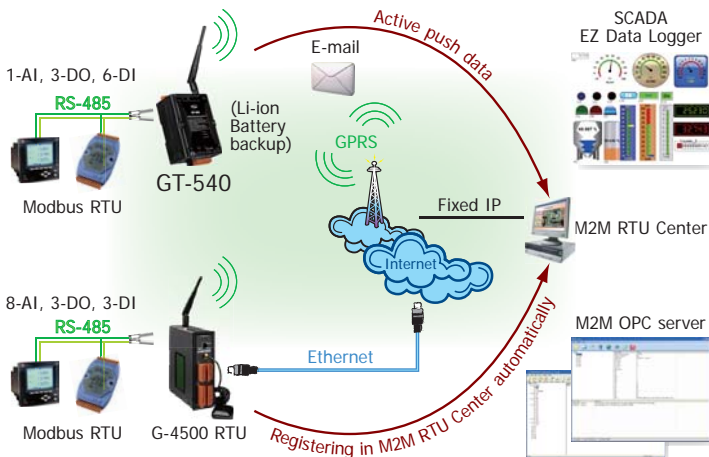
## ● Intelligent GPRS/GSM Modules

## Chapter 5

The GT-500 series GSM Module is GSM remote control and alarm system allows users to use their mobile phone to monitor and control the business from any location. Its alarm facilities provide a flexible way to distribute critical alarm information to any number of mobile phone users.

GT-53x are intelligent SMS and GSM modules for industry applications with the external Li-Battery backup power. They feature SMS tunnel, SMS control, and voice alarm function for users to apply in remote SMS/GSM control system.

The GT-54x are an intelligent Active GPRS Remote Terminal Units. Within the high performance 32 bit CPU, the GT-54x series is suit for the hard industrial environment. It features GPRS/GSM module, 6 digital inputs, 2 digital outputs, 1 analog input, 2 RS-232, 1 RS-485, SD interface and GPS.





## ● Multi-function GPRS/GSM PACs

## Chapter 5

The G-4500 series provided by ICP DAS is M2M (machine to machine) mini programmable controller with a cellular transceiver. It can monitor industrial equipment that sends live data to the monitoring system, and provides real-time status of equipments. With optional GPS model, the G-4500 turns into a GPS tracking system. Also, it works well management system or maritime system.



## ● ZigBee Converter and Repeater

## Chapter 5

ZigBee is a specification based on the IEEE 802.15.4 standard for wireless personal area networks (WPANs). ZigBee operates in the ISM radio bands and its focus is to define a general-purpose, inexpensive, self-organizing, mesh network that can be used for industrial control, embedded sensing, medical data collection, smoke and intruder warning, building automation, home automation, and domotics, etc.

ZigBee uses a basic master-slave configuration that is suited to the static star networks of many infrequently used devices that talk via small data packets. Up to 254 nodes are allowed.

ICP DAS provides many ZigBee solutions such as Ethernet/RS-232/485 to ZigBee Converters, ZigBee Repeater and ZigBee Wireless I/O modules.

