GRP-520 Series

3G Gateway

User Manual v1.30



High Quality, Industrial Data Acquisition, and Control Products

Warranty

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Version	Date	Author	Description
1.00	2013/03/20	Malo Release version	
1.10	2014/02/05	Malo	Add new feature
1.20	2014/08/05	Malo	Add new feature: RTU Client
1.21	2015/04/16	Malo	 (1) Add VxComm configure description in chapter 4.3 (2) FTP log function change report interval unit as "minute" (3) fix the description of "2.5 Rotary Switch" (4) improve "Reboot Time" function
1.30	2015/08/25	Malo	 (1) Add PPTP VPN Client function. (2) Add network type option: "Automatic", "3G only", "2G only"

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1. Introduction

The GRP-520 provided by ICP DAS is a 3G gateway for Ethernet or serial port. With optional GPS model, the GRP-520 can also be a GPS tracking system. It can be used in M2M application fields to transfer the remote I/O, Modbus data or video of the camera via 3G/2G. Within the high performance CPU, the GRP-520 series can handle a large of data and are suit for the hard industrial environment. The GRP-520 series have 3G module, Ethernet interface, and optional GPS module.



1.1 Features

- Support Tri-band WCDMA 2100/1900/850 MHz and Quad-band GSM 850 / 900 / 1800 / 1900 MHz.
- 10/100 Base-TX compatible ethernet eontroller
- COM port: COM1 (3-wire RS232), COM2 (RS-485), COM3 (3-wire RS232)
- GPS : 32 channels with All-In-View tracking (option)
- Support Micro SD card.
- Provide 3G Router function.
- Support port mapping (port forward) function.
- Serial Port to 3G Gateway
- High reliability in harsh environments
- DIN-Rail mountable

1.2 Applications

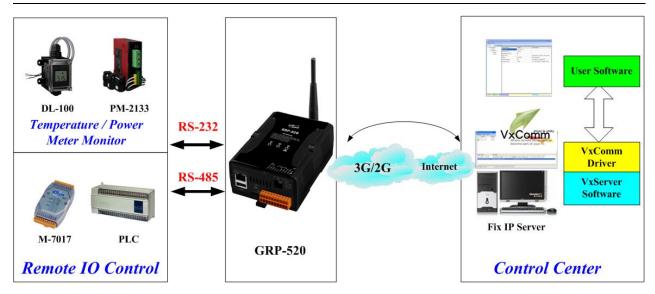
- Signal Alarm Report System
- 3G Router
- Home/Factory security
- Remote Video Monitor
- Energy Management
- Temperature Monitoring



Application 2: Remote Video Monitor



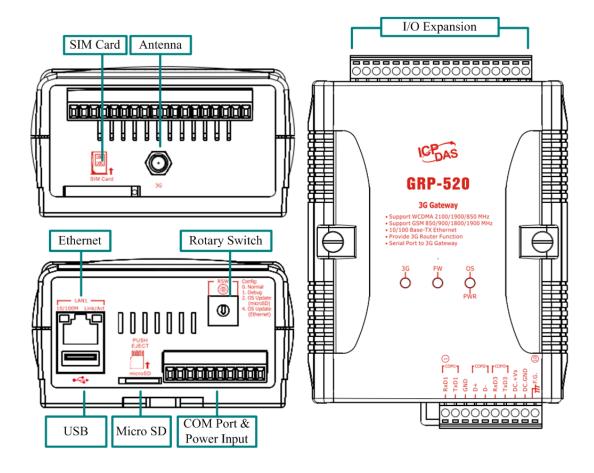
Application 3: Remote Control (Serial Port to 3G gateway)



2. Hardware

2.1 Specifications

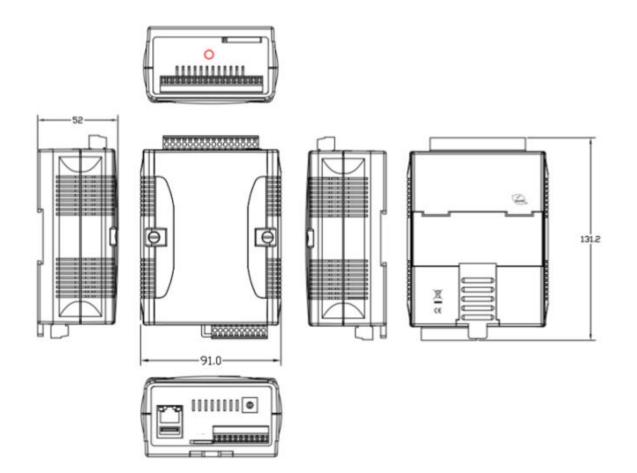
Item	GRP-520	
System / Software		
3G Gateway	Ethernet and Serial port (1x RS-232, 1x RS-485) to 3G	
Embedded service	Web Server, 3G router	
System		
CPU	ARM CPU (312MHz)	
SRAM	64 MB	
Flash	64 MB	
EEPROM	16 KB (Data Retention: 40 years; 1,000,000 erase/write cycles)	
Expansion Flash Memory	SD Card (Max. 32GB SDHC)	
Expansion Disk	USB disk (format : FAT32)	
RTC(Real Time Clock)	Provide seconds, minutes, hours, day of week/month, month and year	
64-bit Hardware Serial Number	Yes	
Watchdog Timer	Yes	
LED Indicator	3 LEDs (SYS/PWR, F.W., 3G)	
Rotary Switch	Yes (0~9)	
GSM System		
Frequency Band	GSM : 850/900/1800/1900 MHz	
GPRS connectivity	GPRS class 12/10; GPRS station class B	
DATA GPRS	Downlink transfer: Max. 85.6 kbps; Uplink transfer: Max 42.8kbps	
3G System		
Frequency Band	WCDMA 2100/1900/850 MHz	
	WCDMA/HSDPA/HSUPA	
Data Transmission	Downlink transfer: Max. 7.2Mbps; Uplink transfer: Max 5.76Mbps	
GPS System (option)		
Support Channels	32	
Protocol Support	NMEA 0183 version 3.01	
Comm. Interface		
	RJ-45, 10/100 Base-TX	
Ethernet	(Auto-negotiating, Auto MDI/MDI-X, LED indicators)	
COM1	RS-232 (RxD, TxD and GND); Non-isolated(Console, Debug)	
COM2	RS-485 (D2+, D2-); 3000 VDC isolated	
COM3	RS-232 (RxD, TxD and GND); Non-isolated	
Mechanism		
Casing	Plastic	
Dimensions(W x L x H)	91 mm x 132 mm x 52 mm (W x L x H)	
Installation	DIN-Rail	
Power		
Protection	Power reverse polarity protection	
Frame Ground Protection	ESD, Surge, EFT, Hi-Pot	
Required Supply Voltage	$+10 V_{DC} \sim +30 V_{DC}$	
Power Consumption	4.8W (200 mA @ 24 V _{DC})	
Environment		
Operation Temp.	-25°C to 75°C	
* *	-25 C to 75 C	
Storage Temp.		
Humidity 5~95% non-condensing		



2.2 Appearance and pin assignments

COM Port & Power Input			
Terminal No.		Pin Assignment	
	01	RxD1	
COM1	02	TxD1	
	03	GND	
COM2	04	D+	
COM2	05	D-	
COM3	06	RxD3	
COMS	07	TxD3	
	08	DC.+VS	
Power	09	DC.GND	
	10	F.G.	

2.3 Dimensions



2.4 LED indicators

There are three LED indicators to help users to judge the various conditions of GRP-520. The description is as follows :

A. PWR(Green) : Power LED to indicate whether the external power is input or not. The description is as follows:

The external power is active	The external power is not active
on	off

B. OS(Red) : OS LED indicates if the OS is normal or fail.

Normal	Fail	
Heart beat (1 sec.)	Always ON or OFF	

C. FW(Red) : This LED indicates the status of VxServer firmware (Serial port to 3G).

Connected	Connecting	Fail
500ms ON / 500ms OFF	Blanking(4 sec)	Always ON or OFF

D. FW(Green) : This LED indicates the status of RTU Client firmware.

Normal	Fail	
500ms ON / 500ms OFF	Always ON or OFF	

E. 3G (Red) : The LED indicates the status of 3G module.(the 3G module need about 60 seconds to register network usually)

Registered	3G/GPRS data transmit	Fail
800ms ON / 800ms OFF	200ms ON, 200ms OFF	Always ON or OFF

2.5 Rotary Switch

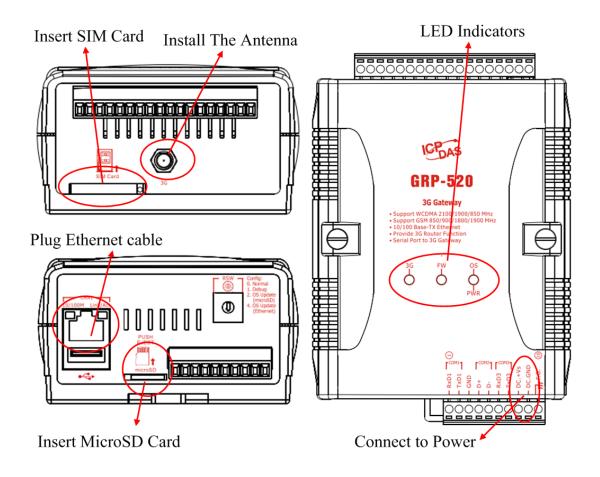
There are some functions of rotary switch. The description is as follows :

- A. 0 : Normal mode, default position.
- B. 1 : Debug mode, this a engineering mode, we can communicate with the OS console.
- C. 2: OS Update with MicroSD card. 2G SD card is supported.
- D. 4: OS Update with Ethernet. It is used in the factory. Please don't use it.
- E. 8 : Factory default setting. If you forgot your password, you can follow the steps below:
 (1) set rotary switch as 8
 (2) and connect TxD3 and RxD3 together
 (3) reset your device
 (4) if the Red and Green FW Led blinking, it means restore as factory default setting successfully. Please turn rotary switch as 0.
- F. 9 : Factory default IP. If you set as 9, and then reset the device, its Ethernet IP will be "192.168.255.1". if you forgot your device IP, you can use this function to re-configure your device IP.

2.6 Installing GRP-520

If users want to start GRP-520 normally, it needs to follow these steps to install the GRP-520 below:

- A. Install the antenna
- B. Plug in the normal SIM card (Before apply the SIM card, confirm it is OK by mobile phone.)
- C. Plug the Ethernet cable if you need it.
- D. If you want to use the Micro SD card, please insert it into the slot.
- E. Turn the rotary switch to 0 (normal mode). The COM1 will be the console in position 1 (debug mode), and the default username is "root", default password is "root".
- F. Connect the DC.+VS and DC.GND to the power supply.
- G. It is needed to wait about 20 ~ 30 seconds for OS booting. After finishing the process, GRP-520 would be in normal operation mode and the OS LED would blank as heart beat per 1 sec.
- H. It is needed to wait about 30 ~ 60 seconds to search the 3G/2G base and register to the ISP. After finishing the process, the 3G LED would blank per 1 sec.



3. Web Utility

You must configure GRP-520 from web utility before using.

3.1 Login the Utility

Please login before you use the web utility. The default username is "admin", and the default password is "admin"

Default IP = "192.168.255.1"

Default Mask = "255.255.0.0"

Default Gateway = "192.168.0.1"



After login, the screenshot is showed as below:

--Backup/Restore --Restore Factory --Time --System Service VxServer --VxServer Web Ver:1.0.0 2013/03/04

	DAS	
nformation -Device Info		Ethernet
Network Info	Mode	static
Storage Info	MAC address	00:0D:E0:20:00:09
letwork Ethernet	IP Address	192.168.27.52
2G/3G	Mask	255.255.0.0
3G/GPRS econnection	L	
DNS DDNS		3G/GPRS Network information
DHCP Server	Status	connected
Routing Port Mapping	IP Address	1.200.149.90
Diagnostic	P-t-P	10.64.64
ystem	Mask	255.255.255.255
Password Reboot	, .	

Modem information	
PIN Code READY	
Register Status Registered	
Signal Quality 46%	

3.2 Information

You can get the basic information of the device here.

3.2.1 Device Information

This page provides basic device information:

Device Information	
Product Name GRP-520	
Serial Number 01 00 00 15 EC D2 6C 7A	
Kernel Version 2.6.34	

(1) Product Name: the Name of your product

(2) Serial Number: only one number of ICPDAS product

(3) OS Kernel Version: linux kernel version.

3.2.2 Network Information

This page provides basic network information:

Ethernet	
Mode	static
MAC address	00:0D:E0:20:00:09
IP Address	192.168.255.1
Mask	255.255.0.0

3G/GPRS Network information	
Status	connected
IP Address	1.200.28.120
P-t-P	10.64.64.64
Mask	255.255.255.255

Modem information		
PIN Code	READY	
Register Status	Registered	
Signal Quality	56%	

- (1) Ethernet: Ethernet information
 - \cdot Mode: static IP or DHCP
 - \cdot MAC address: a unique identifier assigned to network interfaces.
 - · IP Address: a computer's address under the Internet Protocol
 - Mask: Mask will be provided from Gateway provider.
- (2) 3G/GPRS Network information: the information will show out after dial up
 - \cdot Status: "connected" mean the modem dial-up success.
 - \cdot IP Address: the IP is provide by ISP provider.
 - P-t-P: provide by ISP provider
 - \cdot Mask: provide by ISP provider
- (3) Modem information:
 - \cdot PIN Code: the status of PIN Code. Please refer to below:

READY: PIN Code is ready.

SIM PIN: need PIN code of SIM card

- SIM PUK: need PUK code of SIM card
- SIM failure: Access SIM Card failure

- Register Status: Indicating GRP-520 connect to 3G base successful or not.
- Signal Quality: the 3G signal quality.

3.2.3 Storage Information

This page provides information about "Micro SD card", "USB Disk":

USB Disk	
Size	3936220 KB
used	2584 KB
Available	3933636 KB
Path (Mount Point)	/media/usbhd-sda1

Micro SD Card	
Size	31154688 KB
used	25344 KB
Available	31129344 KB
Path (Mount Point)	/media/mmcblk0p1

- (1) USB Disk / SD card:
 - \cdot Size: total size of storage
 - \cdot used: the size is used
 - \cdot Available: free space in the storage
 - \cdot Path: the mount point in file system.

3.3 Network

The user can configure the Network functions here.

3.3.1 Ethernet

This page provides the basic settings of Ethernet:

Ethernet		
IP Address	192.168.27.50	
Mask	255.255.0.0	
Gateway	192.168.0.53	
Modify		

- (1) IP Address: IP of Ethernet.
- (2) Mask: the Mask of the gateway.
- (3) Gateway: IP of the gateway.

3.3.2 3G Configure

This page provides basic settings of 3G network:

2G/3G Configure		
PIN Code		
Phone Number	*99***1# (1)	
APN	internet (2)	
User Name	(2)	
Password	(2)	
Auto-Dialing	Enable	
Modify		
(1):usually use *99# or *99***1# (2):please ask your SIM Card provider		

- (1) PIN Code: PIN Code are 4 character number provided by SIM Card provider
- (2) Phone Number: usually fill it as "*99***1#" or "*99#". The number is depended on SIM Card provider
- (3) APN: Access Point Name, please ask your SIM Card provider.

- (4) User Name: the username for dial-up. Please ask your SIM Card provider.
- (5) Password: the password for dial-up. Please ask your SIM Card provider.
- (6) Auto-Dialing: Enable this function to dial-up to 3G network after power on.

3.3.3 3G/GPRS Reconnection

This function can keep the device always on 3G/GPRS network, but it will send the IMCP signals to check 3G/GPRS network.

The default setting is "Disable" to prevent it from using extra packets.

PS. Some ISP upgrades their system cause GRP-520 difficult to dial-up in Taiwan. Please enable this function to avoid this problem. When GRP-520 dial-up fails, it will try to solve this problem automatically. (It maybe take about 10 minutes, and this problem was solved in v1.1.1 and later).

3G/GPRS Reconnection		
Server IP	8.8.8.8	
Max. Retry	10	
Interval Time	30	
Timeout	50	
Enable Funcion	Enable	
Alive	False	
Firmware Version	v1.1.1 2014/01/13	
Modify		
(1):This function will run immediately after you press "Modify" button		
(2):GSM module will be reset after Max. retry		
(3):System will reboot after GSM module reset 100 times		

- (1) Server IP: the target IP or URL that you want to send signal (ping the target IP).
- (2) Max. Retry: if the system retry time is over this number, it will reset 3G modem and dial-up to try again.
- (3) Interval Time: the interval time between this retry and last.
- (4) Timeout: the device will connect to 3G network for a period of 50 second (default value) after resetting the Modem, and then the system will start check the connection of 3G network.
- (5) Enable Function: if you enable this function, it will run immediately.
- (6) Alive: the firmware status. "true"(color green) means "alive". "false"(color gray) means "not alive"..

3.3.4 VPN Client Configure

The user can set VPN Client configure here:

VPN Client Configure (support PPTP VPN)		
Server Address		ex.: us.pptpvpn.org
User Name	L. S.	ex.: pptpvpn.org
Password	*////#*/\$*	ex.: 7911
Enable	☑ Enable	
Alive	True	
Firmware Version	v1.0.0 2014/11/10	
Modify		

- (1) Server Address: VPN Server address.
- (2) User Name: user name for VPN Server.
- (3) Password: password for VPN Server

3.3.5 DNS Server

The user can set DNS server IP here:

DNS Server		
Primary DNS Server	168.95.1.1	
Alternate DNS Server	8.8.8.8	
Modify		

- (1) Primary DNS Server: the device will use it to get DNS service first.
- (2) Alternate DNS Server: if "Primary DNS Server" is invalid, the device will use "Alternate DNS Server".

3.3.6 DDNS Configure

DDNS is a method of updating, in real time, a Domain Name System (DNS) to point to a changing IP address on the Internet:

DDNS Configure		
Server	default@no-ip.com 💌	
Domain	yourDomain.no-ip.org	
Username	yourUserName	
Password	yourPassword	
Period	ω seconds	
Enable	☑ Enable	
Modify		

- (1) Server: the address of DDNS service provider.
- (2) Domain: The domains name you registered.
- (3) Username: the username of DDNS service.
- (4) Password: the password of DDNS service.
- (5) Period: the period time (seconds) to update your address.
- (6) Enable: Enable DDNS function.

3.3.7 DHCP Server

The Device could be a DHCP Server. The user can set the IP range for DHCP client.

DHCP Server		
Subnet	192.168.0.0	
Netmask	255.255.0.0	
Lease-time	43200	
Routers	192.168.255.1	device IP=192.168.255.1
Range	192.168.255.100	~ 192.168.255.125
Enable	Enable	
Modify		

(1) Subnet, Netmask, Lease-time: these items are read-only.

(2) Routers: the router IP. It usually is set as your device IP.

(3) Range: the IP range that DHCP server assign to DHCP client.

(4) Enable: Enable DHCP Server service.

* If your device need link to Internet via 3G/GPRS, please enable the "Routing rule" for "DHCP Range" here. About "routing rule", please refer next section.

3.3.8 Routing

ROUTING Rule			
Rule NO.	IP	Mask	Target
0	192.168.27.0	24 💌	ppp0 🔽
1	192.168.0.0	28 💌	ppp0 💌
2		~	~
3		~	~
4		~	~
5		~	~
6		~	~
7		~	~
8		~	~
9		~	~
Modify			

This page provides routing rule configuration.

- (1) IP: IP address.
- (2) Mask: the mask will effect how many IP this rule manages.

"24" = 255 IPs, "28" = 16 IPs, "32" = 1 IPs.

(3) Target: the target interface of the rule.

For example:

The Rule 0: This rule will push the socket packages from the address 192.168.27.0 ~ 192.168.27.255 forward to "ppp0" (3G network).

The Rule 1: This rule will push the socket packages from the address 192.168.0.0 ~ 192.168.0.15 forward to "ppp0" (3G network).

3.3.9 Port Mapping (Port Forward)

Port Mapping Rule					
Rule NO.	Туре	From	Port	Target IP	Target Port
0	TCP 🔽	ppp0 💌	10080	192.168.0.10	80
1	TCP 💌	ppp0 💌	10021	192.168.0.10	21
2	~	~			
3	~	~			
4	~	~			
5	~	~			
6	~	~			
7	~	~			
8	~	~			
9	~	~			
Modify					

This page provides Port Mapping rule configuration.

- (1) Type: the protocol type. There are "TCP" and "UDP"
- (2) From: the interface that the socket comes from."ppp0" is 3G interface.
- (3) Port: the port that the socket comes from.
- (4) Target IP: the IP that the socket goes forward.
- (5) Target Port: the Port of the "Target IP".

For example:

The Rule 0: This rule will bind the socket from the "ppp0" and Port="10080" with 192.168.0.10:80.

The Rule 1: This rule will bind the socket from the "ppp0" and Port="10021" with 192.168.0.10:21.

3.3.10 Diagnostic

This page provides the tools to check the problem of the network.

	Ping Test
Target IP	8.8.8.8
Result	
	ping

Traceroute			
Target IP	8.8.8.8		
Result			
traceroute			
	This function will take time more than 2 minute.		

Route Information				
Result	Result			
	route			

(1) Ping Test: this tool will ping "Target IP", and show result below.

(2) Traceroute: this tool will trace routing path to "Target IP", and show the result below.

(3) Route Information:: this tool will show route setting below.

3.4 System

The user can configure "password", "system parameter", reboot the device and restore factory settings here.

3.4.1 Password

The user can change the password of the web utility here.

Change Password			
New Password			
Confirm			
Modify			
The length of password must be more then 4 characters that limited in a~z, A~Z, 0~9.			

- (1) Password: new password.
- (2) Confirm: confirm the password again.

3.4.2 Reboot

The user can reboot the device here.

Notice!!
Are you sure to reboot? plese wait a minute for system rebooting after you press reboot button.
Reboot

3.4.3 Reboot Timer

The user can use this function to reboot system automatically.

Reboot Timer (Reboot system automatically)			
Reboot Time (everyday)	0 : 0 (hour:minute)		
Enable Funcion	☑ Enable		
Alive	True		
Firmware Version	v1.1.0 2015/01/08		
Modify			
(1):This function will run immediately after you press "Modify" button			

- (1) Reboot Time (everyday): the time for rebooting system.
- (2) Enable: Enable Reboot Timer function.

3.4.4 Backup & Restore

The user can backup the device settings and restore it here.

Backup & Restore			
Backup Backup			
Restore	瀏覽… Restore		

- (1) Backup: Press "Backup" button to backup settings into your PC.
- (2) Restore: Press "Browse" button to select file, and then press "Restore" button to store your settings.

3.4.5 Restore Factory

The user can restore the device setting to factory default.

Restore Factory Setting
The device will reboot after restoring factory settings.
Restore

3.4.6 System Time

This page provide information about the time of the device.:

Time Configure			
Device Time (24-hour)	2014 / 08 / 06 16 34 58 Set Time		
NTP Server (Time Server) tock.stdtime.gov.tw Ex: tock.stdtime.gov.tw			
Timezone +8 v check timezone			
Enable NTP Funcion	☑ Enable		
Alive True			
Firmware Version	v1.0.0 2014/05/22		
Modify			

- (1) Set Time: set the time of GRP-520 the same as your computer.
- (2) NTP Server: device will connect to the NTP Server to synchronize time.
- (3) Timezone: if you do not know your timezone, please click the link "check timezone" to find out.
- (4) Enable NTP Function: if you enable it, GRP-520 will update time automatically.

3.4.7 System Service

This page indicates the status of system services.

System Process Configure			
Process Name	Alive	Start	Stop
pppd	false	Start	Stop
dhcpd	false	Start	Stop
ddns	true	Start	Stop
If you operate the services here but not config page, the result will disappear after reboot.			

- (1) Process Name:
 - pppd: this process will dial-up to 3G network.
 - dhcpd: DHCP Server.
 - \cdot ddns: ddns client process. It will auto update IP.
- (2) Alive: the process status. "true"(color green) means "alive". "false"(color gray) means "not alive".

- (3) Start: click the button to start this process.
- (4) Stop: click the button to stop this process.

3.5 VxServer

The user can configure VxServer firmware here.

3.5.1 VxServer

The user can configure VxServer firmware here.

Virtual COM Function (VxServer)			
Server IP	192.168.1.1		
Server Port	11000	default=11000	
Heartbeat Time	10	10~65535 seconds	
Device ID	1	1~255, unique ID for device	
Alias	GRP-520	Max. Length = 8	
Time Interval	50	1~5000 ms, default=50	
Data Length	1000	10~1000 bytes, default=1000	
Modbus TCP to RTU (Port1)	False 🗸 COM2 of GRP-520> TCP Port 10001		
Modbus TCP to RTU (Port2)	False 🔽 COM3 of GRP-520> TCP Port 10002		
Default Baudrate (Port1)	115200 🖌 bps		
Default Baudrate (Port2)	115200 🖌 bps		
Default Format (Port1)	8N1 🔽 (Data bit, Parity, Stop bit)		
Default Format (Port2)	💵 🔽 (Data bit, Parity, Stop bit)		
Enable Funcion	Enable		
Alive	False		
Firmware Version	V1.01 2014/01/29		
Modify			
(1)Heartbeat Time: if this value is small, it is sensitive to detect network disconnected			

(2)Virtual IP: please set it different from other virtual COM device

- (1) Server IP: Server IP or URL.
- (2) Server Port: the port of the server.
- (3) Heartbeat Time: if setting this value small, it is sensitive to detect network disconnected.
- (4) Device ID: ID of the device. If you set it as "1", you will find that "visual IP" is "192.168.20.1" on the server side.
- (5) Alias: an alias of device. Max. length is 8 characters.

- (6) Time Interval: if the Time Interval between the two serial port data is more than this value, the data will be sliced into two network packet. And if there is no enough time interval, but data length is over 1000 bytes (default value), the data still be sliced into two network packet.
- (7) Data Length: if serial port data length is over this value, the data will be sliced into two packets. Usually you just set this value as 1000 if you don't need this function. (this value is limited by network protocol)
- (8) Modbus TCP to RTU: Modbus/TCP to Modbus/RTU gateway function. Port1 is COM2 of GRP-520 (RS-485); Port2 is COM3 of GRP-520 (RS-232).
- (9) Default Baudrate: this value is dependent on your Modbus RTU device. Please set this value is the same as your Modbus RTU device.
- (10) Default Format: configuration of "Data bits", "Parity" and "Stop bit".
 - 8, 7 mean 8 or 7bits of Data bits
 - N, O, E mean None, Odd, Even of Parity
 - 1, 2 mean 1 or 2 bits of Stop bit
- (11) Enable Function: Enable the firmware immediately.
- (12) Alive: the firmware status. "true"(color green) means "alive". "false"(color gray) means "not alive".

3.6 RTU Client

The user can configure RTU Client function here. The RTU Client function will connect to RTU Center, please refer GRP-520 website for more information.

3.6.1 RTU Client

The user can configure RTU Client firmware function here. There are three tabs: (1)Main Info. (2)Modbus Number (3)FTP/Email

• Main Info. Tab:

Main Info.	Modbus Device FTP / Email		
Server Address		Mar Report]
Server Port		10000	default=10000
Station ID		1	1~65535
Data Update Period(sec.)		5	0~86400 (0=disable)
Heartbeat Period(sec.)		0	1~86400 (a day)
Baud Rate (RS-485 for M	odbus/RTU)	9600 v bps	
Data Bit		8 •	
Parity		N V	
Stop Bit		1 •	
Modbus Timeout (ms)		1000	50~99999, default=1000
Enable Firmware		🗹 Enable	
Alive		True	
		Modify	

- (1) Server Address: Server IP or Domain Name.
- (2) Server Port: the port of the server.
- (3) Station ID: the ID for this device. (do not be the same with other RTU device)
- (4) Data Update Period (sec.): set report time interval. GRP-520 will report all data to RTU Center every interval time your setting.
- (5) Heartbeat Period (sec.): set heartbeat time interval. 3G/GPRS connection will be terminate by ISP, this parameter can detect broken connection early. "Heartbeat Period" must be smaller than "Data Update Period".

- (6) Baud Rate (RS-485 for Modbus/RTU): the baud rate of the COM2 (RS-485).
- (7) Data bit: the data bit of COM2.
- (8) Parity: the parity bit of COM2.
- (9) Stop bit: the stop bit of COM2.
- (10) Modbus Timeout (ms): the Timeout value of Modbus.
- (11) Enable Function: enable the RTU Client function.
- (12) Alive: the firmware status. "true"(color green) means "alive". "false"(color gray) means "not alive".
- Modbus Device: the interface for adding Modbus I/O device.

Main Info. Modbus N	Tumber Email/FTP
Modbus Device Number : 1 1 Name : Custom	Add ET-7005 Custom Edi ET-7002 ET-7005 ET-7015 ET-7016 ET-7017 ET-7017 ET-7017 ET-7018 ET-7019

Main Info.	M	odbus Device Email/FTP
Modbus Device Num	ber:0	Add ET-7050 🔻
1 Name :		Edit Delete
Device Name	ET-7050	Max Length=20
Device ID	1	1~255
IP	192.168.11.25	empty for Modbus/RTU
Port	502	Default=502, 1~65535
DI Number	12	0~32
DO Number	6	0~32
AI Number	0	0~16
AO Number	0	0~16
DI Address	0	0~65535
DO Address	0	0~65535
AI Address	0	0~65535
AO Address	0	0~65535
	Mo	dify Cancel

(1) Modbus Device Number: display the modbus device number here.

You can choose a model in the list, and then use the "Add" button to add a new modbus device.

- (2) Device Name: the Name of the modbus device. This Name will be showed in RTU Center.
- (3) Device ID: the modbus ID.
- (4) IP: the IP of modbus/TCP device. Keep it empty for Modbus/RTU device.
- (5) Port: the Port number of modbus/TCP device.
- (6) DI Number: the number of DI channel.
- (7) DO Number: the number of DO channel.
- (8) AI number: the number of AI channel.
- (9) AO number: the number of AO channel.
- (10) DI Address: the start address for reading DI value.
- (11) DO Address: the start address for reading DO value.
- (12) AI Address: the start address for reading AI value.
- (13) AO Address: the start address for reading AO value.

• FTP / Email:

this function will send back all I/O data log file automatically. The period time to send is depending on "Max. Time per Log File (hour)" parameter.

Main Info.		Modbus Device	FTP / Email
Data Log Interval (sec.)		5	0~86400 (0=disable)
Max. Time per Log File (m	in.)	3	3~1440 minutes
FTP Server Address		61.219.167.34	empty> disable FTP
FTP Port		221	default=21
FTP Username		test	
FTP Password		test	
Enable FTP Funcion		🕑 Enable	
Email From		abc@gmail.com Ex: abc@gmail.com	empty> disable Email
Email From Email To			empty> disable Email Ex: xyz@gmail.com
	tact	Ex: abc@gmail.com	Ex: xyz@gmail.com
Email To	tact	Ex: abc@gmail.com xyz@gmail.com	Ex: xyz@gmail.com
Email To Example for 2 or more con	tact	Ex: abc@gmail.com xyz@gmail.com xx@gmail.com,yy@gmail.co	Ex: xyz@gmail.com
Email To Example for 2 or more con Email Server	tact	Ex: abc@gmail.com xyz@gmail.com xx@gmail.com,yy@gmail.co smtp.gmail.com	Ex: xyz@gmail.com m Ex: smtp.gmail.com
Email To Example for 2 or more con Email Server Email Server Port	tact	Ex: abc@gmail.com xyz@gmail.com xx@gmail.com,yy@gmail.co smtp.gmail.com 25	Ex: xyz@gmail.com m Ex: smtp.gmail.com Ex: 25
Email To Example for 2 or more con Email Server Email Server Port Email Username	tact	Ex: abc@gmail.com xyz@gmail.com xx@gmail.com,yy@gmail.co smtp.gmail.com 25 abc	Ex: xyz@gmail.com m Ex: smtp.gmail.com Ex: 25 Ex: abc

- Data Log Interval (sec.): the time interval to record I/O data to logger file. Set as "0" to disable all function in this tab.
- (2) Max. Time per Log File (min.): the time interval to change log file and send log file via Email or FTP. GRP-520 will change logger file before the file be over 3 MB, and move old logger file into "LOGFILE" folder, and send out the file at the same time.

If you enable FTP or Email function, GRP-520 will copy old logger file into "FTP_UPLOAD" and "MAIL_UPLOAD" for sending out files.

If send FTP or Email logger file fails, GRP-520 will send files next time.

- (3) FTP Server Address: FTP Server IP or Domain Name.
- (4) FTP Port: the port of the FTP server.

- (5) FTP Username: username for login
- (6) FTP password: password for login
- (7) Enable FTP Function: enable FTP report function.
- (8) Email From: the email will be sent from this address.
- (9) Email To: the email address that will receive logger file. Using "," to separate each mail address

Example:

for single receiver: xxx@gmail.com

for multi-receiver: xxx@gmail.com,yyy@gmail.com

- (10) Email Server: the server address of the email server.
- (11) Email Server Port: the server port of the email server. Usually it will be 25, 465, or 587.
- (12) Email Username: the username of your email account.
- (13) Email Password: the password of your email account.
- (14) Enable Email Function: Enable email report function.

3.6.2 FTP Test

The user can test all configure for FTP here.

FTP Configure Test			
FTP Server Address	192.168.12.2	empty> disable FTP	
FTP Port	21	default=21	
FTP Username	test		
FTP Password	test		
Result			
Test			

- (1) FTP Server Address: FTP Server IP or Domain Name.
- (2) FTP Port: the port of the FTP server.
- (3) FTP Username: username for login
- (4) FTP password: password for login

3.6.3 Email Test

Email Configure Test				
Email From	abc@gmail.com	Ex: abc@gmail.com		
Email To	xyz@gmail.com	Ex: xyz@gmail.com		
Email Server	smtp.gmail.com	Ex: smtp.gmail.com		
Email Server Port	25	Ex: 25 or 587		
Email Username	abc	Ex: abc		
Email Password	123abc	Ex: 123abc		
Result				
Test				

The user can test all configure for Email here.

- (1) Email From: the email will be sent from this address.
- (2) Email To: the email address that will receive logger file. Using "," to separate each mail address

Example:

for single receiver: xxx@gmail.com

for multi-receiver: xxx@gmail.com,yyy@gmail.com

- (3) Email Server: the server address of the email server.
- (4) Email Server Port: the server port of the email server. Usually it will be 25, 465, or 587.
- (5) Email Username: the username of your email account.
- (6) Email Password: the password of your email account.
- (7) "Test" button: Pressing this button, GRP-520 will send a test mail to the mail address in "Email To" field.

3.6.4 Modbus Test

The user can test all configure for Modbus here. There is the result message for testing ET-7026.

	Modbus Configure Test						
Result	<pre>modbus debug start DEBUG [2014-08-15 17:20:57] [1] DI value= (0, 0) DEBUG [2014-08-15 17:20:57] [1] DO value= (0, 1) DEBUG [2014-08-15 17:20:57] [1] AI value= (65535, 65535, 65535, 65535, 65535) DEBUG [2014-08-15 17:20:57] [1] AO value= (0, 273)</pre>						
	Test						
MODE	BUS Exception Codes:						
01: ILI	LEGAL FUNCTION						
02: ILI	LEGAL DATA ADDRESS						
03: ILI	LEGAL DATA VALUE						
04: SL	AVE DEVICE FAILURE						
05: AC	05: ACKNOWLEDGE						
06: SLAVE DEVICE BUSY							
08: ME	08: MEMORY PARITY ERROR						
0A: G/	0A: GATEWAY PATH UNAVAILABLE						
0B: GA	ATEWAY TARGET DEVICE FAILED TO RESPOND						

4. Example

4.1 3G Router Application

This example shows the steps to share 3G network to 3 XPac8000.



(1) Please configure the Ethernet of XPac8000 as: IP=192.168.0.10 ~ 12

Mask="255.255.0.0" gateway = "192.168.27.51".

(2) Set the Ethernet IP of GRP-520.

Information			
<u>Network Info</u>			Ethernet
<u>Storage Info</u>		Mode	Static 💌
Network	-	IP Address	192.168.27.51
		Mask	255.255.0.0
<u>2G/3G</u> <u>DNS</u> <u>DDNS</u>		Gateway	
<u>DHCP Server</u> Routing			Modify
Port Mapping			

(3) Set Pin code of your SIM card, and Enable "Auto-Dialing" function. Set "User Name" and "Password" if your SIM card need it. Press "Modify" to save

Information	1					
<u>Device Info</u> <u>Network Info</u>		2G/3G Configure				
<u>Storage Info</u>		PIN Code				
Network Ethernet		Phone Number	*99***1#	(1)		
<u>2G/3G</u>		APN	internet	(2)		
<u>3G/GPRS</u> Reconnection		User Name		(2)		
<u>DNS</u> <u>DDNS</u>		Password		(2)		
DHCP Server		Auto-Dialing	Enable			
<u>Routing</u> <u>Port Mapping</u>			Modify			
<u>Diagnostic</u>	(1):usually use *99# or *99***1#					
System		(2):please ask your SIM Card provider				
Decement						

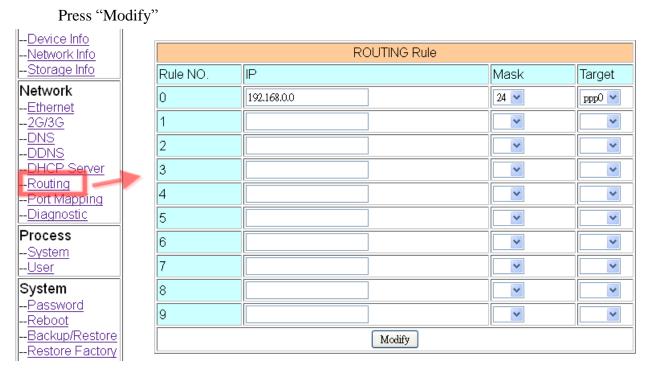
(4) Enable "3G/GPRS Reconnection" function to keep your 3G/GPRS network always online (usually, ISP will disconnect your connection once every 1~3 days).

Generally, you can set the Server IP as your server's IP or google's DNS server IP (8.8.8.8). If you use MDVPN, please set the Server IP as your Server IP that doesn't deny ICMP service (Ping).

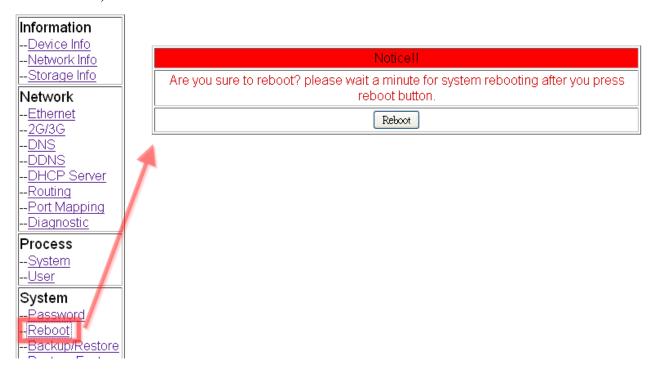
Press "Modify" after you finish all settings.

Network Info							
<u>Storage Info</u>		3G/GPRS Reconnection					
Network	Server IP	8.8.8.8					
<u>Ethernet</u> <u>2G/3G</u>	Max. Retry	10					
<u>3G/GPRS</u> Reconnection	Interval Time	30					
<u>DNS</u> <u>DDNS</u>	Timeout	50					
<u>DHCP Server</u>	Enable Funcion	🗹 Enable					
<u>Routing</u>	Alive	True					
<u>Port Mapping</u> <u>Diagnostic</u>	Firmware Version	v1.1.1 2014/01/13					
System		Modify					
<u>Password</u>	(1):This function will run imn	(1):This function will run immediately after you press "Modify" button					
<u>Reboot</u> <u>Reboot Timer</u> 	1 ° ′	(2):GSM module will be reset after Max. retry (3):System will reboot after GSM module reset 100 times					
Destrue /Destars							

(5) Set routing rule to share 3G network. This setting will share 3G network to IP address from 192.168.0.0~192.168.0.255.



(6) Please reboot GRP-520 to enable settings. (you can reboot from the web or the power source)



4.2 Web Server and IP Camera Application

This example shows the steps to share 3G network to ET-7044 and IP camera.



IP Camera

 (1) Please Set the Ethernet of ET-7044 and IP camera as: IP=192.168.0.20 ~ 22 Mask="255.255.0.0"

gateway = "192.168.27.51"

(2) Set the IP of GRP-520 as below: IP="192.168.27.51" Mask="255.255.0.0"

Information			
<u>Network Info</u>			Ethernet
<u>Storage Info</u>	1	Mode	Static 💌
Network	-	IP Address	192.168.27.51
2G/3G		Mask	255.255.0.0
<u>DNS</u> <u>DDNS</u>		Gateway	
<u>DHCP Server</u> Routing			Modify
Port Mapping			

(3) Set Pin code of your SIM card, and Enable "Auto-Dialing" function. Set "User Name" and "Password" if your SIM card need it. Press "Modify"

Information							
<u>Device Info</u> <u>Network Info</u>	2G/3G Configure						
<u>Storage Info</u>		PIN Code					
Network Ethernet		Phone Number	*99***1#	(1)			
<u>2G/3G</u>		APN	internet	(2)			
<u>3G/GPRS</u> <u>Reconnection</u>		User Name		(2)			
<u>DNS</u> <u>DDNS</u>		Password		(2)			
DHCP Server		Auto-Dialing	🗆 Enable				
<u>Routing</u> <u>Port Mapping</u>			Modify				
<u>Diagnostic</u>		(1):usually use *99# or *99***1#					
System		(2):please ask your SIM Card provider					
Decement							

(4) Enable "3G/GPRS Reconnection" function to keep your 3G/GPRS network always online (usually, ISP will disconnect your connection once every 1~3 days).

Generally, you can set the Server IP as your server's IP or google's DNS server IP (8.8.8.8). If you use MDVPN, please set the Server IP as your Server IP that doesn't deny ICMP service (Ping).

Press "Modify" after you finish all settings.

Network Info							
<u>Storage Info</u>		3G/GPRS Reconnection					
Network	Server IP	8.8.8.8					
<u>Ethernet</u> <u>2G/3G</u>	Max. Retry	10					
<u>3G/GPRS</u> Reconnection	Interval Time	30					
<u>DNS</u>	Timeout	50					
<u>DDNS</u> <u>DHCP Server</u>	Enable Funcion	🖉 Enable					
<u>Routing</u>	Alive	True					
<u>Port Mapping</u> Diagnostic	Firmware Version	v1.1.1 2014/01/13					
System		Modify					
<u>Password</u>	(1):This function will run im	(1):This function will run immediately after you press "Modify" button					
<u>Reboot</u>	(2):GSM module will be res	(2):GSM module will be reset after Max. retry					
<u>Reboot Timer</u> 	(3):System will reboot after	GSM module reset 100 times					
Destrue /Destars							

(5) Set "DDNS" function. (Because the IP of 3G usually is not a fixed IP, we use DDNS to get a fixed domain name)

Information		
<u>Device Info</u> <u>Network Info</u>		DDNS Configure
Storage Info	Server	default@no-ip.com
Network Ethernet	Domain	Land the state of
<u>2G/3G</u>	Username	I MARKA STAR BURNE STAR
DNS	Password	
DHCP Server	Period	60 seconds
<u>Routing</u> <u>Port Mapping</u>	Enable	Image: Enable
Diagnostic		Modify
Process	L	

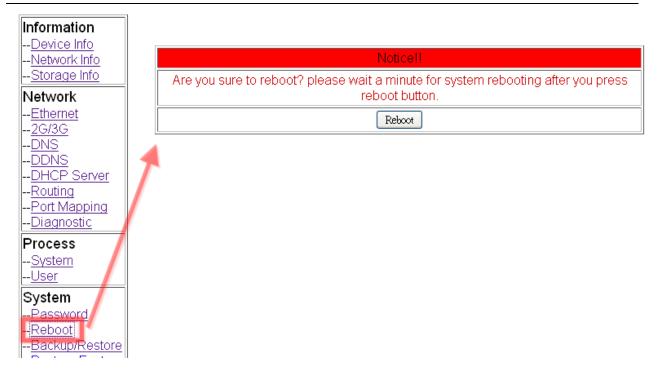
 (6) Set "Port Mapping Rule" to let user access the device behind GRP-520 via the internet. This setting will bind the port of 3G interface to "Target IP:Target Port". Port 12080 of 3G interface → 192.168.0.20:80

Port 12180 of 3G interface \rightarrow 192.168.0.21:80

Port 12280 of 3G interface → 192.168.0.22:80

Information							
<u>Device Info</u> <u>Network Info</u>		Port Mapping Rule					
Storage Info		Rule NO.	Туре	From	Port	Target IP	Target Port
Network Ethernet		0	TCP 💌	ppp0 💌	12080	192.168.0.20	80
<u>2G/3G</u>		1	TCP 💌	ppp0 💌	12180	192.168.0.21	80
<u>DNS</u> DDNS	Ζ	2	TCP 💌	ppp0 💌	12280	192.168.0.22	80
<u>DHCP Server</u> Routing		3	~	~			
<u>Port Mapping</u>		4	~	~			
<u>Diagnostic</u>		5	×	~			
Process <u>System</u>		6	×	~			
<u>User</u>		7	~	~			
System		8	~	~			
<u>Password</u> <u>Reboot</u>		9	~	~			
<u>Backup/Restore</u> Restore Factory					Modify		

(7) Please reboot GRP-520 to enable settings. (you can reboot from the web or the power source)



(8) Please type the IP address or domain name of GRP-520 in 3G network. You will look as below. (It maybe like "mygrp5k.no-ip.org:12080".)

ICP DAS tp://www.icpdas.com	=	= = = -
Configuration	Welcome to page	the ET-7000 Web configuration
Network Settings	Model Name	ET-7044
Basic Settings	MAC Address	00:0d:e0:64:44:8c
Module I/O Settings	Module Information	
Authentication	Firmware Version	1.3.0 (Mar 26 2012)
🗀 Account Management	IO Version	1.09
🔄 Accessible IP Settings	OS Version	2.2.10 (Jun 4 2009)
🔄 Web HMI	DI channels	8
🗀 Web HMI	DO channels	8
🛄 Web Edit	AI channels	0
Pair Connection	AO channels	0
More Information	SCADA Web Browser	IPC/PC TCP/IP Ethernet

(9) If you want to see the IP Camera image from web browser, please type the IP address or domain name of GRP-520 in 3G network. (It maybe like "mygrp5k.no-ip.org:12180".)

4.3 Remote I/O Control / Temperature Monitor

This example shows remote control application via "serial port to 3G gateway function".



- (1) Please connect your device (DL-100 or PLC) to serial port of GRP-520.:
- (2) If you never use VxServer, please refer the link as below: <u>http://m2m.icpdas.com/VxServer.html</u> you need download VxServer software and VxComm software, and install it on your control center.
- (3) Set Pin code of your SIM card, and Enable "Auto-Dialing" function. Set "User Name" and "Password" if your SIM card needs it. Press "Modify"

Information						
<u>Device Info</u>	2G/3G Configure					
<u>Network Info</u> <u>Storage Info</u>	PIN Code					
Network			 			
Ethernet	Phone Number	*99****1#	_(1)			
<u>2G/3G</u>	 APN	internet	(2)			
<u>3G/GPRS</u> <u>Reconnection</u>	User Name		(2)			
<u>DNS</u> <u>DDNS</u>	Password](2)			
<u>DHCP Server</u>	Auto-Dialing	Enable				
<u>Routing</u> <u>Port Mapping</u>		Modify				
<u>Diagnostic</u>	(1):usually use *99# or *99***1#	ŧ				
System	(2):please ask your SIM Card provider					
Decomord						

(4) Enable "3G/GPRS Reconnection" function to keep your 3G/GPRS network always online (usually, ISP will disconnect your connection once every 1~3 days).
Generally, you can set the Server IP as your server's IP or google's DNS server IP (8.8.8.8). If you use MDVPN, please set the Server IP as your Server IP that doesn't deny ICMP service (Ping).

Network Info						
<u>Storage Info</u>		3G/GPRS Reconnection				
Network	Server IP	8.8.8.8				
<u>Ethernet</u> <u>2G/3G</u>	Max. Retry	10				
<u>3G/GPRS</u> Reconnection	 Interval Time	30				
<u>DNS</u> DDNS	Timeout	50				
<u>DHCP Server</u>	Enable Funcion	🐨 Enable				
<u>Routing</u>	Alive	True				
<u>Port Mapping</u> Diagnostic	Firmware Version	v1.1.1 2014/01/13				
System		Modify				
<u>Password</u>	(1):This function will run immediat	ely after you press "Modify" button				
<u>Reboot</u> <u>Reboot Timer</u>	(2):GSM module will be reset afte (3):System will reboot after GSM	-				
Postern /Dostorn	L					

Press "Modify" after you finish all settings.

(5) Configure VxServer Function.

Set "Server IP" and "Server Port", the default port number is "11000".

Let other settings be default value.

Click "Enable Function" to enable VxServer function.

Press "Modify", and GRP-520 will try to connect to server.

if "Alive" field is not "True"(Green color), it mean VxServer function fail. Please check your settings again.

<u>2G/3G</u>									
<u>3G/GPRS</u> Reconnection		Vis	Visual COM Configure (VxServer)						
DNS		Server IP	192.168.27.67						
<u>DDNS</u> DHCP Server		Server Port	11000	default=11000					
Routing		Heartbeat Time	20	10~65535 seconds					
Port Mapping Diagnostic		Device ID	1	1~255, unique ID for device					
System		Alias	GRP-520	Max. Length = 8					
<u>Password</u> Reboot		Time Interval	50	1~5000 ms, default=50					
Backup/Restore		Data Length	1000	10~1000 bytes, default=1000					
Restore Factory		Enable Funcion	Enable						
System Service	_	Alive	True						
VxServer	~	Firmware Version	V1.00 2013/03/19						
<u>VxServer</u>			Modify						
Web Ver:1.0.0 2013/03/20		(1)Heartbeat Time: if this valu (2)Virtual IP: please set it diff		ve to detect network disconnected COM device					

(6) Please reset your device and un-plug your Ethernet from GRP-520, it will dial-up in 60 seconds, and then it will connect to your control center.

VxServer Ver1.01 B1 201							
ettings <u>H</u> elp <u>E</u> xi							
Virtual IP	Module	Alias	Com Number	Heartbeat	Remote Client IP	Remote Client Port	Signal Quality
127.0.20.1	GRP-520	GRP-520	2	20	111.80.236.252	59505	_ 37%
)ate / Time)13/03/21 13:01:28	Message	Vietus ID "107 0 00 /	l" ootoblichoo o pow or	nnoction (ID: 111	.80.236.252, PORT: 59505)		
013/03/21 13:01:06			67.34, Local PORT: 11		.00.230.232, FORT. 33303)		
515/05/21 15:01:00	Derver Otarie	o(200ann : 01.210.1	or.o4, Eccarr Orth. In	000)			
ver Started Local IP: 61	219 167 24 Local R	ORT: 11000 VxComn	o Driver is running				
LUCATIF. 01	LUCALE		r Driver is running.				

(7) After GRP-520 connect to VxServer, please follow steps below:

- (a) Press "Search Servers" button, you will get a device list.
- (b) Click right button of the mouse on GRP-520
- (c) Click "Add Server".
- (d) choose the virtual com port number

(e) change setting tab to "Server Options", and then set as screenshot. (you software polling time-out must more than 3 sec.

(f) click "OK"

of ¥xComm Utility [v2.12.	00, Mar.07, 201	3]							
<u>File S</u> erver <u>P</u> ort <u>T</u> ools									
	Þ	Configu	re Server		Configure Port				
driver & utility	····· V×Comm	Servers			Port	Virtual COM	Baudrate		
Where remote serial devices become part of your PC									
Add Server(s)									
Remove Server									
👔 Web ^(a)					<u> </u>				
Search Servers	Name FCM-MTCP	Alias iDCS-8830	IP Address 192.168.0.4	Sub-ne 255.25	t Mask 5.255.0	Gateway	MAC Ad	dress 0:d0:75:2e	
Configuration (UDP)	GRP-520	GRP-520	127.0.20.1		5.255.255	1 2 7 0 20 1 ////Ping Server	46-46-74-0		
	(b	o)				Diagnostic			
Exit	,	·			(c)				
	<				(0)	Add Server	(\$)		
Status									
A 112-0 0								1	
Adding Servers							×	4	
IP Range Serve	er Options	Port Optic	ons						
- Server Inform	nation —								
Server Name		20		Get naп	ne auton	natically			
IP Range Star	t: 127.0.2	20.1		2kin du	plicated	ю			
IP Range End	1			okih aal	piicaicu	11-			
-	1								
Includes the f		eway) 🗌	255 (Bros	(taet)					
, o lited)	234 (080	ondy]	200 (0108	acaby					
Virtual COM a	and I/O Por	t Mappings	;						
COM Port :	COM1	1 🔽							
🛛 🗆 🗆 Fixed baud			ings of ser	vers.				ł	
☐ Maps virtu			-					1	
Maps virtu	ar com po		wo on se	ivers.					
<u> </u>					OK				
					ок		ncel		

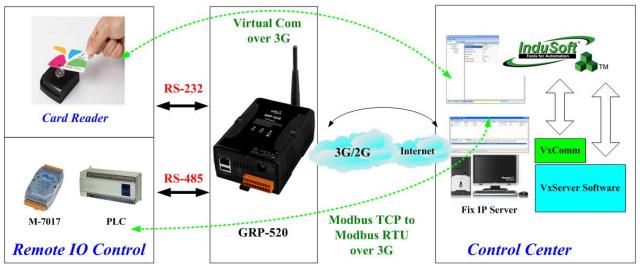
4	lding Servers								
	IP Range Server Options Port Options								
	The following items are all PC side settings, not device settings.								
	Keep Alive Time (Seconds) : 1								
	Connection Broken (Seconds) : 3								
	Connect Timeout (Seconds) : 1								
	Command Port (TCP): 10000								
	Virtual I/O Port (TCP): 99999								

(8) You will see virtual com port: COM11, COM12, but it can't be opened. Click "tool"/"Restart Driver" to restart VxComm driver. Open com port to connect your device. (In this case, COM11 is RS-485, COM12 is RS-232 of GRP-520.)

💞 ¥xComm Utility [v2.12.0	0, Mar.07, 2013	31						
<u>File S</u> erver <u>P</u> ort <u>Tools</u>								
System Information MRestart Driver Configure Server				Configure Port				
driver & utility			_		Port	Virtual COM	Baudrate	
Where remote serie series become part of your PC	GRP-52	0 (127.0.20.1)	I		Port I/O Port 1	Reserved COM11	N/A Dynamic	
Add Server(s)					Port 2	COM12	Dynamic	
X Remove Server								
🥑 Web		41:		Cub - a	 + bd= =l:	Catavara		_
Search Servers	Name FCM-MTCP	Alias iDCS-8830	IP Address		t Mask	Gateway 192.168.0.25	MAC Address 4 00:0d:e0:d0:75:2	<u> </u>
	GRP-520	GRP-520	192.168.0.4 127.0.20.1		5.255.0 5.255.255	127.0.20.1	4 00:00:e0:00:75:2 ff:ff:7f:00:14:01	:e
Configuration (UDP)	Cita SEO		121.0.20.1	233.23	5.255.255	121.0.2011		
Exit								
	<							>
Status: OK								1

4.4 Modbus/TCP to Modbus/RTU over 3G, and Card Reader Monitor

This example shows Modbus/TCP to Modbus/RTU over 3G function". After steps below, please set "IP:Port" of Modbus/TCP program as "127.0.20.1:10001" on your control center (Port 10001 is RS485; Port 10002 is RS232)



- Please connect your device (M-7017 or PLC) to RS-485 of GRP-520.
 Baudrate of Modbus device is 9600 bps, data format is 8N1 (Data bits, Parity, Stop bits).
 Baudrate of Card Reader is 115200 bps
- (2) If you never use VxServer, please refer the link as below:

http://m2m.icpdas.com/VxServer.html

you need download VxServer software and VxComm software, and install it on your control center.

(3) Set Pin code of your SIM card, and Enable "Auto-Dialing" function. Set "User Name" and "Password" if your SIM card needs it.

<u>Device Info</u> <u>Network Info</u>		2G/3G Configure					
<u>Storage Info</u>	PIN Code						
Network Ethernet	Phone Number	*99***1#	(1)				
<u>2G/3G</u>	 APN	internet	(2)				
<u>3G/GPRS</u> Reconnection	User Name		(2)				
<u>DNS</u> DDNS	Password		(2)				
DHCP Server	Auto-Dialing	Enable					
<u>Routing</u> <u>Port Mapping</u>		Modify					
Diagnostic	(1):usually use *99# or *99***1#						
System	(2):please ask your SIM Card pro	vider					

Press "Modify"

(4) Enable "3G/GPRS Reconnection" function to keep your 3G/GPRS network always online (usually, ISP will disconnect your connection once every 1~3 days).
Generally, you can set the Server IP as your server's IP or google's DNS server IP (8.8.8.8). If you use MDVPN, please set the Server IP as your Server IP that doesn't deny ICMP service (Ping).

Network Info						
<u>Storage Info</u>		3G/GPRS Reconnection				
Network	Server IP	8.8.8.8				
<u>Ethernet</u> <u>2G/3G</u>	Max. Retry	10				
<u>3G/GPRS</u> Reconnection	 Interval Time	30				
<u>DNS</u> DDNS	Timeout	50				
<u>DHCP Server</u>	Enable Funcion	🐨 Enable				
<u>Routing</u>	Alive	True				
<u>Port Mapping</u> Diagnostic	Firmware Version	v1.1.1 2014/01/13				
System		Modify				
<u>Password</u>		ely after you press "Modify" button				
<u>Reboot</u> <u>Reboot Timer</u>	(2):GSM module will be reset afte (3):System will reboot after GSM	-				
 Declare /Dectare						

Press "Modify" after you finish all settings.

(5) Configure VxServer Function.

Set "Server IP" and "Server Port", the default port number is "11000".

For Card Reader:

Please just set Port2 (RS-232) as default value.

For Modbus RTU device:

Please configure as below

Click "Enable Function" to enable VxServer function.

Press "Modify", and GRP-520 will try to connect to server.

If "Alive" field is not "True"(Green color), it mean VxServer function fail. Please check your settings again.

<u>Device Into</u> Network Info	V	rtual COM Function (V	/xServer)			
Storage Info	Server IP	192.168.27.67				
Network Ethernet	Server Port	11000	default=11000			
<u>2G/3G</u>	Heartbeat Time	10	10~65535 seconds			
<u>3G/GPRS</u> Reconnection	Device ID	1	1~255, unique ID for device			
<u>DNS</u>	Alias	GRP-520	Max. Length = 8			
<u>DDNS</u> <u>DHCP Server</u>	Time Interval	50	1~5000 ms, default=50			
<u>Routing</u> <u>Port Mapping</u>	Data Length	1000	10~1000 bytes, default=1000			
<u>Diagnostic</u>	Modbus TCP to RTU (Port1)	True 🔽 COM2 of GRP-520> TCP Port 10001				
System	Modbus TCP to RTU (Port2)	False 🔽 COM3 of GRP-520> TCP Port 10002				
<u>Password</u> Reboot	Default Baudrate (Port1)	9600 👽 bps				
<u>Reboot Timer</u> Backup/Restore	Default Baudrate (Port2)	115200 🕶 bps				
Restore Factory	Default Format (Port1)	🛛 🛛 🛛 8N1 🔽 (Data bit, Pa	rity, Stop bit)			
<u>Time</u> System Service	🛒 Default Format (Port2)	🛛 🛛 🛛 8N1 💌 (Data bit, Pa	rity, Stop bit)			
VxServer_	Enable Funcion	Enable				
<u>VxServer</u>	Alive	True				
Web Ver:1.1.0	Firmware Version	V1.01 2014/01/29				
2013/12/26		Modify				
	(1)Heartbeat Time: if this val (2)Virtual IP: please set it dif		ve to detect network disconnected I COM device			

(6) Please reset your device and un-plug your Ethernet from GRP-520, it will dial-up in 60 seconds, and then it will connect to your control center.

Virtual IP	Module	Alias	Com Number	Heartbeat	Remote Client IP	Remote Client Port	Signal Quali
127.0.20.1	GRP-520	GRP-520	2	20	111.80.236.252	59505	37%
ate / Time	Message						
3/03/21 13:01:28			1" establishes a new co	onnection. (IP: 111.)	80.236.252, PORT: 59505)		
3/03/21 13:01:06	Server Start	ed(Local IP: 61.219.1	167.34, Local PORT: 11	000)			

- (7) After GRP-520 connect to VxServer, please follow steps below:
 - (a) Press "Search Servers" button, you will get a device list.
 - (b) Click right button of the mouse on GRP-520
 - (c) Click "Add Server".
 - (d) choose the virtual com port number, and click "OK"

💞 ¥xComm Utility [v2.12.0	00, Mar.07, 2013	3]						
<u>File S</u> erver <u>P</u> ort <u>T</u> ools								
Configure Server				Configure Port				
VxComfiver & utility Where remote series become part of your PC	V×Comm S	Gervers			Port	Virtual COM	Baudrate	
Add Server(s)								
Remove Server								
44	Name	Alias	IP Address	Sub-ne	t Mask	Gateway	MAC Ad	dress
Search Servers	FCM-MTCP GRP-520	iDCS-8830 GRP-520	192.168.0.4 127.0.20.1		5.255.0 5.255.255	192.168.0.25	4 00:0d:el	D:d0:75:2e D:14:01
Configuration (UDP)						////Ping Server		
Exit	(b)			(c)	Diagnostic		n
	<				(-7		×7	
Status	,							

Adding Servers			×
IP Range Server	Options Port Options		
- Server Informat	ion		
Server Name :	GRP-520	Get name automatically	
IP Range Start :	127.0.20.1	Skip duplicated IP	
IP Range End :	127.0.20.1		
	owing special IP :	(D)	
	254 (Gateway) 🔲 255	(Broadcast)	
Virtual COM and	d I/O Port Mappings		
COM Port :	СОМ11 🔽		
	te, use current settings		
Maps virtual	COM ports to "Port I/O"	on servers.	
		OK Cancel	
			1

(8) You will see virtual com port: COM11, COM12, but it can't be opened.

Click "tool"/"Restart Driver" to restart VxComm driver.

Open com port to connect your device.

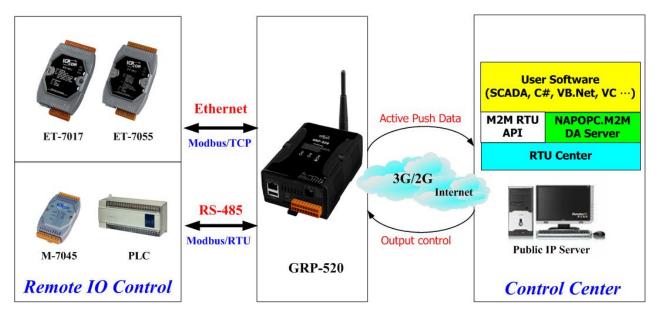
(In this case, COM11 is RS-485, COM12 is RS-232 of GRP-520. Please don't open COM11, because it's Modbus/TCP to Modbus/RTU mode)

💞 ¥xComm Utility [v2.12.0	00, Mar.07, 2013	3]					
<u>File S</u> erver <u>P</u> ort <u>T</u> ools							
C.System In		Configu	re Server			Configu	re Port
driver & utility					Port	Virtual COM	Baudrate
Where remote series devices become part of your PC	GRP-52	20 (127.0.20.1)	l		Port I/O Port 1	Reserved COM11	N/A Dynamic
Add Server(s)					Port 2	COM12	Dynamic
X Remove Server							
🥑 Web							
AA	Name	Alias	IP Address		t Mask	Gateway	MAC Address
Search Servers	FCM-MTCP	iDCS-8830	192.168.0.4		5.255.0	192.168.0.25	
Configuration (UDP)	GRP-520	GRP-520	127.0.20.1	255.25	5.255.255	127.0.20.1	ff:ff:7f:00:14:01
Exit							
	<						
Status: OK							

4.5 RTU Client for Remote Control Application with RTU API.

This example shows how to use RTU API to collect and control remote Modbus/RTU and Modbus/TCP I/O with RTU Client / Server.

There are ET-7017, M-7045, and a PLC in this system.



- (1) Please connect your device (ET-7k or M-7k modules) to Ethernet or RS-485 of GRP-520.:
- If you never use RTU Center, please refer the link as below: <u>http://m2m.icpdas.com/m2m_rtu.html</u>
 If you need OPC solution, please refer the link as below:

http://m2m.icpdas.com/NAPOPC_M2M.html

- If you need RTU library to develop your own software, please refer the link as below: <u>http://m2m.icpdas.com/m2m_rtu_api.html</u>
- (3) Set Pin code of your SIM card, and Enable "Auto-Dialing" function. Set "User Name" and "Password" if your SIM card needs it. Press "Modify"

<u>Device Info</u> Network Info		2G/3G Configure		
Storage Info	PIN Code			
Network Ethernet	Phone Number	*99***1# (1)		
<u>2G/3G</u>	APN	internet (2)		
<u>DNS</u> DDNS	User Name	(2)		
DHCP Server	Password	(2)		
<u>Routing</u> <u>Port Mapping</u>	Auto-Dialing	☑ Enable		
<u>Diagnostic</u>		Modify		
Process <u>System</u> <u>User</u>	(1):usually use <mark>*99#</mark> or *99*** 1# (2):please ask your SIM Card provider			

(4) Enable "3G/GPRS Reconnection" function to keep your 3G/GPRS network always online (usually, ISP will disconnect your connection once every 1~3 days).

Generally, you can set the Server IP as your server's IP or google's DNS server IP (8.8.8.8). If you use MDVPN, please set the Server IP as your Server IP that doesn't deny ICMP service (Ping).

Press "Modify" after you finish all settings.

<u>Network Info</u>							
<u>Storage Info</u>		3G/GPRS Reconnection					
Network	Server IP	8.8.8.8					
<u>Ethernet</u> <u>2G/3G</u>	Max. Retry	10					
<u>3G/GPRS</u> Reconnection	Interval Time	30					
<u>DNS</u>	Timeout	50					
<u>DDNS</u> <u>DHCP Server</u>	Enable Funcion	✓ Enable					
<u>Routing</u>	Alive	True					
<u>Port Mapping</u> <u>Diagnostic</u>	Firmware Version	v1.1.1 2014/01/13					
System		Modify					
<u>Password</u>	(1):This function will run im	(1):This function will run immediately after you press "Modify" button					
<u>Reboot</u> <u>Reboot Timer</u>		(2):GSM module will be reset after Max. retry (3):System will reboot after GSM module reset 100 times					
 Regirum /Regitare	L						

(5) Add ET-7017 in "Modbus Device" tab.

choose ET-7017 in the list, and then press "Add" button.

Main Info.	Modbus Device		Email/FTP		
Modbus Device Number : 0		Add	ET-7050	▼ ▲	
		[ET-7044 ET-7050 ET-7051		

(6) The web will bring out all I/O number information as below. Please modify "Device Name", "Device ID", "IP" and "Port" for your ET-7017.

(Device Name: an alias name of your device, you can modify as you need.) Press "Modify" to add a device.

Main Info.	Mo	dbus Device	Email/FTP		
Modbus Device Number : 0		Add ET-7050 🔻			
1 Name :		Edit	Delete		
Device Name	ET-7050	Max Length=20			
Device ID	1	1~255			
IP	192.168.11.25	empty for Modbus/R	.TU		
Port	502	Default=502, 1~655	35		
DI Number	12	0~32	0~32		
DO Number	6	0~32			
AI Number	0	0~16			
AO Number	0	0~16			
DI Address	0	0~65535			
DO Address	0	0~65535			
AI Address	0	0~65535			
AO Address	0	0~65535			
	Moc	lify Cancel			

(7) Add M-7022 in "Modbus Device" tab.

choose M-7022 in the list, and then press "Add" button. We will see the screenshot as below.

The web will bring out all I/O number information. Please modify "Device Name" and "Device ID" for your M-7022. (Don't modify "IP" and "Port" settings).

Press "Modify" to add a device.

	Main Info.	Modbus I	evice	Email/FTP	
Modbus	Device Num	ber : 1	Add M-7022 🔻		
1	Name : ET-	7050	Ec	lit Delete	
2	Name :		Edit Delete		
Device	Name	M-7022 M	ax Length=20		
Device	Ð	2 1-	-255		
IP	IP empty for Modbus/RTU			TU	
Port		502 D	efault=502, 1~655	35	
DI Nu	DI Number 0		0~32		
DO N	umber	0 0-	-32		
AI Nu	AI Number 0		-16		
AO N	umber	2 0-	0~16		
DI Ad	dress	0 0-	0~65535		
DO A	DO Address 0		0~65535		
AI Address 0 0~65535					
AO Address 0 0~65535					
		Modify	Cancel		

(8) Add PLC in "Modbus Device" tab. (communication with RS-485)

choose "Custom" in the list, and then press "Add" button. We will see the screenshot as below.

Here we set the "Device Name", "Device ID", "DI Number", "AI Number" for the PLC. Press "Modify" to add a device.

Main Info. Modbus Device Email/FTP			Email/FTP				
Modbu	Modbus Device Number : 2		Add Custom •				
1	Name : ET-	7050		E	dit Delete		
2	Name : M-7	7022		E	dit Delete		
3	Name :			E	dit Delete		
Device	e Name	myPl	_C M:	ax Length=20			
Device	Ð	1	1-	-255			
P	IP empty for Modbus/RTU			TU			
Port		502	D	Default=502, 1~65535			
DI Nu	mber	4	0-)~32			
DO N	umber	0	0-	-32			
AI Nu	mber	4	0-	-16	-16		
AO N	umber	0	0-	-16			
DI Ad	dress	0	0-	0~65535			
DO Address 0 0~65535							
AI Ad	AI Address 0 0~65535						
AO Address 0 0~65535							
			Modify	Cancel			

(9) Three devices we set as below:

Main Info. Modbus D		evice Email/FTP		
Modbus Device Number : 3		Add Custom •		
1	Name : ET-7050	Edit Delete		
2	Name : M-7022	Edit Delete		
3	Name : myPLC	Edit Delete		

(10) Please choose "Modbus Test" function, and press "Test" button to test our settings.If the result is successful, the screenshot will be as below, and please follow next step.

<u>Time</u>	^	success							
<u>System Service</u> VxServer									
VxServer		Modbus Configure Test							
RTU Client		invalid object in data, converting to string							
<u>RTU Client</u>		invalid object in data, converting to string modbus debug start							
<u>FTP Test</u> Email Test		DEBUG [2014-08-18 15:55:56] [1] DI value= (0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0)							
Modbus Test		Result DEBUG [2014-08-18 15:55:56] [1] DO value= (0, 0, 0, 0, 0, 0) DEBUG [2014-08-18 15:55:56] [2] AO value= (291, 256)							
V1.1.2 B07		DEBUG [2014-08-18 15:55:56] [3] DI value= $(1, 1, 0, 0)$ DEBUG [2014-08-18 15:55:56] [3] AI value= $(0, 0, 0, 0)$							
2014/07/28		PEDOG [2014-00-10 13.33.30] [3] XI VAIUE- (0, 0, 0, 0)							
	, 	Test							

If result is fail, the screenshot will be as below. Please check your settings or the wire connection.

	fails						
	Modbus Configure Test						
r I Result I	<pre>invalid object in data, converting to string invalid object in data, converting to string modbus debug start ERROR [2014-08-18 16:10:55] MB[1] poll_modbus(): timed out DEBUG [2014-08-18 16:10:55] [2] AO value= (291, 256) DEBUG [2014-08-18 16:10:55] [3] DI value= (1, 1, 0, 0) DEBUG [2014-08-18 16:10:55] [3] AI value= (0, 0, 0, 0) [2014-08-18 16:10:54] modbus error [ET-7050,1] Exception: timed out</pre>						
	Test						

(11) Configure "Main Info." Tab.

- Set "Server Address" and "Server Port" of your server that running RTU Center.
- Set Station ID of this GRP-520, and don't be the same with another RTU device.
- Set "Data Update Period" and "Heartbeat Period". $(0 \rightarrow \text{disable})$
- Configure the parameters of RS-485 for Modbus/RTU.

Main Info.	Mo	dbus Device	FTP / Email		
Server Address					
Server Port		10000	default=10000		
Station ID		1	1~65535		
Data Update Period(sec.)		5	0~86400 (0=disable)		
Heartbeat Period(sec.)		0	1~86400 (a day)		
Baud Rate (RS-485 for Modbus/RTU)		9600 v bps			
Data Bit		8 •			
Parity		N •			
Stop Bit					
Modbus Timeout (ms)		1000	50~99999, default=1000		
Enable Firmware		🗷 Enable			
Alive		True			
		Modify			

(12) Download RTU Center from:

http://m2m.icpdas.com/m2m_rtu.html

and then extract "RTU Center".



Or you can install NAPOPC.M2M DA Server, it contains RTU Center. Please download install file from: http://m2m.icpdas.com/NAPOPC_M2M.html

(13) Execute RTU Center, and add a RTU device in RTU Center.

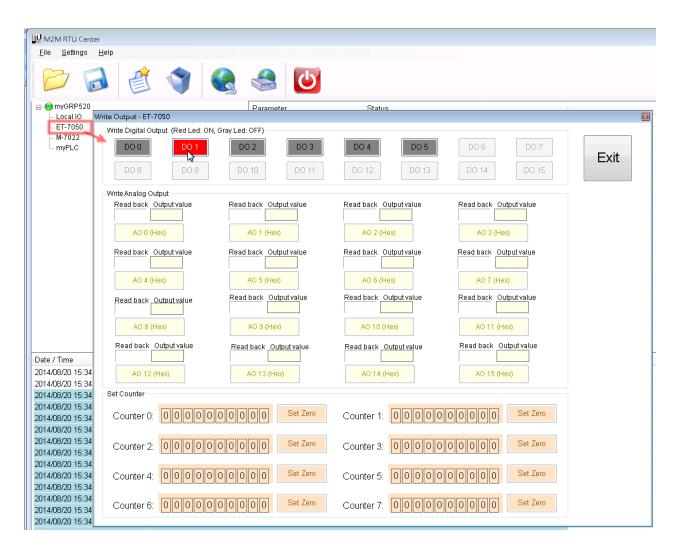
- Click "New Device" icon.
- Input the alias name of your GRP-520
- Choose module type as "GRP-520"
- Set Station ID as "1", and then press "OK" button.

M2M RTU Center <u>File</u> Settings <u>H</u> elp	1		
Device Prope	rties	Parameter	Status 🛛
Device Nar Module S Module Station Descrit	(Type Unicode, Max. size: 2 etting GRP-520 ID 1 (1 ~ 6553		OK Cancel

(14) GRP-520 will connect to RTU Center later, and screenshot as below.

M2M RTU Center			
<u>F</u> ile <u>S</u> ettings <u>H</u> elp			
	🖄 🌒 🍕		
⊫-⊖ <mark>myGRP520</mark>		Parameter	Status
Local IO		Device Name	myGRP520
ET-7050 M-7022		Module	GRP-520
myPLC		Station ID	1
		Describe	
		Connected Priority	GPRS Master, Ethernet Slave
		Connected Method	Ethernet
		Date&Time	2014/08/20 15:37:34
		Remote Client IP	192.168.27.50
		Remote Client PORT	44665
		Send once time (unit: sec)	5
		Heartbeat time (unit: sec)	0
		Modbus module number	3
Date / Time	Message	1	
2014/08/20 15:34:23.297		ne connection!!(Ethernet) (IP: 192.168	3.27.50, PORT: 44665)
2014/08/20 15:34:23.254		RP520" (Module Name=GRP-520, St	· ·

(15) You can double click on "ET-7050" to bring out "Output control panel", and press "DO1" to control remote DO.



(16) Download RTU API from RTU Center web page, and extract it. There are RTU API library and some demo for C#, VB.Net, VC6 as below.

名稱	[2013/11/05]	
🍌 demo 🍌 Lib 🦳 readme	\Lib \Demo \RTU_CS_Net_demo \RTU_VB_Net_demo \RTU_VC6_demo	< Ver1.3.1 < 2013/11/01

(17) Copy pre-building demo into folder of RTU Center. (demo must be in the same folder with RTU Center, because they use the same share memory in M2M_RTU.dll) Here we copy two file "RTU_CS_demo.exe" and "M2M_RTU_NET.dll" from C# demo.

]] V1.12\RTU	_API\demo\RTU_CS_Net_dem	o\RTU_CS_demo\bin\Debug							
■ 開啟檔案 新増資料夾									
愛	名稱	修改日期							
	icpdas_device icpdas_mdev	2009/11/13 下午 2010/7/21 下午 0							
的位置	M2M_RTU.dll	2013/11/5 下午 0							
	M2M_RTU_NET.dll	2013/10/29 下午							
	RTU_CS_demo	2013/11/11 下午							
	🐏 RTU_CS_demo	2013/11/11下午…							
	💷 RTU_CS_demo.vshost	2005/9/23 上午 0							
RTU_AP icpdas_ icpdas_ icpdas_ icpdas_ icpdas_ image: icpdas_ <th>device mdev ITU.dll ITU_NET.dll I enter</th> <th></th>	device mdev ITU.dll ITU_NET.dll I enter								

(18) Execute "RTU_CS_Demo.exe".

- Press "Get Information" to get all stations information.
- Set "Station ID" as 1 (because we set Station ID as 1 in GRP-520)
- Press "(2)ReadData" button to read Local IO data. Because GRP-520 don't have local IO, we get the error code here
- Set "Modbus ID" as 1 and "Modbus Name" as "ET-7050", and press "(3)ReadData" to get all IO data.
- Press "Write Dos (add 1)" button to control DO.

₽ RTU API demo (C#) 2013/11/01	
(1) Initial / get basic Information (1) Initial / get basic Information (1) Get Information Initial Success API Version: V131 2013/11/05 Read RTU Soft WDT Run RTU Close RTU Count x0 enGPS = 0 Modbus(1) Name = ET-7050 sID = 1 DI x12 DO x6 AI x0 AO x0 Count x0 enGPS = 0 Modbus(2) Name = M-7022 SID = 2 DI x0 DO x0 AI x0 AO x2 Count x0 enGPS = 0 Modbus(2) Name = myPLC sID = 1 DI x4 DO x0 AI x4 AO x0 Count x0 enGPS = 0 Modbus(3) Name = myPLC sID = 1 DI x4 DO x0 Count x0 enGPS = 0	(2) Local IO (2)ReadData (3) Write DO ch0 (mvert) Station ID= 1 (2) 2014M2/21 15:10-54 Station ID:1, mbSlave ID:255, Modbus Name=Local IO DI ch0 =0, Error=6 DIs =0, Error=2 DO ch0 =0, Error=6 AO ch0 =0, Error=6 AO ch0 =0, Error=6 (3) Remote IO (Modbus device) (3)ReadData Write DO ch0 (invert) Write DOs (add 1) (5) Write AO ch0 (add 1) Write Counter as 0 (4) 2014M2/21 15:11:14 Station ID:1, mbSlave ID:1, Modbus Name=ET-7050 DI ch0 =0 DO ch0 =1 DO ch0 =0, Error=6 AO ch0 =0, Error=6 AD ch0 =0

4.6 RTU Client for Remote Control Application with OPC DA Server.

- (1) Please refer last section for setting of "RTU Client", "RTU Center".
- (2) After install "NAPOPC.M2M DA Server", please click the icon to launch NAPOPC.M2M DA Server from right-bottom toolbar of desktop.



(3) Click "Search" to add all tags of GRP-520 automatically.

💯 ICPD	AS NAPOP	C.M2M	DA Server -	· 未命名					
<u>F</u> ile <u>A</u> o	dd <u>E</u> dit	<u>V</u> iew (Dptions <u>F</u>	lelp					
New	0pen	Save	Cave as	Jevice	Group	· · _ ·	Produce	Search evice Type	Monit
		c,	earch Mod	uloc	_	Taine			
			sarchiviou	ules					
			− M2M De	evice ——— CP Interface		∨ Cle	ar Modules		
						/			
			Status: S	4	Stop		Exit]	

(4) Yo	(4) You will get a tag list as below.											
💯 ICPD,	AS NAPOR	PC.M2N	I DA Serve	r - 未命名								
<u>File</u> <u>A</u> d	d <u>E</u> dit	⊻iew	Options	<u>H</u> elp								
	1	P		2		9	•	G		See.	3<	P
New	Open	Save	Save as		Group	Таа	Produce	: Search	Monitor	Debua	Cut	Copy
⊡… <mark>1</mark>				Name		Device	Гуре	Location	Cha	annel Type		Channel
- E 📬	ET-7050			the Choo		ET-70	50	1		Bit Input		0
	- 🔁 DI			👋 Ch01		ET-70	/50	1		Bit Input		1
	📲 DO			🛛 🕀 Ch02		ET-70	/50	1		Bit Input		2
	🖆 DIs			🕀 Ch03		ET-70	50	1		Bit Input		3
	🗄 DOs			😓 Ch04		ET-70	50	1		Bit Input		4
	M-7022			🕀 Ch05		ET-70	/50	1		Bit Input		5
	🗄 AOs			👋 Ch06	I	ET-70	/50	1		Bit Input		6
	myPLC			👋 Ch07		ET-70	/50	1		Bit Input		7
T .	- 🔚 AIs			👋 Ch08		ET-70	/50	1		Bit Input		8
				🗠 🕀 Ch09		ET-70	/50	1		Bit Input		9
	DI			🕀 Ch10	I	ET-70	50	1		Bit Input		10
	- 🔚 DIs			🚓 Ch11		ET-70	50	1		Bit Input		11
- E	Unknowi	n_Device	e							·		
I												

(5) You can double click on device node to modify device name.

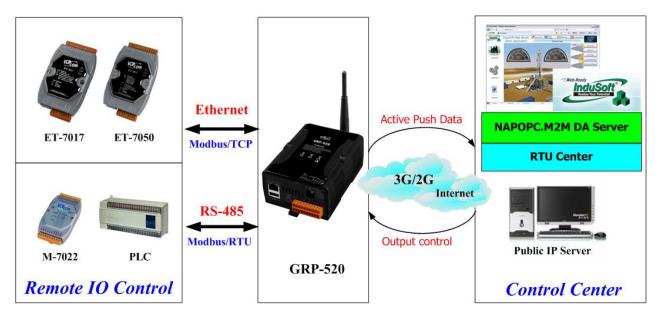
New	Open	Save	Save as	Device	Group	Таа	Prod	uce	Search	Moni
		(1) Doub	le Clieck			Name		De	wice Type	
L	ET-7050	(1) Dour	Ne Clieck							_
	🖢 M-7022									
	🖢 myPLC									
	🖢 Unknowr	Device								
	Device Prop	erties								8
	Device Nam	GRP-5	20_1						OK	
	💿 M2M M	lodules	(2) Input N	ew Nam	ne		-	Cancel	
	– Module S	setting —								
	Module	G-4500	•							
	Location	1	▼ (1~6	5535)						

(6) Now you can use OPC Client to read I/O data from NAPOPC.M2M DA Server. Or you can client "Monitor" to monitor all I/O data.

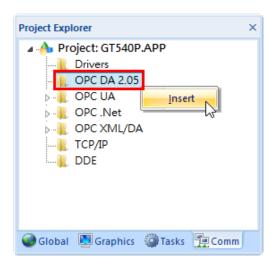
🖞 ICPDAS NAPOPC.M2M D	A Server	·未命名.tdl	2									
<u>File Add Edit V</u> iew O	ptions <u>H</u>	<u>H</u> elp										
) 🖻 🖰		2		9	•	G		<u>Se</u>	3<	P	Ê	X
New Open Save	Save as	Device	Group	Таа	Produce	Search	Manitor	Debua	Cut	Сару	Paste	Delete P
⊡ <mark> 1</mark> GRP-520_1		Name		Device	Туре	Location	Cł	iannel Type	,	Channel		Value
🚊 🗄 ET-7050		🕀 ChC	0	ET-7	050	1	E	Bit Output		0		OFF
🔁 DI		🛛 🕀 Chữ)1	ET-7	050	1	E	Bit Output		1		ON
DO		🔒 🕀 ChC)2	ET-7	050	1	E	Bit Output		2		OFF
- E DIs		ChC 😓)3	ET-7	050	1	E	Bit Output		3		ON
		ChC 😓	4	ET-7	050	1	E	Bit Output		4		OFF
		A ChC)5	ET-7	050	1	E	Bit Output		5		OFF
🖶 🐮 myPLC												
Unknown_Device												

4.7 RTU Client for Remote Control Application with InduSoft.

This example shows how to using SCADA "InduSoft" to control/monitor remote I/O with GRP-520.



- (1) About RTU Client, RTU Center and OPC Server, please refer last section.
- (2) Right-click OPC DA 2.05 folder and insert a new worksheet.



(3) Choice OPC Server from Server Identifier, and Select NAPOPC.M2M Item from combo box

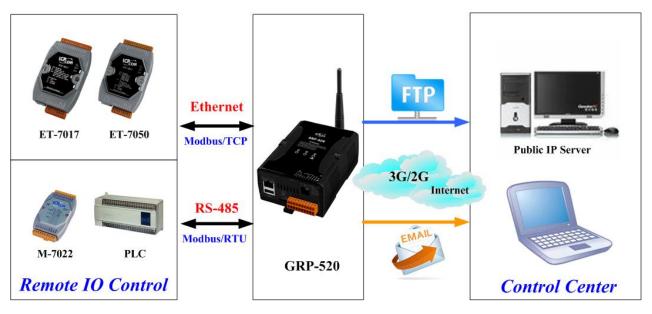
	SIC OPCCL00	1.0PC ×								
D	escription:		Server Identi		Disable:					
R	lead Update R	ate (ms):	NAPOPC.M2 NAPOPC.Sv	APOPC.M2M Status:						
	Studio.Scada.HDA.OPC Studio.Scada.OPC.2									
R	Remote Server Name:									
	Browse Browse Accept Tag Name in the Item column									
L			Browse		-	e Item column				
			Browse		-	e Item column				
	Tag Name	Item	Browse		-	(Project Texts)		Add		
	-		All)	✓ Accept Tag N	-		🔍 Filter text			
*	-	Item		✓ Accept Tag N	lame in the	(Project Texts)	Filter text			
*	-	Item	🔍 (All)	✓ Accept Tag N	lame in the	(Project Texts)	Silter text			
	-	Item	Q (All) Always	✓ Accept Tag N	lame in the	(Project Texts)	S Filter text			
*	-	Item	Q (All) Always Always	✓ Accept Tag N	lame in the	(Project Texts)	Silter text			

- (4) Configure Tag Name and Item Column
 - Fill in your tag.
 - Double-click Item column and select the point from pop-up window.

S. 1.11					
Description:	Server Identifier:	Disable:			
	NAPOPC.M2M	¥			
Read Update Ra	te (ms): Percent Deadband:	Status:			
				PC Browser: 'NAPOPC.M2M' [
Remote Server N	ame: Read	before writir		PC BIOWSER: INAPOPC.IVIZIVI [
			of Items		ОК
	✓ Acce		GT-540_0		Cancel
			Als Ch00		Cancer
Tag Name	Item		AD L3		
Silter tex			100		Filter:
DO[0]	GT-540_0.DOs.Ch00	Alway	DIs		⊖ Read
DO[1]		Alway	DOs COUNTERs		⊖ Write
DI[0]	GT-540_0.Dls.Ch00	Alway	GPS		Soth
DI[1]	GT-540_0.Dls.Ch01	Alway			
DI[2]	GT-540_0.Dls.Ch02	Alway			
DI[3]	GT-540_0.Dls.Ch03	Alwa			
DI[4]	GT-540_0.Dls.Ch04	Alway			
DI[5]	GT-540_0.Dls.Ch05	Alwa			
Al	>	Alwa			
		Alway			
		Alway			Refresh
		Alwaj GT-540_0	Als.Ch00		
		Alway			

4.8 Email or FTP report I/O logger file.

This example shows how to using GRP-520 to report I/O logger file periodically.



(1) About Modbus configure, please refer <u>section 4.5</u>.

- (2) Configure Email / FTP function in "Email/FTP" Tab. You must set "Data Log Interval" field more than 0, or log report function will be disabled. (include FTP and Email)
 - Configure "Data Log Interval" to record IO data into csv file. (0 → disable) filename format: GRP-520_StationID_YYYYMMDD_hhmmss.csv ex: GRP-520_13_20140806_172347.csv
 - Configure "Max. Time per Log File" to indicate how long to change / send back log file. If the file size is close 3MB, GRP-520 will create a new log file to recode I/O data and move old log file into "/RTU/LOGFILE/" in SD card.
 - If you need FTP report function, please set all FTP parameters and set "Enable FTP Function" as "Enable". GRP-520 will send log file to FTP Sever when new log file is available.
 - If you need Email report function, please set all Email parameters and set "Enable FTP Function" as "Enable". If you need 2 or more contact, please use comma "," to separate each contact.

Main Info.		Modbus Device	FTP / Email
Data Log Interval (sec.)		5	0~86400 (0=disable)
Max. Time per Log File (min.)		3	3~1440 minutes
FTP Server Address	FTP Server Address		empty> disable FTP
FTP Port		221	default=21
FTP Username		test	
FTP Password		test	
Enable FTP Funcion		🗹 Enable	
Email From		abc@gmail.com	empty> disable Email
		Ex: abc@gmail.com	
Email To		Ex: abc@gmail.com xyz@gmail.com	Ex: xyz@gmail.com
	itact		
Email To	ntact	xyz@gmail.com	
Email To Example for 2 or more cor	ntact	xyz@gmail.com xx@gmail.com,yy@gmail.co	om
Email To Example for 2 or more cor Email Server		xyz@gmail.com xx@gmail.com,yy@gmail.co smtp.gmail.com	om Ex: smtp.gmail.com
Email To Example for 2 or more cor Email Server Email Server Port		xyz@gmail.com xx@gmail.com,yy@gmail.co smtp.gmail.com 25	om Ex: smtp.gmail.com Ex: 25
Email To Example for 2 or more cor Email Server Email Server Port Email Username		xyz@gmail.com xx@gmail.com,yy@gmail.co smtp.gmail.com 25 abc	om Ex: smtp.gmail.com Ex: 25 Ex: abc

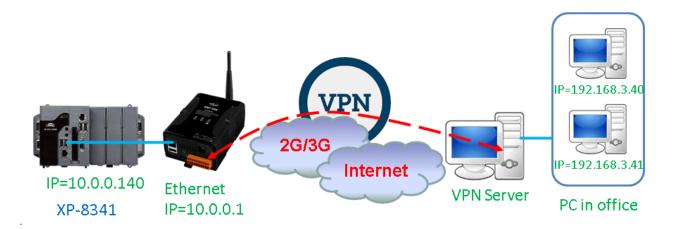
(3) Finally, please don't forget enable firmware in "Main Info." Tab. If you don't need the firmware send data to RTU Center, you can set "Data Update Period" as 0.

Main Info.	M	odbus Device		FTP / Email	
Server Address	Server Address]	
Server Port	erver Port			default=10000	
Station ID		1		1~65535	
Data Update Period(sec.)		0		0~86400 (0=disable)	
Heartbeat Period(sec.)		0		1~86400 (a day)	
Baud Rate (RS-485 for M	odbus/RTU)	9600 v bp	S		
Data Bit		8 🔻			
Parity		N V			
Stop Bit		1 •			
Modbus Timeout (ms)		1000		50~99999, default=1000	
Enable Firmware		🗹 Enable			
Alive		True	Irue		
		Modify			

4.9 VPN Application

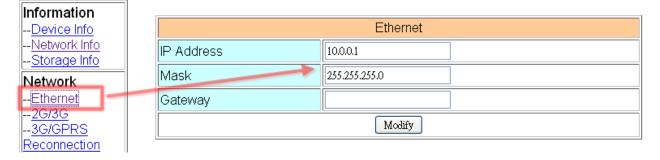
This example shows the steps for VPN application.

- (1) XP-8341 can send data to the PC in office side
- (2) The PC in the office side can access XP-8341's web page data via VPN tunnel.



- (1) Please Set the IP of web server (XP-8341) as: IP=10.0.0.140 Mask="255.255.255.0" gateway = "10.0.0.1"
 (2) Good and File and F
- (2) Set the Ethernet IP of GRP-520 as below: IP="10.0.0.1"

Mask="255.255.255.0"



(3) Set Pin code of your SIM card, and Enable "Auto-Dialing" function. Set "User Name" and "Password" if your SIM card need it. Press "Modify"

Information		
<u>Device Info</u>		2G/3G Configure
<u>Network Info</u> Storage Info	PIN Code	
Network	Phone Number	(1)
Ethernet	APN	internet (2)
<u>2G/3G</u> <u>3G/GPRS</u>	User Name	(2)
Reconnection VPN Client	Password	(2)
<u>DNS</u>	Net Mode	Automatic
<u>DDNS</u> <u>DHCP Server</u>	Auto-Dialing	☑ Enable
Routing		Modify
<u>Port Mapping</u> Diagnostic	(1) usually use *99# or *99**	
	(2) please ask your SIM Car	
System	(3) Net Mode: Automatic will	use 3G first, if no 3G network, it will change to 2G
Daceword		

(4) Enable "3G/GPRS Reconnection" function to keep your 3G/GPRS network always online (usually, ISP will disconnect your connection once every 1~3 days).

Generally, you can set the Server IP as your server's IP or google's DNS server IP (8.8.8.8). If you use MDVPN, please set the Server IP as your Server IP that doesn't deny ICMP service (Ping).

Press "Modify" after you finish all settings.

Information						
<u>Device Info</u>		3G/GPRS Reconnection				
<u>Network Info</u> Storage Info	Server IP	8.8.8.8				
Network	Max. Retry	10				
<u>Ethernet</u> 2G/3G	Interval Time	30				
3G/GPRS	Timeout	50				
Reconnection VPN Client	Enable Funcion	☑ Enable				
DNS	Alive	True				
<u>DDNS</u>	Firmware Version	v1.1.2 2015/08/24				
<u>DHCP Server</u> Routing		Modify				
<u>Port Mapping</u> <u>Diagnostic</u>	(2):GSM module will be re	(1):This function will run immediately after you press "Modify" button (2):GSM module will be reset after Max. retry				
System Deseword	(3):System will reboot after	er GSM module reset 100 times				

(5) Set "VPN Client" function.

Information						
<u>Device Info</u>		VPN Client Configure (support PPTP VPN)				
<u>Network Info</u> Storage Info		Server Address	<u>我就准定</u>	ex.: us.pptpvpn.org		
Network		User Name	andro <u>i Indan</u> .	ex.: pptpvpn.org		
<u>Ethernet</u>		Password 💦 🔪	atematica	ex.: 7911		
<u>2G/3G</u> <u>3G/GPRS</u>		Enable	Enable			
Reconnection		Alive	True			
VPN Client		Firmware Version	v1.0.0 2014/11/10			
<u>DDNS</u>		Modify				
<u>DHCP Server</u>	I '					

(6) Set routing rule to share 3G VPN network. This setting will share 3G VPN network to IP address from 10.0.0.1~10.0.0.255.

Press "Modify"

Information					
<u>Device Info</u>		RC)UTING Rule		
<u>Network Info</u> Storage Info	Rule NO.	IP		Mask	Target
Network	0	10.0.0.1		24 💌	pppl 💌
<u>Ethernet</u>	1			~	~
<u>2G/3G</u> 3G/GPRS	2			~	~
Reconnection	3			~	~
<u>VPN Client</u> <u>DNS</u>	4]	~	~
<u>DDNS</u> DHCP Server	5]	~	~
Routing	6			~	~
<u>Port Mapping</u> Diagnostic	7			~	~
System	8			~	~
Password	9]	~	~
<u>Reboot</u> <u>Reboot Timer</u>			Modify		
Backup/Restore					

(7) Set "Port Mapping Rule" to let user access the device behind GRP-520 via the VPN network. This setting will bind the port of 3G VPN interface to "Target IP:Target Port".
 Port 10080 of 3G VPN interface → 10.0.0.140:80

Information							
<u>Device Info</u>		Port Mapping Rule					
<u>Network Info</u>	Rule NO.	Туре	From	Port	Target IP	Target Port	
<u>Storage Info</u>	0	TCP 💌	ppp1 🔽	10080	10.0.0.140	80	
Network <u>Ethernet</u>	1		~				
<u>2G/3G</u> 3G/GPRS	2	~	~				
Reconnection	3	~	~				
<u>VPN Client</u> <u>DNS</u>	4	*	~				
<u>DDNS</u> <u>DHCP Server</u>	5	~	~				
Routing	6	~	~				
Port Mapping	7	~	~				
System	8	~	~				
Password	9	~	~				
<u>Reboot</u> <u>Reboot Timer</u> Boolum (Doctoro	Modify						

(8) Please reboot GRP-520 to enable settings. (you can reboot from the web or the power source)

Information	
<u>Device Info</u> Network Info	Noticell
<u>Storage Info</u>	Are you sure to reboot? please wait a minute for system rebooting after you press
Network	reboot button.
<u>Ethernet</u> 2G/3G	Reboot
<u>DNS</u>	
<u>DDNS</u> <u>DHCP Server</u>	7
<u>Routing</u>	
<u>Port Mapping</u> <u>Diagnostic</u>	
Process	
<u>System</u> <u>User</u>	
System	
Password	
<u>Backup/Restore</u>	

(9) GRP-520 get a VPN IP "192.168.3.56" as below:

ation e Info		Ethernet		
	Mode	static		
	MAC address	00:0D:E0:20:00:09		
	IP Address	10.0.0.1		
	Mask	255.255.255.0		
	<u>'</u>			
		3G/GPRS Network information		
	Status	connected		
r I	IP Address	10.251.52.84		
	P-t-P	10.64.64.64		
1	Mask	255.255.255.255		
	L			
		Modem information		
	PIN Code	READY		
ore ory	Register Status	Registered		
×	Signal Quality	46%		
		VPN Network information		
	Status	connected		
	IP Address	192.168.3.56		
	P-t-P	192.168.3.58		
	Mask	255.255.255		

(10) Please type the VPN IP address of GRP-520 in the browser of the office side PC (here is 192.168.3.56:10080). You will look some thing like below.

<	▶• C >	K 🏠 🛱	🔩 • 🕢 • 🛻 htt	p://192.16	58.3.56:10080/	
	HFS /		+			
folde	er					
1						
	1 folders, 0 files - 1					
	Filename	Filesize	Filetime	Hits		
	📁 E:	folder	2015/8/25 上午 09:30:47	0		
	📁 E:	folder	2015/8/25 上午 09:30:47	0		
	🞾 E:	folder	2015/8/25 上午 09:30:47	0		

(11) Now, the XP-8341 also can connect to the PC in the office side.