



User Manual

Version 1.0.0 JUN 2017

GTP-230

(3G Multi-Function Controller)



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Important Information

Warranty

All products manufactured by ICP DAS are under warranty regarding defective materials for a period of one year, beginning from the date of delivery to the original purchaser.

Warning

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If you encounter any problems while operating this device, feel free to contact us via mail at: service@icpdas.com . We guarantee to respond within 2 working days.

1. Introduction

The IoT (Internet of Things) has been a much discussed topic in recent years. Using the IoT concept, it is easy to integrate the environment of heterogeneous network and let all of the things into be digitized making life more convenient. In order to provide additional access to IoT applications related to industry based on the Modbus, ICPDAS has developed a new 3G product, the GTP-230.

GTP-230 is an intelligent 3G Modbus/SMS gateway for industry M2M applications. It is convenient for users to apply to M2M applications with the host like PC, PLC, HMI and PAC via Modbus RTU communication. It supports UNICODE format for users to send SMS messages to the specific mobile phones by Modbus RTU protocol with various language. That can make the current system to M2M applications. It can be used to inform operator the urgent event immediately.

GTP-230 is also an intelligent multiport serial to 2G/3G gateway for industry M2M applications. It is designed for linking RS-232/485 devices to a GPRS/WCDMA network. In addition, the GTP-230 also supports GPRS/WCDMA network automatic re-connection function when the GTP-230 is broke the GPRS/WCDMA network by something happened. M2M solution will improve the service quality and reduce operating costs. Many application areas can be improved by using GTP-230.

Therefore, the GTP-230 can be a powerful tool allowing you to use your mobile phone to monitor and control your business from any location.

1.1 Features

■ Hardware

- ◆ Support GSM 850/900/1800/1900 MHz Quad-band frequency
- ◆ Support WCDMA 900/2100 MHz Duo-band frequency
- ◆ Support send SMS message with RS-485/RS-232 port
- ◆ 1 utility port for parameter settings
- ◆ Support micro SD/SDHC card. (max. 32G bytes)
- ◆ Industrial Design with Surge Protection
- ◆ Support DC +10 VDC ~ +30 VDC Power Input
- ◆ DIN Rail design

■ Software

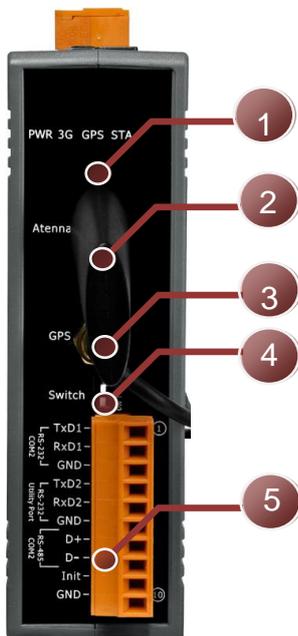
- ◆ Support Modbus RTU slave protocol
- ◆ Configurable SMS messages
- ◆ Support max. 70 Unicode Characters
- ◆ Easy to setup and configure
- ◆ Escalation and reminder function
- ◆ Up to 256 mobile phones can be alerted for each alarm point
- ◆ These phone numbers can be divided into groups
- ◆ Support VSPE(Virtual Serial Ports Emulator) technology

1.2 Specification

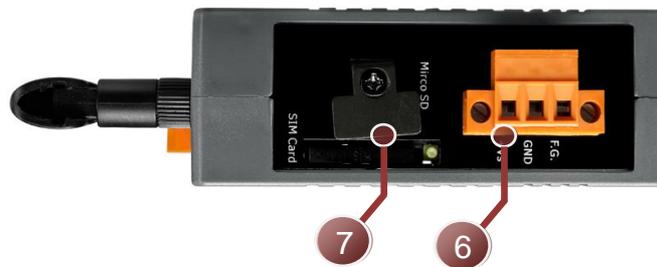
Module	GTP-230
Communication	
2G Band	850/900/1800/1900 MHz
2G Power Class	Class 4 (2 W @ 850/900 MHz) / Class 1 (1 W @ 1800/1900 MHz)
3G Band	900/2100 MHz
3G Power Class	Class 3(250mW @ WCDMA/HSPA+)
Serial port	
Utility port(COM1)	RS-232: TxD, RxD, GND : Parameter setting and debug
COM2 (RS-232)	RS-232: TxD, RxD, GND : For machine communication
COM2 (RS-485)	RS-485: D+, D- : For machine communication
Baudrate	Utility port(COM1) :115200 bps COM2: 9600 、 19200 、 38400 、 57600 、 <u>115200 bps (default)</u>
LED	
LED	Power supply (1), 3G status (2), GPS status (3), System status (4).
Power	
Power	Unregulated +10 ~ +30 VDC
Protection	Reverse protection, overcurrent protection
Ground protection frame	ESD, Surge, EFT, Hi-Pot
Power consumption	(0.08) @24VDC, 2W
Mechanical	
Shell	Plastic
Installation	DIN-Rail
Dimension (W x L x H)	127 mm x 105 mm x 33 mm
Environment	
Operating Temperature	-25 to +75°C
Storage Temperature	-40 to +80°C
Relative Humidity	10 to 90% RH, Non-condensing

2. Getting Started

■ Appearance



NO.	Description
1	LED indicator (4)
2	3G antenna
3	GPS antenna (not yet open GPS function)
4	Terminator Resistor Switch (1, 2)
5	COM Port Communication (RS-232, Utility, RS-485)
6	Power connector (+Vs, GND, F.G.)
7	MicroSD card slot (top) ,SIM card slot (bottom)



■ COM port communication

Pin	Description
+Vs	Power , +10~+30VDC
GND	Power ground
F.G.	Earth ground

Pin	Description	
1	COM 2 RS-232**	TxD1
2		RxD1
3		GND
4	COM 1 RS-232*	TxD1
5		RxD1
6		GND
7	COM 2 RS-485**	D+
8		D-
9		INIT
10		GND

*COM1 RS-232 is dedicated for Utility settings.

**COM2 RS-232 and COM2 RS-485 for the shared design, the data cannot be input at the same time.

2.1 LED Indicator

The GTP-230 module provides four LED indicators, including indicators for power status and 3G communication status. The Following is an overview of the purpose and function of each LED indicator together with a description.

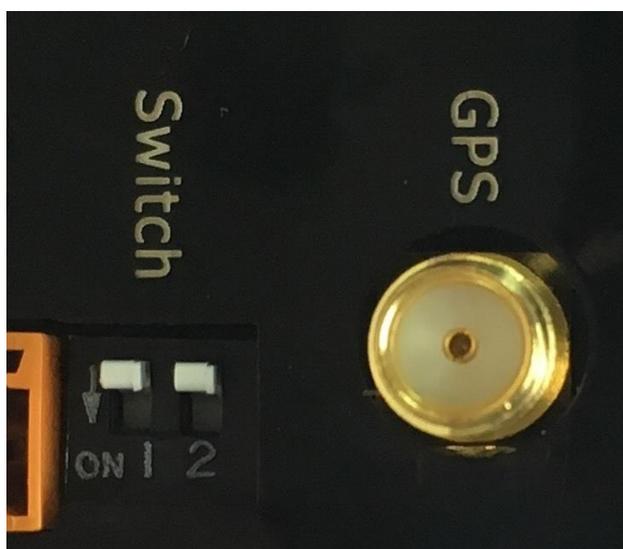


LED Name	LED Status	LED Description
PWR(Red)	ON	The power of the module is ON
3G(Red)	Flashing Once / sec	Successfully registered connection to base station (general status)
	Flashing 3 times / sec	Successfully registered connection to base station (Internet access)
	ON/OFF	3G cannot register
GPS (Green)	Flashing	GPS successfully positioned (*Note)
	ON/OFF	GPS is not positioned (*Note)
STA(Orange)	Flashing Once / sec	The internal operation is normal
	Flashing 3 times / sec	Initial mode
	ON/OFF	The internal operation is abnormal

***Note:** GPS function is not yet available now.

2.2 DIP Switches

The GTP-230 module provides two sets of DIP switches that change the functionality of the GTP-230 through built-in settings. The factory default of the DIP switches are (1 OFF + 2 OFF), which means that you can use the full function of the SMS or the Utility setting function. If you want to make the gateway machine start the network operation, please switch to (1 ON + 2 OFF) and then re-power, you can switch to the gate machine mode of operation. Note that the Utility cannot be set in the operating mode. To set it, switch it back (1 OFF + 2 OFF) to turn on the power again.



SW1	SW2	Description
Status		
OFF	OFF	SMS alarm function Utility setting mode
OFF	ON	Virtual COM Gateway function
ON	OFF	No default
ON	ON	No default

2.3 To Install the antenna and SIM card

Install the SIM card method, first SIM card tray next to the yellow button to exit, the SIM card installed and then inserted by the same direction, pay attention to the SIM card tray can only use the mini-SIM card specifications, if the SIM Card for the micro-SIM or Nano-SIM card, please use the transfer card into the mini-SIM card size, you can place the tray.



Antenna has 3G antenna and GPS antenna, as shown below:



2G/3G Antenna



GPS Antenna

Please install the 3G antenna on the SMA connector with "Antenna".

If GPS function is required, install the GPS antenna on the SMA connector with "GPS".

* Note: GPS function is not yet open; the future through the firmware update can be used

3. Installing the GTP-230 Utility

It needs the runtime environment with .NET Framework 2.0 or above to execute the GT-531 Series Utility in the PC. If there has .NET Framework 2.0 or above in the PC, the section 3.1 can be omitted.

3.1 Installing .NET Compact Framework

The user can download the .NET Compact Framework 2.0 or above from Microsoft web site. The install figure is as follows:

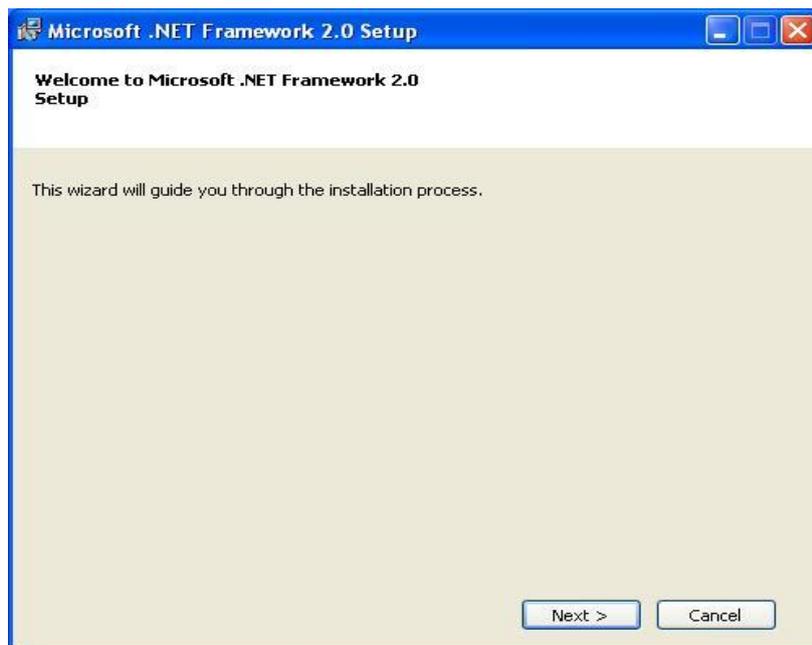
◆ Microsoft .Net Framework Version 2.0:

<http://www.microsoft.com/downloads/details.aspx?FamilyID=0856each-4362-4b0d-8edd-aab15c5e04f5&DisplayLang=en>

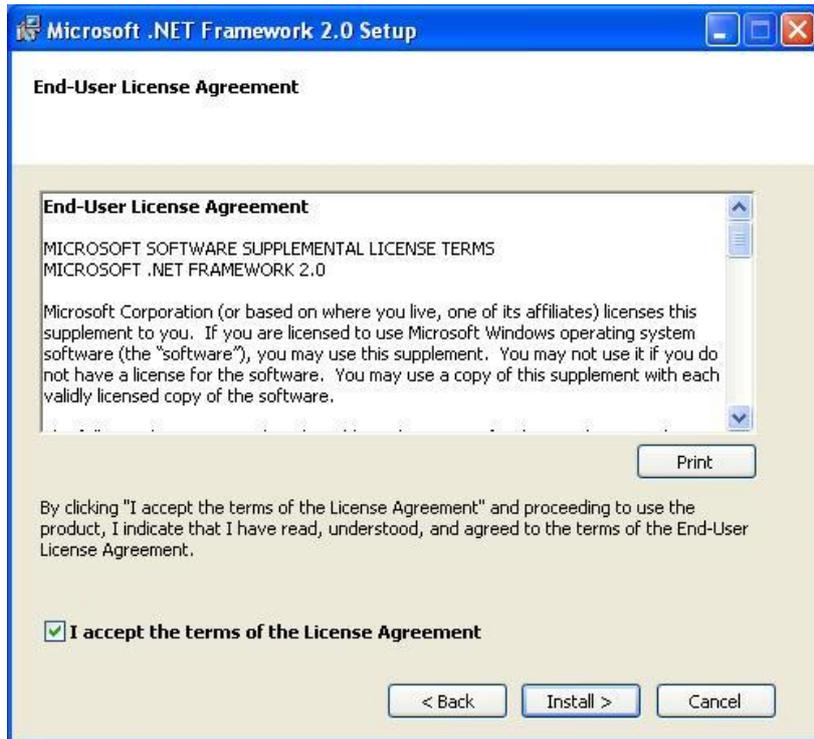
◆ Microsoft .Net Framework Version 3.5:

<http://www.microsoft.com/downloads/details.aspx?familyid=333325FD-AE52-4E35-B531-508D977D32A6&displaylang=en>

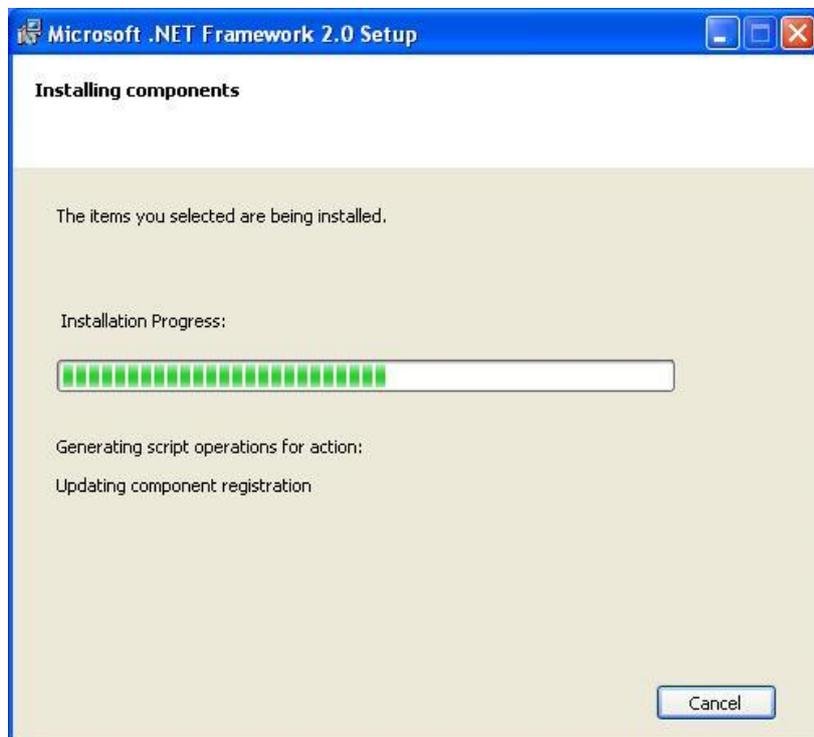
(1) Press “Next” to the next step.



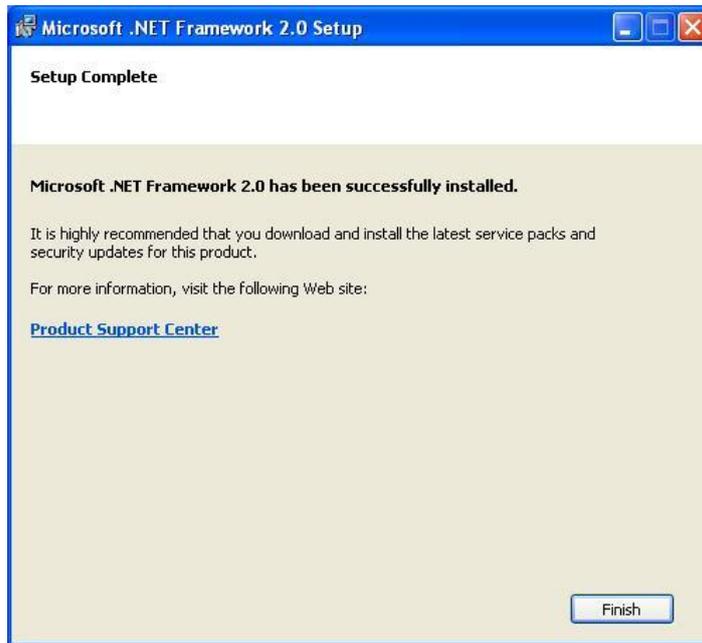
(2) Select the "I accept the terms of the License Agreement" and "Install" to the next step



(3) The installation process would be going



(4)After finishing the installation, press “Finish” to exit the program.



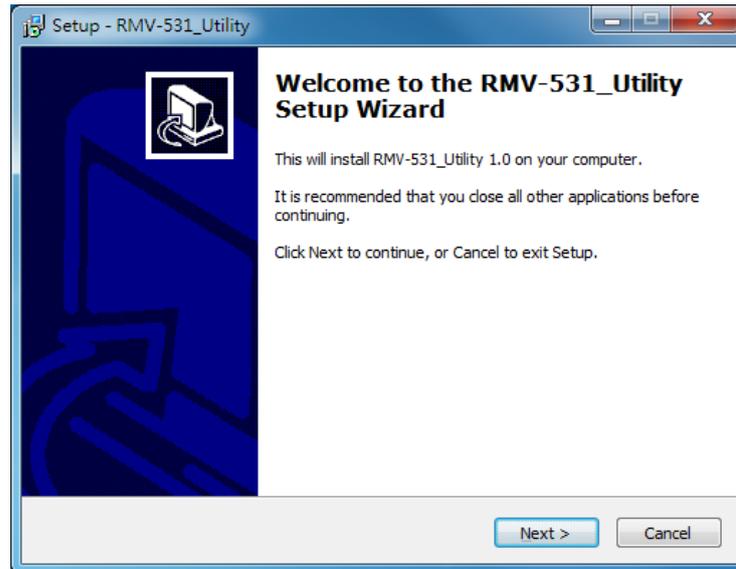
3.2 Installing the RMV-531 Series Utility

A. Plug in the shipment CD into the PC.

B. Execute \software\pc_utility\Install_GT531_Series_Utility_Vxxx.exe

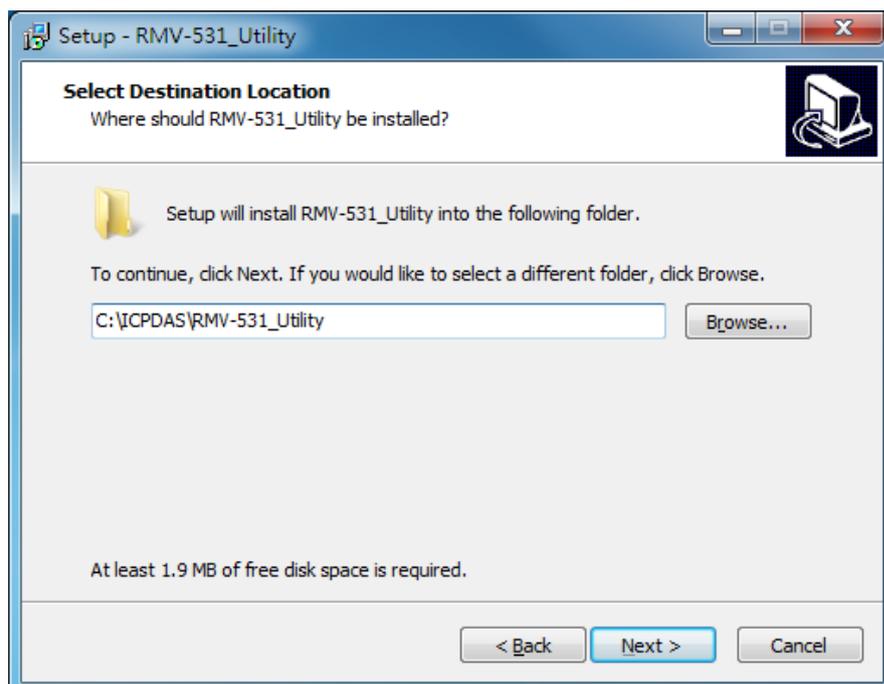
The installation figure is as follows:

(1) Press “Next” to start the installation procedure.

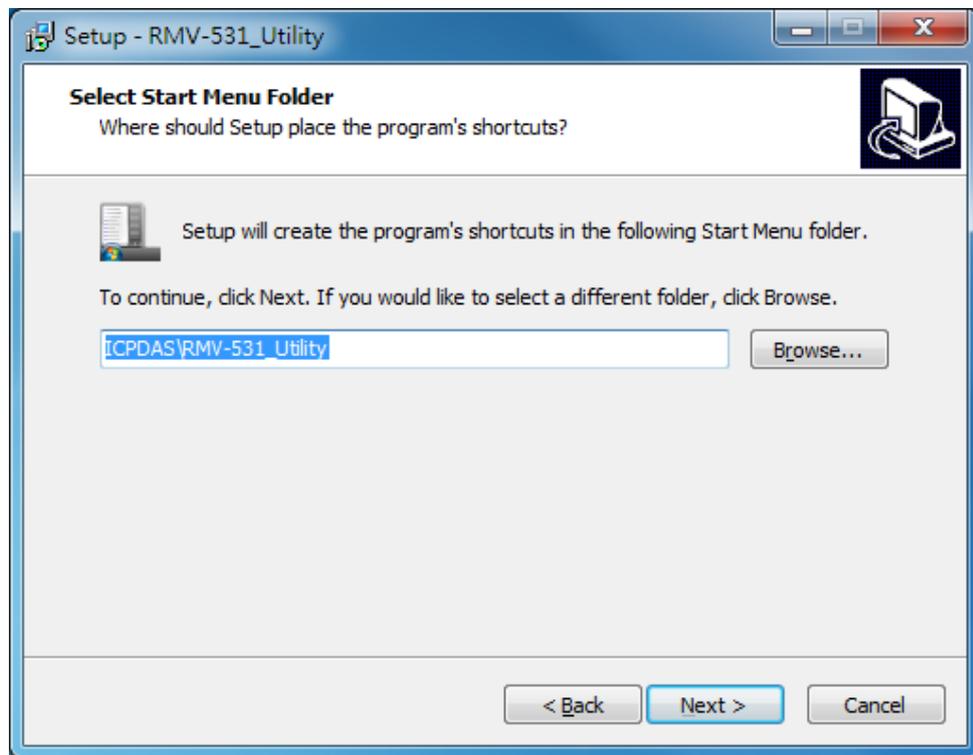


(2) Select the installation path. The default path is "C:\Program Files\GT-531 Series Utility".

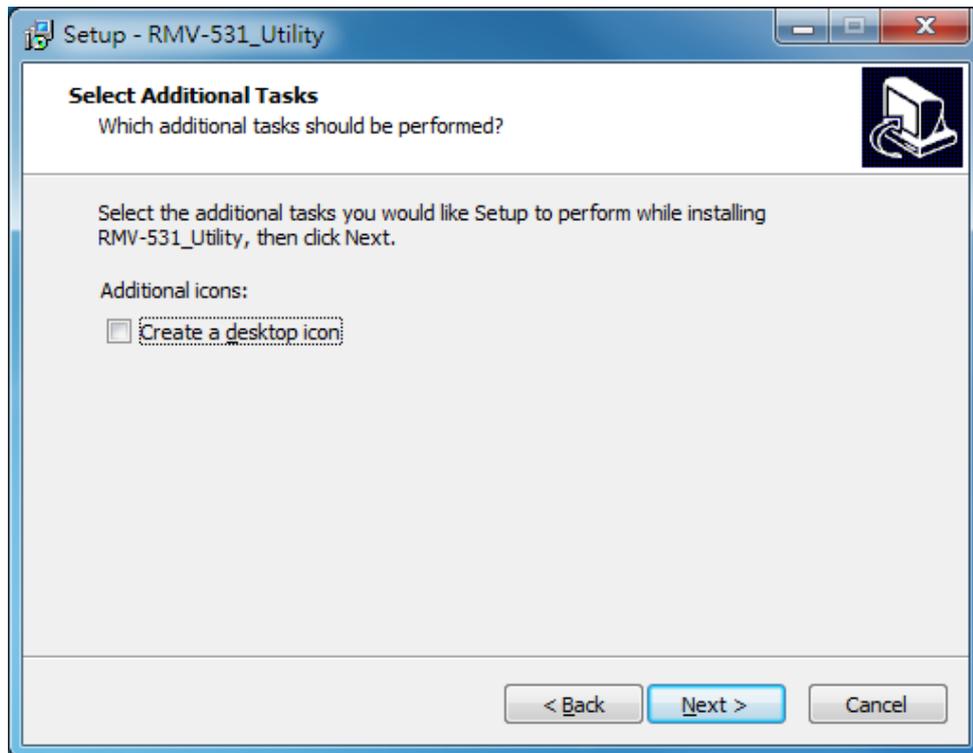
Press “Next” to the next step.



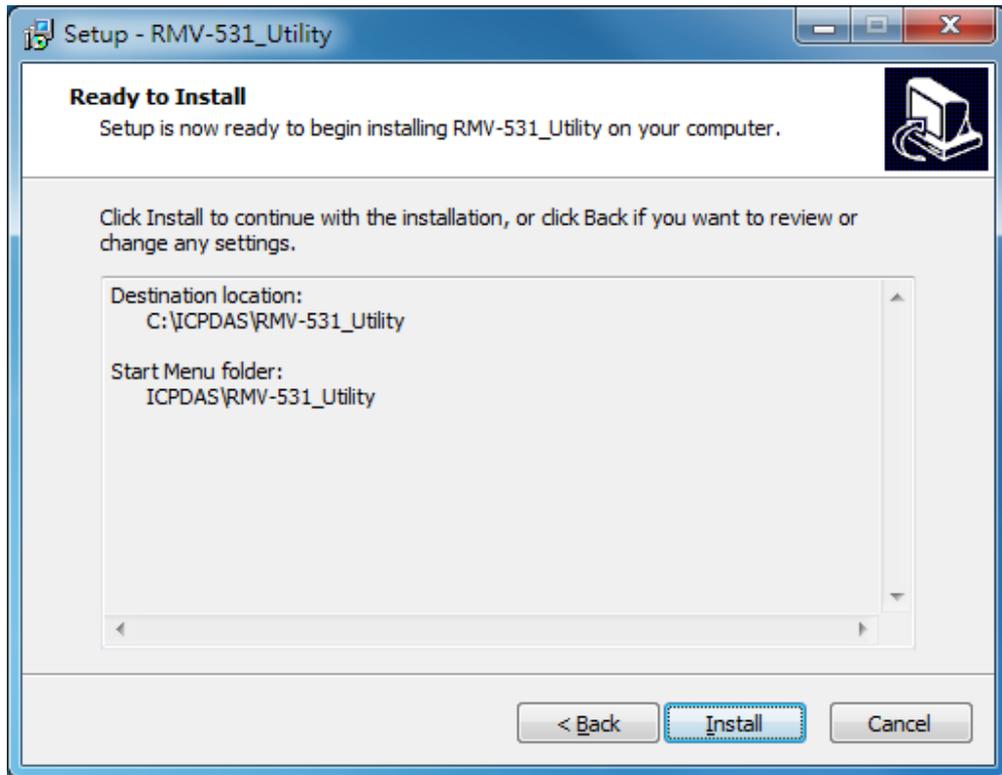
(3) Select the “Start Menu Folder”, Press “Next” to the next step.



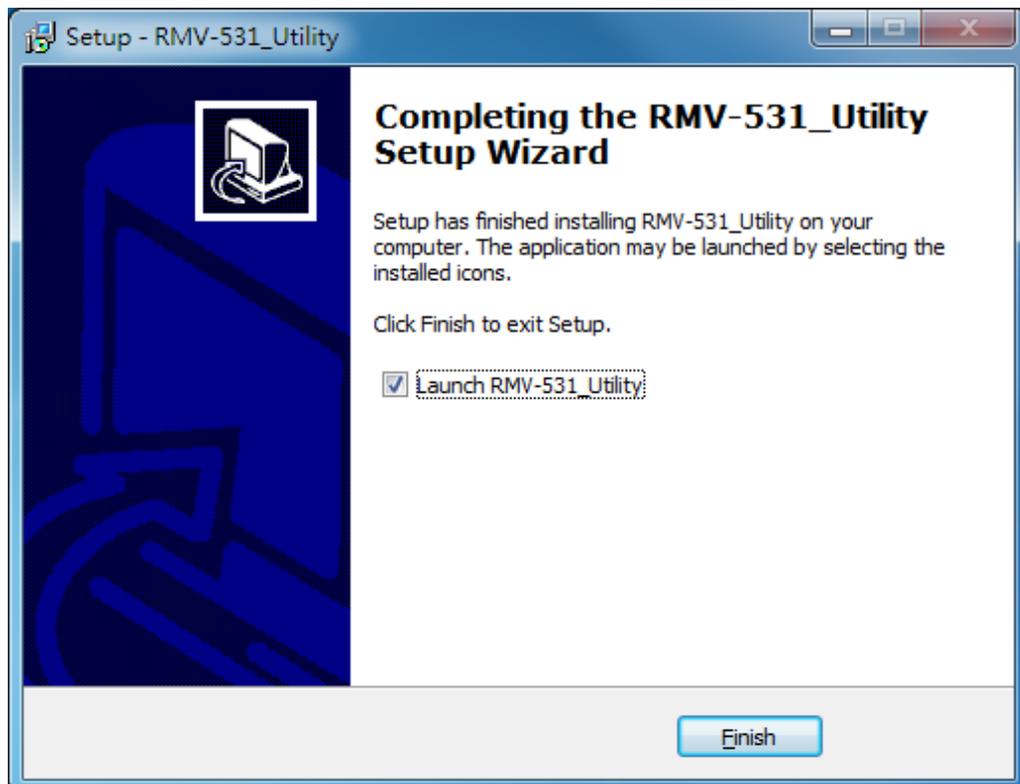
(4) Select additional tasks. Press “Next” to the next step



(5) Click "Install" to start to install the RMV-531 Utility

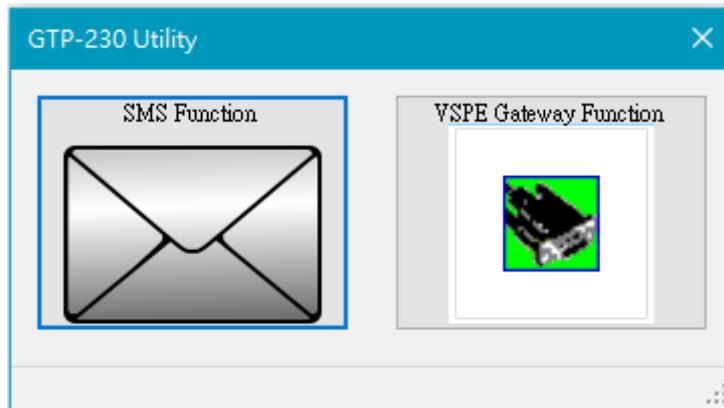


(6) Click "Finish" to finish installing RMV-531 Utility



4. GTP-230 Utility

GTP-230 Utility will appear after the mode selection window, you can select SMS Function, Gateway Function, as shown below:



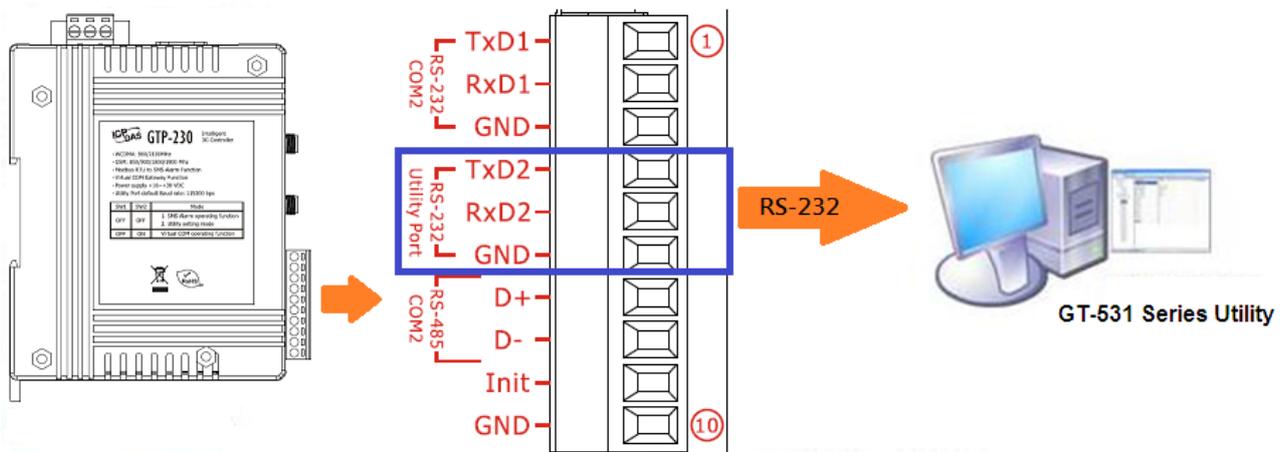
4.1 The GT-531 Series Utility Operation Description

Before GT-531 Series Utility is connected to the GTP-230, please confirm these following steps:

1. The STA LED is blanking. There are 2 kinds of blanking in the GTP-230.

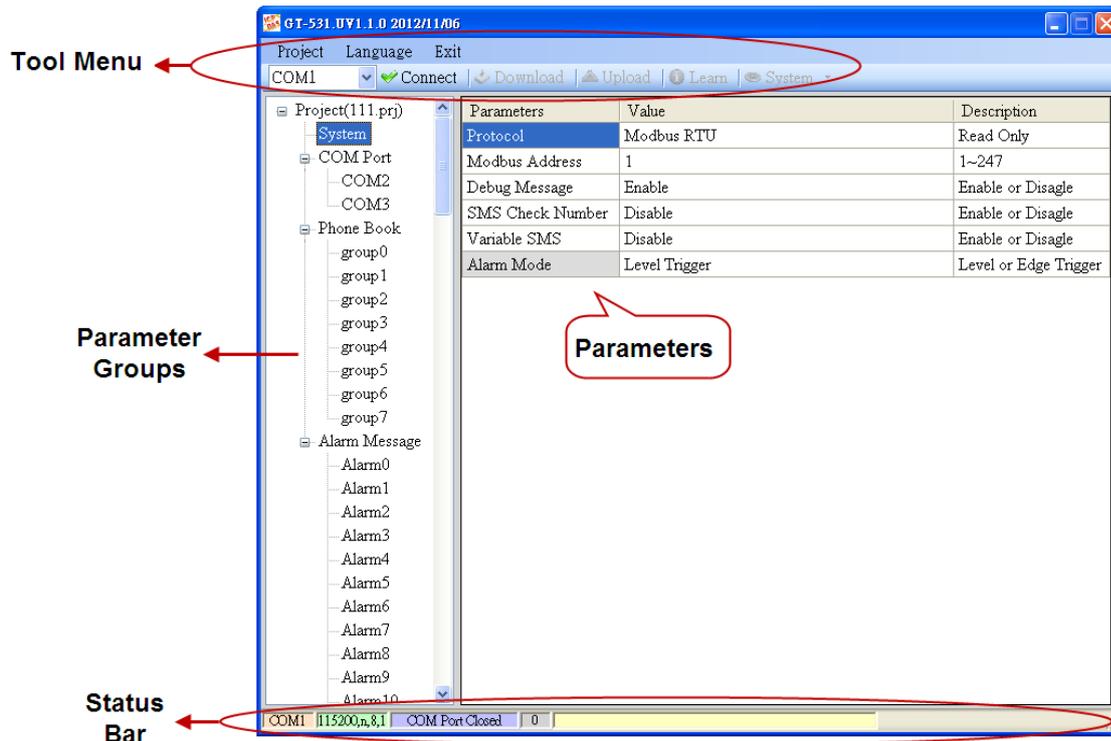
STA LED	Description
Blanking per 1 sec	Normal mode
Blanking per 50 ms	The PIN code is wrong. As this condition happened, users need to set PIN code in the GT-531 Series Utility.

2. Confirm the RS232 wire connection between the GTP-230 and PC is correct. Users can refer to the following figure.



4.1.1 Main Menu

The main menu of GT-531 Series Utility includes the following sections:



A. Tool Menu

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

1. Project:

The parameters of the GTP-230 can be saved as the project file. The operation functions include “New”, “Open”, “Save”, “Save as...”, and etc...

2. Language:

The GT-531 Series Utility only support English interface now.

3. Exit:

Exit the GT-531 Series Utility.

4. COM Port:

The COM Port number of the host PC connecting to the GTP-230.

5. Connect:

Connecting to the GTP-230.

6. Download:

Downloading the settings to the GTP-230.

7. Upload:

Uploading the settings from the GTP-230 to GT-531 Series Utility.

8. Learn:

Providing the simple way for users to learn the Modbus RTU commands to operate GTP-230.

9. System:

Providing some system operations include "Signal Quality", "Reboot GTP-230", "Recover Default Settings", "Firmware Version", "Input PIN/PUK" and "Voice File Management".

B. Parameter groups

There are four parameter groups in the GT-531 Series Utility including "System", "COM Port", "Phone Book" and "Alarm Message".

C. Parameters

Showing or setting the parameters.

D. Status Bar

This bar can show the operation procedure of the GT-531 Series 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 GTP-230
5. The result for operating the functions

4.1.2 File Menu

This tool provides users to operate the project file. It can save the GTP-230 configuration as the file or upload the settings from the file. It is convenient to manage a lot of GTP-230s. The explanation is as follows.



- A. New: Opening a new file
- B. Open: Opening a existed file
- C. Save: Saving the file

If the parameters are changed or save the uploading parameters from the GTP-230, you can use this function to save these configurations.

- D. Save as: Saving the file as another name

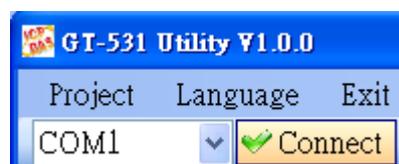
4.1.3 Connecting to the GTP-230

For connecting to the GTP-230, you can follow the steps below.

- A. Select the COM port of the host PC and connect to the COM1 of GTP-230.



- B. Press "Connect" to connect to the GTP-230. If the connection is failed, check the COM port settings and wiring.



4.1.4 Parameters

The parameters would be shown in the right of the windows if click the tree field in the left side of the GT-531 Series Utility. Press the parameters' "Value" filed can change these parameters as the following figure.

<ul style="list-style-type: none"> Project(none) <ul style="list-style-type: none"> System COM Port Phone Book Alarm Message 	Parameters	Value	Description
	Protocol	Modbus RTU	Read Only
	Modbus Address	1	1~247
	Debug Message	Enable	Enable or Disagle
	SMS Check Number	Disable	Enable or Disagle
	Variable SMS	Disable	Enable or Disagle
	Alarm Mode	Level Trigger	Level or Edge Trigger

(a)System

There are 6 items in the system field below.

<ul style="list-style-type: none"> Project(none) <ul style="list-style-type: none"> System COM Port Phone Book Alarm Message 	Parameters	Value	Description
	Protocol	Modbus RTU	Read Only
	Modbus Address	1	1~247
	Debug Message	Enable	Enable or Disagle
	SMS Check Number	Disable	Enable or Disagle
	Variable SMS	Disable	Enable or Disagle
	Alarm Mode	Level Trigger	Level or Edge Trigger

A. Protocol:

The communication protocol of the GTP-230. The current protocol is Modbus RTU. It cannot be changed.

B. Module Address:

To show or set the Modbus ID of the GTP-230.

C. Debug Message:

Disabling or enabling the debug messages from COM1.

D. SMS Check Number:

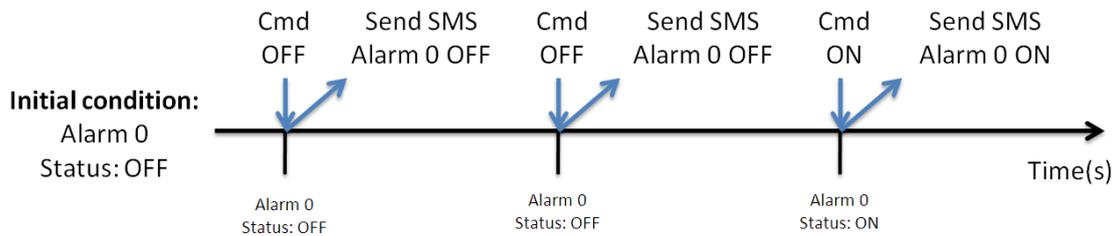
Disabling or enabling the check code for SMS. If the GTP-230 is applied with the SMS DB system of ICP DAS, the check code function must be enabled and user must add "ALARM;" to the start of the short message.

E. Variable SMS:

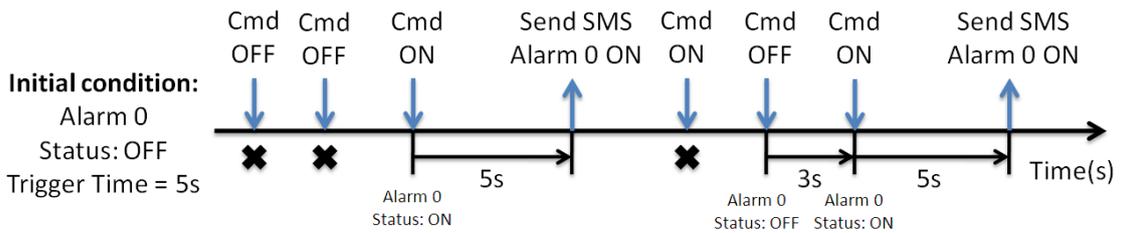
GTP-230 has not this function.

F. Alarm Mode:

(1) Level Trigger : The SMS will be sent when GTP-230 receive command.



(2) Edge Trigger : When the alarm status change, the SMS will be sent. (It's support Alarm Trigger Time.)



(b) COM Port

The parameters of COM Port (COM2, COM3)

<ul style="list-style-type: none"> Project(none) <ul style="list-style-type: none"> System COM Port <ul style="list-style-type: none"> COM2 COM3 Phone Book Alarm Message 	Parameters	Value	Discription
	Port	COM2 (RS-232)	Read Only
	Data Bit	8	Only Support 8 bits
	Stop Bit	1	1 or 2
	Parity Bit	none	none,odd,even
	Baudrate	9600	bps

Parameters	Description
Port	COM Port name (read only)
Data Bit	Only 8 bits
Stop Bit	1 or 2 bits
Parity Bit	None, Even, Odd
Baudrate	2400 · 4800 · 9600 · 19200 · 38400 · 57600 · 115200 bps

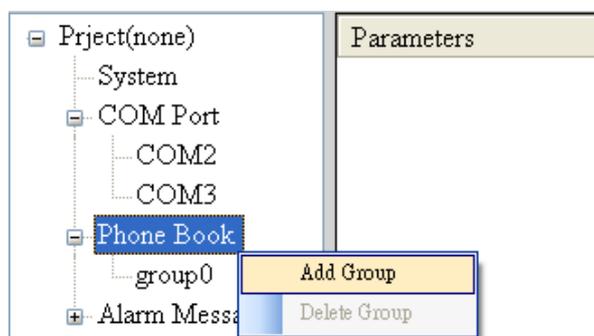
(c) Phone Book

The parameters of “Phone Book” define the phone groups and the phone numbers.

A.Add Group

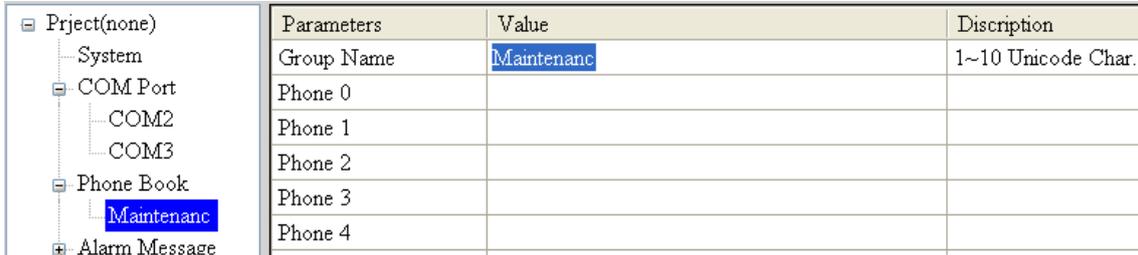
Right click “Phone Book” and select “Add Group” to new a phone group.

The max group number is 16.



B. Changing the Group name

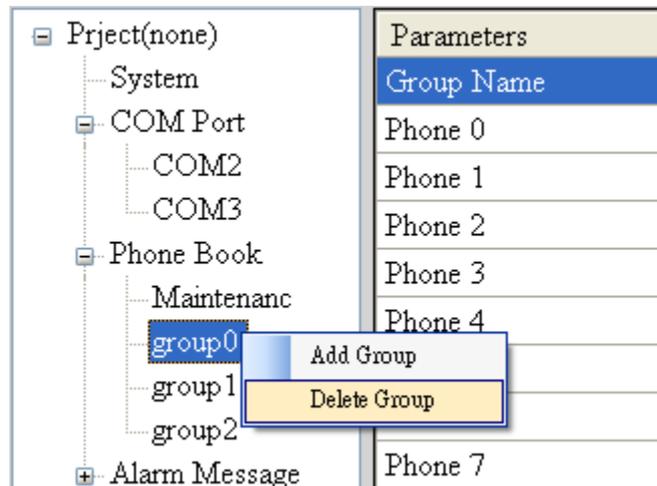
You can modify the name of groups from the right window as the following figure.



Parameters	Value	Discription
Group Name	Maintenanc	1~10 Unicode Char.
Phone 0		
Phone 1		
Phone 2		
Phone 3		
Phone 4		

C. Delete Group

You can delete a group by right clicking the group from the left windows as the following figure.



D. Adding, changing or deleting the phone numbers in the groups

By clicking the group from the left windows, you can add, change or delete the phone number from the right windows. The max quantity of phone number in a group is 16.

Parameters	Value	Discription
Group Name	Maintenanc	1~10 Unicode Char.
Phone 0	0928766500	
Phone 1	0928766501	
Phone 2	0928766502	
Phone 3		
Phone 4		
Phone 5		
Phone 6		
Phone 7		
Phone 8		
Phone 9		
Phone 10		
Phone 11		
Phone 12		
Phone 13		
Phone 14		
Phone 15		

(d) Alarm Message

The parameters in “Alarm Message” can define the SMS content and phone groups according with alarm channels.

Parameters	Value	Description
Alarm Channel	0	Read Only
On Message	Channel0 ON	54 Unicode Char.
Off Message	Channel0 OFF	54 Unicode Char.
SMS Alarm	Enable	Enable or Disable
Voice Alarm	Disable	Enable or Disable
Trigger Time	0	0~9999 Secs
All Group	<input type="checkbox"/>	
group0	<input checked="" type="checkbox"/>	
group1	<input type="checkbox"/>	
group2	<input type="checkbox"/>	
group3	<input type="checkbox"/>	
group4	<input checked="" type="checkbox"/>	
group5	<input type="checkbox"/>	
group6	<input type="checkbox"/>	
group7	<input type="checkbox"/>	
group8	<input checked="" type="checkbox"/>	
group9	<input type="checkbox"/>	
group10	<input type="checkbox"/>	
group11	<input type="checkbox"/>	
group12	<input checked="" type="checkbox"/>	
group13	<input checked="" type="checkbox"/>	
group14	<input type="checkbox"/>	
group15	<input type="checkbox"/>	

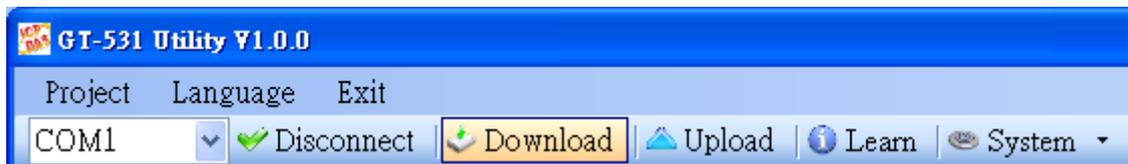
Parameters	Description
Alarm Channel	The Alarm number of the GTP-230
On Message	The transmitting SMS content when alarm is on
Off Message	The transmitting SMS content when alarm is off
SMS Alarm	Enabling or disabling the SMS alarm
Trigger Time	How long to wait before sending SMS
All Group	Selecting or canceling all groups
group0 ~ group15	Enabling or Disabling the group

Note: Trigger Time only support Edge Trigger mode.

4.1.5 Downloading/Uploading the GTP-230's Parameters

A. Downloading parameters

As the configuration is finishing, the function can download the parameters to the GTP-230 by clicking "Download" as the following figure.



B. Uploading parameters

"Upload" button can upload the parameters from the GTP-230 as the following figure.



4.1.6 Learning Modbus RTU Commands and Testing

The “Learn” function provides a quick way to learn and test the Modbus commands for the GTP-230 as the following figure.



There are 2 functions in the windows. The description is as follows:

A. Send SMS

That can help users to learn the Modbus commands to send SMS from the GTP-230, including:

1. Sending the fixed content SMS

It can accord to the defined content of the SMS messages and phone groups to send the SMS.

Note: The “System->Variable SMS” must be disabled.

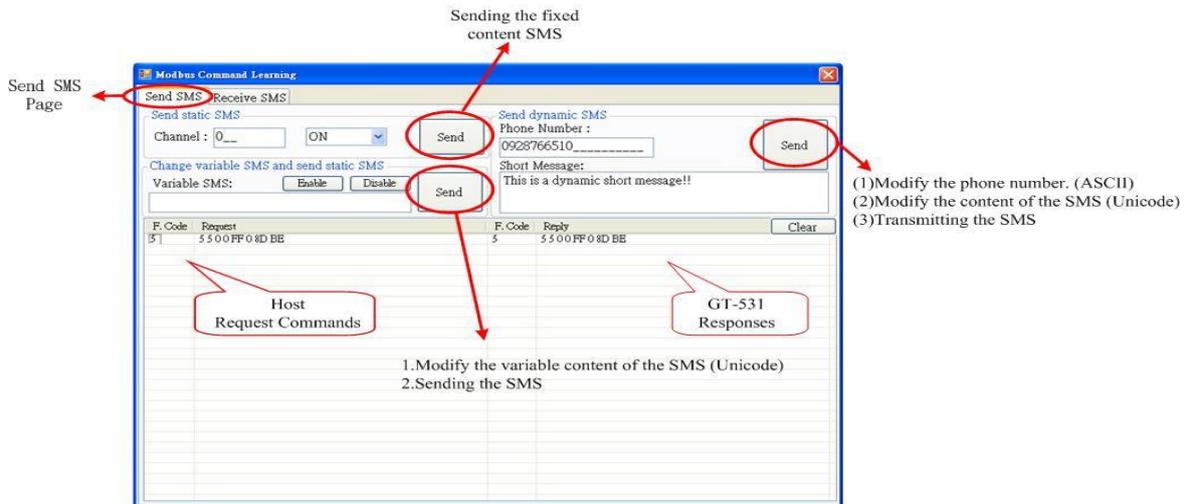
2. Setting the variable content of SMS and sending SMS, but GTP-230 has not this function.

3. Sending the SMS dynamically

The function needs 3 Modbus commands about this function.

- (1) Modify the phone number. (ASCII)
- (2) Modify the content of the SMS (Unicode)
- (3) Transmitting the SMS

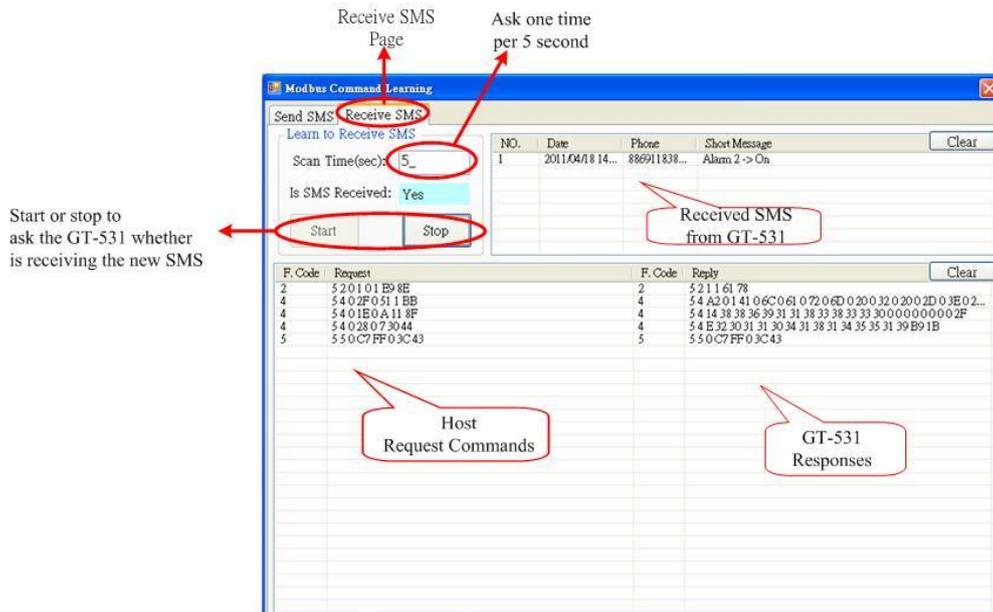
When using this function, you must wait the transmitting SMS has been sent out then send the next.



B. Receive SMS

The function provides how to get the received SMS from the GTP-230. The GTP-230 can filter the SMS if the SMS is not transmitted from the phone of the groups. Getting the SMS steps are described as follows.

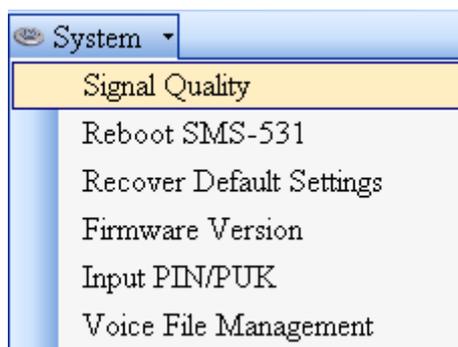
1. Click "Start" button, and the GT-531 Series Utility would send the Modbus command to ask the GTP-230 weather is receiving the new SMS every second.
2. If the response is indicated the GTP-230 has received the SMS, the GT-531 Series Utility would send 3 Modbus commands to read the SMS from the GTP-230.
 - (1)Modbus command for the date of SMS
 - (2)Modbus command for the phone number of the SMS
 - (3)Modbus command for the content of the SMS
3. In the last, send a clear SMS command to clear the SMS from the GTP-230 and it can receive the next SMS.

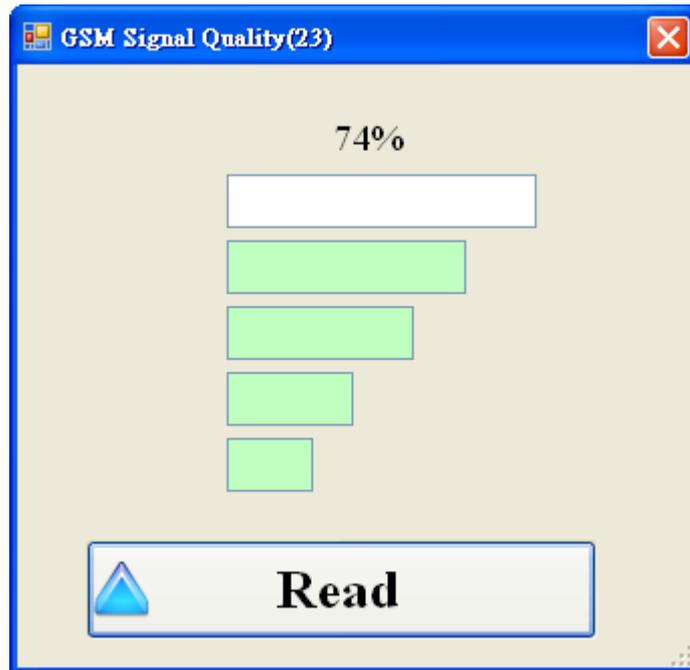


4.1.7 System

(a) Signal Quality

Click “System->Signal Quality” can show the signal quality windows to know the 3G signal strength.





A. Field Description:

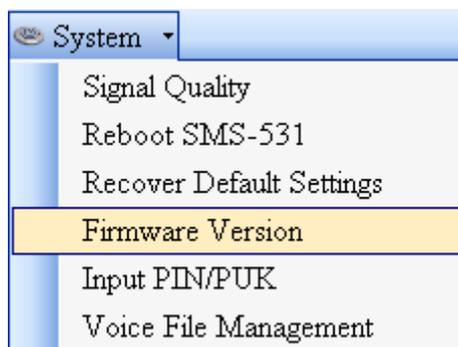
The strength is divided into 5 sections shown in percentage.

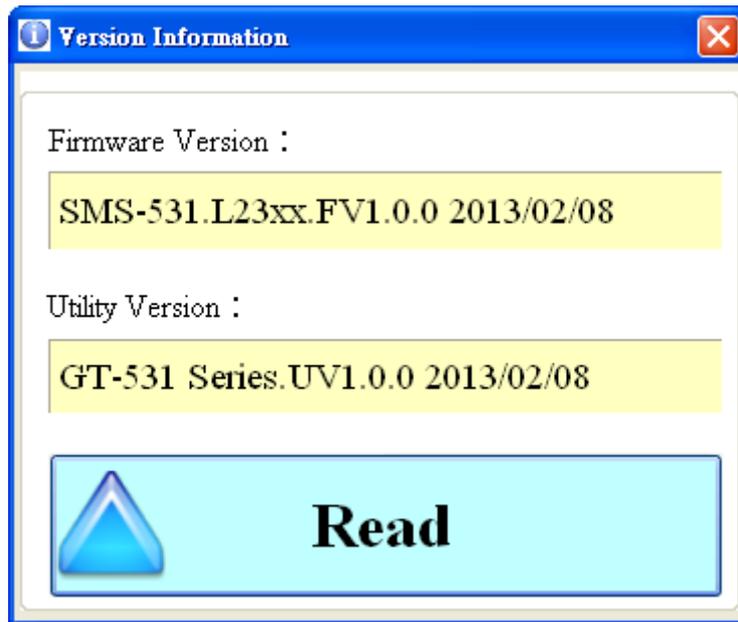
B. Operation:

Read : Read the 3G signal strength from the GTP-230.

(b) Inquiring Firmware Version

Press "System->Firmware Version" in tool menu, and the window would show the versions of the GT-531 Series Utility and firmware.





A. Field Description:

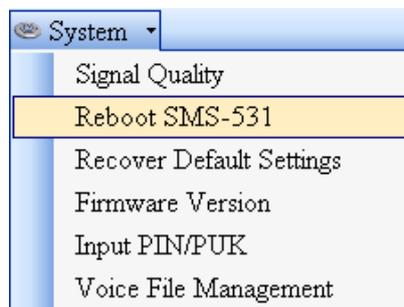
- (1) Firmware version: show the version information the of GTP-230's firmware
- (2) Utility version: show the version information of the GTP-230's utility

B. Operation:

Read: Read these information from the GTP-230.

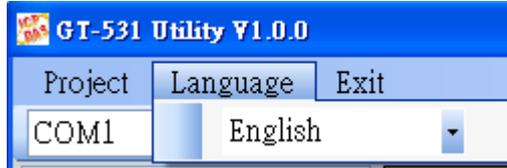
(c)Reset the GTP-230

Clicking "System->Reboot GTP-230" button can reset the GTP-230 as follows.



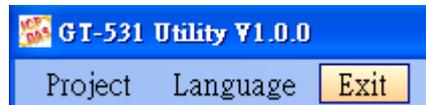
4.1.8 Language

“Language” can define the interface language of the GT-531 Series Utility. It only support English interface now.



4.1.9 Exit

This function would exit the GT-531 Series Utility.

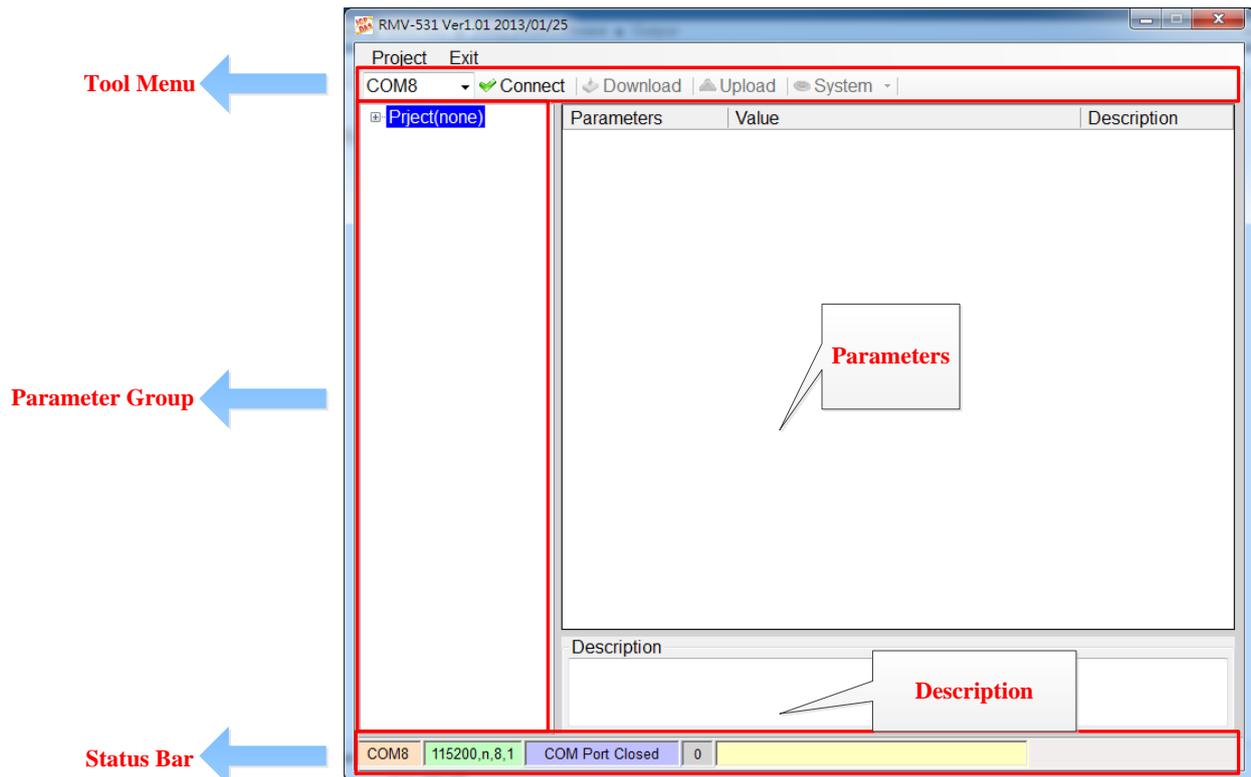


4.2 The RMV-531 Utility operation description

The following is an illustration of how to use Modbus commands to read or write CAN messages and configure the GTP-230 module.

4.2.1 Main Menu

The main menu of RMV-531 Utility includes the following sections:



(1) Tool Menu:

These tools include all the function operation of the RMV-531 Utility. The description is as the following:

- ◆Project: The parameters of the RMV-531 can be saved as the project file. The operation functions include “New”, “Open”, “Save”, “Save as...”, and etc...
- ◆Exit: Exit the RMV-531 Utility.
- ◆COM Port: The COM Port number of the host PC connecting to the RMV-531.
- ◆Connect: Connecting to the RMV-531.
- ◆Download: Downloading the settings to the RMV-531 device.
- ◆Upload: Uploading the settings from the RMV-531 device to RMV-531 Utility.
- ◆System: Providing some system operations including “Signal Quality” 、”Reboot

RMV-531” 、 “Recover Default Settings” 、 ”Firmware Version” 、 ”Input PIN/PUK”.

(2) Parameter groups:

There are four parameter groups in the RMV-531 Utility including: ”System” and ”COM Port”.

(3) Parameters:

Show or set the parameters.

(4) Description:

A particular or minute account.

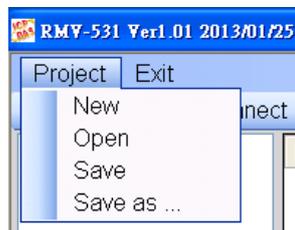
(5) Status Bar:

This bar can show the operation procedure of the RMV-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 address of the RMV-531.
5. The result for operating the functions.

4.2.2 File Menu

This tool provides users to operate the project file. It can save the RMV-531 configuration as the file or upload the settings from the file. It is convenient to manage a lot of RMV-531s. The explanation is as the following:



◆ New: Opening a new file.

◆ Open: Opening a exited file.

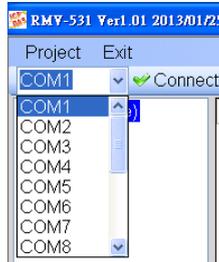
◆ Save: Saving the file. If the parameters are changed or save the uploading parameters from the RMV-531, you can use this function to save these configurations.

Save as: Saving the file as another name.

4.2.3 Connecting to the RMV-531

For connecting to the RMV-531, you can follow the steps below.

I. Select the COM port of the host PC and connect to the Utility port of RMV-531.

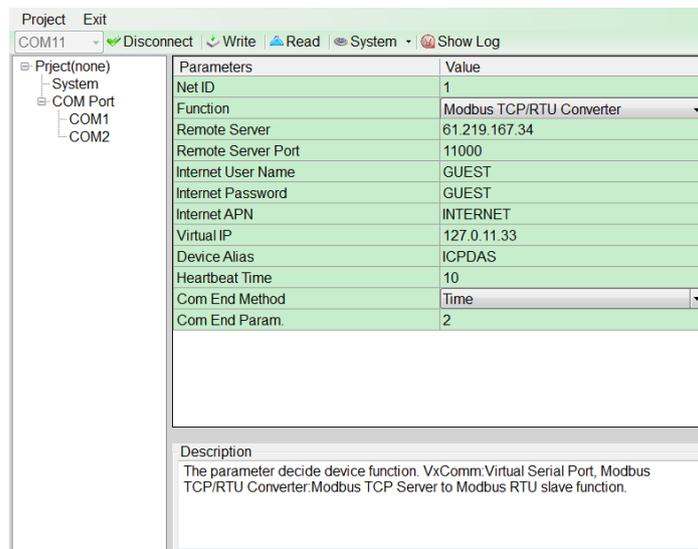


II. Press "Connect" to connect to the RMV-531. If the connection is failed, check the COM port settings and wiring.



4.2.4 Parameters

The parameters would be shown in the right of the windows if click the tree field in the left side of the RMV-531 Utility. Press the parameters' "Value" filed can change these parameters as the following figure.



There are 12 items in the system field below.

Parameters	Value
Net ID	1
Function	Modbus TCP/RTU Converter
Remote Server	61.219.167.34
Remote Server Port	11000
Internet User Name	GUEST
Internet Password	GUEST
Internet APN	INTERNET
Virtual IP	127.0.11.33
Device Alias	ICPDAS
Heartbeat Time	10
Com End Method	Time
Com End Param.	2

Description
The parameter decide device function. VxComm:Virtual Serial Port, Modbus TCP/RTU Converter:Modbus TCP Server to Modbus RTU slave function.

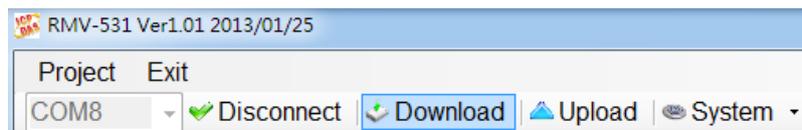
Parameters	Description
Net ID	RMV-531 ID. Read only
Function	VxComm function or Modbus TCP to RTU function
Remote Server	The remote VxServer server's IP or domain name
Remote Server Port	The remote VxServer server's Port
Internet User name	Internet user name
Internet password	Internet password
Internet APN	Internet APN (access point name)
Virtual IP	Virtual IP. Range: 127.0.0.1~127.255.255.254 , This parameter can't be the same with other device.
Module Alias	Module Alias. (max. 7 character)
Heartbeat Time	Heartbeat time. Range: 10 sec. ~ 65535 sec.
Com End Method	

Com End Method	Com End Param.	Remark
Time: Fixed Time. It is as complete a data when no data came at a fixed time	2 ms~ 65535 ms	The RMV-531 will transmit a data when there is a data more than 1000 bytes.
Length: Fixed Length , It is as complete a data when the length of a data more than fixed length	1 ~ 1000	
2: Fixed end byte. It is as complete a data when receives the fixed end byte. Like "CR" (0x0d)	0 ~ 255	

4.2.5 Download/Upload Parameters

I. Download parameters

As the configuration is finishing, the function can download the parameters to the RMV-531 by clicking "Download" as the following figure.



II. Upload Parameters

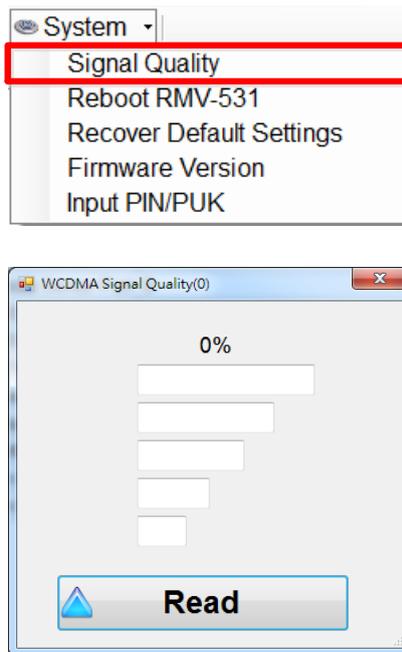
"Uploading" button can upload the parameters from the RMV-531 as the following figure.



4.2.6 System

(a) Signal Quality

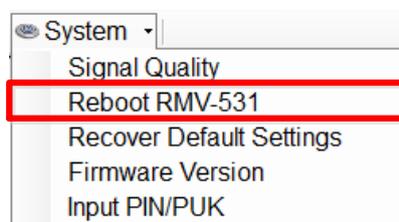
Click “System->Signal Quality” can show the signal quality windows to know the GSM signal strength.



◆ Field Description: The strength is divided into 5 sections shown in percentage.
Operation: Read : Read the GSMWCDMA signal strength from the RMV-531.

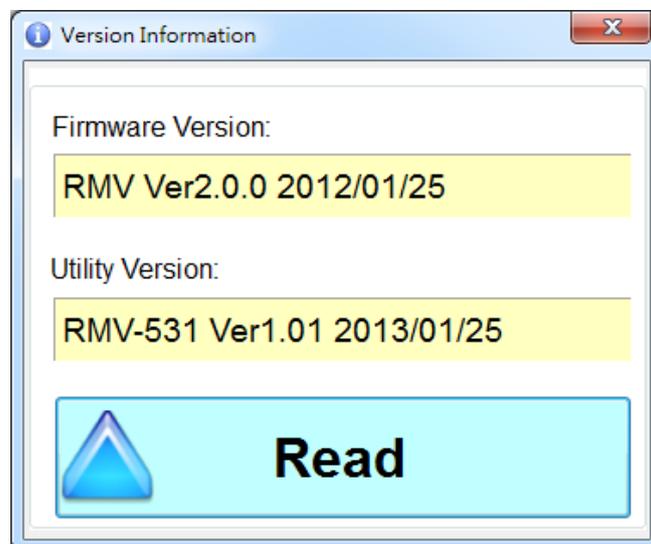
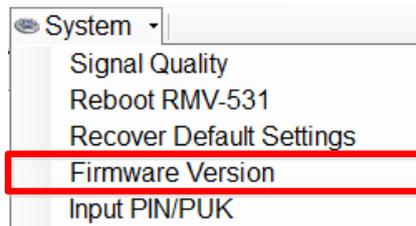
(b) Reboot the RMV-531

Clicking “System->Reboot RMV-531” button can reset the RMV-531 as follows.



(c) Inquiring Firmware Version

Press “System->Firmware Version” in tool menu, and the window would show the versions of the RMV-531 Utility and firmware.



4.3 Modbus Exception Codes

The following is an overview of the Modbus Exception codes that are supported by the GTP-230 module.

Code	Description	Possible causes & solutions
1	Illegal function	The function code is not supported by the GTP-230 module.
2	Illegal Data Address	The data address does not exist on the GTP-230 module.
3	Illegal Data Value	The number of registers or the byte count value is not valid, or no CAN message details are stored in the "Normal CAN Message" field on the GTP-230 module.
6	Slave Device Busy	A transmission buffer overrun has occurred. The message should be retransmitted at a later time once the status of the module has returned to normal.

5. SMS Example

We provide 6 examples for users to learn how to operate the GTP-230.

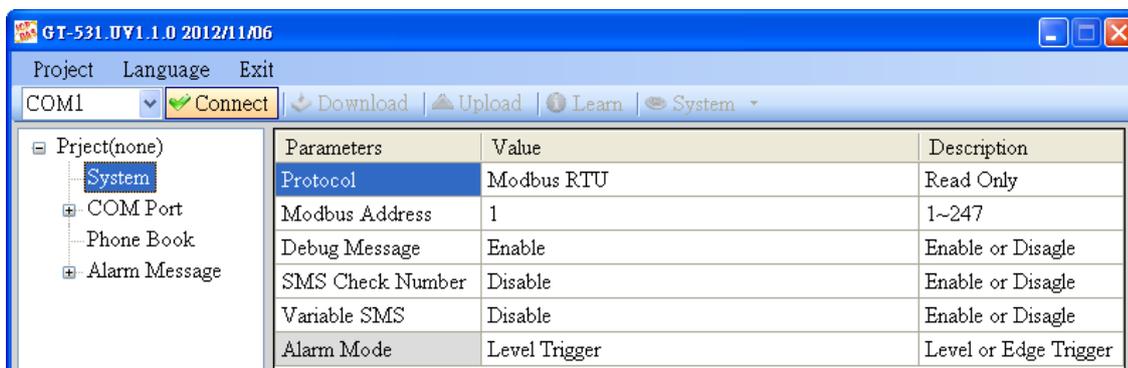
Example	Description
Example 1: Sending the general alarm SMS (Level Trigger)	This example shows how to send the fixed content alarm SMS by Modbus commands in Level Trigger mode.
Example 2: Sending the alarm SMS dynamically	This example shows how to send the alarm SMS to the specific phone dynamically by Modbus commands.
Example 3: Receiving the SMS	This example shows how to receive SMS from the GTP-230 by Modbus commands.
Example 4: Sending the general alarm SMS (Edge Trigger)	This example shows how to send the fixed content alarm SMS by Modbus commands in Edge Trigger mode.

5.1 Example 1: Sending the general alarm SMS (Level Trigger)

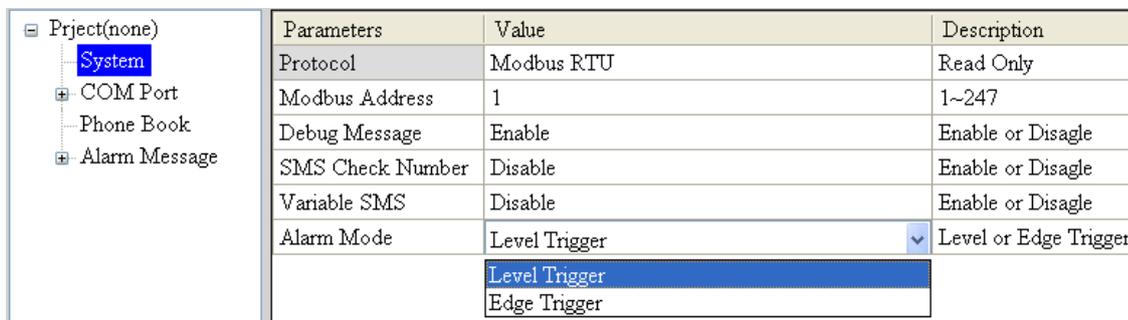
This example shows the steps to send the defined SMS to the defined phones in Level Trigger mode.

1. Setting the parameters by the GT-531 Series Utility

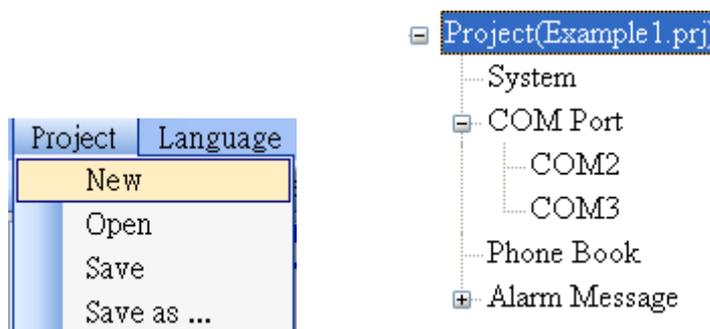
(1) Connect to the GTP-230. The Alarm Mode field will be enabled.



(2) Choose the level trigger mode.



(3) New and name an "Example1.prj" project in the Utility.



(4) New and name an “Example1.prj” project in the Utility.

<ul style="list-style-type: none"> Project(Example1.prj) <ul style="list-style-type: none"> System COM Port <ul style="list-style-type: none"> COM2 COM3 Phone Book Alarm Message 	Parameters	Value	Description
	Protocol	Modbus RTU	Read Only
	Modbus Address	1	1~247
	Debug Message	Enable	Enable or Disagle
	SMS Check Number	Disable	Enable or Disagle
	Variable SMS	Disable	Enable or Disagle
	Alarm Mode	Level Trigger	Level or Edge Trigger

(5) Add 2 new phone groups and input phone numbers as follows:

<ul style="list-style-type: none"> Project(Example1.prj) <ul style="list-style-type: none"> System COM Port Phone Book <ul style="list-style-type: none"> group0 group1 Alarm Message 	Parameters	Value	Description
	Group Name	group0	1~10 Unicode Char.
	Phone 0	0123456789	
	Phone 1		
	Phone 2		
	Phone 3		
	Phone 4		

<ul style="list-style-type: none"> Project(Example1.prj) <ul style="list-style-type: none"> System COM Port Phone Book <ul style="list-style-type: none"> group0 group1 Alarm Message 	Parameters	Value	Description
	Group Name	group1	1~10 Unicode Char.
	Phone 0	9876543210	
	Phone 1		
	Phone 2		
	Phone 3		
	Phone 4		

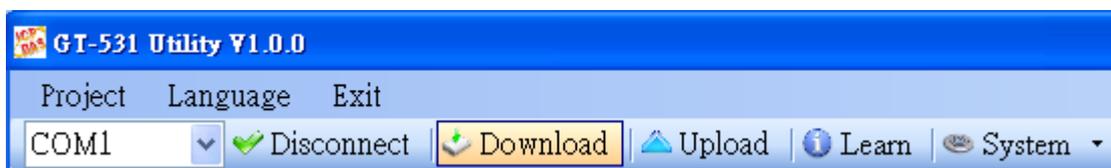
(6) Set the Alarm Channel0 and Channel1 separately as follows:

Note: Trigger time field can't be used in Level Trigger mode.

<ul style="list-style-type: none"> Project(Example1.prj) <ul style="list-style-type: none"> System COM Port Phone Book <ul style="list-style-type: none"> group0 group1 Alarm Message <ul style="list-style-type: none"> Alarm0 Alarm1 Alarm2 Alarm3 	Parameters	Value	Description
	Alarm Channel	0	Read Only
	On Message	Channel0 ON	54 Unicode Char.
	Off Message	Channel0 OFF	54 Unicode Char.
	SMS Alarm	Enable	Enable or Disable
	Voice Alarm	Disable	Enable or Disable
	Trigger Time	0	0~9999 Secs
	All Group	<input type="checkbox"/>	
	group0	<input checked="" type="checkbox"/>	
	group1	<input type="checkbox"/>	

Parameters	Value	Description
Alarm Channel	1	Read Only
On Message	Channel1 ON	54 Unicode Char.
Off Message	Channel1 OFF	54 Unicode Char.
SMS Alarm	Enable	Enable or Disable
Voice Alarm	Disable	Enable or Disable
Trigger Time	0	0~9999 Secs
All Group	<input type="checkbox"/>	
group0	<input type="checkbox"/>	
group1	<input checked="" type="checkbox"/>	

(7) Connect to the GTP-230 and download these parameters to it.



2. Modbus RTU commands

(1) Connect COM2 (RS-232) or COM3 (RS-485) of the GTP-230 to the Host.



(2) Sending the Modbus commands from the Host to the GTP-230 to transmit the alarm SMS as follows:

Commands and Description:

Commands	Sending Alarm SMS (Hex)	Command	01 05 00 00 FF 00 8C 3A
		Response	01 05 00 00 FF 00 8C 3A
Description	<ol style="list-style-type: none"> 1. The GTP-230 receives the Modbus command then sends the alarm message. 2. The content of the alarm SMS is “On Message” of Alarm Channel0 message. 3. The alarm SMS would send to the defined phone groups. 		
Result	The phones defined in the group0 would receive the SMS. The content of the SMS is “Channel0 ON”		

Command Format:

Send the alarm SMS		
Command	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 0x05
	Byte 2 ~ 3	Alarm Channel
	Byte 4 ~ 5	=0xFF00, Sending the field content of “On Message”. =0x0000, Sending the field content of “Off Message”.
	Byte 6 ~ 7	CRC-16
Correct Response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 0x05
	Byte 2 ~ 3	Alarm Channel
	Byte 4 ~ 5	=0xFF00 or =0x0000
	Byte 6 ~ 7	CRC-16
Error Response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	= 0x85
	Byte 2	Error Code 06: Buffer overflow
	Byte 3 ~ 4	CRC-16

5.2 Example 2: Sending the alarm SMS dynamically

This example is shown how to send the dynamic SMS to the dynamic phones by Modbus commands. The max chars of the dynamic SMS are 70 Unicode.

For sending the dynamic SMS, it is not needed to be set by the GT-531 Series Utility. This function can be finished by Modbus commands as follows.

- (1) Connect to COM2 (RS-232) or COM3 (RS-485) of the GTP-230 to the Host PC.



- (2) The host sends the Modbus commands to the GTP-230 to set the content of the SMS and phone number first. Then, send the command to transmit the SMS.

Commands and Description:

Command	Setting the phone number (Hex)	Command	01 10 01 D5 00 06 0C 30 31 32 33 34 35 36 37 38 39 00 00 D5 2B
		Response	01 10 01 D5 00 06 50 0F
	Setting the SMS content (Hex)	Command	01 10 01 8F 00 0C 18 44 00 79 00 6E 00 61 00 6D 00 69 00 63 00 20 00 53 00 4D 00 53 00 00 00 AC 3B
		Response	01 10 01 8F 00 0C F0 1B
	Sending the SMS(FC 5) (Hex)	Command	01 05 00 80 FF 00 8D D2
		Response	01 05 00 80 FF 00 8D D2
	Sending the SMS(FC 15) (Hex)	Command	01 0F 00 80 00 01 01 01 EE 89
		Response	01 0F 00 80 00 01 01 01 EE 89

Description	1. The phone number : 0123456789 2. The content of the SMS : Dynamic SMS 3. Transmitting the SMS
Result	The phone number "0123456789" would receive the "Dynamic SMS" SMS.

Format Description:

Setting the dynamic phone number		
Command	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 16 (0x10)
	Byte 2 ~ 3	The start address of the phone number
	Byte 4 ~ 5	Register Count: The register size of the phone number
	Byte 6	Byte Count(Register Counter x 2)
	Byte7 ~ 18	The phone number (ASCII code). The end char is 0x00. If the number size is 20, it is needed not the end char.
	Byte 19 ~ 20	CRC-16 check code
Correct response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 16 (0x10)
	Byte 2 ~ 3	The start address of the phone number
	Byte 4 ~ 5	Register Count: The register size of the phone number
	Byte 6 ~ 7	CRC-16 check code
Error response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	= 0x90
	Byte 2	Error Code 02: The GTP-230 is sending the SMS. The phone number is unchangeable.
	Byte 3 ~ 4	CRC-16 check code

Setting the content of the SMS		
Command	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 16 (0x10)
	Byte 2 ~ 3	The start address of the sent SMS
	Byte 4 ~ 5	Register Count: The size of the SMS. The max is 70 Unicode.
	Byte 6	Byte Count(Register Counter x 2)
	Byte 7 ~ 30	The content of the SMS (Unicode code). The end char is 0x0000. If the size of the SMS is 70, it is not needed the end char.
	Byte 31 ~ 32	CRC-16 check code
Correct Response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 16 (0x10)
	Byte 2 ~ 3	The start address of the sent SMS
	Byte 4 ~ 5	Register Count: The size of the SMS. The max is 70 Unicode.
	Byte 6 ~ 7	CRC-16 check code
Error Response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	= 0x90
	Byte 2	Error Code 02: The GTP-230 is sending the SMS. The content of the SMS is unchangeable.
	Byte 3 ~ 4	CRC-16 check code

Sending the SMS (Function Code 5)		
Command	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 0x05
	Byte 2 ~ 3	= 0x0080
	Byte 4 ~ 5	= 0xFF00
	Byte 6 ~ 7	CRC-16 check code
Correct Response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 0x05
	Byte 2 ~ 3	= 0x0080

	Byte 4 ~ 5	= 0xFF00
	Byte 6 ~ 7	CRC-16 check code
Error Response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	= 0x85
	Byte 2	Error Code: 06: Sending buffer overflow or the SMS is sending
	Byte 3 ~ 4	CRC-16 check code

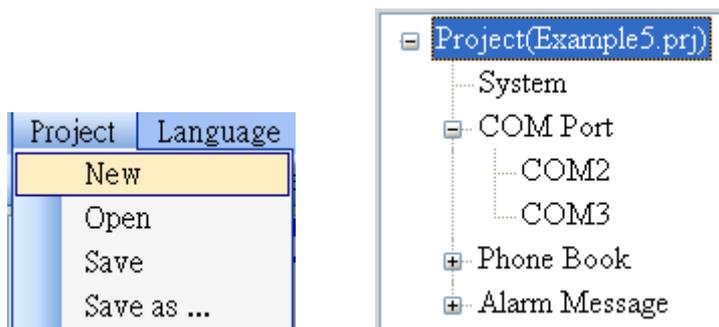
Sending the SMS (Function Code 15)		
Command	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 0x0F
	Byte 2 ~ 3	= 0x0080
	Byte 4 ~ 5	= 0x0001
	Byte 6	= 0x01
	Byte 7	= 0x01
	Byte 8 ~ 9	CRC-16 check code
Correct Response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 0x0F
	Byte 2 ~ 3	= 0x0080
	Byte 4 ~ 5	= 0x0001
	Byte 6	= 0x01
	Byte 7	= 0x01
	Byte 8 ~ 9	CRC-16 check code
Error Response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	= 0x8F
	Byte 2	Error Code: 06: Sending buffer overflow or the SMS is sending
	Byte 3 ~ 4	CRC-16 check code

5.3 Example 3: Receiving the SMS

This example is shown how to read the SMS form the GTP-230.

1. Setting the parameters by the GT-531 Series Utility

(1)New and name an “Example5.prj” project in the Utility.



(2)Set the Modbus address as 1 (the factory default address is 1).

Parameters	Value	Discription
Protocol	Modbus RTU	Read Only
Modbus Address	1	1~247
Debug Message	Enable	Enable or Disagle
SMS Check Number	Disable	Enable or Disagle
Variable SMS	Disable	Enable or Disagle

(3)Add a new phone group and input phone numbers above. The GTP-230 is built-in the phone filter. The SMS would be received according to the defined phone numbers.

Parameters	Value	Discription
Group Name	group0	1~10 Unicode Char.
Phone 0	0123456789	
Phone 1		
Phone 2		
Phone 3		

(4)Connect to the GTP-230 and download these parameters to the GTP-230.



2. Modbus RTU commands

(1) Connect to COM2(RS-232) or COM3(RS-485) of the GTP-230 to the Host.



(2) The host can send the Modbus command periodically to inquire the GTP-230 whether has received the SMS. If the GTP-230 has received the SMS, you can send the command to read it.

Command and Description:

Command	Checking the received SMS (Hex)	command	01 02 00 01 00 01 E8 0A
		Response	01 02 01 00 A1 88 (No SMS) 01 02 01 01 60 48 (Receiving the SMS)
	Reading the phone number of the received SMS (Hex)	command	01 04 00 1E 00 0A 10 0B
		Response	01 04 14 38 38 36 39 32 38 37 36 36 35 30 37 00 00 00 00 00 00 00 00 B6 6E
	Reading the date of the received SMS (Hex)	command	01 04 00 28 00 07 31 C0
		Response	01 04 0E 32 30 31 31 30 34 32 32 30 39 35 35 33 31 3D 79
Reading the content of the received SMS (Hex)	command	01 04 00 2F 00 51 00 3F	
	Response	01 04 A2 00 00 48 65 6C 6C 6F 2C 47 54 2D 35 33 31 21 00 00 00(Size is 162 Bytes)	
	Clear the SMS from	command	01 05 00 C7 FF 00 3D C7

	the GT-531 (Hex)	Response	01 05 00 C7 FF 00 3D C7
Description	<ol style="list-style-type: none"> 1. The phone of Groups transmits the SMS to the GTP-230. The SMS is "Hello,GT-531!". 2. To inquire the GTP-230 whether has received the SMS periodically. 3. If the GTP-230 has received the SMS, send the command to read the phone number, date and the SMS. 4. Because these addresses of these information are continuous, you can send one command to read that. 5. Send a clear SMS command to clear the SMS from the GT-531 and it can receive the next SMS. 		
Result	The phone of transmitting SMS : 886928766507 Date : 20110422095531(2011/04/22/ 09:55:31) The SMS : Hello,GT-531!		

Format Description:

Inquiring the GTP-230 whether has received the SMS		
Command	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 2
	Byte 2 ~ 3	The address to indicate whether the GTP-230 has received the SMS
	Byte 4 ~ 5	Bit Count , 1 bit
	Byte 6 ~ 7	CRC-16 check code
Correct response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 2
	Byte 2	Byte Count , (The size of Data)
	Byte 3	= 0, No SMS = 1, Having received the SMS
	Byte 4 ~ 5	CRC-16 check code
Error response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	= 0x82
	Byte 2	Error Code 02: Error format

	Byte 3 ~ 4	CRC-16 check code
--	------------	-------------------

Reading the phone number of the received SMS		
Command	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 4
	Byte 2 ~ 3	The data address of the sending phone number
	Byte 4 ~ 5	Register Count (The inquired count of register. It is fixed as 10(0x0A))
	Byte 6 ~ 7	CRC-16 check code
Correct Response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 4
	Byte 2	Byte Count
	Byte 3 ~ 22	The sending phone number (ASCII coed, 0x00 is the end char)
	Byte 23 ~ 24	CRC-16 check code
Error Response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	= 0x84
	Byte 2	Error Code 02: Error format
	Byte 3 ~ 4	CRC-16 check code

Reading the date of the SMS		
Command	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 4
	Byte 2 ~ 3	The data address of the received SMS date
	Byte 4 ~ 5	Register Count (The inquired count of register. It is fixed as 7(0x07))
	Byte 6 ~ 7	CRC-16 check code
Correct Response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 4
	Byte 2	Byte Count
	Byte 3 ~ 16	Date and Time (ASCII code , yyyyMMddHHmmss)
	Byte 17 ~ 18	CRC-16 check code

Error Response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	= 0x84
	Byte 2	Error Code: 06: Error format
	Byte 3 ~ 4	CRC-16 check code

Reading the SMS

Command	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 4
	Byte 2 ~ 3	The address of the received SMS content
	Byte 4 ~ 5	Register Count (The inquired count of register. It is fixed as 81(0x51))
	Byte 6 ~ 7	CRC-16 check code
Correct Response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 4
	Byte 2	Byte Count
	Byte 3 ~ 4	=0x0000, The data is ASCII code. =0x0001, The data is Unicode code.
	Byte 5 ~ 164	The SMS content. The end char is 0x00 if the data is ASCII code. If the end char is 0x0000, it is Unicode.
	Byte 165 ~ 166	CRC-16 check code
Error Response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	= 0x84
	Byte 2	Error Code: 02: Error format
	Byte 3 ~ 4	CRC-16 check code

Clear the SMS from the GTP-230

Command	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 0x05

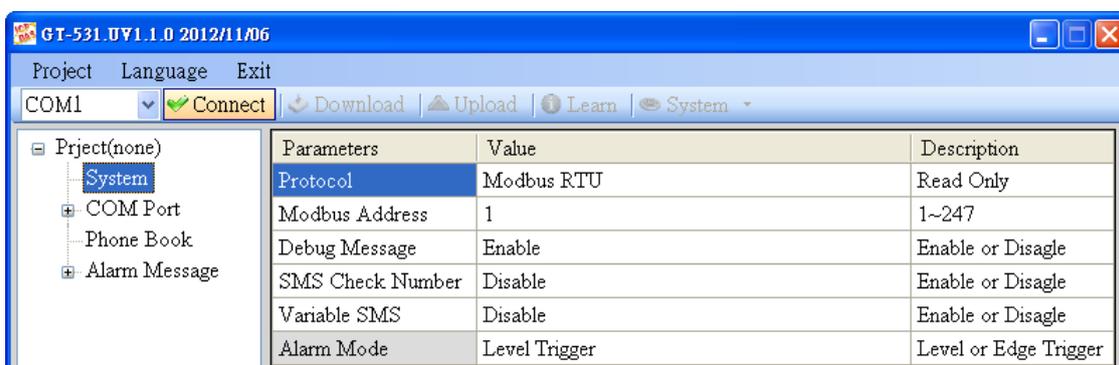
	Byte 2 ~ 3	= 0x00C7
	Byte 4 ~ 5	= 0xFF00
	Byte 6 ~ 7	CRC-16
Correct response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 0x05
	Byte 2 ~ 3	= 0x00C7
	Byte 4 ~ 5	= 0xFF00
	Byte 6 ~ 7	CRC-16
Error response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	= 0x85
	Byte 2	Error Code 02: Error format
	Byte 3 ~ 4	CRC-16 check code

5.4 Example 4: Sending the general alarm SMS (Edge Trigger)

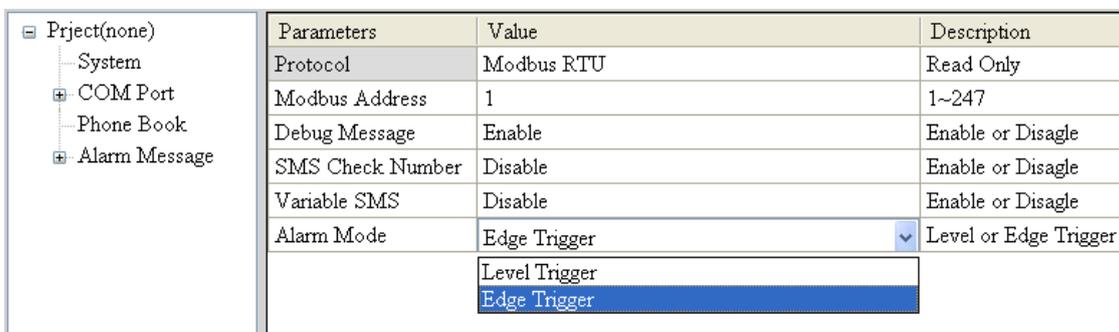
This example shows the steps to send the defined SMS to the defined phones in Edge Trigger mode.

1. Setting the parameters by the GT-531 Series Utility

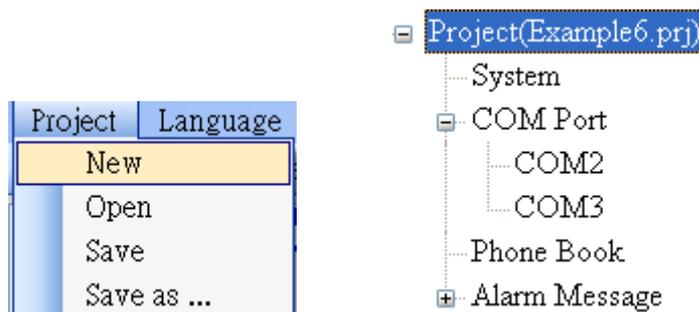
(1) Connect to the GTP-230. The Alarm Mode field will be enabled.



(2) Choose the edge trigger mode.



(3) New and name an “Example6.prj” project in the Utility.



(4) Set the modbus address as 1. (The factory default address is 1)

<ul style="list-style-type: none"> Project(Example6.prj) <ul style="list-style-type: none"> System COM Port Phone Book Alarm Message 	Parameters	Value	Description
	Protocol	Modbus RTU	Read Only
	Modbus Address	1	1~247
	Debug Message	Enable	Enable or Disagle
	SMS Check Number	Disable	Enable or Disagle
	Variable SMS	Disable	Enable or Disagle
	Alarm Mode	Edge Trigger	Level or Edge Trigger

(5) Add 2 new phone groups and input phone numbers as follows:

<ul style="list-style-type: none"> Project(Example6.prj) <ul style="list-style-type: none"> System COM Port Phone Book <ul style="list-style-type: none"> group0 group1 Alarm Message 	Parameters	Value	Description
	Group Name	group0	1~10 Unicode Char.
	Phone 0	0123456789	
	Phone 1		
	Phone 2		
	Phone 3		
	Phone 4		

<ul style="list-style-type: none"> Project(Example6.prj) <ul style="list-style-type: none"> System COM Port Phone Book <ul style="list-style-type: none"> group0 group1 Alarm Message 	Parameters	Value	Description
	Group Name	group1	1~10 Unicode Char.
	Phone 0	9876543210	
	Phone 1		
	Phone 2		
	Phone 3		
	Phone 4		

(6) Set the Alarm Channel0 and Channel1 separately as follows:

<ul style="list-style-type: none"> Project(Example6.prj) <ul style="list-style-type: none"> System COM Port Phone Book Alarm Message <ul style="list-style-type: none"> Alarm0 Alarm1 Alarm2 Alarm3 Alarm4 Alarm5 	Parameters	Value	Description
	Alarm Channel	0	Read Only
	On Message	Channel0 ON	54 Unicode Char.
	Off Message	Channel0 OFF	54 Unicode Char.
	SMS Alarm	Enable	Enable or Disable
	Voice Alarm	Disable	Enable or Disable
	Trigger Time	10	0~9999 Secs
	All Group	<input type="checkbox"/>	
	group0	<input checked="" type="checkbox"/>	
	group1	<input type="checkbox"/>	

<ul style="list-style-type: none"> Project(Example6.prj) <ul style="list-style-type: none"> System COM Port Phone Book Alarm Message <ul style="list-style-type: none"> Alarm0 Alarm1 Alarm2 Alarm3 Alarm4 Alarm5 	Parameters	Value	Description
	Alarm Channel	1	Read Only
	On Message	Channel1 ON	54 Unicode Char.
	Off Message	Channel1 OFF	54 Unicode Char.
	SMS Alarm	Enable	Enable or Disable
	Voice Alarm	Disable	Enable or Disable
	Trigger Time	20	0~9999 Secs
	All Group	<input type="checkbox"/>	
	group0	<input type="checkbox"/>	
	group1	<input checked="" type="checkbox"/>	

(7)Connect to the GTP-230 and download these parameters to it.



2. Modbus RTU commands

(1)Connect COM2 (RS-232) or COM3 (RS-485) of the GTP-230 to the Host.



(2) Sending the Modbus commands from the Host to the GTP-230 to transmit the alarm SMS as follows:

Commands and Description:

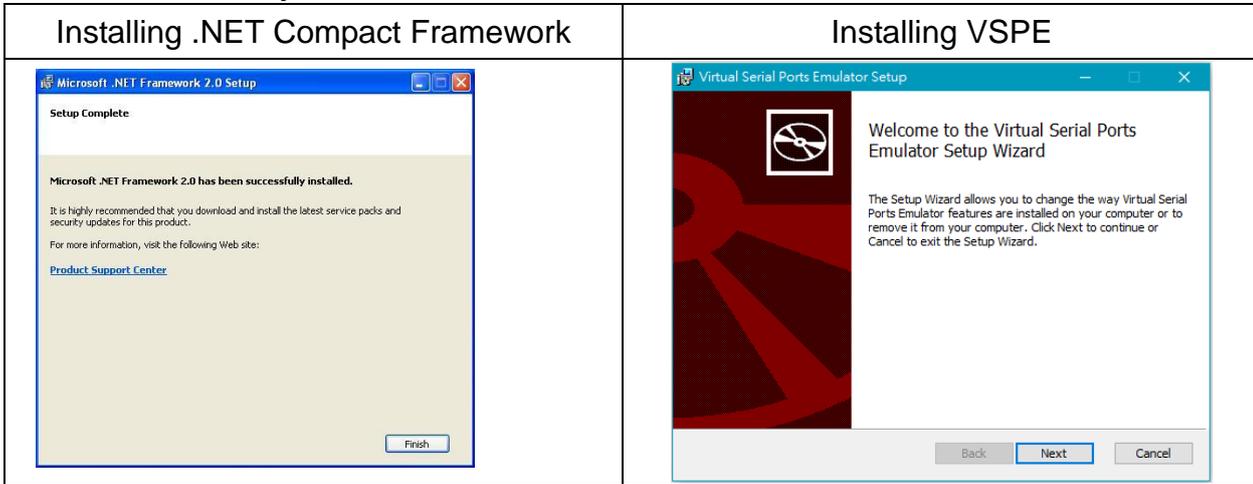
Commands	Sending Alarm SMS (Hex)	Command	01 05 00 00 FF 00 8C 3A
		Response	01 05 00 00 FF 00 8C 3A
Description	<ol style="list-style-type: none"> 1. The GTP-230 receives the Modbus command then sends the alarm message. 2. The content of the alarm SMS is "On Message" of Alarm Channel0 message. 3. The alarm SMS would send to the defined phone groups. 		
Result	The phones defined in the group0 would receive the SMS after 10 seconds. The content of the SMS is "Channel0 ON"		

Command Format:

Send the alarm SMS		
Command	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 0x05
	Byte 2 ~ 3	Alarm Channel
	Byte 4 ~ 5	=0xFF00, Sending the field content of "On Message". =0x0000, Sending the field content of "Off Message".
	Byte 6 ~ 7	CRC-16
Correct Response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	Function Code = 0x05
	Byte 2 ~ 3	Alarm Channel
	Byte 4 ~ 5	=0xFF00 or =0x0000
	Byte 6 ~ 7	CRC-16
Error Response	Byte 0	The Modbus Address of the GTP-230
	Byte 1	= 0x85
	Byte 2	Error Code 06: Buffer overflow 13: Alarm status are the same (EX: Original status is ON, want to change the status to ON)
	Byte 3 ~ 4	CRC-16

6. Virtual com to access remote the parameters

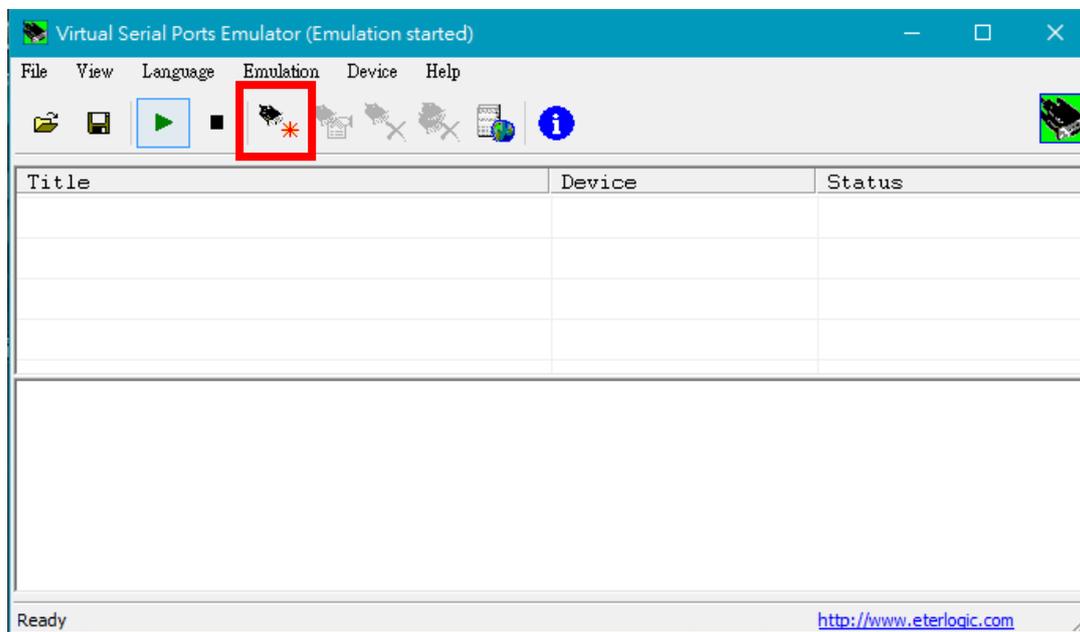
The necessary software installed



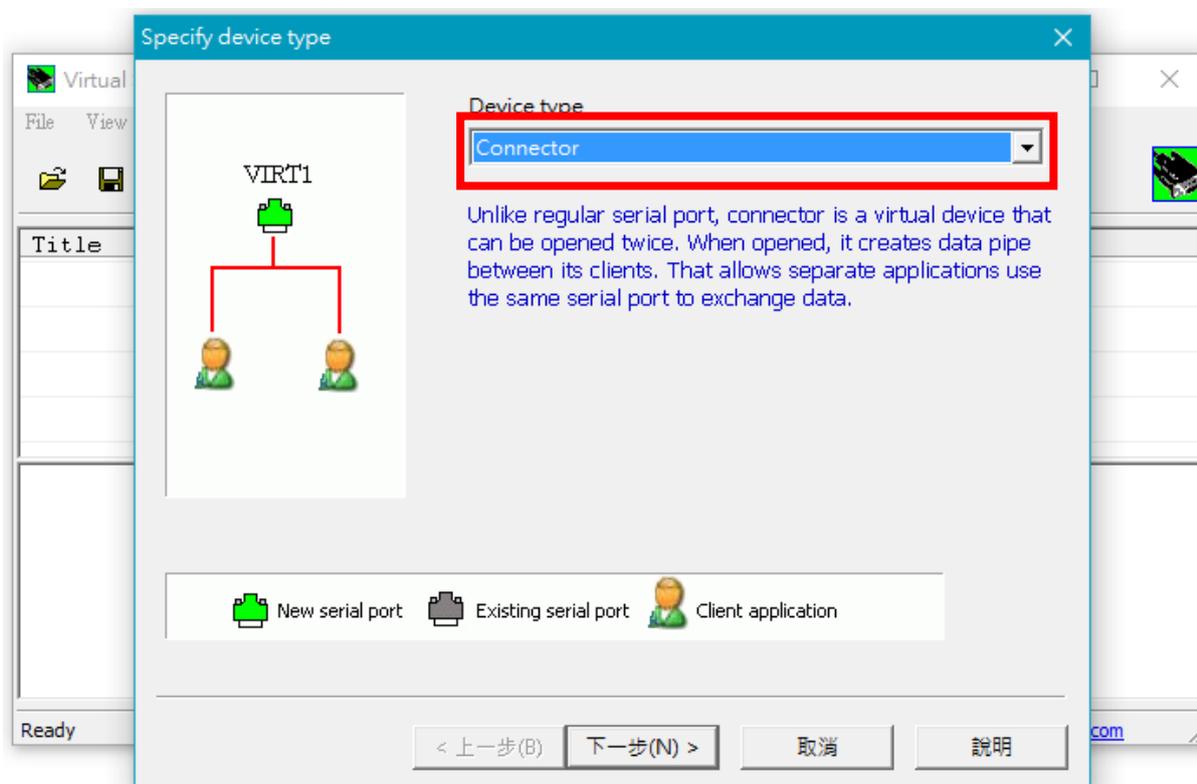
下載 Microsoft .Net Framework Version 2.0

6.1 Setting VSPE

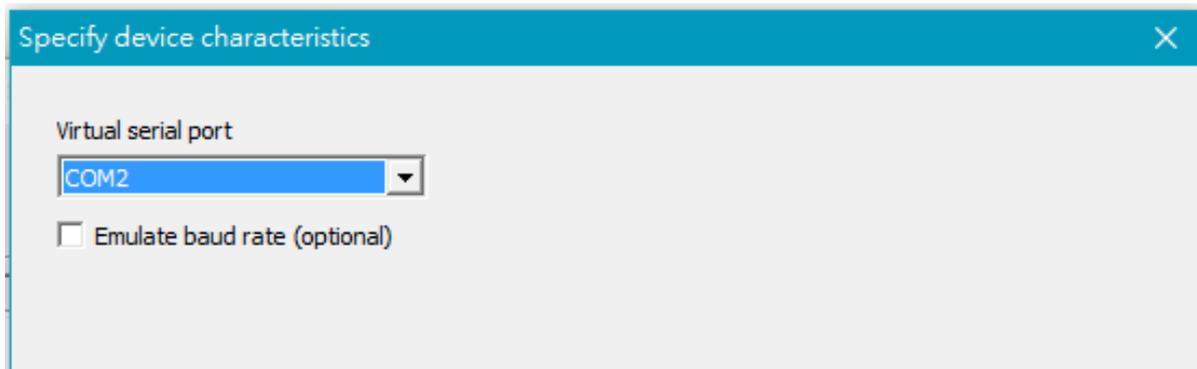
1. Execute the VSPE main program on the server's PC, click the icon below:



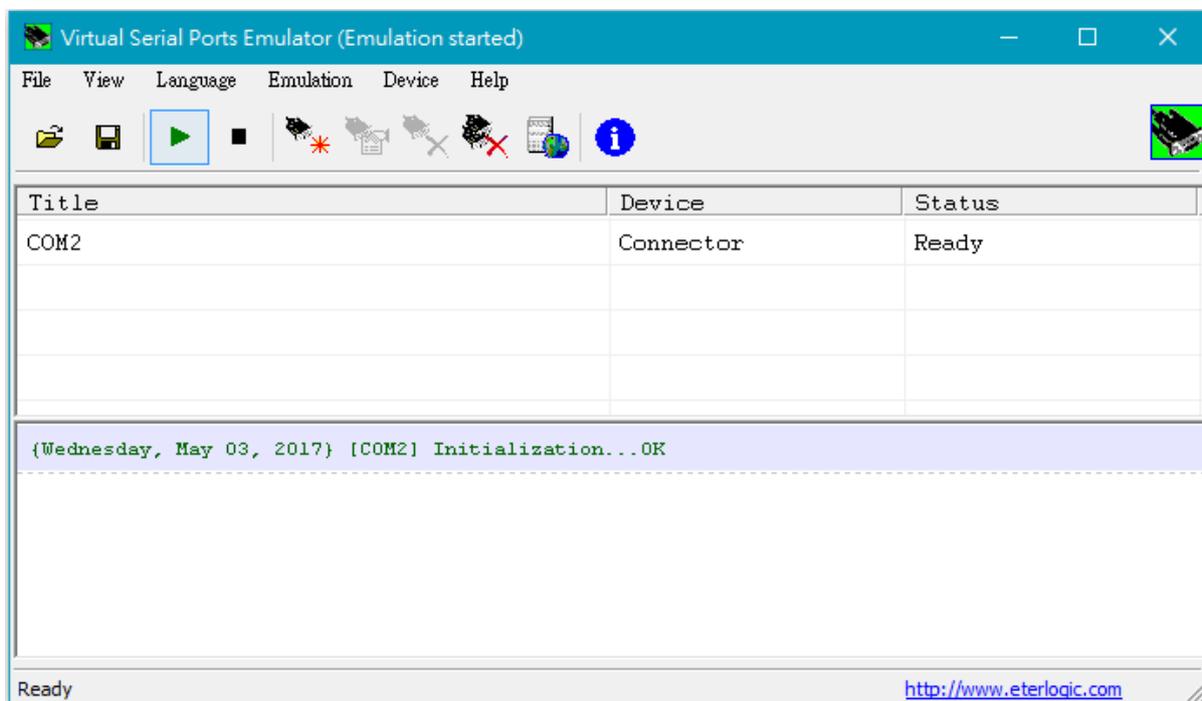
2. Select the device type “Connector”



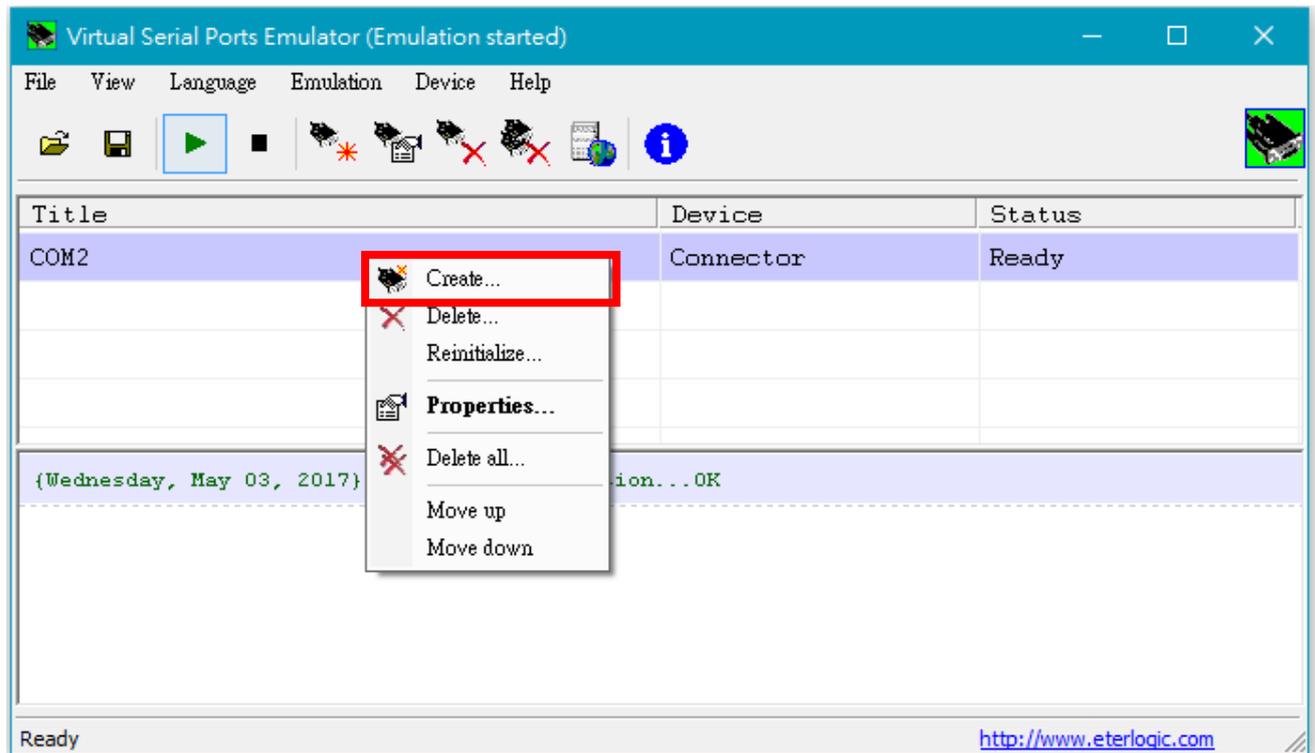
3. Select the port number that is available for the virtual COM port



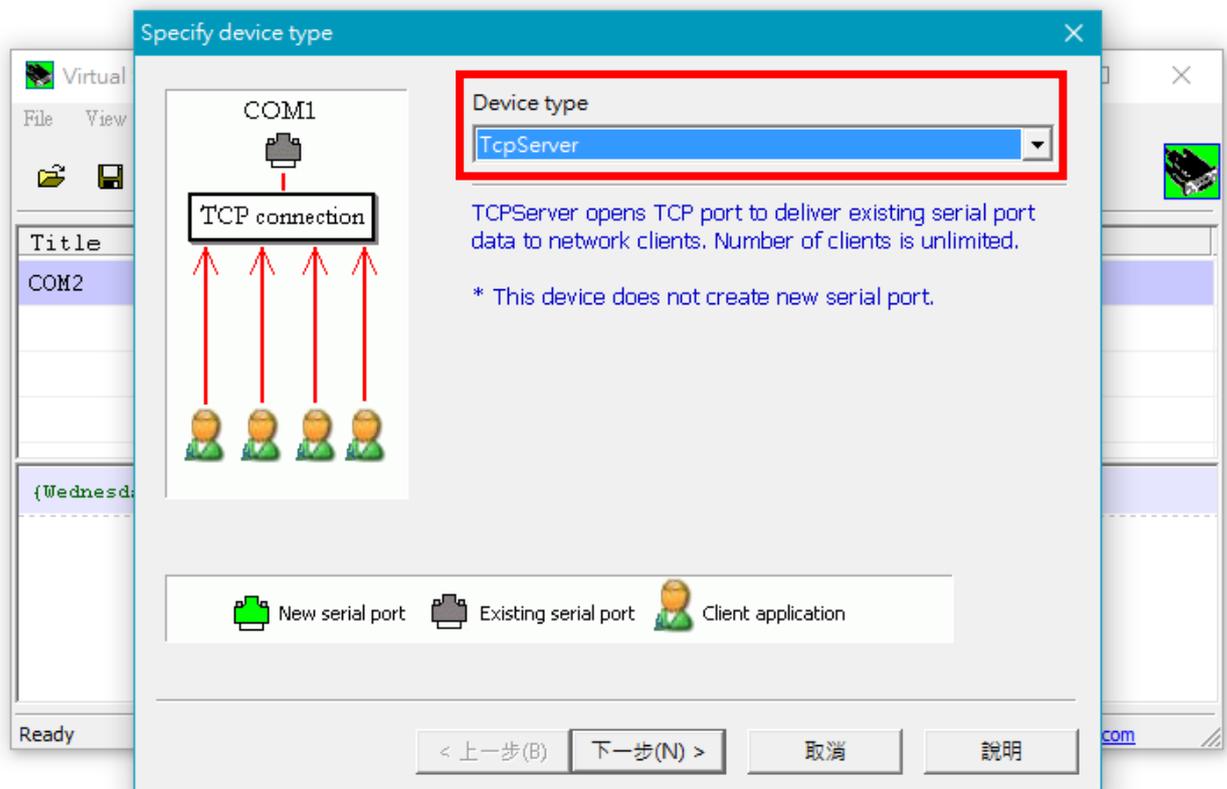
4. When completed, the main screen will add a virtual COM port



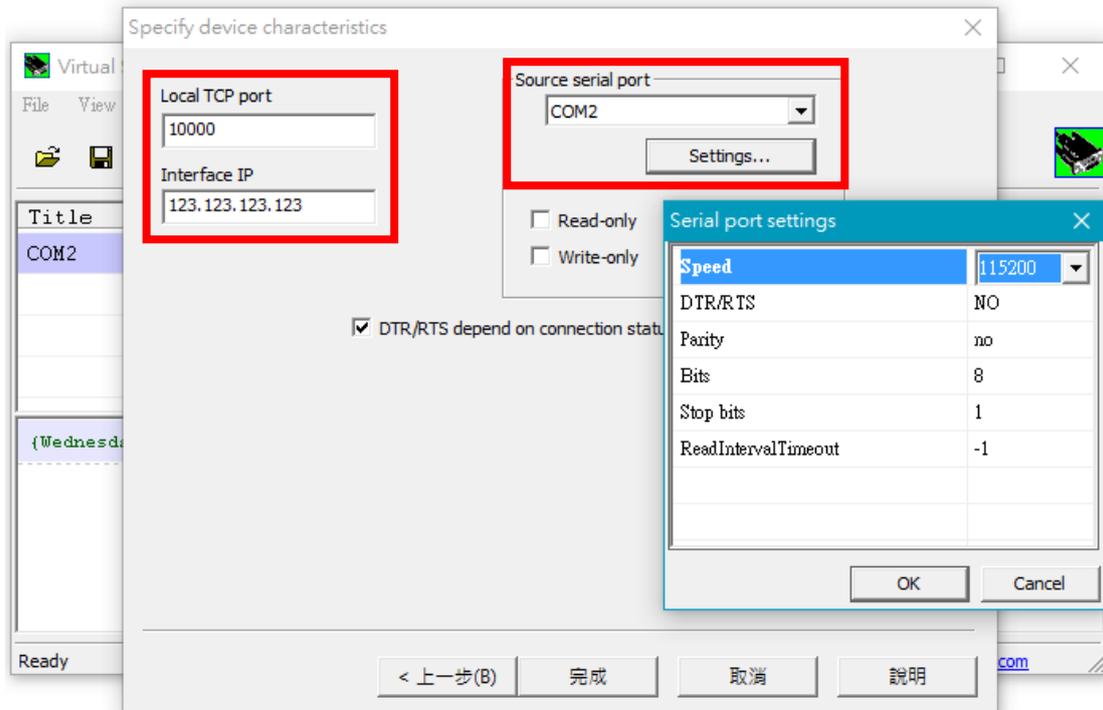
5. In the virtual COM port click on the right window of the Create



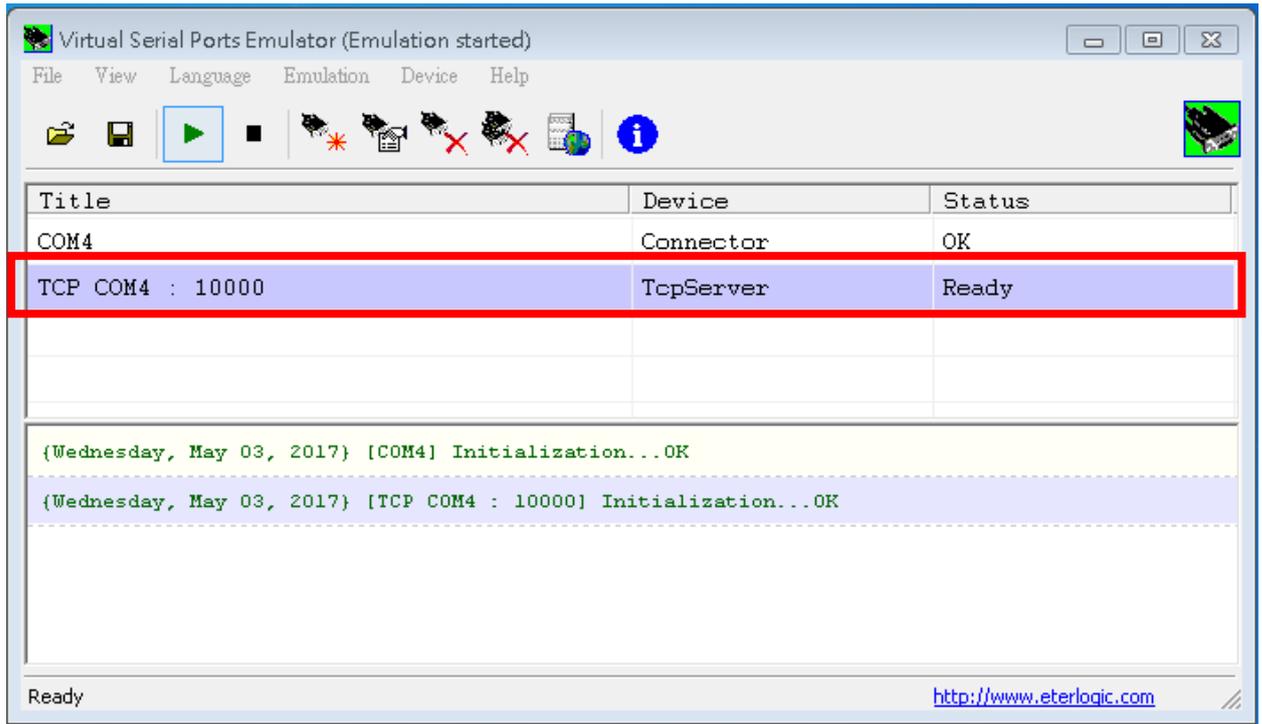
- On the Device type, select TcpServer and press Next



- Set the port and IP address of GTP-230 to this TcpServer. This IP must be an open IP. And set the TcpServer in this computer to open the virtual COM port communication, and the third step set the same COM Port number, click "Settings ..." can set the baud rate.

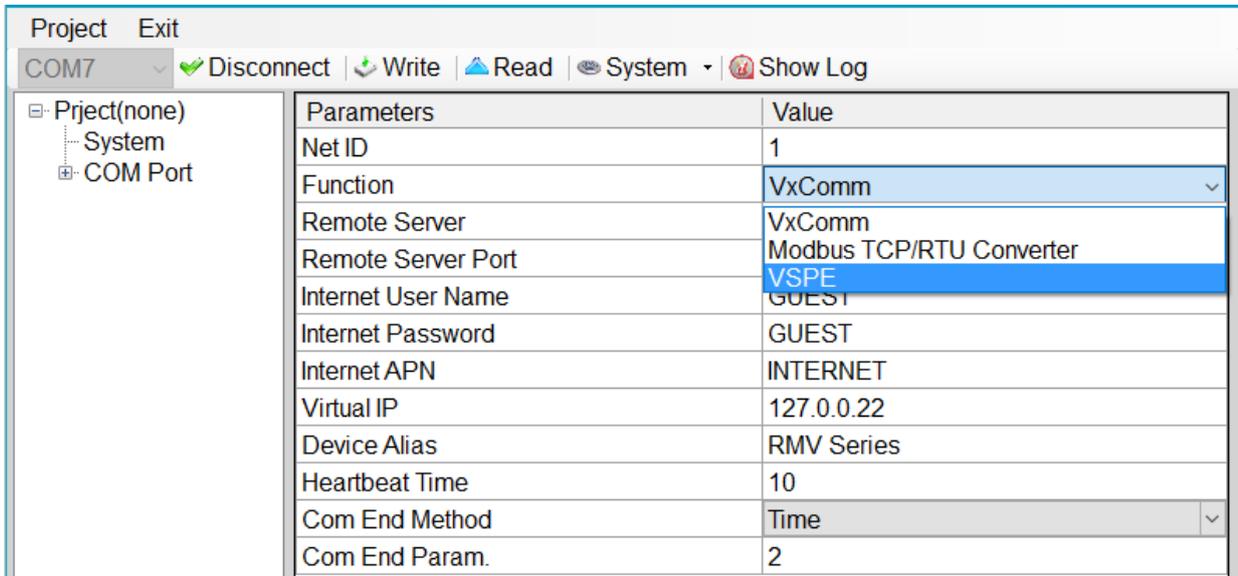


- After the completion of the set button, the main screen will add a TCP COM Port, when the GTP-230 gateway Remote Server and Remote Port settings are complete, you can connect to this TCP server.

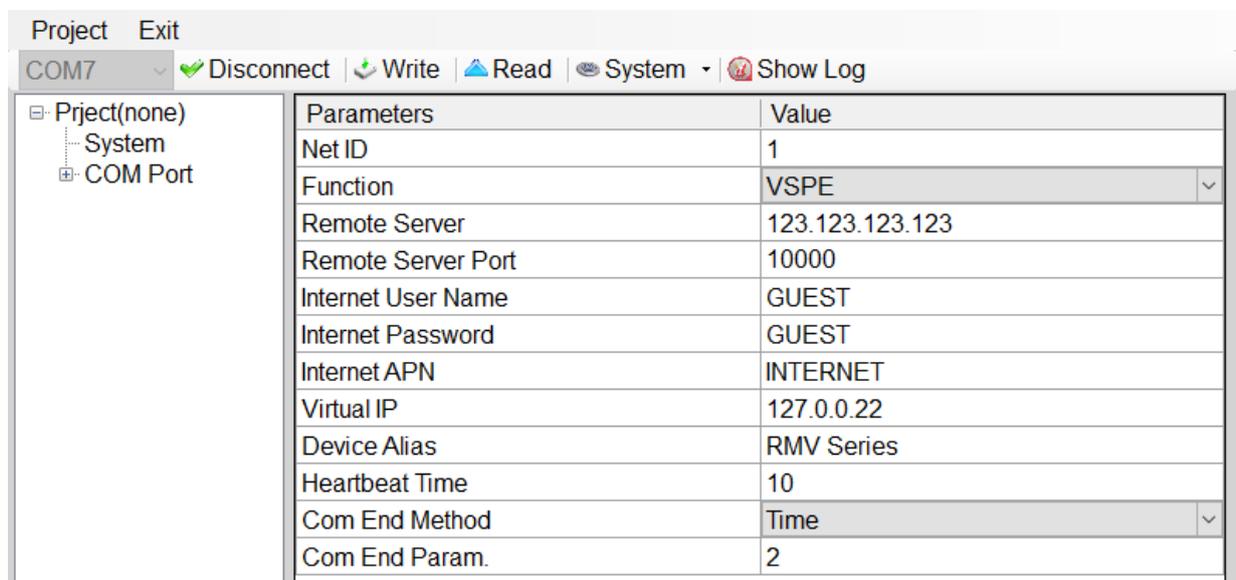


6.2 Setting GTP-230

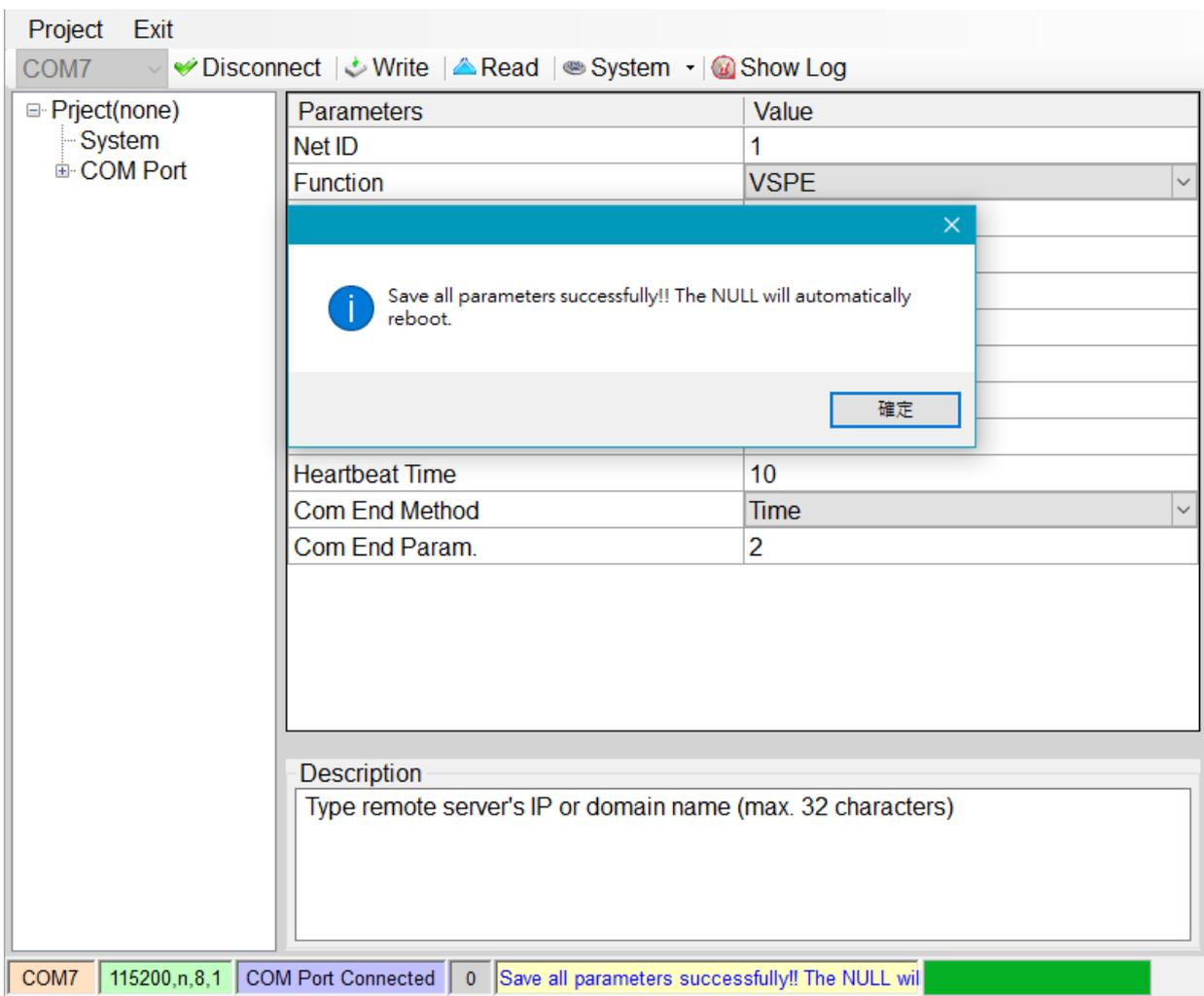
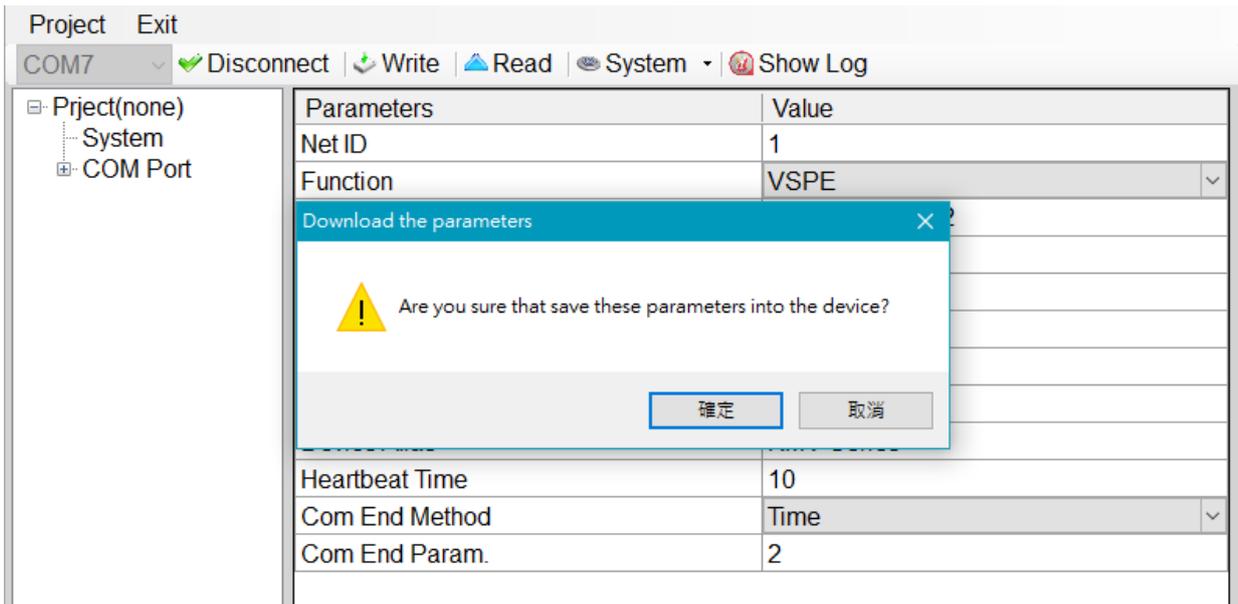
1. After setting the TCP port of VSPE, open the GTP-230 Utility Connector in the parameter field. Select the VSPE function



2. Set the IP address and port of the TCP port of the VSPE to the fields of the Remote Server and Remote Server Port.



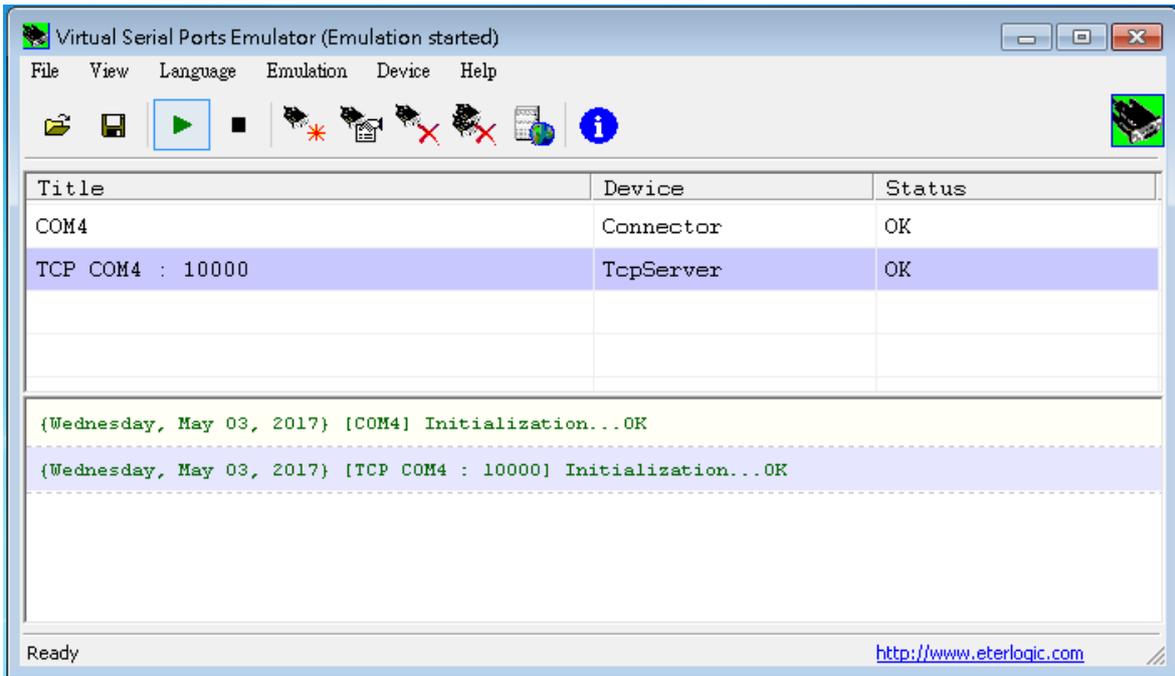
3. Click Write to write the settings to GTP-230.



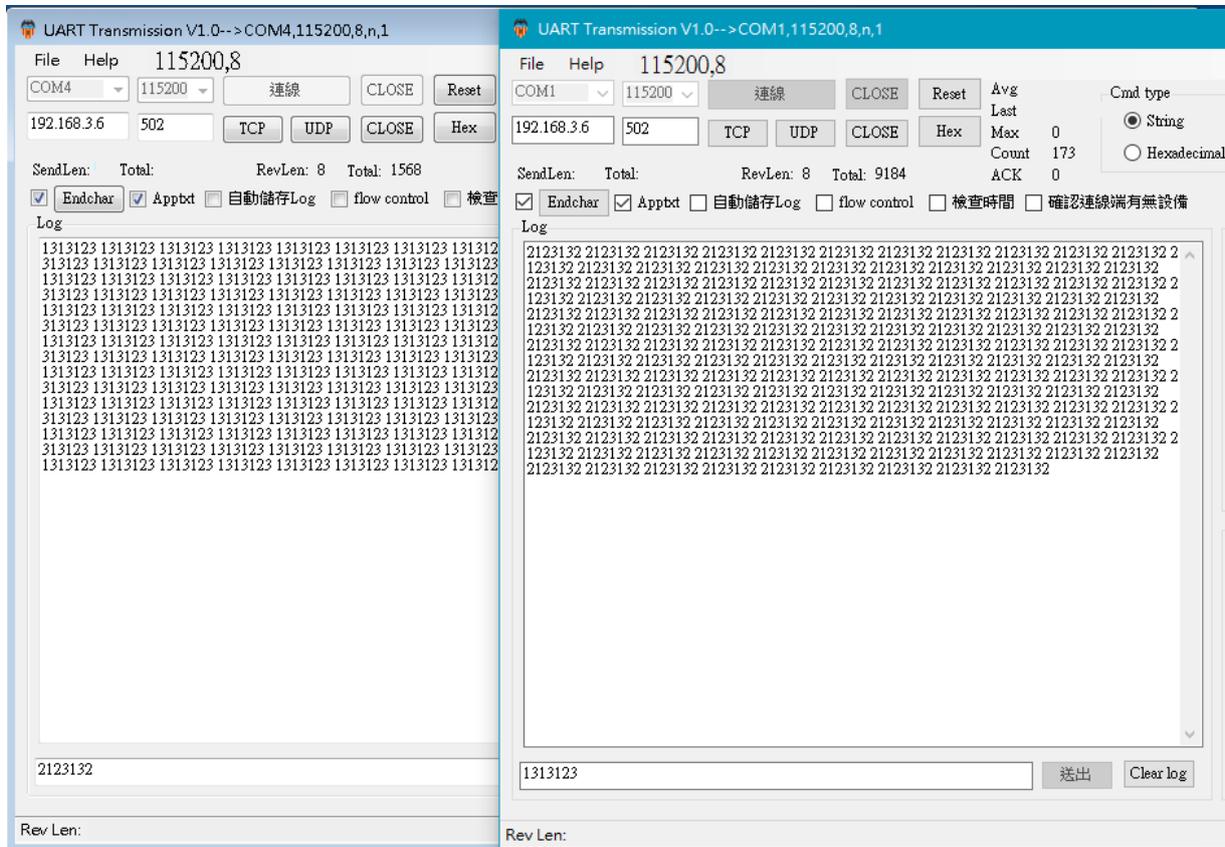
4. Set the GTP-230's dial switch to VSPE operating mode (lower left + upper right) and turn it on

again

5. After turning on for about 30 seconds, please observe the 3G signal of GTP-230. When GTP-230 is connected to VSPE, the 3G signal will flash from flash once every time. If GTP-230 has the correct connection to VSPE Server, VSPE TCP COM port status from ok to ok.



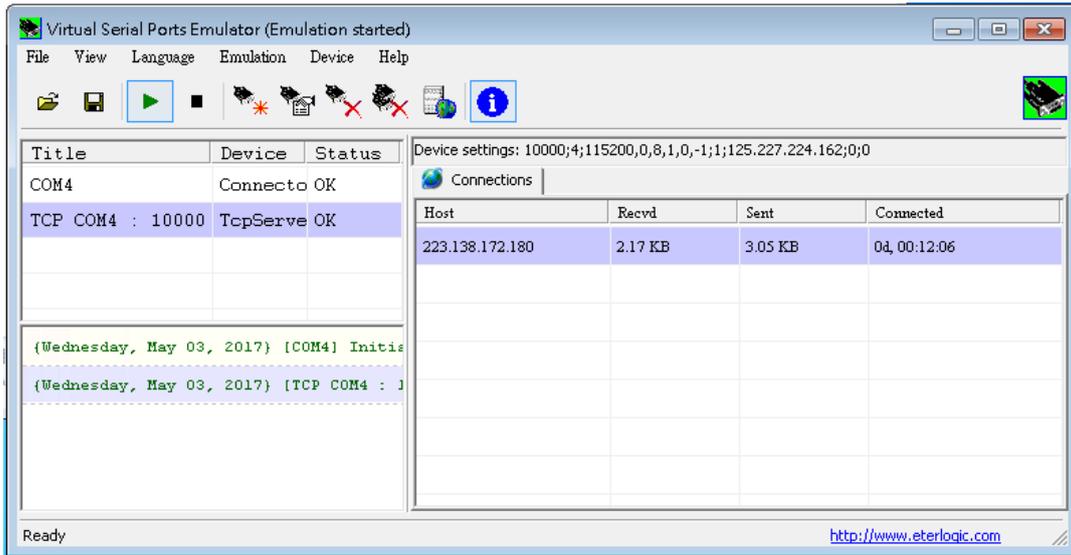
6. VSPE TCP COM port status from Ready to ok, respectively, in the server and GTP-230 PC side open COM Port transmission software, you can send data to each other.



6.3 Advanced VSPE settings

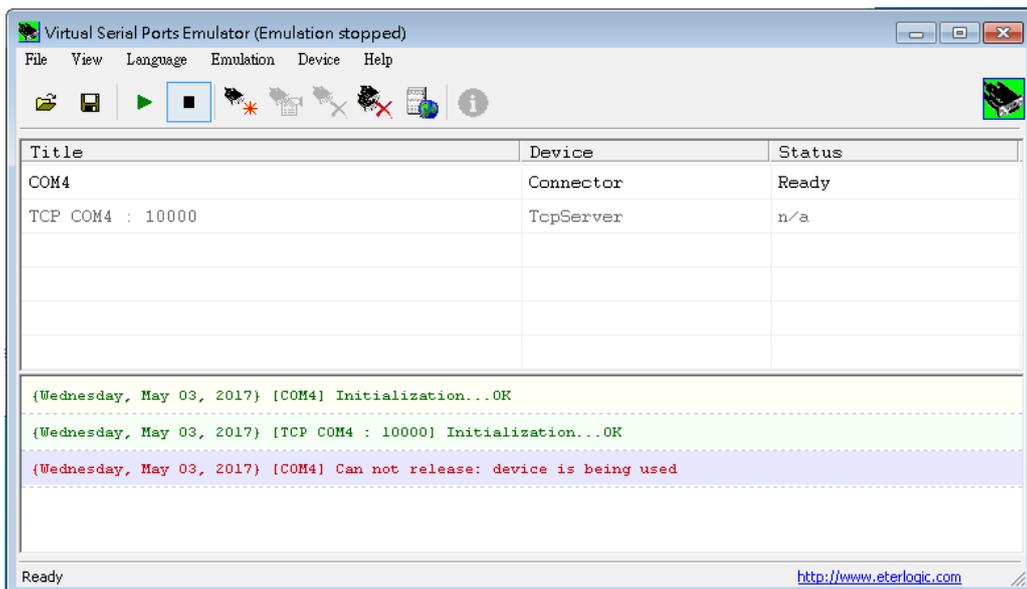
6.3.1 Query VSPE connection status

When the GTP-230 connected to the VSPE began to transfer data, click on the VSPE window click on the state, you can see the current VSPE TcpServer Host IP, the total amount of data received, the total data transmission and connection time, as shown below Show.



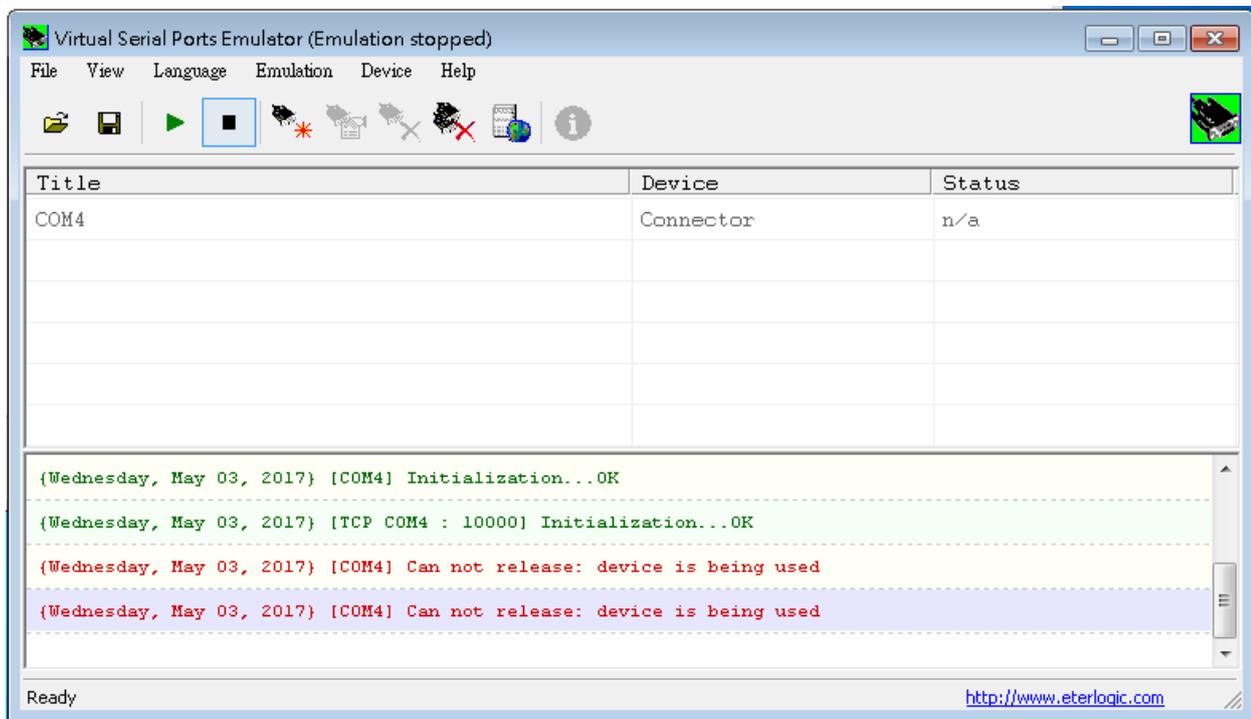
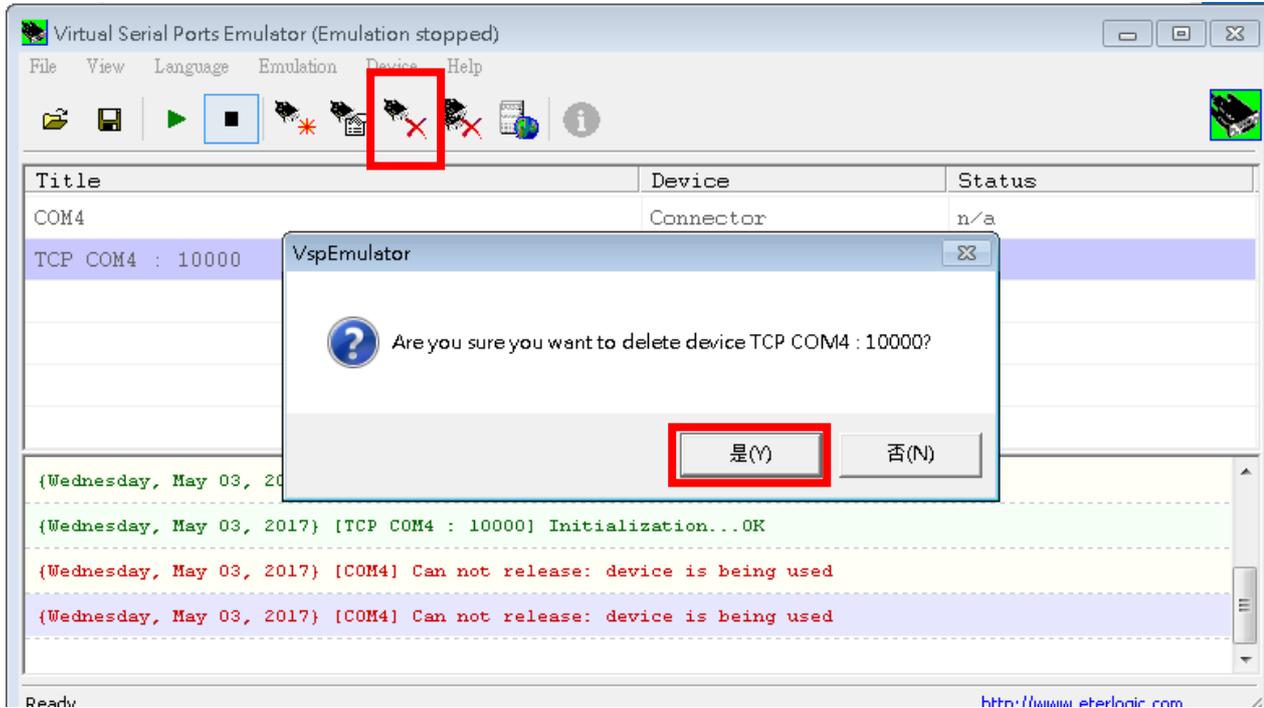
6.3.2 Disconnect VSPE connection

Disconnect the VSPE connection As long as you click the Stop button at the top of the command line, the status will immediately become n / a, and the connection between GTP-230 and TcpServer will be interrupted immediately. And then click the start button, it will immediately become Ready state.



6.3.3 Deleting a VSPE connection

To delete a VSPE connection, simply click the Delete device pattern in the list of commands to delete the connection.



7. GTP-230 Modbus Address Table

The Modbus function codes supported in the GTP-230 are 1, 2, 3, 4, 5, 6, 15 and 16. The Modbus address distribution is as the following table.

(1)Coil Status (Function Code: 1, 5, 15)

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 to Flash (Address: 40001~40256)	R/W

Note: Using function code 15 to transmit the alarm SMS and voice according 0~127 alarm, maximum quantity of DO is up to 16.

(2)Discrete Input (Function Code: 2)

Address	Data Address	Description	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 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	Description	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 3G 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	0x28 ~ 0x2E	The date and time of receiving SMS	R
30048	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

Note: Query the status of transmitting SMS can't be used in Edge Trigger mode.

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

Address	Data Address	Description	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 style="text-align: center;">\</td> </tr> <tr> <td>Baud</td> <td>38400</td> <td>57600</td> <td>115200</td> <td style="text-align: center;">\</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 dynamic 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																				

8. Troubleshooting

Item	Trouble state	Solution
1	STA is always on	<ol style="list-style-type: none"> 1. Check SIM card. 2. Check Antenna. 3. Check the 3G signal strength.
2	STA led is blanking per 50 ms.	It shows the SIM card needs to input PIN or PUK code. The GTP-230 is not set these code or the wrong codes. You can set these code in your phone.
3	The GT-531 Series Utility can not connect to the GTP-230	<ol style="list-style-type: none"> 1. Check STA LED blinking every 1 sec. 2. Check the COM port wire connection.
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 GTP-230 support only Unicode SMS. Confirm the defined SMS content is Unicode.
6	The GTP-230 is not replied by Modbus command	<ol style="list-style-type: none"> 1. Confirm the wire connection. 2. Confirm the Modbus ID of the GTP-230. 3. Confirm the COM port configuration.
7	Can not hear the voice alarm from the GTP-230	Confirm the SD card is normal and the voice file is in it.
8	SMS DBS could not received the SMS from GTP-230	User must add "ALARM;" to the start of the short message.

Appendix A. Revision History

This chapter provides revision history information to this document.

The table below shows the revision history.

Revision	Date	Description
1.0.0	May 2017	Initial issue