

User Manual

Version 1.0.0 JUN 2017

GTP-230

(3G Multi-Function Controller)





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Important Information

Warranty

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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.

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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

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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 \ 115200 bps (default)
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

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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		TxD1
2	COM 2	RxD1
3	RS-232**	GND
4		TxD1
5	COM 1 RS-232*	RxD1
6		GND
7	COM 2	D+
8	RS-485**	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.

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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	
	Flashing Once / sec	Successfully registered connection to base station (general status)	
3G(Red)	Flashing 3 times / sec	Successfully registered connection to base station (Internet access)	
	ON/OFF	3G cannot register	
CBS (Groop)	Flashing	GPS successfully positioned (*Note)	
GF3 (Green)	ON/OFF	GPS is not positioned (*Note)	
	Flashing Once / sec	The internal operation is normal	
STA(Orange)	Flashing 3 times / sec	Initial mode	
	ON/OFF	The internal operation is abnormal	

*Note: GPS function is not yet available now.

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

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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

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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.

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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=0856eacb-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.

🛱 Microsoft .NET Framework 2.0 Setup	
Welcome to Microsoft .NET Framework 2.0 Setup	
This wizard will guide you through the installation process.	
	Next > Cancel

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

nd-User License Agreement		
nd-User License Agreement		~
AICROSOFT SOFTWARE SUPPLEM AICROSOFT .NET FRAMEWORK 2.	ENTAL LICENSE TERMS 0	
Microsoft Corporation (or based on supplement to you. If you are licer ;oftware (the "software"), you ma- ot have a license for the software validly licensed copy of the software	where you live, one of its affiliates) license nsed to use Microsoft Windows operating sy y use this supplement. You may not use it if a. You may use a copy of this supplement w re.	s this stem ' you do ith each
	[Print
y clicking "I accept the terms of th roduct, I indicate that I have read icense Agreement.	e License Agreement" and proceeding to us I, understood, and agreed to the terms of th	e the he End-User
y clicking "I accept the terms of th roduct, I indicate that I have read icense Agreement. I accept the terms of the L	e License Agreement" and proceeding to us d, understood, and agreed to the terms of th icense Agreement	e the ne End-User

(3)The installation process would be going



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



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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:\Progrm Files\GT-531 Series Utility". Press "Next" to the next step.

j글 Setup - RMV-531_Utility	_ _ X
Select Destination Location Where should RMV-531_Utility be installed?	
Setup will install RMV-531_Utility into the following folder.	
To continue, click Next. If you would like to select a different folder, clic	k Browse.
C:\ICPDAS\RMV-531_Utility	Browse
At least 1.9 MB of free disk space is required.	
< <u>B</u> ack <u>N</u> ext >	Cancel

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

j Setup - RMV-531_Utility	X
Select Start Menu Folder Where should Setup place the program's shortcuts?	
Setup will create the program's shortcuts in the following Start	Menu folder.
To continue, click Next. If you would like to select a different folder, clic	k Browse.
ICPDAS\RMV-531_Utility	Browse
< <u>B</u> ack Next >	Cancel

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

B Setup - RMV-531_Utility	
Select Additional Tasks Which additional tasks should be performed?	
Select the additional tasks you would like Setup to perform while installing RMV-531_Utility, then dick Next.	9
Additional icons:	
< Back Next >	Cancel

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

Setup - RMV-531_Utility	- - ×
Ready to Install Setup is now ready to begin installing RMV-531_Utility on your computer.	
Click Install to continue with the installation, or click Back if you want to rev change any settings.	iew or
Destination location: C:\ICPDAS\RMV-531_Utility Start Menu folder: ICPDAS\RMV-531_Utility	
٠	-
< <u>B</u> ack Install	Cancel

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



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4. GTP-230 Utility

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



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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		
	The PIN code is wrong. As this condition		
Blanking per 50 ms	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.



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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.

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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

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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 exited 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.

5 GT-531 Utility ¥1.0.0			
Project	Language	Exit	
COM1	🗸 🛩 Dis	conne	
COM1 COM2 COM3 COM4 COM5 COM6 COM7 COM8	prj) prt 12 13		

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

🌃 GT-531 Utility ¥1.0.0			
Project	Language	Exit	
COM1	🗸 😽 Co	nnect	

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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.

_ <u></u>			1
😑 Prject(none)	Parameters	Value	Description
System	Protocol	Modbus RTU	Read Only
🖶 COM Port	Modbus Address	1	1~247
Phone Book	Debug Message	Enable	Enable or Disagle
🗄 Alarm Message	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.

🖃 Prject(none)	Parameters	Value	Description
System	Protocol	Modbus RTU	Read Only
🖶 COM Port	Modbus Address	1	1~247
Phone Book	Debug Message	Enable	Enable or Disagle
🗈 Alarm Message	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:

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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)

🖃 Prject(none)	Parameters	Value	Discription
System	Port	COM2 (RS-232)	Read Only
😑 COM Port	Data Bit	8	Only Support 8 bits
<mark>COM2</mark>	Stop Bit	1	1 or 2
COM3	Parity Bit	none	none,odd,even
Phone Book	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.



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B.Changing the Group name

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

figure.

🖃 Prject(none)	Parameters	Value	Discription
System	Group Name	Maintenanc	1~10 Unicode Char.
🖨 COM Port	Phone 0		
COM2	Phone 1		
COM3	Phone 2		
Phone Book	Phone 3		
Maintenanc	Phone 4		
≣‴ Maini Micssage			

C. Delete Group

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

😑 Prject(none)		Parameters
System		Group Name
😑 COM Port		Phone 0
COM2		Phone 1
COM3 Phone Book Maintenanc group0 Add G		Phone 2
		Phone 3
		Phone 4
		roup
group 1 Delete		Group
group2		
🖅 Alarm Message		Phone 7

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.

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🖃 Prject(none)	Parameters	Value	Discription
System	Group Name	Maintenanc	1~10 Unicode Char.
😑 COM Port	Phone 0	0928766500	
COM2	Phone 1	0928766501	
COM3	Phone 2	0928766502	
Phone Book	Phone 3		
	Phone 4		
group0	Phone 5		
group1	Phone 6		
⊕ Alarm Message	Phone 7		
5	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.

😑 Prject(none)	^	Parameters	Value	Description
System		Alarm Channel	0	Read Only
🖬 COM Port		On Message	Channel0 ON	54 Unicode Char.
🖬 Phone Book		Off Message	Channel0 OFF	54 Unicode Char.
🖨 Alarm Message		SMS Alarm	Enable	Enable or Disable
- Alarm0	-	Voice Alarm	Disable	Enable or Disable
Alarm1		Trigger Time	0	0~9999 Secs
Alarm2		All Group		
Alarm3		group0		
Alarm5		group1		
Alarm6		group2		
Alarm7		group3		
Alarm8		group4		
Alarm9		group5		
-Alarm10		group6		
-Alarm11		group7		
Alarm12		group8	✓	
Alarm13		group9		
Alarm 14		group10		
Alarm16		group11		
Alarm17		group12		
Alarm18		group13		
Alarm19		group14		
Alarm20		group15		
A1 01	⊻		1	

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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.

🌃 GT-531	Utility ¥1.0.0	
Project	Language Exit	
COM1	👻 🛩 Disconnect	<mark>之 Download</mark> 📥 Upload 🚺 Learn 🥯 System 🔹

B. Uploading parameters

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

🌃 G T-531	Utility ¥1.0.0							
Project	Language	Exit						
COM1	🗸 🛩 Dis	connect	🕹 Downl	load 🖾	Upload	🛈 Learn	🗠 System	•

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.

<u> 6</u> GT-531	Utility ¥1.0.0					
Project	Language	Exit				
COM1	🗸 🎺 Dis	connect	💠 Download	🔺 Upload	🚺 Learn	🥯 System 🔹

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.

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Send SMS Secretive SMS	
Page Send static SMS Channel : 0ON Send dynamic SMS Phone Number :Send Change variable SMS and send static SMS Variable SMS: Baske Disable Send F. Code Repty F. Code Repty Clear Host Request Commands 1.Modify the variable content of the SMS (Unicode) 2.Sending the SMS	r the phone number. (ASCII) r the content of the SMS (Unicode) iitting the SMS

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.

	Receive SMS Page	Ask one time per 5 second		
	😻 Modbus Command Learning			
	Send SMS Receive SMS			
	Learn to Receive SMS	NO. Date	Phone Short Message	Clear
	Scan Time(sec):	2011/04/18 14	880911838 Alam 2-> Un	
Start or stop to	Is SMS Received: Yes		Received SMS	
ask the GT-531 whether	Start Stop	\triangleright	from GT-531	
is receiving the new SMS	F. Code Request		F. Code Reply	Clear
	2 520101E98E 4 5402F0511EB		2 52116178 4 54 A2014106C06107206D	0 20 0 32 0 20 0 2D 0 3E 0 2
	4 5401E0A118F 4 54028073044		4 5 4 14 38 38 36 39 31 31 38 33 38 3 4 5 4 E 32 30 31 31 30 34 31 38 31 30	33 33 30000000002F 4 35 35 31 39 B9 1B
	5 55007PP03043		5 550078903043	
			N	
	Ho	et	1	(1994)
	Request Co	ommands	GT-53	31
			Respon	ises

4.1.7 System

(a)Signal Quality

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



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🛃 GSM Signal Quality(23)	
74%	
7470	
🛆 Read	

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.



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Version Information	×		
Firmware Version :			
SMS-531.L23xx.FV1.0.0 2013/02/08			
Utility Version :			
GT-531 Series.UV1.0.0 2013/02/08			
Read			

- 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.



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4.1.8 Language

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

S GT-531 Utility ¥1.0.0				
Project	Language	Exit		
COM1	English	•		

4.1.9 Exit

This function would exit the GT-531 Series Utility.

퉬 GT-531 Utility ¥1.0.0				
Project	Language	Exit		

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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:

	S RMV-531 Ver1.01 2013/01/25	×
	Project Exit	
Tool Menu	COM8 - ✓ Connect → Download ▲ Upload ● System -	
Parameter Group	Parameters Value Da	escription
	Description	
Status Bar	COM8 115200,n,8,1 COM Port Closed 0	

(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:

EXERNY-531 Ver1.01 2013/01/25			
P	oject	Exit	
	New		nect
	Oper	n	
	Save)	Ľ
	Save) as	

- ◆ 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.

🐝 RMV-531	¥er1.01 2013/01/25
Project	Exit
COM1	🗸 🎺 Connect
COM1	
COM2	
COM3	
COM4	
COM5	
COM6	
COM7	
COM8	~

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

🎉 RMY-531	Yer1.	01 2013/01/25
Project	Exit	:
COM1	~	Sonnect

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.

Project Exit		
COM11 - VDiscon	nect 🖾 Write 🔺 Read 🔍 System 🝷 🍘	Show Log
B Prject(none)	Parameters	Value
System	Net ID	1
COM Port	Function	Modbus TCP/RTU Converter -
COM2	Remote Server	61.219.167.34
CONTE	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. Vi TCP/RTU Converter.Modbus TCP Server	Comm:Virtual Serial Port, Modbus to Modbus RTU slave function.

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Project Exit	nect 🜛 Write 🍐 Read 🏾 🗠 System 🕞 🍘	Show Log
COM11 V Disconr Prject(none) System COM Port COM1 COM2	Percet ✓ Write ▲ Read System ✓ @ Parameters Net ID Function Remote Server Remote Server Remote Server Port Internet User Name Internet Password Internet APN Virtual IP Device Alias Heartbeat Time Com End Method Com End Param. Om End Param. Device function. Vx TCP/RTU Converter:Modbus TCP Server	Show Log Value 1 Modbus TCP/RTU Converter 61.219.167.34 11000 GUEST GUEST INTERNET 127.0.11.33 ICPDAS 10 Time 2

There are 12 items in the system field below.

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 ID	Virtual IP. Range: 127.0.0.1~127.255.255.254 , This parameter
VIIIUALIE	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	

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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	
Length: Fixed Length [,] It is as complete a data when the length of a data more than fixed length	1 ~ 1000	The RMV-531 will transmit a data when there is a data more
2: Fixed end byte. It is as complete a data when receives the fixed end byte. Like "CR" (0x0d)	0 ~ 255	than 1000 bytes.

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.

531 Ver1.01 2013/01/25		
Project	Exit	
COM8	🚽 🌱 Disconnect 🛛 🕹 Download 🖉 🌰 Upload 🖉 🥯 System 🕞	

II. Upload Parameters

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

5 RMV-531 Ver1.01 2013/01/25			
Project	Exit		
COM8	🕞 🛩 Disconnect 🕹 Download 🖾 Upload 🗠 System 🕞		

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4.2.6 System

(a)Signal Quality

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

🗠 System 🕞	
Signal Quality	
Reboot RMV-531	
Recover Default Sett	ings
Firmware Version	
Input PIN/PUK	
WCDMA Signal Quality(0)	x
0%	
0 70	_
🛆 Read	

◆ 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.



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(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.



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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.

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5. SMS Example

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

Example	Description
Example 1:	This example shows how to send the fixed
Sending the general alarm SMS	content alarm SMS by Modbus
(Level Trigger)	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:	This example shows how to send the fixed
Sending the general alarm SMS	content alarm SMS by Modbus
(Edge Trigger)	commands in Edge Trigger mode.

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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.

🖾 GT-531.UV1.1.0 2012/11/06					
Project Language Exi	t				
COM1 🛛 👻 🛩 Connect	🛛 🤣 Download 🗍 📥 Ur	bload 🛛 🕕 Learn 🖉 🥯 System 🔹			
🖃 Prject(none)	Parameters	Value	Description		
System	Protocol	Modbus RTU	Read Only		
🖶 COM Port	Modbus Address	1	1~247		
Phone Book	Debug Message	Enable	Enable or Disagle		
🗈 Alarm Message	SMS Check Number	Disable	Enable or Disagle		
	Variable SMS	Disable	Enable or Disagle		
	Alarm Mode	Level Trigger	Level or Edge Trigger		

(2)Choose the level trigger mode.

Prject(none)	Parameters	Value	Description
- <mark>System</mark>	Protocol	Modbus RTU	Read Only
🗉 - COM Port	Modbus Address	1	1~247
Phone Book	Debug Message	Enable	Enable or Disagle
🗈 Alarm Message	SMS Check Number	Disable	Enable or Disagle
	Variable SMS	Disable	Enable or Disagle
	Alarm Mode	Level Trigger 🗸 🗸	Level or Edge Trigger
		Level Trigger	
		Edge Trigger	

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

		😑 Project(Example1.prj)
		System
Project	Language	COM Port
New	Junguugo	COM2
Ope	n	COM3
Save	3	Phone Book
Save	e as	🛓 Alarm Message

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😑 Project(Example1.prj)	Parameters	Value	Description
- <mark>System</mark>	Protocol	Modbus RTU	Read Only
COM Port COM2 COM3 Phone Book	Modbus Address	1	1~247
	Debug Message	Enable	Enable or Disagle
	SMS Check Number	Disable	Enable or Disagle
	Variable SMS	Disable	Enable or Disagle
⊞- Alarin Message	Alarm Mode	Level Trigger	Level or Edge Trigger

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

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

😑 Project(Example1.prj)	Parameters	Value	Description
System	Group Name	group0	1~10 Unicode Char.
🗉 COM Port	Phone 0	0123456789	
⊡ Phone Book group0 group1 ⊡ Alarm Message	Phone 1		
	Phone 2		
	Phone 3		
	Phone 4		

😑 Project(Example1.prj)	Parameters	Value	Description
System	Group Name	group 1	1~10 Unicode Char.
🗊 COM Port	Phone 0	9876543210	
∍ Phone Book group0	Phone 1		
	Phone 2		
	Phone 3		
⊞- Alarm Message	Phone 4		

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

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

😑 Project(Example1.pr	Parameters	Value	Description
System	Alarm Channel	0	Read Only
🕀 COM Port	On Message	Channel0 ON	54 Unicode Char.
🖃 Phone Book	Off Message	Channel0 OFF	54 Unicode Char.
group0	SMS Alarm	Enable	Enable or Disable
ingroup I	Voice Alarm	Disable	Enable or Disable
Alarm Message	Trigger Time	0	0~9999 Secs
Alarm1	All Group		
Alarm2	group0		
Alarm3	group 1		

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😑 Project(Example1.pr 📤	Parameters	Value	Description
System	Alarm Channel	1	Read Only
🖬 COM Port	On Message	Channell ON	54 Unicode Char.
🖨 Phone Book	Off Message	Channel1 OFF	54 Unicode Char.
-group0	SMS Alarm	Enable	Enable or Disable
groupl	Voice Alarm	Disable	Enable or Disable
Alarm Message	Trigger Time	0	0~9999 Secs
Alarm1	All Group		
Alarm2	group0		
- Alarm3	group1		

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

S GT-531 Utility ¥1.0.0							
Project	Language	Exit					
COM1	🗸 🎺 Disc	onnect	🕹 Download	🔺 Upload	🛈 Learn	🥯 System	•

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:

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Commands and Description:

Commands	Sending Alarm SMS (Hex)	Comman d Respons e	01 05 00 00 FF 00 8C 3A 01 05 00 00 FF 00 8C 3A	
Description	 The GTP-230 receives the Modbus command then sends the alarm message. The content of the alarm SMS is "On Message" of Alarm Channel0 message. The alarm SMS would send to the defined phone groups. 			
Result	The phones defined content of the SMS i	in the gro s "Channe	up0 would receive the SMS. The el0 ON"	

Command Format:

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

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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.

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

Commands and Description:

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	1. The phone number:0123456789
Description	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				
	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		
Command	Byte 4 ~ 5	Register Count: The register size of the phone number		
Command	Byte 6	Byte Count(Register Counter x 2)		
		The phone number (ASCII code). The end char is		
	Byte7 ~ 18	0x00. If the number size is 20, it is needed not the		
		end char.		
	Byte 19 ~ 20	CRC-16 check code		
	Byte 0	The Modbus Address of the GTP-230		
	Byte 1	Function Code = 16 (0x10)		
Correct response	Byte 2 ~ 3	The start address of the phone number		
Conectresponse	Byte 4 ~ 5	Register Count: The register size of the phone		
		number		
	Byte 6 ~ 7	CRC-16 check code		
	Byte 0	The Modbus Address of the GTP-230		
	Byte 1	= 0x90		
Error rosponso		Error Code		
	Byte 2	02: The GTP-230 is sending the SMS. The phone		
		number is unchangeable.		
	Byte 3 ~ 4	CRC-16 check code		

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Setting the content of the SMS				
	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		
		Register Count: The size of the SMS. The max is 70		
	Byte 4 ~ 5	Unicode.		
Command	Byte 6	Byte Count(Register Counter x 2)		
		The content of the SMS (Unicode code). The end		
	Byte7 ~ 30	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		
	Byte 0	The Modbus Address of the GTP-230		
	Byte 1	Function Code = 16 (0x10)		
Corroot Booponoo	Byte 2 ~ 3	The start address of the sent SMS		
Correct Response	Byte 4 ~ 5	Register Count: The size of the SMS. The max is 70		
		Unicode.		
	Byte 6 ~ 7	CRC-16 check code		
	Byte 0	The Modbus Address of the GTP-230		
	Byte 1	= 0x90		
Error Boopopoo		Error Code		
	Byte 2	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)			
	Byte 0	The Modbus Address of the GTP-230	
	Byte 1	Function Code = 0x05	
Command	Byte 2 ~ 3	= 0x0080	
	Byte 4 ~ 5	= 0xFF00	
	Byte 6 ~ 7	CRC-16 check code	
Corroct	Byte 0	The Modbus Address of the GTP-230	
Boononoo	Byte 1	Function Code = 0x05	
Response	Byte 2 ~ 3	= 0x0080	

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

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

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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).

🖃 Project(Example5.prj)	Parameters	Value	Discription
- <mark>System</mark>	Protocol	Mođbus RTU	Read Only
🗊 COM Port	Modbus Address	1	1~247
🗊 Phone Book	Debug Message	Enable	Enable or Disagle
🗈 Alarm Message	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.

😑 Project(Example5.prj)	Parameters	Value	Discription
System	Group Name	group0	1~10 Unicode Char.
🗉 COM Port	Phone 0	0123456789	
📮 Phone Book	Phone 1		
-group0	Phone 2		
⊞- Alarm Message	Phone 3		

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

🎉 GT-531	Utility ¥1.0.0				
Project	Language Exit				
COM1	👻 🛩 Disconnect	🕹 Download	🛆 Upload	🛈 Learn	🥯 System 🔹

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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:

	Checking the	command	01 02 00 01 00 01 E8 0A
	received SMS	Deenenee	01 02 01 00 A1 88 (No SMS)
	(Hex)	Response	01 02 01 01 60 48 (Receiving the SMS)
	Reading the phone	command	01 04 00 1E 00 0A 10 0B
	number of the received SMS (Hex)	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
Command	Reading the date of	command	01 04 00 28 00 07 31 C0
	the received SMS	Response	01 04 0E 32 30 31 31 30 34 32 32 30 39
	(Hex)		35 35 33 31 3D 79
	Pooding the content	command	01 04 00 2F 00 51 00 3F
	of the received SMS		01 04 A2 00 00 48 65 6C 6C 6F 2C 47 54
		Response	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

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	the GT-531	Posponso				
	(Hex)	Response	01 03 00 C7 FF 00 3D C7			
	1. The phone of Grou	ups transmits	the SMS to the GTP-230. The SMS is			
	"Hello,GT-531!".					
	2. To inquire the GTF	P-230 whether	has received the SMS periodically.			
	3. If the GTP-230 has received the SMS, send the command to read the					
Description	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 S	MS.				
Result	The phone of transm	itting SMS : 8	386928766507			
	Date : 20110422095531(2011/04/22/ 09:55:31)					
	The SMS:Hello,GT	-531!				

Format Description:

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

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|--|

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

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

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

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

Clear the SMS from th	e GTP-230	
Commond	Byte 0	The Modbus Address of the GTP-230
Commanu	Byte 1	Function Code = 0x05

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

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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.

🌇 G T-531.UV1.1.0 2012/11/06	;		
Project Language Exi	t		
COM1 🛛 🛩 🥙 Connect	🛛 🕹 Download 🛛 📥 Up	oload 🚺 Learn 🥗 System 🔹	
🖃 Prject(none)	Parameters	Value	Description
System	Protocol	Modbus RTU	Read Only
🗊 COM Port	Modbus Address	1	1~247
Phone Book	Debug Message	Enable	Enable or Disagle
⊞- Alarm Message	SMS Check Number	Disable	Enable or Disagle
	Variable SMS	Disable	Enable or Disagle
	Alarm Mode	Level Trigger	Level or Edge Trigger

(2)Choose the edge trigger mode.

E Prject(none)	Parameters	Value	Description
System	Protocol	Modbus RTU	Read Only
🗊 COM Port	Modbus Address	1	1~247
Phone Book	Debug Message	Enable	Enable or Disagle
🗈 Alarm Message	SMS Check Number	Disable	Enable or Disagle
	Variable SMS	Disable	Enable or Disagle
	Alarm Mode	Edge Trigger 🗸 🗸	Level or Edge Trigger
		Level Trigger	
		Edge Trigger	

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

		😑 Project(Example6.prj)
		System
	Project Language	COM Port
	New	COM2
	Open	COM3
	Save	Phone Book
	Save as	🕀 Alarm Message
1		

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😑 Project(Example6.prj)	Parameters	Value	Description
- <mark>System</mark>	Protocol	Modbus RTU	Read Only
🕞 COM Port	Modbus Address	1	1~247
🗊 Phone Book	Debug Message	Enable	Enable or Disagle
🛓 Alarm Message	SMS Check Number	Disable	Enable or Disagle
	Variable SMS	Disable	Enable or Disagle
	Alarm Mode	Edge Trigger	Level or Edge Trigger

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

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

😑 Project(Example6.prj)	Parameters	Value	Description
System	Group Name	group0	1~10 Unicode Char.
🗉 COM Port	Phone 0	0123456789	
🖨 Phone Book	Phone 1		
group0	Phone 2		
group I	Phone 3		
⊞- Alarm Message	Phone 4		
😑 Project(Example6.prj)	Parameters	Value	Description
⊟ Project(Example6.prj) — System	Parameters Group Name	Value group 1	Description 1~10 Unicode Char.
 Project(Example6.prj) System COM Port 	Parameters Group Name Phone 0	Value group1 9876543210	Description 1~10 Unicode Char.
 Project(Example6.prj) System COM Port Phone Book 	Parameters Group Name Phone 0 Phone 1	Value group1 9876543210	Description 1~10 Unicode Char.
 Project(Example6.prj) System COM Port Phone Book group0 	Parameters Group Name Phone 0 Phone 1 Phone 2	Value group1 9876543210	Description 1~10 Unicode Char.
 Project(Example6.prj) System COM Port Phone Book group0 group1 	Parameters Group Name Phone 0 Phone 1 Phone 2 Phone 3	Value group1 9876543210	Description 1~10 Unicode Char.

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

😑 Project(Example6.pr 📤	Parameters	Value	Description
System	Alarm Channel	0	Read Only
🕀 COM Port	On Message	Channel0 ON	54 Unicode Char.
🕀 Phone Book	Off Message	Channel0 OFF	54 Unicode Char.
🖨 Alarm Message	SMS Alarm	Enable	Enable or Disable
AlarmU	Voice Alarm	Disable	Enable or Disable
Alarm I	Trigger Time	10	0~9999 Secs
Alarm3	All Group		
Alarm4	group0		
-Alarm5	group1		
😑 Project(Example6.pr	Parameters	Value	Description
System	Alarm Channel	1	Read Only
System ⊕-COM Port	Alarm Channel On Message	1 Channel1 ON	Read Only 54 Unicode Char.
System ⊕-COMPort ⊕-Phone Book	Alarm Channel On Message Off Message	1 Channel1 ON Channel1 OFF	Read Only 54 Unicode Char. 54 Unicode Char.
System COM Port Phone Book Alarm Message	Alarm Channel On Message Off Message SMS Alarm	1 Channel1 ON Channel1 OFF Enable	Read Only 54 Unicode Char. 54 Unicode Char. Enable or Disable
	Alarm Channel On Message Off Message SMS Alarm Voice Alarm	1 Channell ON Channell OFF Enable Disable	Read Only 54 Unicode Char. 54 Unicode Char. Enable or Disable Enable or Disable
System COM Port Phone Book Alarm Message Alarm0 Alarm1 Alarm2	Alarm Channel On Message Off Message SMS Alarm Voice Alarm Trigger Time	1 Channell ON Channell OFF Enable Disable 20	Read Only 54 Unicode Char. 54 Unicode Char. Enable or Disable Enable or Disable 0~9999 Secs
System COM Port Phone Book Alarm Message Alarm0 Alarm1 Alarm2 Alarm3	Alarm Channel On Message Off Message SMS Alarm Voice Alarm Trigger Time All Group	1 Channel1 ON Channel1 OFF Enable Disable 20	Read Only 54 Unicode Char. 54 Unicode Char. Enable or Disable Enable or Disable 0~9999 Secs
System COM Port Phone Book Alarm Message Alarm0 Alarm1 Alarm3 Alarm4	Alarm Channel On Message Off Message SMS Alarm Voice Alarm Trigger Time All Group group0	1 Channel1 ON Channel1 OFF Enable Disable 20 Image: Comparison of the second secon	Read Only 54 Unicode Char. 54 Unicode Char. Enable or Disable Enable or Disable 0~9999 Secs

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

🌃 G T-531	Utility ¥1.0.0						
Project	Language	Exit					
COM1	🗸 🎺 Dise	connect	🕹 Download	🛆 Upload	🕕 Learn	🥯 System	•

2. Modbus RTU commands

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



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

Commands and Description:

Command	Sending Alarm	Comman	01 05 00 00 FF 00 8C 3A			
		d				
s		Respons	01 05 00 00 FF 00 8C 3A			
	(Hex)	е				
	1. The GTP-230 receives the Modbus command then sends the					
Descriptio	alarm message.					
Descriptio	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.					
Posult	The phones defined in the group0 would receive the SMS after 10					
Result	seconds. The content of the SMS is "Channel0 ON"					

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Command Format:

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

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6. Virtual com to access remote the parameters

The necessary software installed





下載 Microsoft .Net Framework Version 2.0

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6.1 Setting VSPE

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

📚 Virtual Serial Ports Emulator (Emulation started) 🗆 🗙						
File View Language Emulation Device Help						
🖻 🖬 🕨 🖷 🦮 🐂 🖏 🐻	8	*				
Title	Device	Status				
l		halo Il municipale de ser				
Ready		http://www.eteriogic.com				

2. Select the device type "Connector"

	Specify device type	×	
Virtual File View	VIRT1 Ur Ca be th	evice type connector Ilike regular serial port, connector is a virtual device that in be opened twice. When opened, it creates data pipe etween its clients. That allows separate applications use e same serial port to exchange data.	
	Pew serial port 💾 E	xisting serial port	
Ready	< 上-	-步(B) 下 步(N) > 取満 説明	<u>com //</u>

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

Specify device characteristics	×
Virtual serial port	
COM2	
Emulate baud rate (optional)	
1	

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

📚 Virtual Serial Ports Emulator (Emulation started)		– 🗆 🗙
File View Language Emulation Device Help		
🖻 🖬 🕨 = 🐂 🐄 🍢 🇞 🚮 (Ð	*
Title	Device	Status
COM2	Connector	Ready
(Wednesday, May 03, 2017) [COM2] Initialization	OK	
l Deset:		http://www.stadasia.aas
Reduy		nup://www.etenogic.com

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

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😽 Virtual Serial Ports Emulator (Emulation started) - 🗆 🗙					
File View Language Emulation Device	File View Language Emulation Device Help				
🖻 🖬 🕨 = 🐂 🗞 🇞 🌄 🚺					
Title	Device	Status			
COM2 COM2 Create Create Reinit Propu (Wednesday, May 03, 2017) (Wednesday, May 03, 2017)	Connector ze - ies - wn -	Ready			
Ready		http://www.eterlogic.com			

6. On the Device type, select TcpServer and press Next

	Specify device type	×		
Virtual File View File View Title COM2 (Wednesd:	COM1 TCP connection	Device type TcpServer TCPServer TCPServer opens TCP port to deliver existing serial port data to network clients. Number of clients is unlimited. * This device does not create new serial port.		
	New serial port	💾 Existing serial port		
Ready		< 上一步(B) 下一步(N) > 取満 說明	<u>com</u>	//

 $Copyright @ \ 2017 \ ICP \ DAS \ Co., \ Ltd. \ All \ Rights \ Reserved \\ E-mail: \ service @ icpdas.com \\$

7. 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.

	Specify device characteristics			×
File Virtual	Local TCP port 10000 Interface IP	Source serial port	▼ Settings	× 1
Title	123.123.123.123	🗌 Read-only	Serial port settings	×
COM2		Write-only	Speed	115200 👻
			DTR/RTS	NO
	I✓ DTR/RTS depen	d on connection stat.	Parity	no
			Bits	8
			Stop bits	1
{Wednesd:			ReadIntervalTimeout	-1
			ОК	Cancel
Ready	< 上一步(B)	完成	取消 說明	<u>com //</u>

8. 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.

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Virtual Serial Ports Emulator (Emulation started) Image: Emulation Device Help				
🖻 🖬 🕨 🗉 隆 🍢 🇞 🌆	0	*		
Title	Device	Status		
COM4	Connector	ок		
TCP COM4 : 10000	TcpServer	Ready		
{Wednesday, May 03, 2017} [COM4] Initialization	a0K			
(Wednesday, May 03, 2017) [TCP COM4 : 10000] In	nitializationOK			
Ready		http://www.eterlogic.com		

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6.2 Setting GTP-230

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

Project Exit					
COM7 ∨ ♥ Disconnect ♦ Write ▲ Read ● System ▼ @ Show Log					
 ■ Prject(none) ■ System ■ COM Port 	Parameters	Value			
	Net ID	1			
	Function	VxComm ~			
	Remote Server	VxComm			
	Remote Server Port	Modbus TCP/RTU Converter			
	Internet User Name	GUEST			
	Internet Password	GUEST			
	Internet APN	INTERNET			
	Virtual IP	127.0.0.22			
	Device Alias	RMV Series			
	Heartbeat Time	10			
	Com End Method	Time ~			
	Com End Param.	2			

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.

Project Exit					
COM7 V Disconnect V Write A Read System V 🙆 Show Log					
 □- Prject(none) □- System □- COM Port 	Parameters	Value			
	Net ID	1			
	Function	VSPE ~			
	Remote Server	123.123.123.123			
	Remote Server Port	10000			
	Internet User Name	GUEST			
	Internet Password	GUEST			
	Internet APN	INTERNET			
	Virtual IP	127.0.0.22			
	Device Alias	RMV Series			
	Heartbeat Time	10			
	Com End Method	Time ~			
	Com End Param.	2			

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

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Project Exit					
COM7 V Visconnect V Write A Read System V 🔞 Show Log					
Prject(none) System COM Port	Parameters	Value			
	Net ID	1			
	Function	VSPE ~			
	Download the parameters	× 2			
	Are you sure that save these parameters into the device?				
	· · · · · · · · · · · · · · · · · · ·				
	Heartbeat Time	10			
	Com End Method	Time			
	Com End Param.	2			

Project Exit				
COM7 V Visconnect V Vrite A Read System V Garage Show Log				
 Prject(none) System COM Port 	Parameters	Value		
	Net ID	1		
	Function	VSPE ~		
		×		
	Save all parameters successfully!! The NULL will automatically reboot.			
		確定		
	Heartbeat Time	10		
	Com End Method	Time ~		
	Com End Param.	2		
	Description			
	Type remote server's IP or domain name (max. 32 characters)			
COM7 115200,n,8,1 COM Port Connected 0 Save all parameters successfully!! The NULL wil				

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

again

 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.

🗞 Virtual Serial Ports Emulator (Emulation started)					
File View Language Emulation Device Help					
🖻 🖬 🕨 🐂 🦖 🇞 🌆 🚺					
Title	Device	Status			
COM4	Connector	OK			
TCP COM4 : 10000	TopServer	OK			
(Wednesday, May 03, 2017) [COM4] InitializationOK					
(Wednesday, May 03, 2017) [TCP COM4 : 10000] In	itializationOK				
Ready		http://www.eterlogic.com			

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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.

💝 UART Transmission V1.0>COM4,115200,8,n,1	UART Transmission V1.0>COM1,115200,8,n,1
File Help 115200,8	File Help 115200,8
COM4 🚽 115200 🚽 連線 CLOSE Reset	COM1 V 115200 V 連線 CLOSE Reset Avg Cmd type
192.168.3.6 502 TCP UDP CLOSE Hex	192.168.3.6 502 TCP UDP CLOSE Hex Max 0 String
SendLen: Total: RevLen: 8 Total: 1568	SandLen: Total: PeuLen: 8 Total: 0184 ACK 0
☑ Endchar ☑ Apptxt □ 自動儲存Log □ flow control □ 檢查	Semmen. Ida. Kerken. 9 Ida. 9104 ACK 0
Log	Log
133123 131323 131323 1313123 131323 1	21231 32 21231 32
2123132	1313123 送出 Clear log
Rev Len:	Rev Len:

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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.

👷 Virtual Serial Ports Emulator (Emulation started)						
File View Language	File View Language Emulation Device Help					
🖻 🖬 🕨 🗉	😂 🖬 🕨 🍬 🦮 🛰 🇞 🌗 🚺					
Title	Device	Status	Device settings: 10000;4;12	15200,0,8,1,0,-1	1;1;125.227.224.162	2;0;0
COM4	Connecto	OK	🧭 Connections			
TCP COM4 : 10000	TcpServe	OK	Host	Recvd	Sent	Connected
	-		223.138.172.180	2.17 KB	3.05 KB	0d, 00:12:06
(Wednesday, May 03,	, 2017) [CC	M4] Initis				
(Wednesday, May 03,	2017) [TO	P COM4 : 1				
r Ready			14		<u>h</u>	ttp://www.eterlogic.com

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.

🔀 Virtual Serial Ports Emulator (Emulation stopped)					
File View Language Emulation Device Help					
🖆 🖬 🕨 💌 🦮 🐂 🖏 🚯 🚯					
Title	Device	Status			
COM4	Connector	Ready			
TCP COM4 : 10000	TcpServer	n⁄a			
(Wednesday, May 03, 2017) [COM4] InitializationOK					
{Wednesday, May 03, 2017} [TCP COM4 : 10000] Initiali	zationOK				
(Wednesday, May 03, 2017) [COM4] Can not release: det	rice is being used				
Ready		http://www.eterlogic.com			

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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.

🔆 Virtual Serial Ports Emulator (Emulation stopped)			
File View Language Emulation Device Help	9		
Title	Device	Status	
COM4	Connector	n⁄a	
TCP COM4 : 10000 VspEmulator		23	
(Wednesday, May 03, 20	是(Y)	香(N)	,
{Wednesday, May 03, 2017} [TCP COM4 : 10000] Ini	tializationOK		
(Wednesday, May 03, 2017) [COM4] Can not release	e: device is being used		
(Wednesday, May 03, 2017) [COM4] Can not release	e: device is being used		
2 Ready		http://www.	v eterlogic com

Kile Virtual Serial Ports Emulator (Emulation stopped) File View Language Emulation Device Help		
🖻 🖬 🕨 🍬 🐂 📉 🇞 🚮 🕕		*
Title	Device	Status
COM4	Connector	n⁄a
{Wednesday, May 03, 2017} [COM4] InitializationOK		•
{Wednesday, May 03, 2017} [TCP COM4 : 10000] Initiali	zationOK	
(Wednesday, May 03, 2017) [COM4] Can not release: dev	rice is being used	
(Wednesday, May 03, 2017) [COM4] Can not release: det	rice is being used	E
		-
Ready		http://www.eterlogic.com

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

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Input Register (Function Code: 4)

Address Data Description		Attribute	
30001 ~ 30016	The status of transmitting SMS buffer 0~15 (1) High Byte : Buffer status 0-> Idle 0001 ~ 0x0 ~ 1-> Waiting for transmitting 0016 0xF 2-> Transmitting		R
		 3-> Transmitting OK 4-> Transmitting fault (2) Low Byte : Error code 	
30017	0x10 0x11	The last transmitting SMS buffer number 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	
30019	0x12	The 3G signal strength 0~31s or 99(Error)	
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	
30048	.0048 0x2F 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	

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

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Address	Data Address	Description		
40200	0xC7	Module Address(Modbus Net ID) , 1~247		
40200	0xC8	COM2 (1) High Byte $\boxed{Code 0x04 0x05 0x06 0x07}$ Baud 2400 4800 9600 19200 $\boxed{Code 0x08 0x09 0x0A}$ Baud 38400 57600 115200 (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	R/W	
40202	0xC9	10 : even parity 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		
40384 ~ 40399	0x17F ~ 0x18E	The dynamic content of the SMS (Unicode by the end char 0x0000)		
40400 ~ 40469	0x18F ~ 0x1D4	The dynamic transmitting SMS content (Unicode by the end char 0x0000)		
40470 ~ 40479	0x1D5 ~ 0x1DE	The phone number for the dynamic transmitting SMS (ASCII by the end char 0x00)		

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

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8. Troubleshooting

ltem	Trouble state	Solution
1	STA is always on	 Check SIM card. Check Antenna. 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	 Check STA LED blinking every 1 sec. 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	 Confirm the wire connection. Confirm the Modbus ID of the GTP-230. 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.

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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

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