

Introduction

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1.1. Industrial Wireless Communication Products

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Introduction

Industrial Wireless Communication creates new prospects for automation. In the harsh environment, chemicals, vibrations, or moving parts could potentially damage cabling. Industrial Wireless Communication system substantially reduces cost and time for the installation and maintenance of the large number of cable, thus makes plants setup and reconfiguration easy and safe.

ICP DAS provides a great variety of wireless products with modular and universal solution specially designed for industrial harsh environment.

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Industrial Wireless Communication Products

ICP DAS Wireless and Mobile Total Solution

APPLICATION

- SMART SMART
- VxComm Utility
- NAPOPC
- Software/SCADA/Utility
- InduSoft
- EZ Data Logger
- Soft-GRAF
- Web HMI

CONTROL

- WPILP-8000
- WPILP-8000
- IPAC-8000
- IO Modules
- μPAC/PDS
- PCIRISA Card
- ViewPAC-2xVx
- XPAC-8000
- Programmable Automation Controllers
- X Board

COMMUNICATION

DSSS RF	2G/3G	WLAN	ZigBee	GPS	PROFIBUS / CAN Bus
SST-2450	GTM-201 Series	Wi-Fi AP	ZigBee Converters	GPS Receivers	Converter / Gateway
RF-47Kn	G-4500 Series	I-7540D-WF	ZigBee ID	Train	CAN-8000
CNC Machine	G-7500 Series	M26-711D	ZigBee Repeater	Public Transportation	CAN Device
Meters	Truck	Barcode Reader	Remote Controller	Cruise	PROFIBUS Device
DSSS RF/2G/3G/WLAN/GPS/ZigBee					PROFI-8000

Device

• WLAN Products

Chapter 2

WLAN (Wireless Local Area Network) links devices by wireless distribution method (spread-spectrum or OFDM radio), and generally provides a connection through an access point to the internet. WLAN allows users to move device within a local coverage area, and still be connected to the network. High-bandwidth allocation for wireless will make a relatively low-cost wiring possible.

ICP DAS provides a great variety of WLAN products which are compliant with standard of IEEE 802.11. The WLAN products have two modes: Ad-hoc and Infrastructure.



Chapter 3

• DSSS RF Products

DSSS RF (direct-sequence spread spectrum) is a modulation technique, which is the process of varying one or more properties of a high frequency periodic wave called the carrier signal, with respect to a modulating signal. The benefits of using DSSS include, but not limited to, 1) reduced signal/background-noise level hampers interception and 2) resistance to intended or unintended jamming.

ICP DAS provides SST series which is designed for data acquisition control applications between a host and remote sensors. It is also useful for those applications where the installation of cable wire is inconvenient.



Chapter 4

• 2G/3G Products

ICP DAS 2G/3G wireless solutions are uniquely designed to meet the challenges of implementing and managing a small, medium and large number of unmanned remote devices as well as mobile terminals using the 2G/3G telecom network. The ICP DAS 2G/3G wireless system is comprised of intelligent 2G/3G modems with versatile interfaces, a 2G/3G Data Server (DS), and 2G/3G PACs with embedded dynamic IP resolution technology to help system integrators and application service providers can quickly integrate 2G/3G technology into their own solutions, and save development time with reduced costs and assured performance.



● ZigBee Products

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, and home automation, etc.



Chapter 5

● GPS Products

GPS (Global Positioning System) is widely used for driving navigation, geographic monitoring, fleet management and cargo tracking, etc. We also can use GPS for industrial application according to its longitude and latitude value and UTC time. ICP DAS provides various modules for different applications. Some are pure GPS data receivers and some add DO channels. Some even can generate a UTC synchronized 1 PPS (Pulse Per Second) output signal. You can refer the following selection guide in chapter 5 to choose the suitable GPS modules for your application.



Chapter 6

● Infrared Products

IR data transmission is employed in short-range communication among computer peripherals and personal digital assistants. These devices usually conform to standards published by IrDA.

ICP DAS has developed various IR products to apply in home automation. These IR products will help users to control and integrate these IR devices into a control system. Therefore, by integrating the PAC and others series of ICP DAS, users can easily to establish the home automation system.



Chapter 7

● Accessories

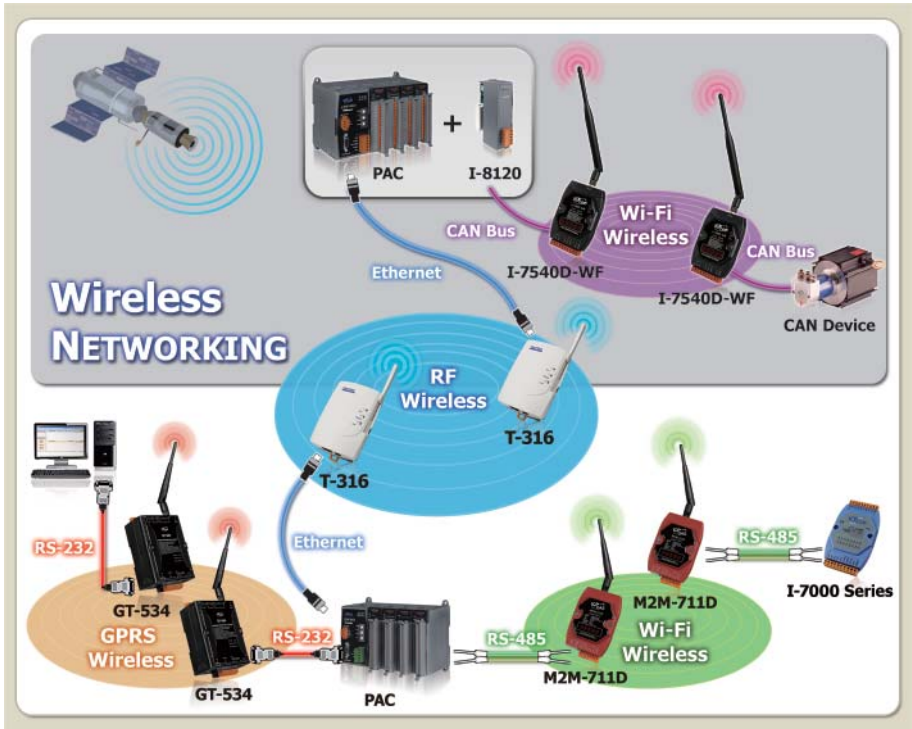
Antennas are required by any radio receiver or transmitter in order to couple its electrical connection to the electromagnetic field. Amplifier is a device for increasing the power of a signal. ICP DAS provides various accessories including external antennas and amplifiers to extend communication length of a wireless network.



Chapter 8

1.2. Wired to Wireless Solutions

ICP DAS Wired to Wireless Solution is a cost effective solution designed to offer users more flexible and inexpensive ways to send and receive data. The aim of wireless technology is quite simple: to remove the restrictions put on messy wires and cables both inside the site and out. The wireless products by ICP DAS are also designed to be as easy as cables in use. There is no complex wireless connection software or intimate knowledge is required to connect your serial device over wireless. To achieve multiple goals, ICP DAS Wired to Wireless Solutions include , serial to wireless, CAN to wireless, Ethernet to wireless, and wireless I/O products to provide ubiquitous wireless coverage through the entire network.



The key benefits of wireless technology:

- Increase efficiency – improved communications leads to faster transfer of information
- Users are rarely out of touch – stay in communication anywhere and anytime
- Greater flexibility and mobility – access network more freely
- Reduce costs – cheaper to install and maintain a wireless network

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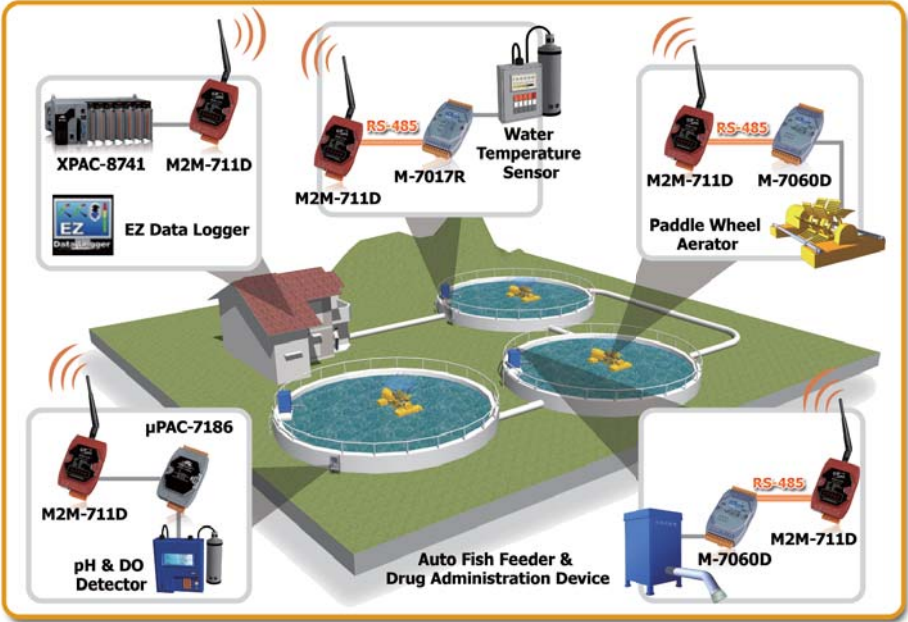
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Wired to Wireless Solutions

• Serial to Wireless Solutions

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Wired to Wireless Solutions

Setting up a fixed-line network on site is relatively complicated, makes the agricultural production technology underdeveloped, and left behind the state of the art in factories of manufactured products. The application shown above is a project aiming to improve the production process in fish farms using new perception, control and automation technologies. Simply converting serial signal to wireless allows fisher to monitor or control fish farm easily.

It is easy to convert serial RS-232/485 to a wireless product by wireless modems or with converters instead of running a wire. All of the following products allow you to convert a serial port to a wireless serial connection.

Model Name	Interface	Wireless	Page
Serial to WLAN			
M2M-711D	RS-232 RS-485	Wi-Fi (802.11b/g)	2-2-1
Serial to DSSS RF			
SST-900B	RS-232 RS-485	DSSS RF (900 MHz)	3-2-1
SST-2450	RS-232 RS-485	DSSS RF (2.4 GHz)	3-3-1
Serial to ZigBee			
ZB-2550(P)	RS-232 RS-485	ZigBee Host (2.4 GHz)	5-2-1
ZB-2551(P)	RS-232 RS-485	ZigBee Slave (2.4 GHz)	5-2-1

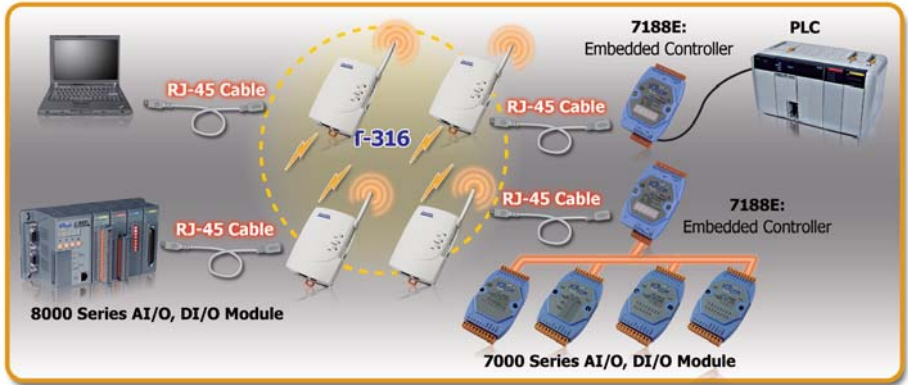
• CAN Bus Wireless Solutions



Controller Area Network (CAN) is a message-based protocol, designed specifically for automotive applications but now also used in other areas such as industrial automation and medical equipment. ICP DAS provides CAN to Wi-Fi product to support the wireless transmission of CAN data between various CAN networks or a CAN network and a WLAN network according to the 802.11b/g standard.

Model Name	Interface	Wireless	Page
CAN to WLAN			
I-7540D-WF	CAN / RS-232	Wi-Fi (802.11b/g)	2-3-1

• Ethernet to Wireless Solutions



The applications of 802.11b/g wireless LAN are getting more popular by mature technology. It is 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. The multipoint wireless network of a short distance using Ad-hoc mode is shown in the above figure. There is also infrastructure mode which supports long distance as user's option.

Model Name	Interface	Wireless	Page
Ethernet to WLAN			
T-316	Ethernet	Wi-Fi (802.11b/g)	2-3-3
Ethernet to ZigBee			
ZB-2570(P)	Ethernet	ZigBee Host (2.4 GHz)	5-2-4
ZB-2571(P)	Ethernet	ZigBee Slave (2.4 GHz)	5-2-4

• Real-time GPS Tracking Solutions

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Application

The application shown above is a vehicle and parcel tracking system using GPS and GPRS technology. The GT-540P collects information including GPS location, speed, heading and events such as key on/off, door open/close and transmits the data in real-time via cellular or satellite networks to a computer or shipping warehouse for evaluation. Other than vehicle tracking, package loading or delivering will be transmitted as well. When a cellular network is available and GT-540P is connected, it transmits data to a server; when a network is not available the device stores data in the internal memory and will transmit stored data to the server later.

Model Name	Interface	Wireless	Page
GTM-201P-3GWA	GPS RS-232 USB 2.0	2G (GSM/GPRS) 3G (UMTS/HSDPA/HSUPA)	4-2-4
I-8213W	GPS	2G (GSM/GPRS)	4-2-7
GT-540P	GPS RS-232 RS-485	2G (GSM/GPRS)	4-3-7
G-4500P(D)-2G	GPS RS-232 RS-485	2G (GSM/GPRS)	4-4-1
G-4500P(D)-3GWA	GPS RS-232 RS-485	2G (GSM/GPRS) 3G (UMTS/HSDPA/HSUPA)	4-4-4