



# GT-531

## Quick Start Guide

May 2011 Version 1.0

### Package checklist

The package includes the following items:

- One GT-531 hardware module
- One GSM Antenna
- One RS-232 cable (CA-0910)
- One Quick Start Guide
- One software utility CD
- One screw driver

### Note:

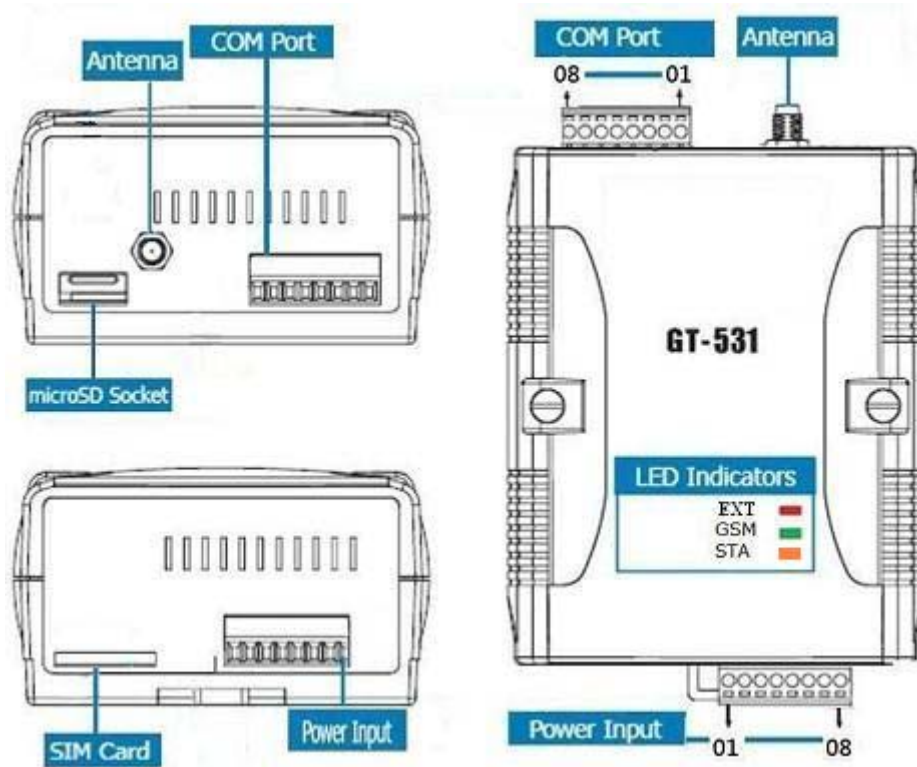
If any of these items are missed or damaged, contact the local distributors for more information. Save the shipping materials and cartons in case you want to ship in the future.



## ● Appearance and pin assignments

Power Input		
Terminal No.		Pin Assignment
N/A	01	N/A
	02	N/A
	03	N/A
GND	04	GND
Initial	05	Init
Power Input: 10 ~ 30 V <sub>DC</sub>	06	DC.+VS
	07	DC.GND
Frame Ground	08	F.G

COM Port		
Terminal No.		Pin Assignment
COM3 RS-485	01	DATA-
	02	DATA+
COM2 RS-232	03	TxD2
	04	RxD2
	05	GND
N/A	06	N/A
COM1 RS-232	07	TxD1
	08	RxD1



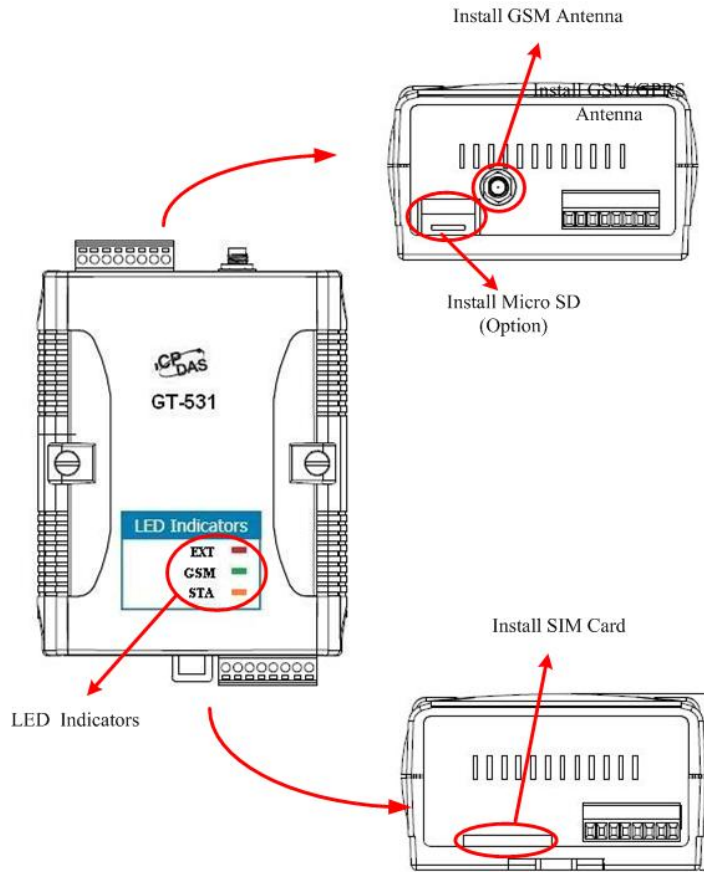
### LED indicators

LED	Description		
EXT(red)	on	The external Power is active	
	off	The external Power is not active	
STA (orange)	Normal	GSM Fail	PIN code is wrong
	Blanking (1 sec)	Always on or off	Blinking per 50 ms
GSM(green)	Blinking 3 sec	Modem normal	
	off	Modem fail (or Blinking(not 3 sec))	

## ● Installation

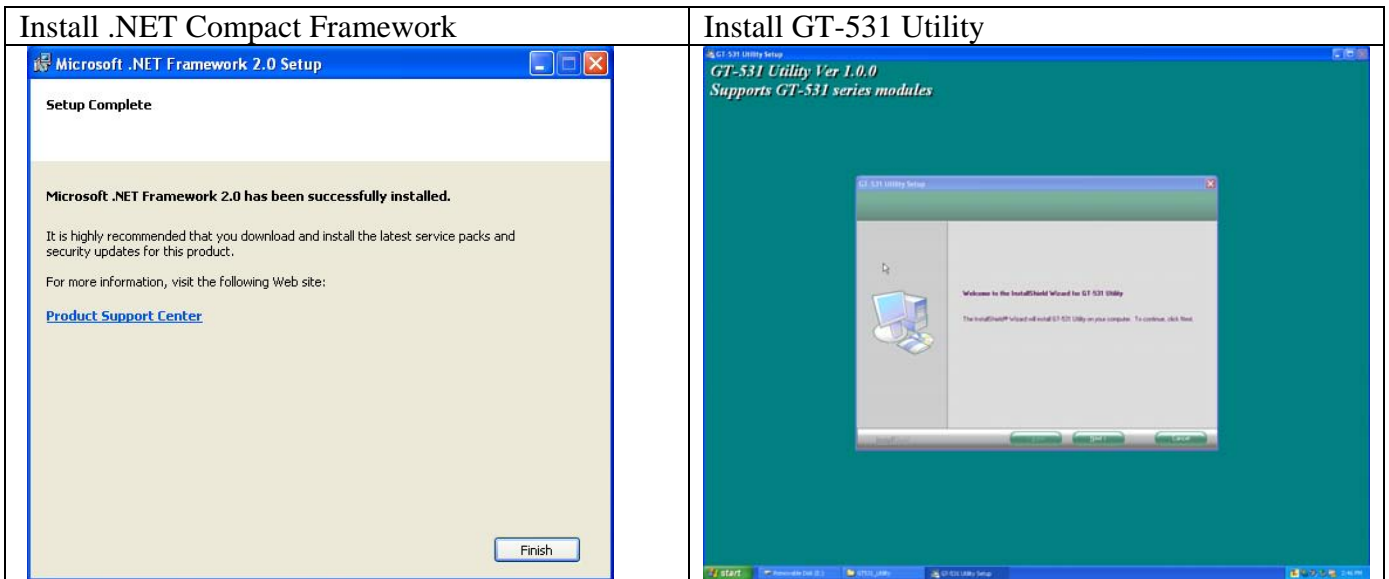
If users want to start GT-531 normally, it needs to follow these steps to install the GT-531 below:

1. Install the antenna
2. Plug in the normal SIM card (Before apply the SIM card, confirm it is OK by mobile phone.)
3. Install the micro SD(Optional, for the voice alarm files)
4. Pin06 and Pin07 of the power input connect to the DC.+VS and DC.GND of the power supply.
5. It is needed to wait for 30 ~ 50 seconds to search the GSM base and register to the ISP. After finishing the process, GT-531 would be in normal operation mode and the STA LED would blank per 1 sec. The start time of GT-531 depends on the strength of GSM signal.



## ● GT-531 Utility

It needs the runtime environment with .NET Framework 2.0 or above to execute the GT-531 Utility in the PC.



## Operation

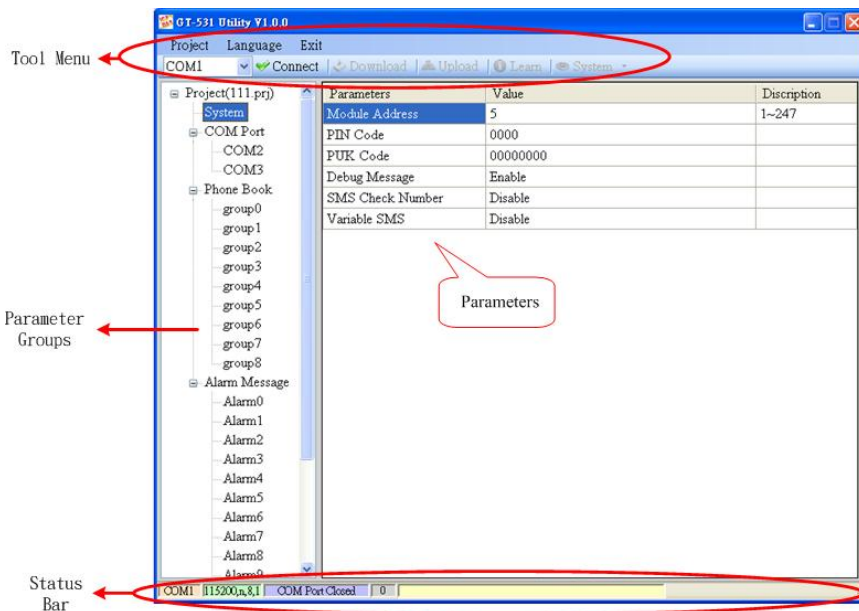
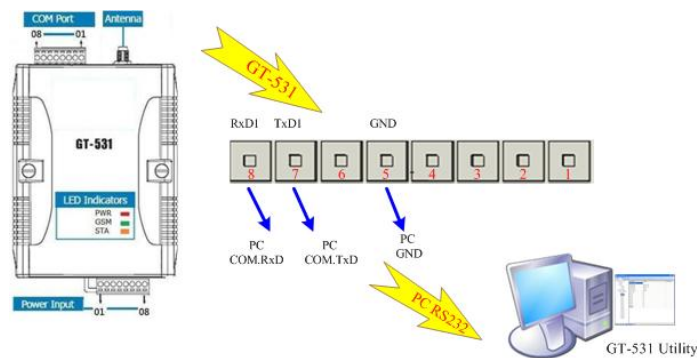
Before GT-531 utility is connected to the PC correctly, please confirm these following steps:

1. The STA LED is blanking. There are 2 kinds of blanking in GT-531.

STA LED	Description
Blanking per 1 sec	Normal mode
Blanking per 50 ms	The pin code is wrong. The users need to set PIN/PUK code in the GT-531 Utility.

2. Confirm the RS232 connection between GT-531 and PC is correct. Users can refer to the following figure.
3. During the setting procedure, the external power must be turn on.

Note: If the STA LED is always on, please reset GT-531.



### 1. Tool Menu

These tools include all the function operation of the GT-531 Utility. The description is as follows.

#### (1) Project :

The parameters of the GT-531 can be saved as the project file. The operation functions include "New", "Open", "Save", "Save as...", and etc...

- (2) Language :  
The GT-531 Utility only support English interface now.
  - (3) Exit :  
Exit the GT-531 Utility
  - (4) COM Port :  
The COM number of the host PC connecting to the GT-531
  - (5) Connect :  
Connecting to the GT-531
  - (6) Download :  
Downloading the setting to the GT-531
  - (7) Upload :  
Uploading the parameters from the GT-531 to GT-531 Utility
  - (8) Learn :  
Providing the simple way for users to learn the Modbus RTU commands to operate GT-531
  - (9) System :  
Providing some system operations include "Signal Quality", "Reboot GT-531", "Recover Default Settings", "Firmware Version", "Input PIN/PUK" and "Voice File Management"
2. Parameter Groups :  
There are four parameter groups in the GT-531 Utility including "System", "COM Port", "Phone Book" and "Alarm Message".
  3. Parameters :  
Showing or setting the parameters
  4. Status Bar  
Showing the operation procedure of the GT-531 Utility  
From left to right, they are:
    - (1) The used com port number
    - (2) Communication configuration of the COM Port
    - (3) The current status of the COM port
    - (4) The Modbus address of the GT-531
    - (5) The result for operating the functions

## ● GT-531 Modbus address Table

The Modbus function codes supported in the GT-531 are 1,2,3,4,5,6 and 16. The Modbus address distribution is as the following table.

### Coil Status (Function Code:1, 5)

Address	Data Address	Description	Attribute
00001 ~ 00128	0x0 ~ 0x7F	Transmitting the alarm SMS and voice according 0~127 alarm	R/W
00129	0x80	Transmitting the SMS dynamically	R/W
00200	0xC7	=1, clearing the received SMS buffer	R/W
00201	0xC8	=1, clearing the transmitting SMS buffer	R/W
00210	0xD1	=1, saving the data of the holding Registers (40001~40256) to Flash	R/W

**Discretes Input (Function Code: 2)**

Address	DataAddress	Decription	Attribute
10001	0x0	The status of transmitting SMS buffer 0 : No 1 : Overflow	R
10002	0x1	The indication of the received SMS 0 : No received SMS 沒有 1 : Having received SMS	R
10003	0x2	The status of SD card 0 : No SD card or Error 1 : Normal	R

**Input Register (Function Code: 4)**

Address	Data Address	Decription	Attribute
30001 ~ 30016	0x0 ~ 0xF	The status of transmitting SMS buffer 0~15 (1) High Byte: Buffer status 0-> Idle 1-> Waiting for transmitting 2-> Transmitting 3-> Transmitting OK 4-> Transmitting fault (2) Low Byte : Error code	R
30017	0x10	The last transmitting SMS buffer number	R
30018	0x11	The status of transmitting dynamic SMS (1) High Byte: Status 0-> Idle 1-> System busy or waiting for transmitting 2-> Transmitting 3-> Transmitting OK 4-> Transmitting fault (2) Low Byte: Error code	R
30019	0x12	The GSM signal strength 0~31s or 99(Error)	R
30031 ~ 30040	0x1E ~ 0x27	The SMS transmitter's phone number. ASCII code by end char 0x00.	R

30041 ~ 30047	0x18 ~ 0x2E	The date and time of receiving SMS	R
300048	0x2F	The format of the received SMS 0x0000=ASCII , 0x0001=Unicode	R
30049 ~ 30128	0x30 ~ 0x7F	The content of the received SMS ASCII : By end char 0x00 , Unicode : By end char 0x0000	R

### Holding Register(Output Register) (Function Code: 3, 6, 16)

Address	Data Address	Decription	Attribute																				
40200	0xC7	Module Address(Modbus Net ID) , 1~247	R/W																				
40201	0xC8	COM2 (1)High Byte <table border="1" style="margin-left: 20px;"> <tr> <td>Code</td> <td>0x04</td> <td>0x05</td> <td>0x06</td> <td>0x07</td> </tr> <tr> <td>Baud</td> <td>2400</td> <td>4800</td> <td>9600</td> <td>19200</td> </tr> <tr> <td>Code</td> <td>0x08</td> <td>0x09</td> <td>0x0A</td> <td></td> </tr> <tr> <td>Baud</td> <td>38400</td> <td>57600</td> <td>115200</td> <td></td> </tr> </table> (2)Low Byte Bit 2:0 (Data Bit) 011 : 8 Data Bits Bite 4:3(stop bit) 00 : 1 stop bit 01 : 2 stop bit Bite 6:5(parity) 00 : no parity 01 : odd parity 10 : even parity	Code	0x04	0x05	0x06	0x07	Baud	2400	4800	9600	19200	Code	0x08	0x09	0x0A		Baud	38400	57600	115200		R/W
Code	0x04	0x05	0x06	0x07																			
Baud	2400	4800	9600	19200																			
Code	0x08	0x09	0x0A																				
Baud	38400	57600	115200																				
40202	0xC9	COM3 setting. The data format is as COM2	R/W																				
40207	0xCE	Enabling or Disabling the debug message 0x0000=Disable , 0x0001=Enable	R/W																				
40208	0xCF	Enabling or Disabling the SMS with the check code 0x0000=Disable , 0x0001=Enable	R/W																				
40384 ~ 40399	0x17F ~ 0x18E	The variable content of the SMS (Unicode by the end char 0x0000)	R/W																				
40400 ~ 40469	0x18F ~ 0x1D4	The dynamic transmitting SMS content (Unicode by the end char 0x0000)	R/W																				
40470 ~ 40479	0x1D5 ~ 0x1DE	The phone number for the dynamic transmitting SMS (ASCII by the end char 0x00)	R/W																				

## ● Troubleshooting

Item	Trouble state	Solution
1	EXT LED is off	Please check the external power and wire connection.
2	STA is always on	<ol style="list-style-type: none"> <li>1. Check SIM card.</li> <li>2. Check Antenn.</li> <li>3. Check the GSM signal strength.</li> </ol>
3	GT-531 Utility can not connect to GT-531	<ol style="list-style-type: none"> <li>1. Check STA LED blinking every 1 sec.</li> <li>2. Check COM port wire connection.</li> </ol>
4	Can not receive the SMS	Please confirm the transmitter's phone number is in the groups.
5	The defined phone received an abnormal SMS	The GT-531 support only Unicode SMS. Confirm the defined SMS content is Unicode.
6	The GT-531 is not replied by Modbus command.	<ol style="list-style-type: none"> <li>1. Confirm the wire connection.</li> <li>2. Confirm the Modbus ID of the GT-531.</li> <li>3. Confirm the COM Port settings.</li> </ol>
7	Can not hear the voice alarm from the GT-531	Confirm the SD card is normal and the voice file is in it.
8	SMS DBS could not received the SMS from GT-531	User must add "ALARM;" to the start of the short message.

## ● Technical Support

If you have problems about using the GT-531, please contact ICP DAS Product Support.

Email: [Service@icpdas.com](mailto:Service@icpdas.com)