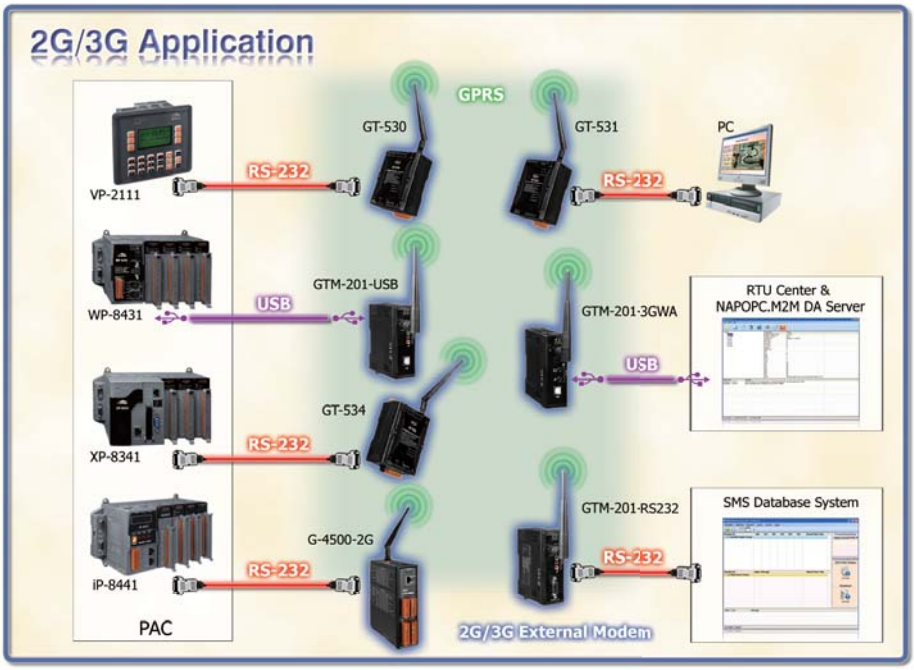
2G/3G Products

4

4.1. Overview



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 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.

The 2G/3G products support Quad-band GSM (850, 900, 1800, 1900MHz) and Tri-band 3G WCDMA (850, 1900, 2100 MHz), two of the major frequency bands. By supporting these two bands, 2G/3G products are compatible with most mobile networks worldwide.

Advantages & Benefits

- There is no need to build an expensive fixed line network.
- Enable any devices to be connected to the Internet via serial port over a 2G/3G network.
- The most efficient method of handling data over a 2G/3G wireless network and the Internet.
- A full turnkey solution that is designed for both fixed and mobile machine to machine applications.
- Reliable GSM/GPRS/EDGE/UMTS/HSPA network connectivity, providing fast and cost-effective long-range wireless applications

2G/3G Modem Selection Guide

ICP DAS provides various industrial Quad-band 2G or Tri-band 3G modem. The modems utilize the 2G/3G network for convenient and inexpensive data transfer from remote instruments, meters, computers or control systems in either live data or packet data. The modems have the integrated TCP/IP stack so that even simple controllers with serial communications ports can be connected to the modem without the need for special driver implementation.

Stand Alone Modem

Model Name	Frequency (MHz)	Reset Input	MIC Input /Audio Output	GPS	TCP/IP Stack	Baud Rate (bps)	Interface	Driver	Page
GTM-201-RS232	2G (GSM/GPRS): 850/900/1800/1900	Yes	Yes	-	Yes	9.6K~115.2K	RS-232	Windows XP / 7 Windows CE Linux	4-2-1
GTM-201-USB	2G (GSM/GPRS): 850/900/1800/1900	Yes	Yes	-	Yes	9.6K~115.2K	USB2.0	Windows XP / 7 Windows CE Linux	4-2-1
GTM-201-3GWA	2G (GSM/GPRS): 850/900/1800/1900 3G (UMTS/HSDPA/HSUPA): 2100/1900/850	Yes	Yes	-	Yes	9.6K~115.2K	USB2.0 RS-232	Windows XP / 7 Windows CE Linux	4-2-4
GTM-201P-3GWA	2G (GSM/GPRS): 850/900/1800/1900 3G (UMTS/HSDPA/HSUPA): 2100/1900/850	Yes	Yes	Yes	Yes	9.6K~115.2K	USB2.0 RS-232 GPS	Windows XP / 7 Windows CE Linux	4-2-4

GSM/GPRS Module

Model Name	Frequency (MHz)	GPS Interface	Max. Dowload Speed	AT Command	TCP/IP Protocol	Page
I-8212W	2G (GSM/GPRS): 850/900/1800/1900	-	85.6 Kbps	Yes	Yes	4-2-7
I-8213W	2G (GSM/GPRS): 850/900/1800/1900	Yes	85.6 Kbps	Yes	Yes	4-2-7

Intelligent 2G/3G Modules Selection Guide

ICP DAS provides various intelligent 2G/3G modules and gateway, GT-5xx Series. The 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. The Gateway allows user to access mobile phone by using standard protocol, such as Modbus.

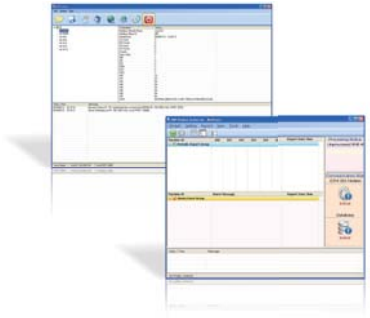
Model Name	CPU	Interface	Frequency (MHz)	I/O	Alarm	Micro SD	Battery Backup	Transparent Communication	Page
GT-530	32 bit	2 × RS-232	2G: 850/900/1800/1900	2 × DO 10 × DI	Yes (SMS)	Yes	Yes	SMS	4-3-1
GT-531	32 bit	2 × RS-232 1 × RS-485	2G: 850/900/1800/1900	-	Yes (SMS, Voice)	Yes	-	Modbus RTU	4-3-3
GT-534	32 bit	1 × RS-232 1 × RS-232/485	2G: 850/900/1800/1900	2 × DO 6 × DI 1 × AI	Yes (SMS, Voice)	Yes	Yes	SMS	4-3-5
GT-540	32 bit	1 × RS-232 1 × RS-485	2G: 850/900/1800/1900	2 × DO 6 × DI 1 × AI	Yes (GPRS)	Yes	-	GPRS	4-3-7
GT-540P	32 bit	1 × RS-232 1 × RS-485 GPS	2G: 850/900/1800/1900	2 × DO 6 × DI 1 × AI	Yes (GPRS)	Yes	-	GPRS	4-3-7
GT-543	32 bit	1 × RS-232 1 × RS-485 GPS	2G: 850/900/1800/1900	2 × DO 6 × DI 1 × AI	Yes (GPRS)	Yes	-	GPRS	4-3-10
WISE-4000	16 bit	1 × Ethernet	2G: 850/900/1800/1900	3 × DO 3 × DI 8 × AI	-	-	-	SMS	4-3-12
WISE-4000D	16 bit	1 × Ethernet	2G: 850/900/1800/1900	3 × DO 3 × DI 8 × AI	-	-	-	SMS	4-3-12

Mini PAC with 2G/3G Selection Guide

The G-4500 series provided by ICP DAS are M2M (machine to machine) mini programmable controller with a cellular transceiver can monitor industrial equipment that sends live data to the monitoring system, providing real-time status. With optional GPS model, the G-4500 can also be a GPS tracking system. It can be used in vehicle management system or maritime system.

Model Name	OS	CPU	Flash/RAM (KB)	Interface	I/O	Frequency (MHz)	Speed (Down/UP)	LCM (Dot)	GPS/ ZigBee	Page
G-4500-2G	MiniOS7	80 MHz	512/512	1 × Ethernet 2 × RS-232 1 × RS-485	3 × DO 3 × DI 8 × AI	2G (GSM/GPRS): 850/900/1800/1900	85.6/42.8 kbps	-	-	4-4-1
G-4500D-2G	MiniOS7	80 MHz	512/512	1 × Ethernet 2 × RS-232 1 × RS-485	3 × DO 3 × DI 8 × AI	2G (GSM/GPRS): 850/900/1800/1900	85.6/42.8 kbps	128 × 64	-	4-4-1
G-4500P-2G	MiniOS7	80 MHz	512/512	1 × Ethernet 2 × RS-232 1 × RS-485	3 × DO 3 × DI 8 × AI	2G (GSM/GPRS): 850/900/1800/1900	85.6/42.8 kbps	-	GPS	4-4-1
G-4500PD-2G	MiniOS7	80 MHz	512/512	1 × Ethernet 2 × RS-232 1 × RS-485	3 × DO 3 × DI 8 × AI	2G (GSM/GPRS): 850/900/1800/1900	85.6/42.8 kbps	128 × 64	GPS	4-4-1
G-4500-3GWA	MiniOS7	80 MHz	512/512	1 × Ethernet 2 × RS-232 1 × RS-485	3 × DO 3 × DI 8 × AI	2G (GSM/GPRS): 850/900/1800/1900 3G (UMTS/HSDPA/HSUPA): 2100/1900/850	7.2/5.76 Mbps	-	-	4-4-4
G-4500D-3GWA	MiniOS7	80 MHz	512/512	1 × Ethernet 2 × RS-232 1 × RS-485	3 × DO 3 × DI 8 × AI	2G (GSM/GPRS): 850/900/1800/1900 3G (UMTS/HSDPA/HSUPA): 2100/1900/850	7.2/5.76 Mbps	128 × 64	-	4-4-4
G-4500P-3GWA	MiniOS7	80 MHz	512/512	1 × Ethernet 2 × RS-232 1 × RS-485	3 × DO 3 × DI 8 × AI	2G (GSM/GPRS): 850/900/1800/1900 3G (UMTS/HSDPA/HSUPA): 2100/1900/850	7.2/5.76 Mbps	-	GPS	4-4-4
G-4500PD-3GWA	MiniOS7	80 MHz	512/512	1 × Ethernet 2 × RS-232 1 × RS-485	3 × DO 3 × DI 8 × AI	2G (GSM/GPRS): 850/900/1800/1900 3G (UMTS/HSDPA/HSUPA): 2100/1900/850	7.2/5.76 Mbps	128 × 64	GPS	4-4-4

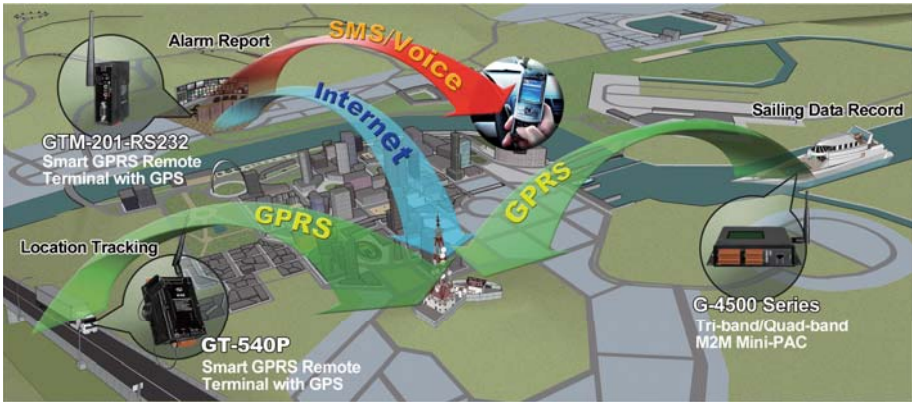
Software Solutions



ICP DAS provides various software solutions which allow users to manage 2G/3G products more efficiently with easy-to-use interface. The SMS Database System is a GT-53x series management tool which allows the 3rd party software being easily integrated with the modules. The M2M RTU Center is a M2M (Machine to Machine) management software that has a strong core technology for handling data and lets the user save the trouble of dealing with large IO data. The M2M RTU Center can also work with NAPOPC.M2M DA Server, so user can easily access or monitor IO data by using OPC 2.0 Data Access Standards. ICP DAS also provides M2M RTU API Tool for those users who want to develop their own application.

Software Name	Description	Charge	Page
SMS DBS	SMS Monitor/Database System software solution for GT-53x series	Free with 3 phone numbers	4-5-1
M2M RTU Center	M2M RTU series management software	Free	4-5-2
M2M RTU API Tool	M2M RTU Win32 API library	Free	4-5-3
NAPOPC.M2M DA Server	OPC server for RTU devices	Free	4-5-4

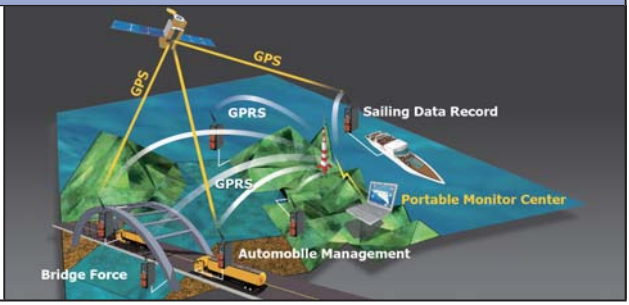
2G/3G Wireless Applications



The absorption of ICP DAS Co., Ltd. is to develop cost effective solutions to the industries. In recent years, the significance of communication is expanding exponentially. It is not only people who communicate via internet or telecommunication technologies, but also machines. The technology which allows you to connect your physical resources online is also called M2M Technology. From home application to large scale industrial machines, there are trillian of machines waited to be connected online. The advancement in 2G and 3G technologies has enabled wireless integration with wired-machines more affordable & effective than ever. The live applications are showed below.

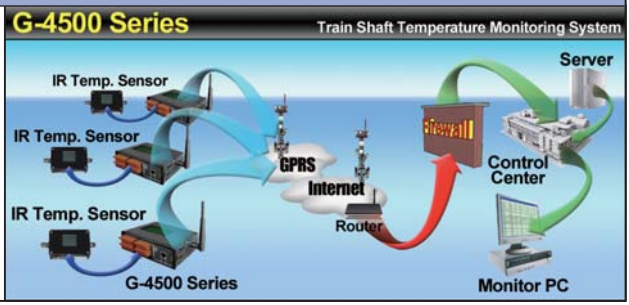
G-4500 Series General Application

By using G-4500 series, user can easily acquire data from any site without wiring limitation. G-4500 can also combine with a GPS module which allows user to monitor the location of moving transportations. To place the G-4500 on a vehicle or ship, users not only monitor its position but also record the fuel consumption.



Temperature Monitoring system

Placed infrared temperature sensors around shafts, and these sensors are connected to **G-4500 series** (M2M Mini-Programmable Automation Control). G-4500 controller will transmit data via GPRS service to Internet back to control center in real-time.

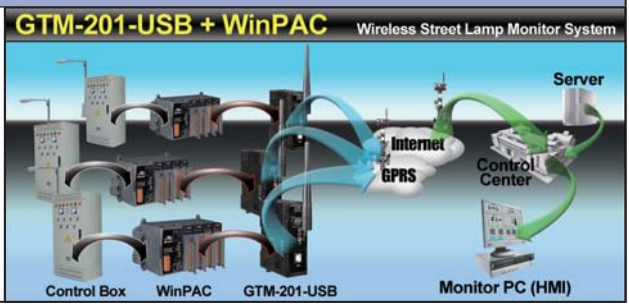


Vending/Gaming Machine Monitoring System

Each machine has a **GT-530** or **GT-534** (Intelligent SMS/GSM Alarm Controller) inside itself. Once the specific circumstances occurred (for example, vending machine ran out of drink), GT-530/GT-534 will automatically send either SMS or voice message to users in program list.

Street Lamp Monitor System

In each control box of street lamp, we placed a **WinPAC** (Windows CE embedded Programmable Automation Controller) and I/O Modules to acquire data from control box. All data will be transmitted back to control center in real-time by using **GTM-201-USB** (Industrial Quad-band GPRS/GSM Modem).



4.2. 2G/3G Modem

GTM-201-RS232
GTM-201-USB

Industrial Quad-band 2G GSM/GPRS Modem

Features

- Quad-band 2G Modem Operating of 850/900/1800/1900 MHz
- Designed for GPRS, Data, Fax, SMS and Voice Applications
- Support TCP Server, TCP Client, UDP Client connection from 2G network
- Support Standard AT Commands
- Include a Digital Input Channel to reset the system
- Provide the MIC Input and Audio (32 Ω) Output Interface
- LED Indicators for GSM and Power Indication
- High reliability in harsh environments
- The RS-232 Port support 9600 to 115200 bps (GTM-201-RS232)
- USB Driver for Windows, WinPAC (WinCE5.0), LinPAC (Linux 2.6) (GTM-201-USB)
- DIN-Rail mountable

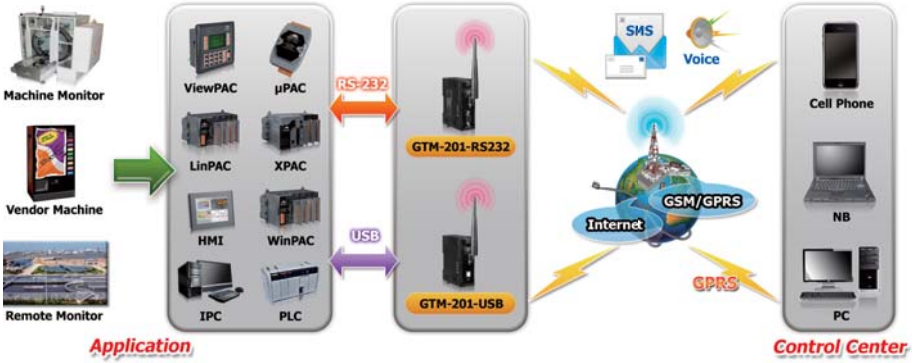
Introduction

The GTM-201 is a series of industrial Quad-band GSM/GPRS modems with RS-232 and USB interfaces that work at frequencies of GSM 850 MHz, EGSM 900 MHz DCS 1800 MHz and PCS 1900 MHz. The modems utilize 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 acquisition. The GTM-201 series has an integrated TCP/IP stack so that even simple controllers with serial communications ports can be connected to the modem without the need for special installation of drivers. The features of the GTM-201 series allow a variety of PLC and PC applications to take advantage of SMS and GPRS connectivity. The voice interface allows these modems to be also applied to alarm systems with sounds.

Specifications

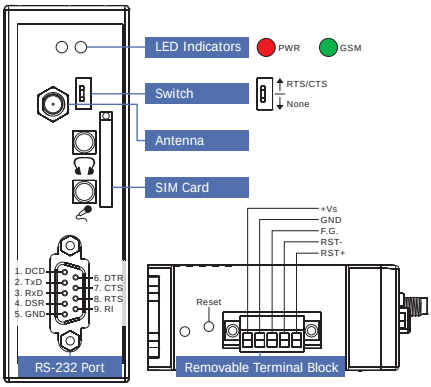
Models	GTM-201-RS232	GTM-201-USB
2G System		
Frequency Band	Quad-band 850/900/1800/1900 MHz	
GPRS Multi-slot	Class 10/8	
GPRS Mobile Station	Class B	
GPRS Class 10	Max. download speed 85.6 kbps	
Compliant with GSM Phase 2/2+	Class 4 (2 W @ 850/900 MHz); Class 1 (1 W @ 1800/1900 MHz)	
Coding Schemes	CS 1, CS 2, CS 3, CS 4	
SMS	Text and PDU Mode	
Serial Ports		
Serial Standards	RS-232 (DB-9 Female)	USB (B-TYPE) to RS232 (VCP)
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND	TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
Baud Rate	9600 bps ~ 115200 bps	
Include Cable	RS-232 9-Pin Female to Male cable (CA-0915)	SB Type A to Type B cable (CA-USB18)
Compatibility	-	USB 1.1 and 2.0 standard
USB Driver Support	-	Windows 98/2000/XP/Vista/7 WinPAC (WinCE5.0) LinPAC (Linux kernel 2.6)
Reset Input		
Input Type	Isolated, 3750 V_{rms}	
On Voltage Level	+3.5 V_{DC} ~ +30 V_{DC}	
Off Voltage Level	+1V Max.	
Input Impedance	3 kΩ, 0.25 W	
LED Indicators		
Power	Red	
GSM/GPRS	Green	
Power		
Protection	Power reverse polarity protection	
Frame Ground Protection	ESD, Surge, EFT, Hi-Pot	
Required Supply Voltage	+10 V_{DC} ~ +30 V_{DC}	
Power Consumption	dle: 25 mA @ 24 V_{DC}; Data Link: 100 ~ 400 mA (peak) @ 24 V_{DC}	
Connection	5-Pin 2.81 mm removable Terminal Block	
Mechanical		
Casing	Plastic	
Flammability	UL 94V-0 materials	
Dimensions (W x L x H)	33 mm x 87 mm x 107 mm	
Installation	DIN-Rail	
Environment		
Operating Temperature	-25 °C ~ +75 °C	
Storage Temperature	-40 °C ~ +80 °C	
Humidity	5% ~ 90% RH, Non-condensing	

Applications

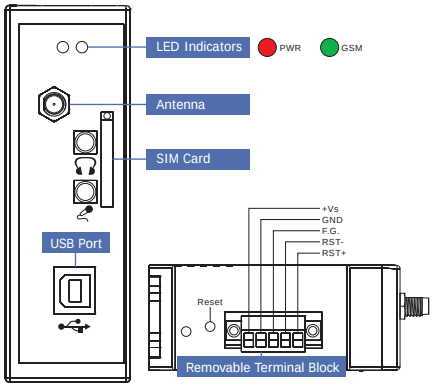


Appearance

GTM-201-RS232

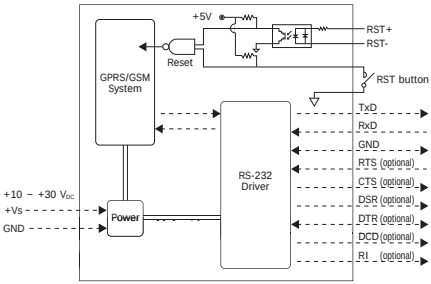


GTM-201-USB

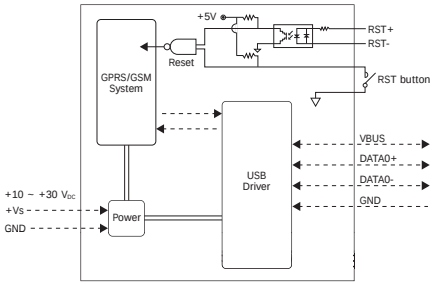


Internal I/O Structure

GTM-201-RS232

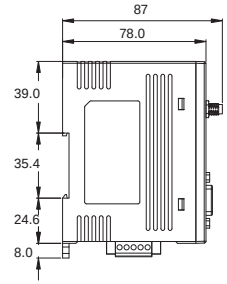


GTM-201-USB

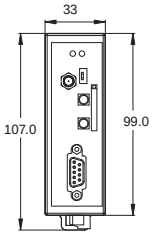


Dimensions (Units: mm)

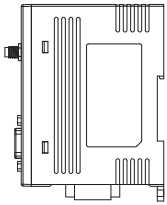
GTM-201-RS232



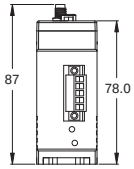
Left Side View



Front View

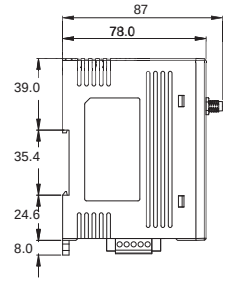


Right Side View

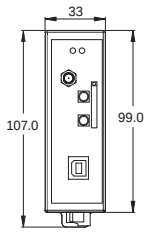


Bottom View

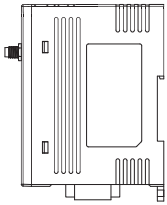
GTM-201-USB



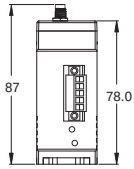
Left Side View



Front View

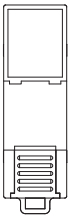


Right Side View

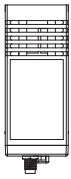


Bottom View

GTM-201-RS232/GTM-201-USB



Rear View



Top View

Ordering Information

GTM-201-RS232 CR	Industrial Quad-band 2G GSM/GPRS modem with RS232 Interface (RoHS)
GTM-201-USB CR	Industrial Quad-band 2G Modem with USB Interface (RoHS)

Accessories

ANT-421-01	3m External GPRS/GSM Antenna

GTM-201-3GWA
GTM-201P-3GWA

Industrial Tri-band 3G WCDMA Modem

Features

- Support 3G Tri-band UMTS/HSDPA/HSUPA 850/1900/2100 MHz
- Support Quad-band GSM/GPRS/EDGE 850/900/1800/1900 MHz
- Designed for Data, SMS and Voice Applications
- Support TCP Server, TCP Client, UDP Client connection from 2G/3G network
- Support Standard AT Commands
- Include a Digital Input Channel uses to reset the system
- Provide the MIC Input and Audio (32 Ω) Output Interface
- LED Indicators for 3G and Power Indication
- High reliability in harsh environments
- The RS-232 Port supports 9600 to 115200 bps
- USB Driver for Windows, WinPAC (WinCE5.0), LinPAC (Linux 2.6)
- DIN-Rail mountable

Introduction

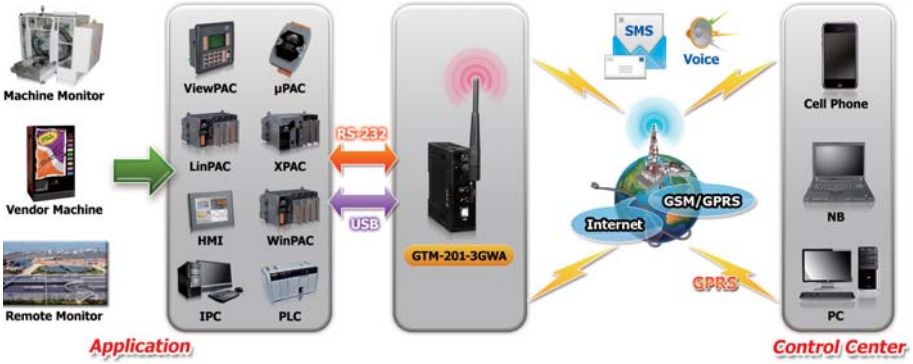
The GTM-201-3GWA/GTM-201P-3GWA is an industrial Tri-band 3G WCDMA cellular modem with RS-232, USB and GPS (only GTM-201P-3GWA) interfaces working on frequencies of Tri-band WCDMA 2100/1900/850 MHz, and Quad-band GSM 850/900/1800/1900 MHz. The modem which supports up to 7.2 Mbps downlink speed and 5.76 Mbps uplink speed services can utilize the 3G/GSM/GPRS network for convenient and inexpensive data transfer from remote instruments, meters, computers or control systems in either live data or packet data. The GTM-201-3GWA/ GTM-201P-3GWA enables internet connection over 3G, when 3G service is available. It automatically selects 3G or GPRS continue to work. Moreover, with the voice interface, these modems can also be applied to the alarm system with sounds.

Specifications

Models	GTM-201-3GWA	GTM-201P-3GWA
3G System		
Frequency Band	UMTS: 2100/1900/850 MHz	
Data Transmission	UMTS/HSDPA/HSUPA Downlink transfer: Max. 7.2 Mbps; Uplink transfer: Max. 5.76 Mbps	
GSM/GPRS System		
Frequency Band	GSM: 850/900/1800/1900 MHz	
GPRS Connectivity	GPRS class 12/10; GPRS station class B	
DATA GPRS	Downlink transfer: Max. 85.6 Kbps; Uplink transfer: Max. 42.8 Kbps	
CSD	Up to 14.4 Kbps	
Coding Schemes	CS 1, CS 2, CS 3, CS 4	
SMS		
SMS	MT, MO, CB, Text and PDU mode	
GPS System		
Support Channels	-	32
Protocol Support	-	NMEA 0183
Comm. Interface		
COM Ports	TxD, RxD, GND	
COM Port Baud Rate	9600 bps ~ 115200 bps	
USB	USB 2.0 (high speed)	
USB Driver Support	Windows 98/2000/XP/Vista/7 LinPAC (Linux kernel 2.6)	
LED Indicators		
Power	Red	
3G/GSM	Green	
Power		
Protection	Power reverse polarity protection	
Frame Ground Protection	ESD, Surge, EFT, Hi-Pot	
Required Supply Voltage	+10 VDC ~ +30 VDC	
Power Consumption	Idle: 25 mA @ 24 VDC; Data Link: 100 ~ 400 mA (peak) @ 24 VDC	
Connection	8-Pin 3.5 mm Removable Terminal Blockhh	

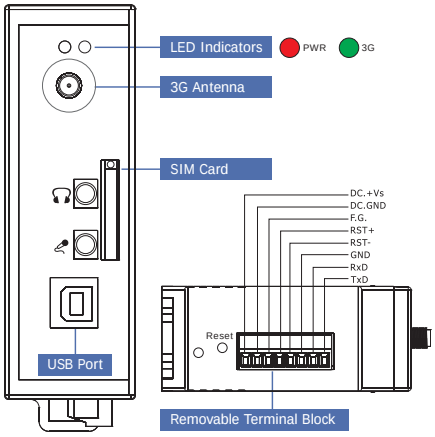
Models	GTM-201-3GWA	GTM-201P-3GWA
Reset Input		
Input Type	Isolated, 3750 V_{rms}	
On Voltage Level	+3.5 V_{DC} ~ +30 V_{DC}	
Off Voltage Level	+1 V_{DC} Max.	
Input Impedance	3 kΩ, 0.25 W	
Mechanical		
Casing	Plastic	
Flammability	UL 94V-0 materials	
Dimensions (W x L x H)	33 mm x 87 mm x 107 mm	
Installation	DIN-Rail	
Environment		
Operating Temperature	-25 °C ~ +75 °C	
Storage Temperature	-40 °C ~ +80 °C	
Humidity	5% ~ 95% RH, Non-condensing	

Applications

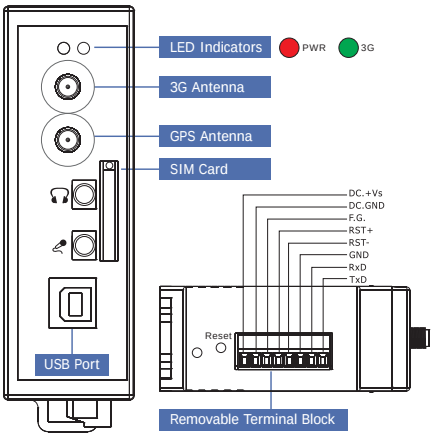


Appearance

GTM-201-3GWA

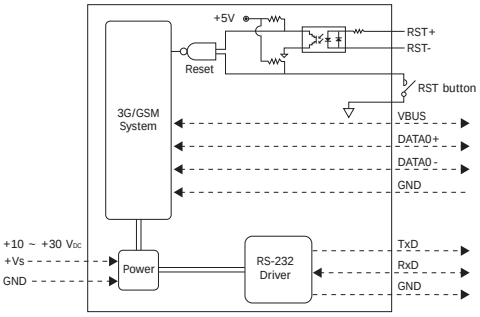


GTM-201P-3GWA



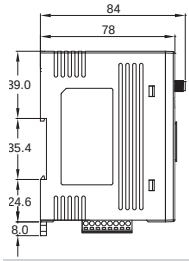
Internal I/O Structure

GTM-201-3GWA/GTM-201P-3GWA

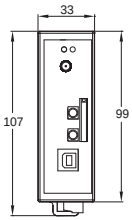


Dimensions (Units: mm)

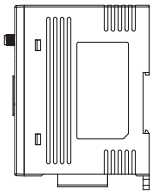
GTM-201-3GWA

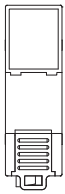


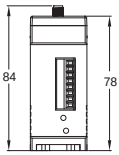
Left Side View



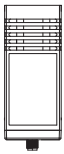
Front View


Right Side View

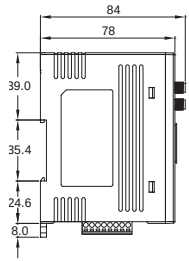

Rear View



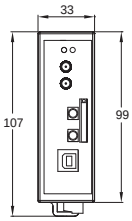
Top View


Bottom View

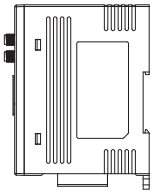
GTM-201P-3GWA

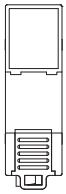


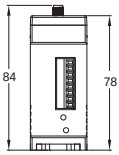
Left Side View



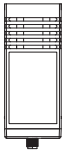
Front View


Right Side View


Rear View



Top View


Bottom View

Ordering Information

GTM-201-3GWA	Industrial Tri-band 3G WCDMA modem with RS-232 and USB (RoHS)
GTM-201P-3GWA	Industrial Tri-band 3G WCDMA modem with RS-232, USB and GPS (RoHS)

Accessories

ANT-421-01	3 m External GPRS/GSM Antenna
ANT-115-03	5 m GPS Active External Antenna

I-8212W/I-8213W

Industrial Quad-band 2G GSM/GPRS Modem

Features

- Quad-band 2G Modem Operating of 850/900/1800/1900 MHz
- Designed for GPRS and SMS Applications
- Support TCP Server, TCP Client, UDP Client connection from 2G network
- Supports 32 channels GPS and NMEA 0183 version 3.01 (I-8213W only)
- PPS: 100ms pulse ouput/sec for precise timekeeping and time measurement (I-8213W only)
- Support Standard AT Commands
- High reliability in harsh environments
- LED indicators for power, GSM and GPS (I-8213W only) indication
- 4 KV ESD Protection
- DIN-Rail mountable
- Connect any Serial Device to GPRS and the Internet

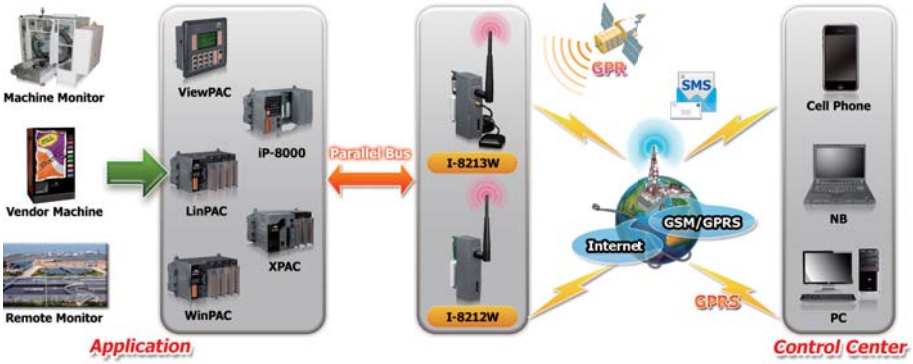
Introduction

The I-8212W/I-8213W are industrial Quad-band GSM/GPRS module with GPS function (I-8213W only) that work on frequencies of GSM 850 MHz, EGSM 900 MHz, DCS 1800 MHz and PCS 1900 MHz. These modules utilize 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. I-8212W/I-8213W has the integrated TCP/IP stack so that even simple controllers with serial communications ports can be connected to the modem without the need for special driver implementation. With the features of I-8212W/I-8213W, the systems can be SMS and GPRS connection applications with our PAC series like iP-8000, WinPAC, LinPAC or XPAC.

Specifications

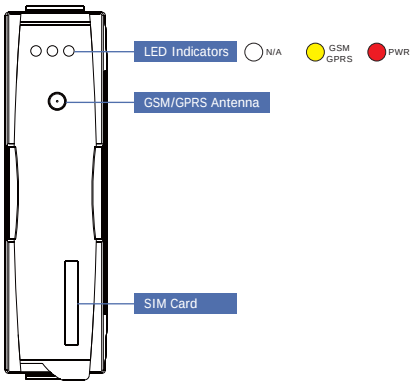
Models	I-8212W	I-8213W
2G System		
Frequency Band	Quad-band: 850/900/1800/1900 MHz	
GPRS Multi-slot	Class 10/8	
GPRS Mobile Station	Class B	
GPRS Class 10	Up to 85.6 kbps download speed	
CSD	Up to 14.4 kbps	
Compliant with GSM Phase 2/2+	Class 4 (2 W @ 850/900 MHz); Class 1 (1 W @ 1800/1900 MHz)	
Coding Schemes	CS 1, CS 2, CS 3, CS 4	
SMS	Text and PDU Mode	
GPS Interface		
Support Channels	-	32
Sensitivity	-	Tracking = up to 159 dBm (with external LNA) Cold start = up to 146 dBm (with external LNA)
Acquisition Time	-	Hot Start (Open Sky) = 2s (typical) Cold Start (Open Sky) = 36s (typical)
Protocol Support	-	NMEA 0 183 version 3.01
LED Indicators		
Power	Red	
GSM/GPRS	Yellow	
GPS	-	Green
Power		
Frame Ground Protection	ESD, Surge, EFT, Hi-Pot	
Power Consumption	Idle: 0.16 A @ 5 VDC; Data Link: 0.2 ~ 1.64 A (peak) @ 5 VDC	
Mechanical		
Casing	Plastic	
Dimensions (W x L x H)	30mm x 85 mm x 114mm	
Environment		
Operating Temperature	-25 °C ~ +75 °C	
Storage Temperature	-40 °C ~ +80 °C	
Humidity	5% ~ 90% RH, Non-condensing	

Applications

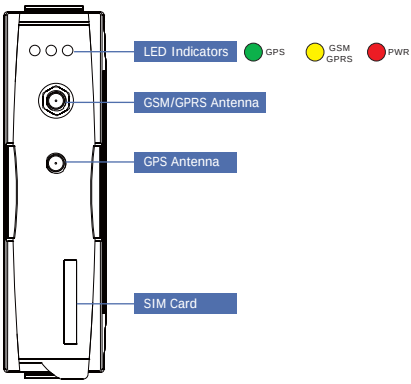


Appearance

I-8212W

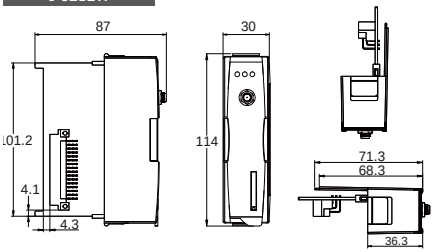


I-8213W

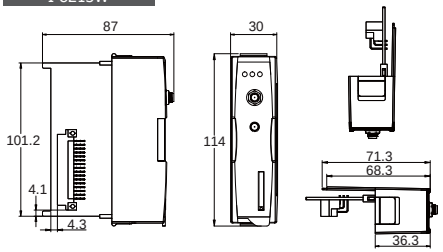


Dimensions (Units: mm)

I-8212W



I-8213W



Ordering Information

I-8212W CR	Industrial Quad-band 2G GSM/GPRS module (RoHS)
I-8213W CR	Industrial Quad-band 2G GSM/GPRS module with GPS function (RoHS)

Accessories

ANT-421-01	3 m External GPRS/GSM Antenna
ANT-115-03	5 m GPS Active External Antenna

4.3. Intelligent 2G/3G Module

GT-530

Intelligent SMS Alarm Controller

Features

- Quad-band 2G Modem Operating of 850/900/1800/1900 MHz
- Identify ASCII or Unicode SMS Automatically
- Support up to 160 ASCII Characters
- Support Max. 70 Unicode Characters
- Built-in ASCII Command and Transparent Communication Modes
- Max. 10 Default Phone Numbers
- Support DC +10 VDC ~ +30 VDC Power Input
- Support 3.7 V Li-ion Battery Backup
- Built-in Watch-dog Function
- Industrial Design with Surge Protection

Introduction

GT-530 is an intelligent SMS controller for industry applications with the simple commands and SMS tunnel function, and power can be input by the external power or Li-Battery. It supports UNICODE or 7 bit format for users to implement sending SMS messages with various languages. Applying GT-530, the SMS report can be sent by defined time or DI/counter event trigger. This can be a remote control and alarm system allowing you to use your mobile phone to monitor and control your business from any location. Its alarm facilities provide a flexible way to distribute critical alarm information to any number of mobile phone users. GT-530 can monitor total 10 digital inputs (or 6 counters). The user can also obtain the status of I/O through SMS messages. The GT-530 also has 2 Digital output which can be activated via DI trigger or SMS to control the lamps, pumps, heaters etc.

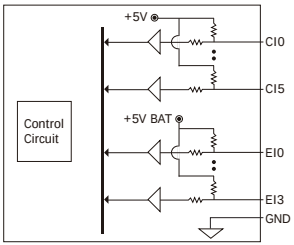
Specifications

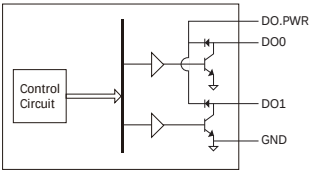
Models	GT-530
System	
CPU	ARM Microprocessor
SRAM	32 Kbytes
Flash Memory	512 Kbytes
RTC	Gives time (sec, min, hour) & date, leap year compensation
WDT	Yes
2G System	
Frequency Band	Quad-band: 850/900/1800/1900 MHz
Compliant with GSM Phase 2/2+	Class 4 (2 W @ 850/900 MHz); Class 1 (1 W @ 1800/1900 MHz)
Coding Schemes	CS 1, CS 2, CS 3, CS 4
SMS	7 bits and UCS2
Serial Ports	
COM 2	RS-232: TxD, RxD, GND (use for device configuration)
COM 3	RS-232: TxD, RxD, GND (use for communication with other devices)
Baud Rate	9600 bps ~ 115200 bps
Digital Input	
Input Channels	10 Channel (6 Counter 5~40Hz + 4 Channel Digital input powered by external power or Li-battery)
On Voltage Level	+3.5 VDC ~ +30 VDC
Off Voltage Level	+1V Max.
Digital Output	
Output Channels	2
Output Type	Open Collector Output
Load Voltage	+30 VDC Max.
Load Current	100 mA Max.
Power	
Protection	Power reverse polarity protection
Frame Ground Protection	ESD, Surge, EFT, Hi-Pot
Required Supply Voltage	+10 VDC ~ +30 VDC
Mechanical	
Casing	Plastic
Flammability	UL 94V-0 materials
Dimensions (W x L x H)	91 mm x 132 mm x 52 mm
Installation	DIN-Rail
Environment	
Operating Temperature	-25 °C ~ +75 °C
Storage Temperature	-40 °C ~ +80 °C
Humidity	5% ~ 90% RH, Non-condensing

Applications

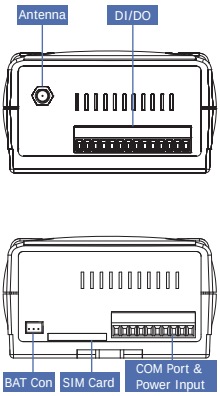
- Signal Alarm and SMS communication
- Home security
- Remote maintenance

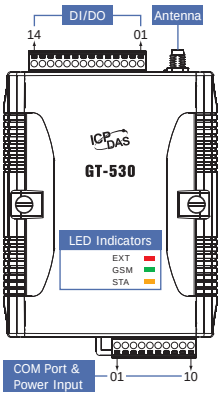
Internal I/O Structure





Appearance

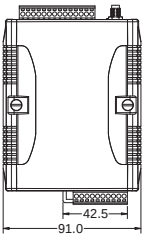




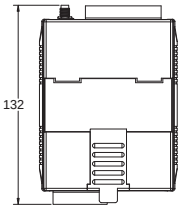
DI/DO		
Terminal No.		Pin Assignment
DI	01	DI0
	02	DI1
	03	DI2
	04	DI3
	05	DI4
	06	DI5
	07	DI6
	08	DI7
	09	DI8
	10	DI9
DO	11	DO0
	12	DO1
	13	DO.PWR
DI/DO	14	Ext.GND

COM Port & Power Input		
Terminal No.		Pin Assignment
COM3 RS-232	01	GND
	02	RxD3
	03	TxD3
COM2 RS-232	04	GND
	05	RxD2
	06	TxD2
N/A	07	N/A
Power Input: +10 VDC ~ +30 VDC	08	DC.+Vs
	09	DC.GND
Frame Ground	10	F.G.

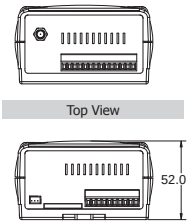
Dimensions (Units: mm)



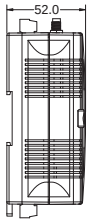
Front View



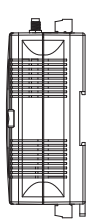
Rear View



Bottom View



Left Side View



Right Side View

Ordering Information

GT-530 CR	Intelligent SMS Alarm Controller (RoHS)

Accessories

ANT-421-01	3 m External GPRS/GSM Antenna

GT-531

Intelligent Modbus SMS/GSM Gateway

Features

- Quad-band 2G Modem Operating of 850/900/1800/1900 MHz
- Support Modbus RTU slave protocol
- Support Max. 256 short messages and voice alarms
- Support Max. 70 Unicode Characters
- Escalation and reminder function
- Configurable SMS messages
- Up to 256 mobile phones can be alerted for each alarm point
- The phone numbers can be divided into groups
- Built-in Watch-dog Function
- DIN-Rail mountable

Introduction

GT-531 is an intelligent Modbus SMS/GSM Gateway for industry M2M applications. It is convenient for users to apply to M2M applications with the host like PC, PLC, HMI and PAC. It supports UNICODE format for users to send SMS messages to the specific mobile phones by Modbus protocol with various language. That can make the current system to M2M applications. Moreover, the GT-531 also supports the sound alarm application with the pre-defined voice files. It can be used to inform operator the urgent event immediately. For managing more GT-53x series remotely, ICP DAS provides SMS DBS software for users to apply in the system. Therefore, the GT-531 can be a powerful tool allowing you to use your mobile phone to monitor and control your business from any location.

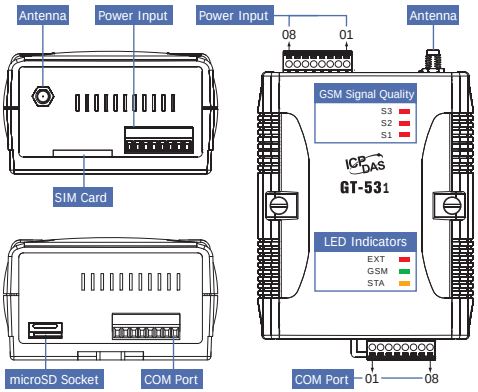
Specifications

Models	GT-531
System	
CPU	ARM Microprocessor
SRAM	32 Kbytes
Flash Memory	512 Kbytes
RTC	Gives time (sec, min, hour) & date, leap year compensation
WDT	Yes
SD Interface	Yes (2 GB Max.)
2G System	
Frequency Band	Quad-band: 850/900/1800/1900 MHz
Compliant with GSM Phase 2/2+	Class 4 (2 W @ 850/900 MHz); Class 1 (1 W @ 1800/1900 MHz)
Coding Schemes	CS 1, CS 2, CS 3, CS 4
SMS	UCS2
Serial Ports	
COM 1	RS-232: TxD, RxD, GND (use for device configuration and debug)
COM 2	RS-232: TxD, RxD, GND (use for communication with other devices)
COM 3	RS-485: D+, D- (use for communication with other devices)
Baud Rate	9600 bps ~ 115200 bps
Power	
Protection	Power reverse polarity protection
Frame Ground Protection	ESD, Surge, EFT, Hi-Pot
Required Supply Voltage	+10 VDC ~ +30 VDC
Mechanical	
Casing	Plastic
Flammability	UL 94V-0 materials
Dimensions (W x L x H)	91 mm x 132 mm x 52 mm
Installation	DIN-Rail
Environment	
Operating Temperature	-25 °C ~ +75 °C
Storage Temperature	-40 °C ~ +80 °C
Humidity	5% ~ 90% RH, Non-condensing

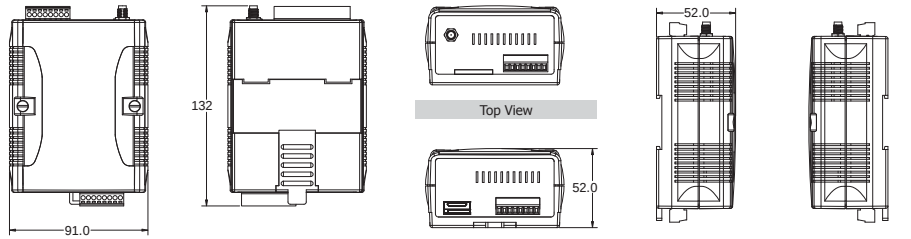
Applications

- Signal Alarm and SMS communication
- Home security
- Remote maintenance

Appearance



Dimensions (Units: mm)



Ordering Information

GT-531 CR	Intelligent Modbus SMS/GSM Gateway (RoHS)

Accessories

ANT-421-01	3 m External GPRS/GSM Antenna

GT-534

Intelligent SMS/GSM Alarm Controller

Features

- Quad-band 2G Modem Operating of 850/900/1800/1900 MHz
- Support SMS DBS software
- Identify ASCII or Unicode SMS Automatically
- Support Max. 140 ASCII and 70 Unicode Characters
- Built-in ASCII Command and Transparent Communication Modes
- Max. 10 Default Phone Numbers
- Voice Alarm and SMS triggered by DI trigger or exceed AI/ Counter preset limits
- DO control by dual-tone multi-frequency
- Support 3.7 V Li-ion Battery Backup
- Built-in Watch-dog Function
- Industrial Design with Surge Protection

Introduction

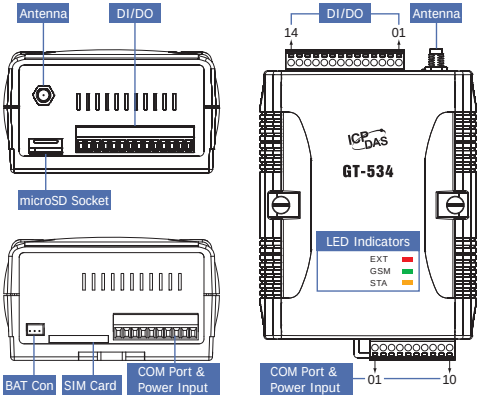
The GT-534 is an intelligent SMS/GSM controller for industry applications with the simple commands and SMS tunnel function, and power can be input by the external power or Li-Battery. It supports UNICODE or 7 bit format for users to implement sending SMS messages with various languages. The GT-534 also provides the sound alarm application with the pre-defined voice files. In addition, the DTMF function of the GT-534 is for the applications with the keypad of phones to control the local I/O. And, With the SMS DBS software of ICP DAS, users can manage the GT-534 in PC centrally.

Specifications

Models	GT-534
2G System	
Frequency Band	Quad-band: 850/900/1800/1900 MHz
Compliant with GSM Phase 2/2+	Class 4 (2 W @ 850/900 MHz); Class 1 (1 W @ 1800/1900 MHz)
Coding Schemes	CS 1, CS 2, CS 3, CS 4
SMS	7 bits and UCS2
Serial Ports	
COM 1	RS-232: TxD, RxD, GND (use for device configuration)
COM 2	RS-232, RS-485 (Transparency)
Baud Rate	9600 bps ~ 115200 bps
Digital Input	
Input Channels	6 (Wet Contact)
Input Type	Isolated
On Voltage Level	+3.5 VDC ~ 30 VDC
Off Voltage Level	+1V Max.
Digital Output	
Output Channels	2
Output Type	Isolated
Load Current	100 mA/channel
Analog Input	
Input Channels	1
Resolution	12-bit
Input Range/Type	0 ~ 20 mA
Sample Rate	1 Hz Max.
Power	
Protection	Power reverse polarity protection
Frame Ground Protection	ESD, Surge, EFT, Hi-Pot
Required Supply Voltage	+10 VDC ~ +30 VDC
Mechanical	
Casing	Plastic
Flammability	UL 94V-0 materials
Dimensions (W x L x H)	91 mm x 132 mm x 52 mm
Installation	DIN-Rail
Environment	
Operating Temperature	-25 °C ~ +75 °C
Storage Temperature	-40 °C ~ +80 °C
Humidity	5% ~ 90% RH, Non-condensing

Applications

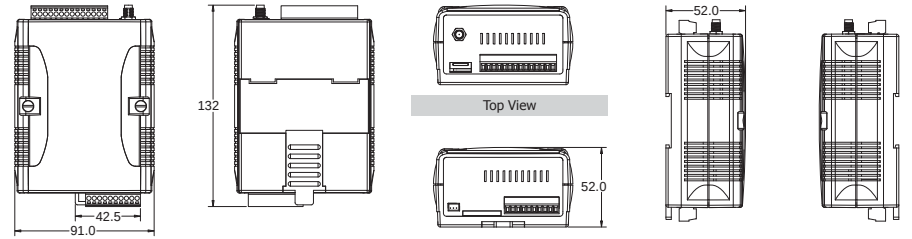
Appearance



DI/DO/AI		
Terminal No.		Pin Assignment
DI	01	DI0
	02	DI1
	03	DI2
	04	DI3
	05	DI4
	06	DI5
	07	DI.COM
DO	08	DO.PWR
	09	DO0
	10	DO1
	11	DO.GND
	12	N/A
AI	13	Ain+
	14	Ain-

COM Port & Power Input		
Terminal No.		Pin Assignment
COM1 RS-232	01	GND
	02	RxD1
	03	TxD1
COM2 RS-485	04	D+
	05	D-
	06	RTS+
	07	RTS-
Power Input: +10 VDC ~ +30 VDC	08	DC.+Vs
	09	DC.GND
Frame Ground	10	F.G.

Dimensions (Units: mm)



Ordering Information

GT-534 CR	Intelligent SMS/GSM Alarm Controller (RoHS, include: 2G micro SD card)

Accessories

ANT-421-01	3 m External GPRS/GSM Antenna
BT600	3.7 V 600 mAh Battery
BT1200	3.7 V 1200 mAh Battery

GT-540/GT-540P

Intelligent GPRS Remote Terminal Unit with GPS

Features

- Quad-band 2G Modem Operating of 850/900/1800/1900 MHz
- Automatic/continuous GPRS Link Management
- Support Modbus RTU protocol with Max. 3 Modbus RTU devices.
- Support M2M OPC Server for SCADA system
- Easy-to-use API tool for users to develop their applications by various program development tools
- Can be the GPRS I/O device
- Support data transferring by E-mail
- DO control by dual-tone multi-frequency
- Support 3.7 V Li-ion Battery Backup
- Built-in Watch-dog Function
- Industrial Design with Surge Protection

Introduction

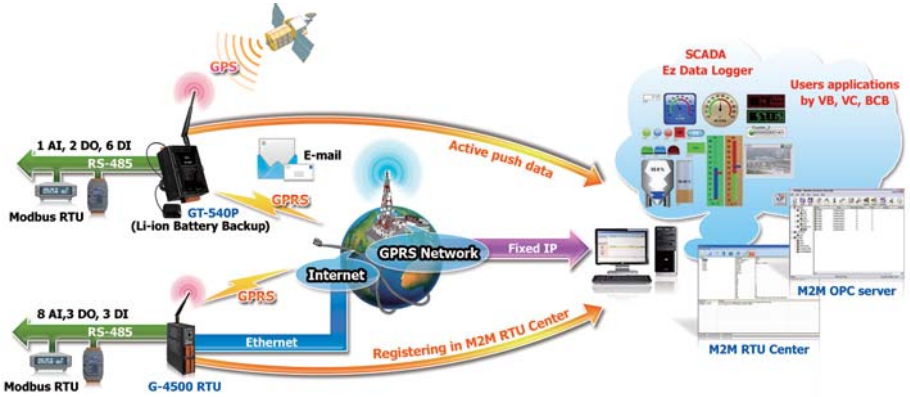
The GT-540/GT-540P is an intelligent Active GPRS Remote Terminal Unit with GPS (GT-540P only). It features GPRS/GSM module, 6 digital inputs, 2 digital outputs, 1 analog input, 2 RS-232, 1 RS-485 and SD interface. It can be used in M2M application fields to transfer the local I/O or Modbus device's data by GPRS by the defined period or DI/AI triggers. The local I/O or GPS data can also be stored in the SD card to become a remote data logger. For another communication path, the unit offers the e-mail mode to transfer the data by e-mail via GPRS for users to choose. The simple I/O linkage function of the module can reach the real time control in local field. It also supports Li-ion battery as another power source when the main power is failed temporarily. Therefore, the GT-540/GT-540P is an ideal solution for environmental monitoring and remote device management for M2M applications.

Specifications

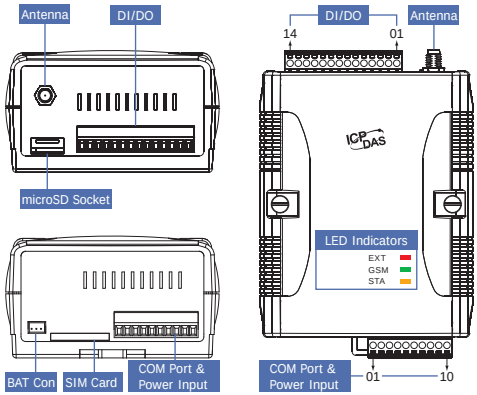
Models	GT-540	GT-540P
System		
CPU	32 bit	
SRAM	64 Kbytes	
Flash Memory	512 Kbytes	
RTC	Gives time (sec, min, hour) & date, leap year compensation	
WDT	Yes	
SD Interface	Yes (2 GB Max.)	
2G System		
Frequency Band	Quad-band: 850/900/1800/1900 MHz	
GPRS Multi-slot	Class 10/8	
GPRS Mobile Station	Class B	
GPRS Class 10	Up to 85.6 kbps download speed	
Compliant with GSM Phase 2/2+	Class 4 (2 W @ 850/900 MHz); Class 1 (1 W @ 1800/1900 MHz)	
Coding Schemes	CS 1, CS 2, CS 3, CS 4	
Serial Ports		
COM 1	RS-232: TxD, RxD, GND (use for device configuration)	
COM 2	RS-232, RS-485 (Transparency)	
GPS System		
Support Channels	-	32
Protocol Support	-	NMEA 0183
Digital Input		
Input Channels	6 (Wet Contact)	
Input Type	Sink or Source, Isolated channel with common power or ground	
On Voltage Level	+3.5 V_{DC} ~ 30 V_{DC}	
Off Voltage Level	+1 V Max.	
Counters	6 (16 bit, 5 ~ 40 Hz), Min. Pulse Width: 25 ms	
Digital Output		
Output Channels	2	
Output Type	Open-Collector (NPN) (100 mA @ 24V_{DC})	
Load Voltage / Current	+24V / 100 mA Max.	

Models	GT-540	GT-540P
Analog Input		
Input Channels	1	
Resolution	12-bit	
Input Range/Type	0 ~ 20 mA	
Power		
Protection	Power reverse polarity protection	
Frame Ground Protection	ESD, Surge, EFT, Hi-Pot	
Required Supply Voltage	+10 VDC ~ +30 VDC	
Mechanical		
Casing	Plastic	
Flammability	UL 94V-0 materials	
Dimensions (W x L x H)	91 mm x 132 mm x 52 mm	
Installation	DIN-Rail	
Environment		
Operating Temperature	-25 °C ~ +75 °C	
Storage Temperature	-40 °C ~ +80 °C	
Humidity	5% ~ 90% RH, Non-condensing	

Applications



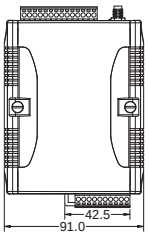
Appearance



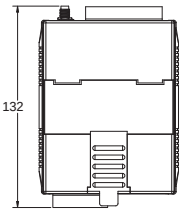
DI/DO/AI		
Terminal No.		Pin Assignment
DI	01	DI0
	02	DI1
	03	DI2
	04	DI3
	05	DI4
	06	DI5
	07	DI.COM
DO	08	DO.PWR
	09	DO0
	10	DO1
	11	DO.GND
AI	12	N/A
	13	Ain+
	14	Ain-

COM Port & Power Input		
Terminal No.		Pin Assignment
COM1 RS-232	01	GND
	02	RxD1
	03	TxD1
COM2 RS-485	04	D+
	05	D-
	06	RTS+
	07	RTS-
Power Input: +10 VDC ~ +30 VDC	08	DC.+Vs
	09	DC.GND
Frame Ground	10	F.G.

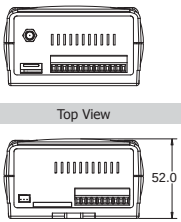
Dimensions (Units: mm)



Front View

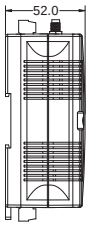


Rear View

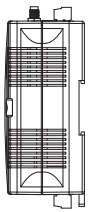


Top View

Bottom View

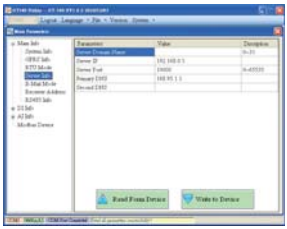


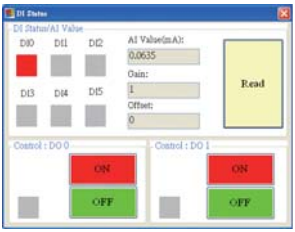
Left Side View



Right Side View

Utility





Ordering Information

GT-540 CR	Intelligent GPRS Remote Terminal Unit (RoHS, include: 2G micro SD card)
GT-540P CR	Intelligent GPRS Remote Terminal Unit with GPS (RoHS, include: 2G micro SD card)

Accessories

ANT-421-01	3 m External GPRS/GSM Antenna
ANT-115-03	5 m GPS Active External Antenna
BT600	3.7 V 600 mAh Battery
BT1200	3.7 V 1200 mAh Battery

GT-543

Intelligent Multiport Serial to GPRS Gateway

Features

- Quad-band 2G Modem Operating of 850/900/1800/1900 MHz
- Virtual COM Extend Real COM Ports via GPRS
- Choice of operation modes including Virtual COM and Modbus RTU/TCPIP Gateway
- Remote Configuration by Virtual COM
- Built-in Watch-dog Function
- DIN-Rail mountable

Introduction

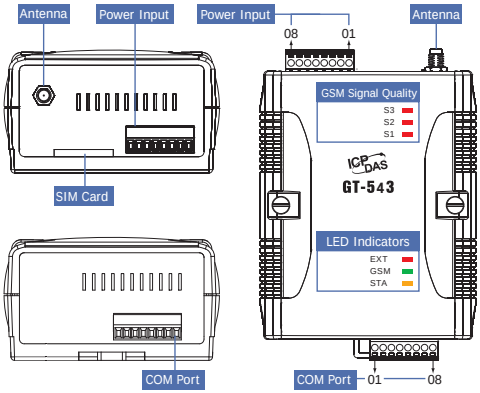
GT-543 is an intelligent multiport serial to GPRS gateway for industry M2M applications. It is designed for linking RS-232/485 devices to a GPRS network. The user-friendly VxComm Driver/Utility and VxServer allow users to easily turn the built-in COM ports of the GT-543 into standard COM ports on a PC. By virtue of its protocol independence, a small-core OS and high flexibility, the GT-543 is able to meet the demands of every network-enabled application. In addition to the GT-543 also supports Modbus to GPRS Gateway. It is convenient for users to apply to GPRS applications with the host like PC, PLC, HMI and PAC. M2M solution will improve the service quality and reduce operating costs. Many application areas can be improved by using GT-543

Specifications

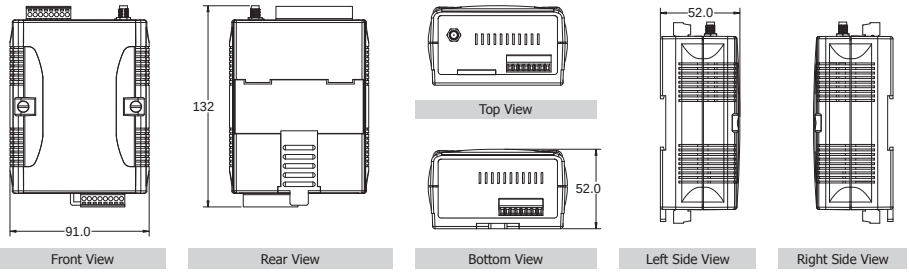
Models	GT-543
System	
CPU	ARM Microprocessor
SRAM	32 Kbytes
Flash Memory	512 Kbytes
RTC	Gives time (sec, min, hour) & date, leap year compensation
WDT	Yes
2G System	
Frequency Band	Quad-band: 850/900/1800/1900 MHz
Compliant with GSM Phase 2/2+	Class 4 (2 W @ 850/900 MHz); Class 1 (1 W @ 1800/1900 MHz)
Coding Schemes	CS 1, CS 2, CS 3, CS 4
Serial Ports	
COM 1	RS-232: TxD, RxD, GND (use for device configuration and debug)
COM 2	RS-232: TxD, RxD, GND (use for communication with other devices)
COM 3	RS-485: D+, D- (use for communication with other devices)
Baud Rate	9600 bps ~ 115200 bps
Power	
Protection	Power reverse polarity protection
Frame Ground Protection	ESD, Surge, EFT, Hi-Pot
Required Supply Voltage	+10 VDC ~ +30 VDC
Mechanical	
Casing	Plastic
Flammability	UL 94V-0 materials
Dimensions (W x L x H)	91 mm x 132 mm x 52 mm
Installation	DIN-Rail
Environment	
Operating Temperature	-25 °C ~ +75 °C
Storage Temperature	-40 °C ~ +80 °C
Humidity	5% ~ 90% RH, Non-condensing

Applications

Appearance



Dimensions (Units: mm)



Front View | Rear View | Bottom View | Left Side View | Right Side View

Ordering Information

GT-543	Intelligent Multiport Serial to GPRS Gateway

Accessories

ANT-421-01	3 m External GPRS/GSM Antenna

WISE-4000/WISE-4000D

WISE I/O SMS Module

Features

- Built-in Web Server for IF-THEN-ELSE rule setting
- Built-in IF-THEN-ELSE rule enigne for logic operation
- No more programming. Just click and get done!
- Support IO, Counter, Timer, Email operations
- Modbus/TCP Protocol for SCADA Software Seamless Integration
- 10/100 Base-TX Ethernet
- Support GSM: Quad-band 850/900/1800/1900 MHz
- I/O: 3 channels DI, 3 channels DO, 8 channels AI
- 128 × 64 dots LCM display (only for WISE-4000D)

Introduction

WISE (Web Inside, Smart Engine) is a product series developed by ICP DAS that functions as control units for use in remote logic control and monitoring in various industrial applications. WISE offers a user-friendly and intuitive web site interface that allows users to implement IF-THEN-ELSE control logic on controllers just a few clicks away; no programming is required. With its powerful and easy-to-use features, it will minimize the learning curve, shorten time to market and dramatically reduce the effort and cost spent on system development.

The WISE-4000 is an embedded controller that is perfect for use in real-time industrial equipment monitoring and environment monitoring. It allows updated status information being sent to the backend monitoring system via Ethernet interface. WISE-4000 supports Modbus/TCP protocol that allows seamless integration with SCADA software. It features 3 digital inputs, 3 digital outputs and 8 analog inputs. WISE-4000 also features SMS sending function for alarm report. By integrating with IF-THEN-ELSE rule engine, WISE-4000 even provides more powerful functions such as Schedule, Send SMS, Send e-mail, Timer & I/O operation for use in various industrial applications.

Specifications

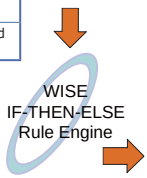
Models		WISE-4000	WISE-4000D
System			
CPU		16-bit CPU	
SRAM/Flash		512K/512K, real time clock, watchdog timer	
NVRAM		31 bytes, battery backup, data valid up to 10 years	
EEPROM		16 KB	
Communication Interface			
COM ports		No (Unsupported by WISE firmware)	
Ethernet		10/100 Base-TX Ethernet controller	
SMS Function			
Frequency Band		Quad-band 850/900/1800/1900 MHz	
GPRS connectivity		GPRS class 10/8; GPRS station class B	
DATA GPRS		Downlink transfer: Max. 85.6 kbps; Uplink transfer: Max. 42.8kbps	
Mode		Text and Unicode mode	
LCD Interface			
General	Effective display area	-	80.61 mm x 14.37 mm (W x H)
	Module Dimension	-	93 mm x 70 mm x 1.6 mm (W x H x T)
Life Time		-	Expected life is more than 100,000 hours under normal operation
LED Indicators			
System		Red	
GPRS		Yellow	
Digital Input			
Input Channels		3	
Input Type		Source (Dry Type), Common Ground	
On Voltage Level		+3.5 VDC ~ 30 VDC	
Off Voltage Level		+1 VDC Max.	
Isolated Voltag		Non-isolated	
Counters	Max. Count	65535 (16 bits)	
	Max. Input Frequency	50 Hz	
	Min. Pulse Width	10 ms	

Models		WISE-4000	WISE-4000D
Digital Output			
Output Channels		3	
Output Type		Open Collector (Sink/NPN)	
Load Voltage		+30 VDC Max.	
Load Current		100 mA Max.	
Isolated Voltage		Non-isolated	
Counters	Max. Count	65535 (16 bits)	
	Max. Input Frequency	50 Hz	
	Min. Pulse Width	10 ms	
Analog Input			
Input Channels		8	
Resolution		12-bit	
Input Range/Type		0 ~ 20 mA	
Sample Rate		1 KHz Max. (Read one channel)	
Power			
Protection		Power reverse polarity protection	
Frame Ground Protection		ESD, Surge, EFT, Hi-Pot	
Power Requirement		15W; Unregulated +10 VDC ~ +30 VDC	
Power Consumption		Idle: 75 mA @ 24 VDC; Data Link: 150 ~ 400 mA (peak) @ 24 VDC	
Mechanical			
Dimensions (W x H x D)		72 mm x 123 mm x 35 mm	
Installation		DIN-Rail or Wall mounting	
Environment			
Operating Temperature		-25 °C ~ +75 °C	-15 °C ~ +55 °C
Storage Temperature		-40 °C ~ +80 °C	-20 °C ~ +70 °C
Humidity		5% ~ 90% RH, Non-condensing	

Software Specifications

Functions	
Rule Configuration Website	Access Web server on WISE controllers to edit and upload logic rules through web browser.
36 IF-THEN-ELSE Logic Rules	3 IF conditions with AND or OR operators 3 THEN actions and 3 ELSE actions
48 Internal Registers	Hold temporary variables and read/write data via Modbus/TCP address.
12 Timers	Delay / Timing functions.
12 Schedules	Setup prescheduled routine tasks.
12 SMS	Send SMS to pre-set mobile phone numbers.
12 Emails	Send Email messages to pre-set Email receivers.
12 CGI Commands	Send pre-set CGI commands.
12 Recipes	Set up THEN/ELSE action groups.
8 P2P remote modules	Set up the connection information for the remote WISE modules
Modbus/TCP Protocol	Real time control and monitoring I/O channels and system status of controllers via SCADA software.

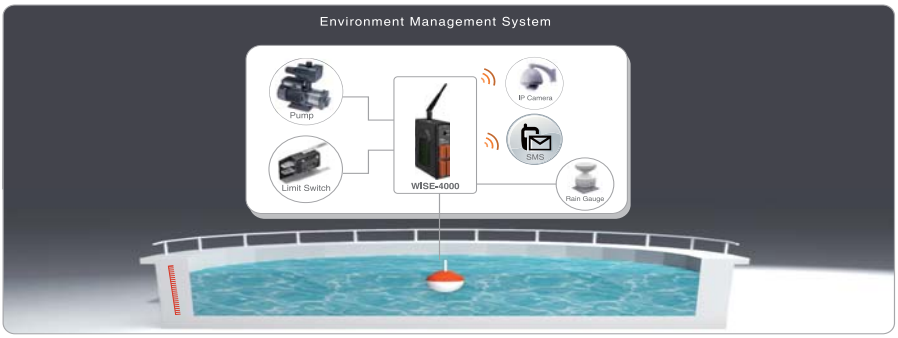
IF Condition	
DI Channel	ON, OFF, ON to OFF, OFF to ON, Change
AI Channel	=, >, <, >=, <=(value)
Internal Register	
DI Counter	=, >, <, >=, <=(value), Change
DO Counter	
Timer	Timeout, Not Timeout
Schedule	In Range, Out of Range
P2P	DI, AI, DI counter, DO counter, IR
Rule Status	Enable, Disable



THEN / ELSE Action	
DO Channel	ON, OFF, Pulse Output
Internal Register	Change the value
DI Counter	Reset
DO Counter	
Timer	Start, Stop
Schedule	
SMS	Send
Email	
CGI Commands	
Recipe	Execute
P2P	DO (On/Off), AO, IR
Rule Status	Enable, Disable

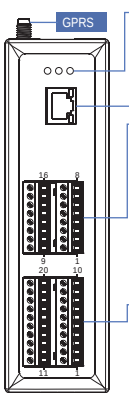
Applications

Building Automation, Factory Automation, Machine Automation, Remote Maintenance, Remote diagnosis and Testing Equipment, etc.



Appearance

WISE-4000/WISE-4000D



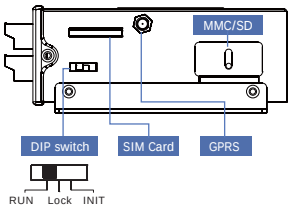
Front View

CN2 Pin Assignment

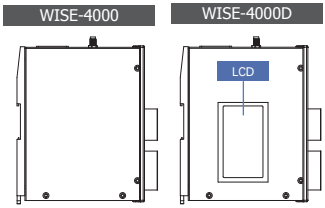
Analog Input 0 ~ +20 mA	AI7	Pin 16	Pin 8	AGND	Analog Ground
	AI6	Pin 15	Pin 7	AGND	
	AI5	Pin 14	Pin 6	AGND	
	AI4	Pin 13	Pin 5	AGND	
	AI3	Pin 12	Pin 4	GND	Digital Input
	AI2	Pin 11	Pin 3	DI2	
	AI1	Pin 10	Pin 2	DI1	
	AI0	Pin 9	Pin 1	DI0	

CN1 Pin Assignment

COM3 RS-232	RxD3	Pin 20	Pin 10	DO.PWR	Digital Output
	TxD3	Pin 19	Pin 9	DO2	
Ground of RS-232	GND	Pin 18	Pin 8	DO1	
COM1 RS-232	CTS1	Pin 17	Pin 7	DO0	
	RTS1	Pin 16	Pin 6	D+	COM2 RS-485
	RxD1	Pin 15	Pin 5	D-	
	TxD1	Pin 14	Pin 4	GND	Ground of RS-232
Power Input: +10 V_{DC} ~ +30 V_{DC}	DC.+Vs	Pin 13	Pin 3	DC.+Vs	Power Input: +10 V_{DC} ~ +30 V_{DC}
	DC.GND	Pin 12	Pin 2	DC.GND	
	N/A	Pin 11	Pin 1	F.G.	Frame Ground



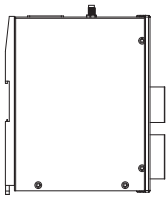
Top View



Right Side View

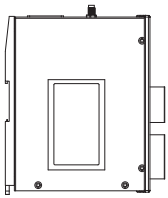
Dimensions (Units: mm)

WISE-4000



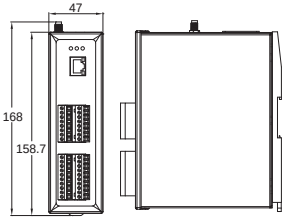
Right Side View

WISE-4000D



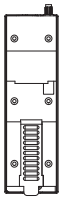
Right Side View

WISE-4000/WISE-4000D

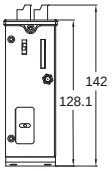


Front View

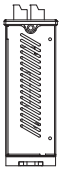
Left Side View



Rear View

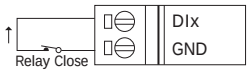
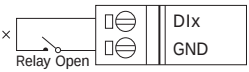
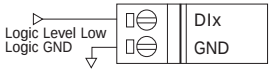
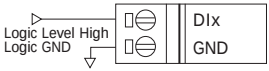
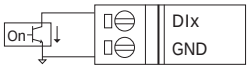
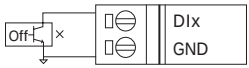


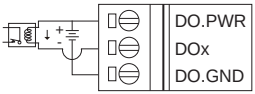
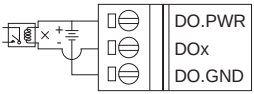
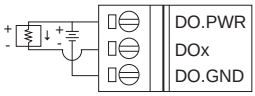
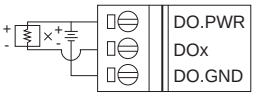
Top View

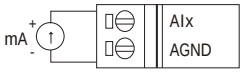


Bottom View

Wire Connection

Input Type	DI Value as 0	DI Value as 1
Sink	Relay On	Relay Off
		
Source	Voltage < 1V	Voltage < 3.5V
		
	Open Collector On	Open Collector Off
		

Output Type	DO Command as 0	DO Command as 1
Drive Relay	Relay ON	Relay Off
		
Resistance Load		
		

Current Input Wire Connection	
Input Type	

Ordering Information

WISE-4000 CR	3-channel DI, 3-channel DO, and 8-channel AI WISE Controller with SMS Module (RoHS)
WISE-4000D CR	3-channel DI, 3-channel DO, and 8-channel AI WISE Controller with SMS Module and LCD Display (RoHS)

Accessories

ANT-421-01	3 m External GPRS/GSM Antenna

4.4. Mini PAC with 2G/3G Modem

G-4500(D)-2G
G-4500P(D)-2G

Quad-band 2G GSM/GPRS M2M Mini-PAC

Features

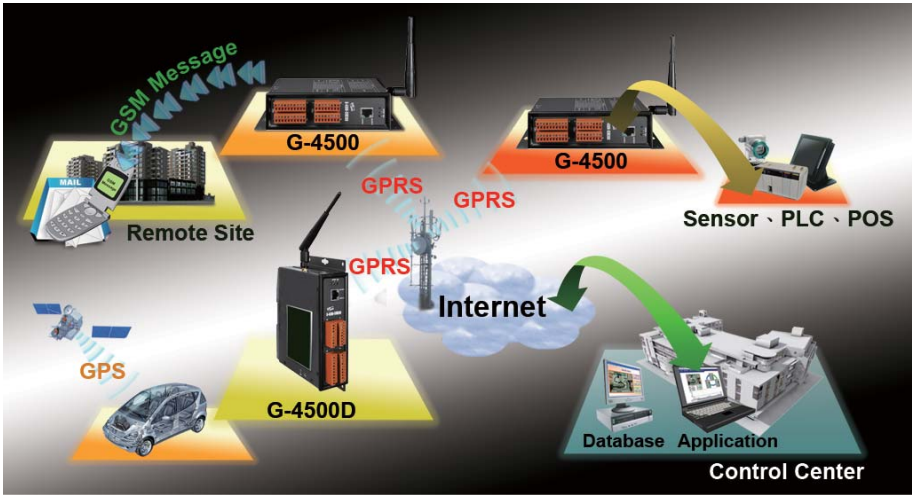
- Embedded MiniOS7, anti-virus
- Support a variety of TCP/IP features, including TCP, UDP, IP, ICMP, ARP
- 10/100Base-TX Ethernet Controller
- COM port: COM1 (5-wire RS-232), COM2 (RS-485), COM3 (3-wire RS-232)
- Built-in self-tuner ASIC controller on RS-485 port
- I/O: 3 channel DI, 3 channel DO, 8 channel AI
- Support SD storage card
- GSM/GPRS: Quad-band 850/900/1800/1900 MHz
- Support TCP server, TCP client, UDP client connection from GPRS
- GPS: 32 channels with All-In-View tracking (option)
- 128 x 64 dots LCM display (only for G-4500D-2G and G-4500PD-2G)
- Support Virtual COM technology
- Support Modbus Protocol
- High reliability in harsh environment
- Free easy-to-use software development toolkits

Introduction

The Quad-band G-4500 series provided by ICP DAS are M2M (Machine to Machine) mini programmable controllers which are widely recommended in the market. They are widely applied in various applications like hydrographic monitoring, intelligent power, flow meter report system and GPS car-tracking system. The G-4500-2G series also features GSM/GPRS module, Ethernet interface, optional GPS module, 3 digital inputs, 3 digital outputs, 8 analog inputs, 2 RS-232 and 1 RS-485 port which can be used in various application field to transfer data by GPRS, SMS, Ethernet or serial bus. By using G-4500 series, a machine can be installed virtually anywhere but still be connected to a support centre. M2M solution will improve the service quality and reduce operating costs. Many application areas can be improved by using G-4500-2G.

Applications

- Remote Control/Monitoring Systems
- Car Monitor Systems
- GIS Systems
- Redundant Communication Systems

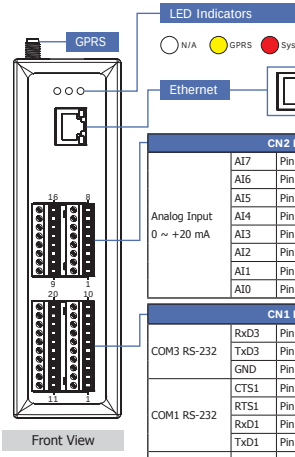


Specifications

Models	G-4500-2G	G-4500D-2G	G-4500P-2G	G-4500PD-2G
System				
CPU	80 MHz			
SRAM	512 Kbytes			
Flash Memory	512 Kbytes			
NVRAM	31 bytes, battery backup, data valid up to 10 years			
EEPROM	16 KB, data retention >40 years. 1,000,000 erase/write cycles			
2G System				
Frequency Band	Quad-band GSM/GPRS: 850/900/1800/1900 MHz			
GPRS Multi-slot	Class 10/8			
GPRS Mobile Station	Class B			
GPRS Class 10	Up to 85.6 kbps download speed			
CSD	Up to 14.4 kbps			
Compliant with GSM Phase 2/2+	Class 4 (2 W @ 850/900 MHz); Class 1 (1 W @ 1800/1900 MHz)			
Coding Schemes	CS 1, CS 2, CS 3, CS 4			
SMS	MT, MO, CB, Text and PDU mode			
Serial Port				
COM1	RS-232 (RxD, TxD, CTS, RTS, GND)			
COM2	RS-485 (D+, D-)			
COM3	RS-232 (RxD, TxD, GND)			
Ethernet	10/100 Base-TX Ethernet controller			
LCD Interface				
General – Effective display area	-	80.61 mm x 14.37 mm (W x H)	-	80.61 mm x 14.37 mm (W x H)
General – Module Dimension	-	93 mm x 70 mm x 1.6 mm (W x H x T)	-	93 mm x 70 mm x 1.6 mm (W x H x T)
Life Time	-	Expected life is more than 100,000 hours under normal operation	-	Expected life is more than 100,000 hours under normal operation
GPS Interface				
Support Channels	-		32	
Acquisition Time	-		Hot Start (Open Sky) = 2s (typical) Cold Start (Open Sky) = 36s (typical)	
Protocol	-		MNEA 0183 version 3.01	
Digital Input				
Input Channels	3			
Input Type	Source (Dry Type), Common Ground			
Protocol	On: +1 V Max. Off: +3.5 ~ +30 V			
Digital Output				
Output Channels	3			
Output Type	Open Collector (Sink/NPN)			
Load Voltage	+30 VDC Max.			
Load Current	100 mA Max.			
Analog Input				
Input Channel	8 (Single-ended)			
Resolution	12-bit			
Input Range/Type	0 ~ 20 mA			
Sample Rate	1 KHz Max. (read one channel)			
Power				
Protection	Power reverse polarity protection			
Frame Ground Protection	ESD, Surge, EFT, Hi-Pot			
Required Supply Voltage	15W; Unregulated +10 VDC ~ +30 VDC			
Power Consumption	Idle: 75 mA @ 24 VDC; Data Link: 150 ~ 400 mA (peak) @ 24 VDC			
Mechanical				
Casing	Metal			
Dimensions (W x L x H)	47mm x 142 mm x 168mm			
Installation	DIN-Rail and Wall Mounting			
Environment				
Operating Temperature	-20°C ~ +70 °C	-15 °C ~ +55 °C	-20 °C ~ +70 °C	-15 °C ~ +55 °C
Storage Temperature	-40 °C ~ +80 °C	-20 °C ~ +70 °C	-40 °C ~ +80 °C	-20 °C ~ +70 °C
Humidity	5% ~ 90% RH, Non-condensing			

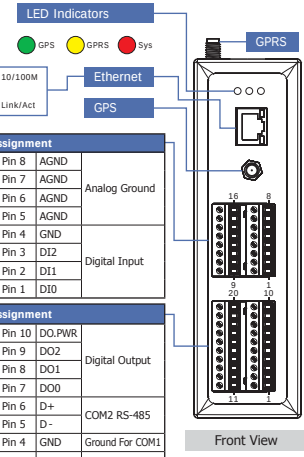
Appearance

G-4500(D)-2G



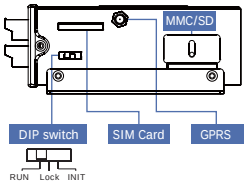
Front View

G-4500P(D)-2G



Front View

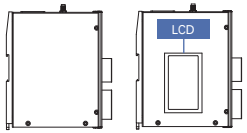
G-4500(D)-2G/G-4500P(D)-2G



Top View

G-4500(P)-2G
GD-4500(P)-2G

G-4500(P)D-2G
GD-4500(P)D-2G



Right Side View

CN2 Pin Assignment

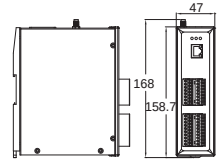
Analog Input 0 ~ +20 mA	AI7	Pin 16	Pin 8	AGND	Analog Ground
	AI6	Pin 15	Pin 7	AGND	
	AI5	Pin 14	Pin 6	AGND	
	AI4	Pin 13	Pin 5	AGND	
	AI3	Pin 12	Pin 4	GND	Digital Input
	AI2	Pin 11	Pin 3	DI2	
	AI1	Pin 10	Pin 2	DI1	
	AI0	Pin 9	Pin 1	DI0	

CN1 Pin Assignment

COM3 RS-232	RxD3	Pin 20	Pin 10	DO.PWR	Digital Output
	TxD3	Pin 19	Pin 9	DO2	
	GND	Pin 18	Pin 8	DO1	
COM1 RS-232	CTS1	Pin 17	Pin 7	DO0	
	RTS1	Pin 16	Pin 6	D+	COM2 RS-485
	RxD1	Pin 15	Pin 5	D-	
	TxD1	Pin 14	Pin 4	GND	Ground For COM1
Power Input: +10 ~ +30 VDC	DC.+VS	Pin 13	Pin 3	DC.+VS	Power Input: +10 ~ +30 VDC
	DC.GND	Pin 12	Pin 2	DC.GND	
	N/A	Pin 11	Pin 1	F.G.	Frame Ground

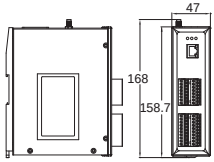
Dimensions (Units: mm)

G-4500-2G



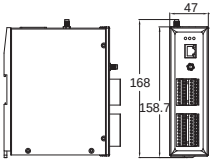
Right Side View | Front View

G-4500D-2G



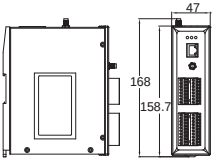
Right Side View | Front View

G-4500P-2G



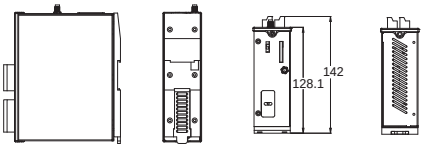
Right Side View | Front View

G-4500PD-2G



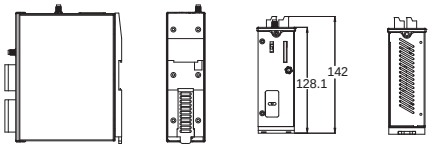
Right Side View | Front View

G-4500(D)-2G



Left Side View | Rear View | Top View | Bottom View

G-4500P(D)-2G



Left Side View | Rear View | Top View | Bottom View

Ordering Information

G-4500-2G CR	Quad-band M2M Mini-Programmable Automation Controller (RoHS)
G-4500-2G CR	Quad-band M2M Mini-Programmable Automation Controller with LCD display (RoHS)
G-4500P-2G CR	Quad-band M2M Mini-Programmable Automation Controller with GPS Function (RoHS)
G-4500PD-2G CR	Quad-band M2M Mini-Programmable Automation Controller with LCD display and GPS Function (RoHS)

Accessories

ANT-421-01	3 m External GPRS/GSM Antenna
ANT-115-03	5 m GPS Active External Antenna

NEW

G-4500(D)-3GWA
G-4500P(D)-3GWA

Tri-band 3G WCDMA M2M Mini-PAC

Features

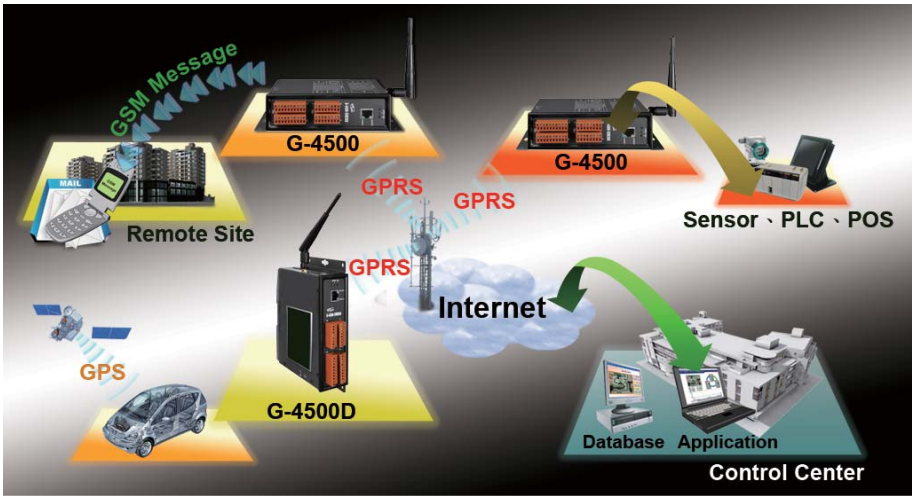
- Embedded MiniOS7, anti-virus
- Support a variety of TCP/IP features, including TCP, UDP, IP, ICMP, ARP
- 10/100Base-TX Ethernet Controller
- COM port: COM1 (5-wire RS-232), COM2 (RS-485), COM3 (3-wire RS-232)
- Support SD storage card
- Tri-band 850/1900/2100 MHz WCDMA supporting UMTS/HSDPA/HSUPA
- Quad-band 850/900/1800/1900 MHz GSM supporting GPRS
- Support TCP server, TCP client, UDP client connection stack
- GPS : 32 channels with All-In-View tracking (option)
- 128 x 64 dots LCM display (only for G-4500D-3GWA and G-4500PD-3GWA)
- Support Virtual COM technology
- Support Modbus Protocol
- High reliability in harsh environment
- Free easy-to-use software development toolkits

Introduction

The G-4500 series provided by ICP DAS are M2M (Machine to Machine) mini programmable controllers with a cellular transceiver can monitor industrial equipment that sends live data to the monitoring system, providing real-time status. With optional GPS model, the G-4500 can also be a GPS tracking system. It can be used in vehicle management system or maritime system. Within the high performance CPU, the G-4500 series can handle a large of data and suit for the harsh industrial environment. The G-4500-3GWA series features 3G/GSM module, Ethernet interface, optional GPS module, 3 digital inputs, 3 digital outputs, 8 analog inputs, 2 RS-232 and 1 RS-485 port.

Applications

- Remote Control/Monitoring Systems
- Car Monitor Systems
- GIS Systems
- Redundant Communication Systems

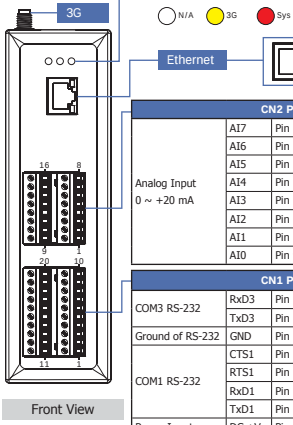


Specifications

Models		G-4500-3GWA	G-4500D-3GWA	G-4500P-3GWA	G-4500PD-3GWA
System					
CPU		80 MHz			
SRAM		512 Kbytes			
Flash Memory		512 Kbytes			
NVRAM		31 bytes, battery backup, data valid up to 10 years			
EEPROM		16 KB, data retention >40 years. 1,000,000 erase/write cycles			
2G/3G System					
Frequency Band		3G UMTS/HSDPA/HSUPA: Tri-band 850/1900/2100 MHz, 2G GSM/GPRS: Quad-band 850/900/1800/1900 MHz			
3G Data Transmission		Downlink: Max. 7.2 Mbps; Uplink: Max. 5.76 Mbps			
2G Data Transmission		Downlink: Max. 85.6 kbps; Uplink: Max. 42.8 kbps			
2G Connectivity		GPRS class 12/10; GPRS station class B			
Serial Port					
COM1		RS-232 (CTS, TRS, RxD, TxD, GND)			
COM2		RS-485 (D+, D-)			
COM3		RS-232 (RxD, TxD, GND)			
Ethernet		10/100 Base-TX Ethernet controller			
LCD Interface					
General	Effective display area	-	80.61 mm x 14.37 mm (W x H)	-	80.61 mm x 14.37 mm (W x H)
	Module Dimension	-	93 mm x 70 mm x 1.6 mm (W x H x T)	-	93 mm x 70 mm x 1.6 mm (W x H x T)
Life Time		-	Expected life is more than 100,000 hours under normal operation	--	Expected life is more than 100,000 hours under normal operation
GPS Interface					
Support Channels		-		32	
Acquisition Time		-		Hot Start (Open Sky) = 2s (typical) Cold Start (Open Sky) = 36s (typical)	
Protocol		-		NMEA 0183 version 3.01	
Digital Input					
Input Channels		3			
Input Type		Source (Dry Type), Common Ground			
On Voltage Level		+1 V Max.			
Off Voltage Level		+3.5 VDC ~ +30 VDC			
Digital Output					
Output Channels		3			
Output Type		Open Collector (Sink/NPN)			
Load Voltage		+30 VDC Max.			
Load Current		100 mA Max.			
Analog Input					
Input Channel		8 (Single-ended)			
Resolution		12 bit			
Input Range/Type		0 ~ 20 mA			
Sample Rate		1 KHz Max. (read one channel)			
Power					
Protection		Power reverse polarity protection			
Frame Ground Protection		ESD, Surge, EFT, Hi-Pot			
Required Supply Voltage		15 W; Unregulated +10 VDC ~ +30 VDC			
Power Consumption		Idle: 75 mA @ 24 VDC; Data Link: 150 ~ 400 mA (peak) @ 24 VDC			
Mechanical					
Casing		Metal			
Dimensions (W x L x H)		47mm x 142 mm x 168mm			
Installation		DIN-Rail and Wall mounting			
Environment					
Operating Temperature		-20°C ~ +70 °C	-15 °C ~ +55 °C	-20 °C ~ +70 °C	-15 °C ~ +55 °C
Storage Temperature		-40 °C ~ +80 °C	-20 °C ~ +70 °C	-40 °C ~ +80 °C	-20 °C ~ +70 °C
Humidity		5% ~ 90% RH, Non-condensing			

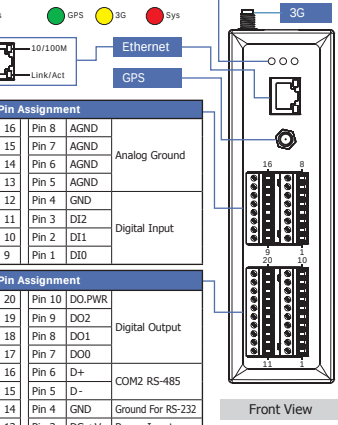
Appearance

G-4500-3GWA/G-4500D-3GWA



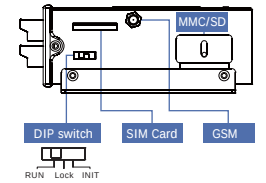
Front View

G-4500P-3GWA/G-4500PD-3GWA



Front View

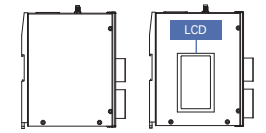
G-4500-3GWA/G-4500D-3GWA
G-4500P-3GWA/G-4500PD-3GWA



Top View

G-4500-3GWA
G-4500P-3GWA

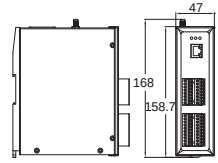
G-4500D-3GWA
G-4500P-3GWA



Right Side View

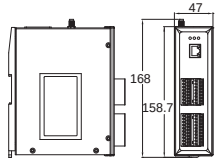
Dimensions (Units: mm)

G-4500-3GWA



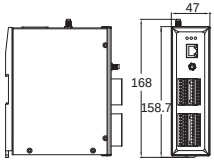
Right Side View Front View

G-4500D-3GWA



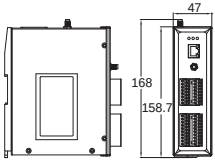
Right Side View Front View

G-4500P-3GWA



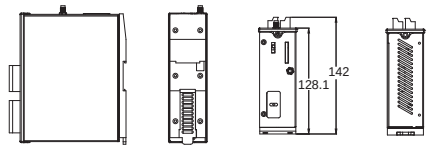
Right Side View Front View

G-4500PD-3GWA



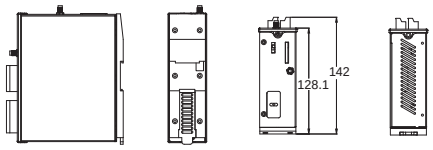
Right Side View Front View

G-4500(D)-3GWA



Left Side View Rear View Top View Bottom View

G-4500P(D)-3GWA



Left Side View Rear View Top View Bottom View

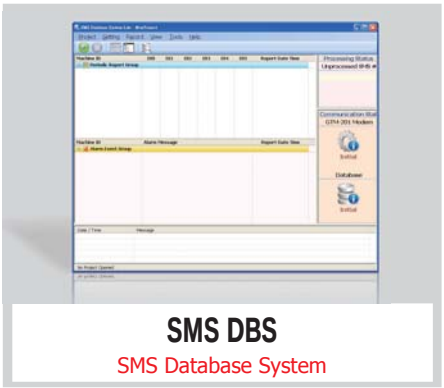
Ordering Information

G-4500-3GWA CR	Tri-band 3G WCDMA M2M Mini-Programmable Automation Controller (RoHS)
G-4500-3GWA CR	Tri-band 3G WCDMA M2M Mini-Programmable Automation Controller with LCD display (RoHS)
G-4500P-3GWA CR	Tri-band 3G WCDMA M2M Mini-Programmable Automation Controller with GPS function (RoHS)
G-4500PD-3GWA CR	Tri-band 3G WCDMA M2M Mini-Programmable Automation Controller with LCD display and GPS function (RoHS)

Accessories

ANT-421-01	3 m External GPRS/GSM Antenna
ANT-115-03	5 m GPS Active External Antenna

4.5. Software Solutions



SMS DBS

SMS Database System

Features

- Quickly and easily build a GT-53x management system
- Support MS SQL Server and MS Access 2003 Database
- Provide backup mechanism in local sites: when experiencing unexpected disconnection and not able to transmit and store data in remote SQL Server database, the data will be safely kept in local sites
- Allow to view real-time or historical data of SMS messages sent by GT-53x series
- Support filter function that enables to receive SMS messages by specific phone numbers
- Support Windows 2000, Windows XP, Windows Vista, Windows 7
- Support GT-530, GT-531, and GT-534

Introduction

ICP DAS's SMS Database System is a software solution that allows to manage remote GT-53x series more efficiently. GT-53x series are intelligent GSM controllers great for use in industry applications; they feature easy-to-use interface, SMS tunnel function voice communication and can be powered with an external power supply or Li-Battery. They support UNICODE and 7 bit format that allows users to send SMS messages in various languages; the SMS messages can be sent at user-defined time or whenever a predefined DI/counter event is triggered. With SMS Database System, it enables remote monitoring and database system for GT-53x, therefore, allows the 3rd party software tools being easily integrated with GT-53x series as well as users' applications.

Applications

Remote Maintenance

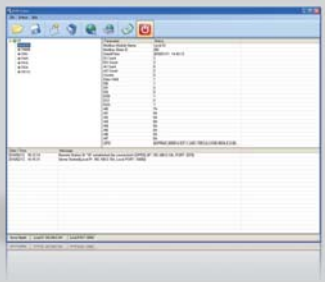
Vendor Machine Automation

Version Comparison

Version	Max. Phone Number Supported	Database	License
SMS Database System Lite v1.0	3	MS Access 2003	Free
SMS Database System Pro v1.0	Unlimited	MS SQL Server / MS Access 2003	Charge

Ordering Information

SMS DBS	SMS Monitor/Database System Software for GT-53x series



M2M RTU Center

M2M RTU Series Management Software

Features

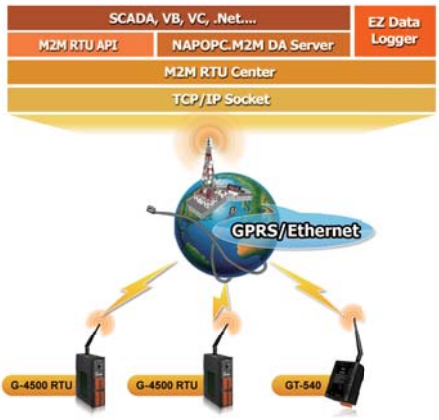
- RTU series Management tool
- Support up to 128 M2M RTU devices
- Easy and quick to build a Remote monitor system
- Windows-based software
- Support NAPOPC.M2M server, EzDatalog and M2M API tool of ICP DAS
- Allow any Modbus device connecting to GPRS/Ethernet via RTU devices.

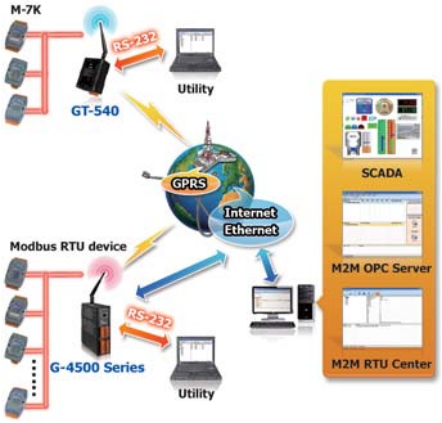
Introduction

The M2M RTU Center provided by ICP DAS is a M2M (Machine to Machine) management software that has a strong core technology for handling data and lets the user save the trouble of dealing with large IO data. The RTU Center supports the G-4500 series, GT-540 and other RTU products from ICP DAS and allows users to manage these RTU devices remotely. It is not only monitor the local IO and GPS data but also IO data of Modbus RTU devices. With M2M RTU Center, users can easily establish a remote system by using EZ Data Logger or OPC Client of user's SCADA to access data.

Software Architecture and Application

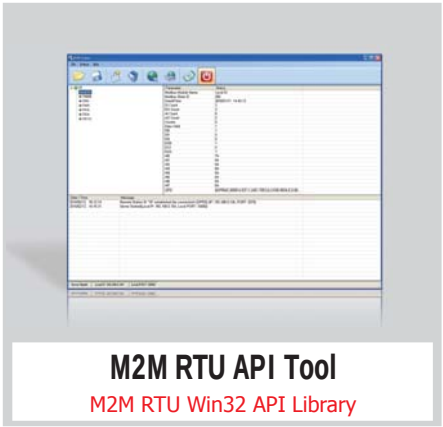
When users want to use the following software or others to their system with RTU products of ICP DAS, M2M RTU Center must be executed at the same time.





Product Support

Product	Description
RTU firmware	Management Firmware that supports G-4500 Series
GT-540	Intelligent GPRS Remote Terminal Unit



M2M RTU API Tool

M2M RTU Win32 API Library

Features

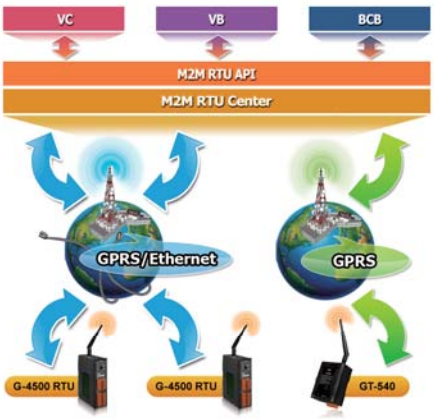
- Provide simple API functions for users to reduce the development time
- Easy to perform M2M RTU devices status monitoring and control
- Up to 128 M2M RTU devices can be managed
- Allow any Modbus device connecting to GPRS/Ethernet via RTU devices.
- Easily manage and control distributed remote devices via GPRS/Ethernet
- Support for M2M RTU products from ICP DAS

Introduction

M2M RTU API Tools is a Win32 API Library for M2M RTU products (G-4500 RTU, GT-540…) from ICP DAS. It provides the seamless connection between a user-designed system and M2M RTU products. With APIs of the library, programmer can access M2M RTU devices by developing program using most integrated development environments, such as VC, VB, BCB, visual studio.Net… etc. It is easy to integrate these GPRS RTU devices to various applications including real time data and database management system. Therefore, the Library can help users to apply the ICP DAS M2M RTU products in their applications to monitor the data and sends them out in real time to the control center through GPRS or Ethernet Network. Also, by combining a GPS (optional) with M2M GPRS RTU, they suddenly become a tracking system which you can often find out in the car system, marine system, etc.

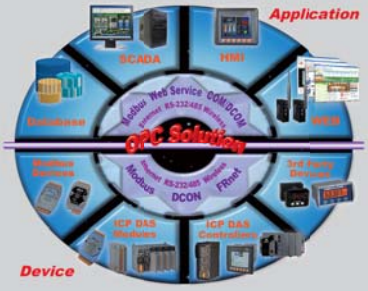
Software Architecture and Application

When users want to use the following software or others to their system with RTU products of ICP DAS, M2M RTU Center must be executed at the same time.



Product Support

Product	Description
RTU firmware	Management Firmware that supports G-4500 Series
GT-540	Intelligent GPRS Remote Terminal Unit



NAPOPC.M2M DA Server

OPC Server for RTU Devices

Features

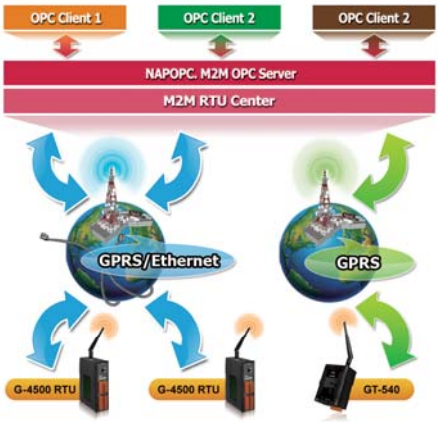
- Provide an Explorer-style user interface.
- Provide multi-thread communication to communicate with RTU devices
- Support searching RTU devices automatically
- Allow any Modbus device connecting to GPRS/Ethernet via RTU devices.
- Real-time monitoring and controlling for RTU devices

Introduction

ICP DAS NAPOPC.M2M DA Server is an OPC software package operated as an OPC driver of a HMI or SCADA system. It provides seamless connection with GPRS RTU products (G-4500 RTU, GT-540…) from ICP DAS to SCADA system (InduSoft, Wonderware, iFix, Citec, LabView and etc) following OPC 2.0 Data Access Standards. By using NAPOPC.M2M DA server and ICP DAS RTU products not only monitors the data but sends them out in real time to the control center through GPRS or Ethernet Network. Also, by combining a GPS (optional) with G-4500 RTU, it suddenly becomes a tracking system which you can often find out in the car system, marine system, etc.

Software Architecture and Application

M2M RTU Center is the M2M (Machine to Machine) management software of ICP DAS that has a strong core technology for handling data and lets the user save the trouble of dealing with large IO data. NAPOPC M2M server would get/set these RTU devices through M2M RTU Center. The architecture and application are as following.



Product Support

Product	Description
RTU firmware	Management Firmware that supports G-4500 Series
GT-540	Intelligent GPRS Remote Terminal Unit