

User Manual

Version 1.4.0 June 2024

GRP-2841M

4G / 5G / Ethernet Gateway





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Important Information

Warranty

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

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Email: service@icpdas.com

GRP-2841M User Manual

Version 1.4.0

1. Introduction

The GRP-2841M provided by ICP DAS is a gateway for Ethernet and serial port. The GRP-2841M can be used for wireless data transmission and other functions through its optional 4G / 5G / Wi-Fi communication module. With the optional GPS function, the GRP-2841M can also be used as a GPS tracking system for vehicle management or maritime system. It can be used in M2M application to transmit remote I/O, Modbus data or camera video. Within the high-performance CPU, the GRP-2841M can process large amounts of data and is suitable for harsh industrial environments.



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2. Hardware Specification

2.1 GRP-2841M Specifications

Software OS Linux Kernel 4.14.98 Service SSH, FTP, Web Server, SMTP, SNMP, DDNS Function NAT and port forwarding function Remote Terminal Unit (RTU) Multiport serial gateway 4G / 5G wireless router (option) CPU Cortex-A53 CPU, 1.6 GHz, quad-core System Memory 1 GB LPDDR4 SDRAM Storage 8 GB eMMC Flash, 4 GB microSD card (up to 32 GB) Non-Volatile Memory 64 KB FRAM; 128 KB MRAM RTC (Real Time Clock) Provide seconds, minutes, hours, dates, day of week, month, year Watchdog Timer Yes 64-bit Hardware Serial Number for software copy protection LED Indicators 6 LEDs (PWR, NET, RUN, L1, L2, L3) Rotary Switch 1 x 10 Position (0 ~ 9) USB 2.0 (host) 2 Console RS-232 (RxD, TxD and GND); Non-isolated COM 1 RS-232 (RxD, TxD and GND); Non-isolated COM 2 RS-485 (Data+, Data-); 2500 VDC isolated COM 3 Re-485 (Data+, Data-); 2500 VDC isolated Casing Metal	
OS Linux Kernel 4.14.98 Service SSH, FTP, Web Server, SMTP, SNMP, DDNS Function Remote Terminal Unit (RTU) Multiport serial gateway 4G / 5G wireless router (option) Main Unit Cortex-A53 CPU, 1.6 GHz, quad-core System Memory 1 GB LPDDR4 SDRAM Storage 8 GB eMMC Flash, 4 GB microSD card (up to 32 GB) Non-Volatile Memory 64 KB FRAM; 128 KB MRAM RTC (Real Time Clock) Provide seconds, minutes, hours, dates, day of week, month, year Watchdog Timer Yes 64-bit Hardware Serial Number 64 LEDs (PWR, NET, RUN, L1, L2, L3) Rotary Switch 1 x 10 Position (0 ~ 9) Communication Ports Ethernet 2 x RJ-45, 10/100/1000 Based-TX (Auto-negotiating, Auto MDI/MDI-X, LED indicators) USB 2.0 (host) 2 Console R5-232 (RxD, TxD and GND); Non-isolated COM 1 R5-232 (RxD, TxD and GND); Non-isolated COM 2 R5-485 (Data+, Data-); 2500 VDC isolated COM 3 R5-485 (Data+, Data-); 2500 VDC isolated Casing Metal	
Service SSH, FTP, Web Server, SMTP, SNMP, DDNS NAT and port forwarding function Remote Terminal Unit (RTU) Multiport serial gateway 4G / 5G wireless router (option) Main Unit CPU Cortex-A53 CPU, 1.6 GHz, quad-core System Memory 1 GB LPDDR4 SDRAM Storage 8 GB eMMC Flash, 4 GB microSD card (up to 32 GB) Non-Volatile Memory 64 KB FRAM; 128 KB MRAM RTC (Real Time Clock) Provide seconds, minutes, hours, dates, day of week, month, year Watchdog Timer Yes 64-bit Hardware Serial Number Yes, for software copy protection LED Indicators 6 LEDs (PWR, NET, RUN, L1, L2, L3) Rotary Switch 1 x 10 Position (0 ~ 9) Communication Ports Ethernet 2 x RJ-45, 10/100/1000 Based-TX (Auto-negotiating, Auto MDI/MDI-X, LED indicators) USB 2.0 (host) 2 Console RS-232 (RxD, TxD and GND); Non-isolated COM 1 RS-232 (RxD, TxD and GND); Non-isolated COM 2 RS-485 (Data+, Data-); 2500 VDC isolated COM 3 RS-485 (Data+, Data-); 2500 VDC isolated Coma 4E Parame 4E0 mme	
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LED Indicators 6 LEDS (PWR, NET, RON, L1, L2, L3) Rotary Switch 1 x 10 Position (0 ~ 9) Communication Ports Ethernet 2 x RJ-45, 10/100/1000 Based-TX (Auto-negotiating, Auto MDI/MDI-X, LED indicators) USB 2.0 (host) 2 Console RS-232 (RxD, TxD and GND); Non-isolated COM 1 RS-232 (RxD, TxD and GND); Non-isolated COM 2 RS-485 (Data+, Data-); 2500 VDC isolated COM 3 RS-485 (Data+, Data-); 2500 VDC isolated Mechanical Casing Metal	
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Communication Ports Ethernet 2 x RJ-45, 10/100/1000 Based-TX (Auto-negotiating, Auto MDI/MDI-X, LED indicators) USB 2.0 (host) 2 Console RS-232 (RxD, TxD and GND); Non-isolated COM 1 RS-232 (RxD, TxD and GND); Non-isolated COM 2 RS-485 (Data+, Data-); 2500 VDC isolated COM 3 RS-485 (Data+, Data-); 2500 VDC isolated Mechanical Casing Metal Dimensional (Must length) 25 remove 167 remove 110 rem	
Ethernet 2 x R3-45, 10/100/1000 Based-1X (Adto-negotiating, Adto MDI/MDI-X, LED indicators) USB 2.0 (host) 2 Console RS-232 (RxD, TxD and GND); Non-isolated COM 1 RS-232 (RxD, TxD and GND); Non-isolated COM 2 RS-485 (Data+, Data-); 2500 VDC isolated COM 3 RS-485 (Data+, Data-); 2500 VDC isolated Mechanical Casing Metal	
Console RS-232 (RxD, TxD and GND); Non-isolated COM 1 RS-232 (RxD, TxD and GND); Non-isolated COM 2 RS-485 (Data+, Data-); 2500 VDC isolated COM 3 RS-485 (Data+, Data-); 2500 VDC isolated Mechanical Casing Metal Dimensional (Musclewell) 25 remove 167 remove 110 remove	
CONSOLE RS-232 (RxD, TxD and GND); Non-Isolated COM 1 RS-232 (RxD, TxD and GND); Non-Isolated COM 2 RS-485 (Data+, Data-); 2500 VDC isolated COM 3 RS-485 (Data+, Data-); 2500 VDC isolated Mechanical Casing Metal Dimensional (Max Log LD) Provide (Max Log LD)	
COM 1 RS-232 (RxD, 1xD and GND); Non-Isolated COM 2 RS-485 (Data+, Data-); 2500 VDC isolated COM 3 RS-485 (Data+, Data-); 2500 VDC isolated Mechanical Casing Metal Dimensional (Must length) 25 remove 167 remove 110 remove	
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Casing Metal	
Casing Metal	
Ingress Protection Rating IP30 (Aluminum)	
Installation DIN-Rail Mounting	
Fnvironment	
Operating Temperature $-25 \sim +70^{\circ}$ C	
Storage Temperature -30 ~ +80°C	
Ambient Relative Humidity 10 ~ 90% RH, Non-condensing	
Power	
Input Range +12 ~ 48 VDC	
Consumption 9.6 W (0.4 A @ 24 VDC)	

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2.2 Accessories Specifications

4G Modem

Module (Optional)	EC25-E	EC20-CE	LE910C4-WWX	
Category	LTE category 4	LTE category 4	LTE category 4	
		Frequency Ban	ds	
LTE-FDD	B1/B3/B5/B7/B8/B20	B1/B3/B5/B8	B1/ B2/ B3/ B4/ B5/ B7/ B8/ B12/ B13/ B14/ B19/ B20/ B26/ B28	
LTE-TDD	B38/B40/B41	B34/B38/B39/B40/B41		
WCDMA	B1/B5/B8	B1/B8	B1/ B2/ B4/ B5/ B8/ B19	
GSM/EGPRS	900/1800Mhz	900/1800Mhz	850/900/1800/1900Mhz	
		Area		
Region	EMEA, Korea, Thailand, India	China	EMEA, North America, APAC, LATAM	
Certification	Carrier: Vodafone, Deutsche Telekom, SKT, Telefónica, T-Mobile, KT / LGU+ Regulatory: GCF, CE, KC, NCC, RCM, FAC, NBTC, ICASA	Regulatory: SRRC, NAL, CCC	Regulatory: CE, FCC, UKCA, NCC	
Environment			·	
Temperature Range	-40°C ~ +85°C	-40°C ~ +80°C	-40°C ~ +85°C	
Dimensions	51.0mm × 30.0mm × 4.9mm	51.0mm × 30.0mm × 4.9mm	51.0mm × 30.0mm × 2.2mm	

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5G Modem

Module (Optional)	RM500Q-AE	RM500Q-GL	FN990A28	
Category	LTE category 18, 5G NR Sub-6 GHz	LTE category 18, 5G NR Sub-6 GHz	LTE category 19, 5G NR Sub-6 GHz	
		Frequency Bane	ds	
5G	n1/n2/n3/n5/n7/n8/n12/ n20/n25/n28/n38/n40/n 41/n48*/n66/n71/n77/n 78/n79	n1/n2/n3/n5/n7/n8/n12/ n20/n25/n28/n38/n40/n 41/n48*/n66/n71/n77/n 78/n79	n1/n2/n3/n5/n7/n8/n20/ n25/n28/n30/n38/n40/n 41/n48/n66/n71/n75/n7 7/n78/n79	
LTE-FDD	B1/B2/B3/B4/B5/B7/B8 /B12(B17)/B13/B14/B1 8/B19/B20/B25/B26/B2 8/B29/B30/B32/B66/B7 1	B1/B2/B3/B4/B5/B7/B8 /B12/B13/B14/B17/B18 /B19/B20/B25/B26/B28 /B29/B30/B32/B66/B71	B1/B2/B3/B4/B5/B7/B8/ B12/B13/B14/B17/B18/ B19/B20/B25/B26/B28 /B30/B66/B71	
LTE-TDD	B34/B38/B39/B40/B41/ B42/B43/B48	B34/B38/B39/B40/B41/ B42/B43/B48	B34/B38/B39/B40/B41/ B42/B43 /B48	
WCDMA	B1/B2/B3/B4/B5/B6/B8 /B19	B1/B2/B3/B4/B5/B8/B1 9	B1/B2/B4/B5/B6//B8/B1 9	
		Area		
Region	Global (Except for China)	Global (Except for United States)	EMEA, North America, APAC	
Certification	Carrier: AT&T* T-Mobile* Verizon* NTT DOCOMO* Telstra* Regulatory: GCF* PTCRB* CE RCM IC* FCC* JATE* TELEC*	Carrier: China Telecom China Mobile China Unicom KT* SKT* LGU+* Regulatory: GCF CE SRRC NAL CCC KC RCM	Regulatory: CE, FCC, UKCA, NCC	
	·	Environment	·	
Temperature Range	-40°C ~ +90°C	-40°C ~ +90°C	-40°C ~ +85°C	
Dimensions	30.0mm × 52.0mm × 2.3mm	30.0mm × 52.0mm × 2.3mm	30.0mm × 52.0mm × 2.25mm	

For further information, please refer to

https://www.icpdas.com/en/product/guide+Wireless_Communication+3G_4G_5G_Products +Module

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Wi-Fi Module

Module (Optional)	RYWDB00	M2-JODY-W377-00C
	Wi-Fi	
Standard	IEEE 802.11a/b/g/n	IEEE 802.11a/b/g/n/ac/ax
Mode	Wi-Fi Access Point	Wi-Fi Access Point
	Wi-Fi Client	Wi-Fi Client
Data Transmission Rate	802.11b: 1, 2, 5.5, 11 Mbps 802.11g/a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: MCS0 to MCS7	802.11b: 1, 2, 5.5, 11 Mbps 802.11g/a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: MCS0 to MCS15 and MCS32 802.11ac: MCS0~MCS9 802.11ax: MCS0~MCS11
Frequency Range	2412 MHz – 2484 MHz 4.900 GHz – 5.975 GHz	2.400 GHz – 2.500 GHz 4.900 GHz – 5.925 GHz
Transmit Power	2.4 GHz: 18 dBm, 5 GHz: 13.5 dBm	2.4 GHz: 19 dBm, 5 GHz: 16 dBm
Receive Sensitivity	2.4 GHz: -96.5 dBm, 5 GHz: -89 dBm	2.4 GHz: -97 dBm, 5 GHz: -90 dBm
Encryption	Open / WPA / WPA2	Open / WPA / WPA2 / WPA3
Client for AP mode	Max. 16 Clients	Max. 64 Clients
	Environment	
Operating Temperature Range	-40°C ~ +85°C	-40°C ~ +85°C
Dimensions	30.0mm × 26.8mm × 3.0mm	22.0mm × 30.0mm × 4.2mm

For further information, please refer to

https://www.icpdas.com/en/product/guide+Wireless_Communication+Wi-Fi+Wi-Fi_Module

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3. Application Architecture

3.1 4G / 5G Wireless Router



3.2 Remote Video Monitor



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3.3 Serial Port Gateway Application

3.4 Node-RED Application



*About Node-RED, please download Node-RED package from <u>https://www.icpdas.com/en/download/index.php?model=GRP-2841M</u> for detail. The Node-RED package includes demos, manuals, and patch file.

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4. Hardware

4.1 Appearances



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4.2 Dimension



(Units: mm)

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4.3 LED Indicators

CDAS GRP-2841M RAN NET PAR U 2 10 NUM	O O O O O O O O O O O O O O O O O O O	WR 3	
ENGLAND STATE	LED Indicator	Color	Meaning
Micro SD	RUN	Green	Power on and OS is running (Normal is blinking)
41 TxD-1	NET	Orange	4G/5G status indicator
ë RoD – Ol GND– ≓ TXD–	PWR	Red	Power is on
	L1	Green	The status of RTU Client (Normal is blinking)
8 <u>1.6.</u> -	L2	Orange	Reserve
	L3	Red	Reserve

• NET LED

Net led is status of 4G Modem (option).

Modem	LED	Status
	1800 ms ON	Desidented
	200 ms OFF	Registered
FCOV	200 ms ON	
EC2X	1800 ms OFF	Network Searching
	125 ms ON	
	125 ms OFF	Data transfer

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	ON	Unregistered
LE910C4-WWX	1 sec. ON	Registered
	2 sec. OFF	Negistered

Net led is status of 5G Modem (option).

Modem	LED	Status
	ON	ОК
RM500Q	OFF	Failed
	ON	ОК
FN990A28	OFF	Failed

4.4 Rotary Switch

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

- (1) **0** : Normal mode, default position.
- (2) 9 : If the user sets the rotary switch to 9 and then restarts the device, the Ethernet IP will be set to "192.168.255.1". It is useful when users forget the Ethernet IP.

4.5 Mounting the Expansion Components

GRP-2841M has two MiniPCIe sockets and one M.2 socket to expand the wireless communication function. Please refer to the following installation steps for installation requirements.

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Cover



4.5.1 Mounting the communication module

(1) Remove stripped screws and then remove the cover



(2) Hold the communication module , and then carefully insert it into the socket.

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- If the communication module is RM500Q (5G modem), please plug it into the M.2 socket.
- If the communication module is EC2X (4G modem), please plug it into the MiniPCle socket_1.
- If the communication module is RYWDB00 (Wi-Fi module), please plug it into the MiniPCIe socket_2.
- (3) Fasten the communication module using the screws supplied.











or

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or

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(4) Connect the communication module using the ipex cable supplied

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Left Side View

Top View



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Left Side View

Top View

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Left Side View

Top View

(5) Install Thermal Silicone Sheet.



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(6) Close the cover and then fasten the screws.



4.6 Install the SIM card

Before using mobile communication, users need to install a SIM card. Please follow the steps.

(1) Remove stripped screws and then remove the cover



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(2) Insert the SIM card



(3) Close the cover and then fasten the screws.



4.7 Installing the antenna

GRP-2841M has four antenna ports, which can be used to connect 4G/5G and GPS antennas. To install the antenna, simply screw the antenna into the connector and place the antenna in the designated position.

Regarding 4G or 5G antennas, there are the following options

Model	Employment	Band	ł
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		704~960MHz
ANT-421-04	4G Modem	1710~2170MHz
		2500-2690MHz
		698~960MHz
ANT-421-05	4G Modem	1710~2110MHz
		2310~2690MHz
		617~798MHz
		803~960MHz
		1166-1610MHz
ANT 950 01	4G/5G Modem and Wi-Fi	1710-2200MHz
ANT-039-01	Module	2300-2690MHz
		3300-3800MHz
		4200-5000MHz
		5150-5925MHz

Regarding GPS antennas, there are the following options

Model	Ant. Type	Employment	Band
ANT-115-03-1	active antenna (GPS)	4G Modem	1575.42±5MHz
ANT 115 02 2	active antenna	AC Modom	1575.42±5MHz
ANT-115-05-2	(GPS/Glonass)		1610±8MHz
ANT-115-P1	passive antenna (GPS)	5G Modem	1575.42±5MHz

For further information, please refer to

https://www.icpdas.com/en/product/guide+Accessories+Antennas+Antenna#1232

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5. Web Utility

5.1 Login the Utility

Please login before using the web utility:

- Default IP is "192.168.255.1".
- Default Mask is "255.255.0.0".
- · Default username is "admin".
- · Default password is "admin_GRP".

The web page after login is as follows.

Ethernet0	
Mode	static
MAC address	00:0d:e0:c0:00:08
IP Address	192.168.255.1
Mask	255.255.0.0
	Ethernet1
Mode static	
MAC address	00:0d:e0:c0:00:02
IP Address	10.0.255.1
Mask	255.255.255.0

WLAN information	
Mode	Closed

Mobile Network information	
Status	connected
IP Address	10.60.65.17

Modem information	
IMEI	861107030276449
PIN Code	+CPIN: READY
Register Status	Registered
Signal Quality	62%

	GPS information
GPS Status	GPS is ready, @(22.6202772833, 120.30106635)> <u>show map</u>
GPS Data	\$GPRMC,012958.0,A,2237.216637,N,12018.063981,E,0.0,84.8,150917,,,A*5A

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5.2 Information

5.2.1 Device Information

The "Device Information" page provides basic device information.

Device Information	
Serial Number CCA4B6B10000	
Kernel Version	4.14.98-imx_4.14.98_2.0.0_ga+g5d6cbea
Firmware Version GRP-2841M_V1.0.0_20210927	

· Serial Number: Serial number of ICPDAS product.

· Kernel Version: Linux kernel version.

• Firmware Version: Firmware version.

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5.2.2 Network Information

The "Network Information" page provides basic network information.

Ethernet0	
Mode	static
MAC address	00:0d:e0:c0:00:08
IP Address	192.168.255.1
Mask	255.255.0.0
	Ethernet1
Mode static	
MAC address	00:0d:e0:c0:00:02
IP Address	10.0.255.1
Mask	255.255.255.0

WLAN information	
Mode	Closed

Mobile Network information	
Status	connected
IP Address	10.60.65.17

Modem information	
IMEI 861107030276449	
PIN Code	+CPIN: READY
Register Status	Registered
Signal Quality	62%

	GPS information
GPS Status	GPS is ready, @(22.6202772833, 120.30106635)> <u>show map</u>
GPS Data	\$GPRMC,012958.0,A,2237.216637,N,12018.063981,E,0.0,84.8,150917,,A*5A

· Ethernet0/Ethernet1: Ethernet information

- Mode: Only support static IP.
- MAC Address: Unique identifier assigned to the network interface.
- IP Address: Computer address under Internet protocol.
- Mask: The mask will be provided by the gateway provider.

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·WLAN information (for Wi-Fi module(option) only)

- Mode: AP / Station / Closed
- · Mobile Network information^[1]
 - Status: "connected" means the modem dialed successfully.
 - IP Address: IP address provided by ISP provider.
 - IP Address for VPN: IP address provided by VPN Server.

· Modem information^[2]

- IMEI: IMEI number of communication module.
- PIN Code: The status of the PIN code.
 - ◆READY: PIN code is ready.
 - ♦ SIM PIN: Need PIN code.
 - SIM PUK: Need PUK code.
 - ♦ SIM failure: Access to SIM card failure.
- Register Status: Indicates whether the machine is successfully connected to the mobile network.
- Signal Quality: 4G / 5G signal quality.
- * [1] Display information after 4G/5G connection.
- * [2] Display information after installing the communication module.

 \cdot GPS information

- GPS Status: The status of the GPS.
 - ♦ GPS is ready: Click "Show Map" to show the location of the GRP device
 - ♦ No GPS data: Unable to locate.
- GPS Data: Display GPS raw data.

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5.2.3 Storage Information

The "Storage Information" page provides information about "Micro SD Card".

/dev/mmcblk1p1		
Size	3.7G	
used	32K	
Available	3.7G	
Path (Mount Point)	/media/mmcblk1p1	

· Micro SD card

- Size: Total storage size
- used: Used size
- Available: Free space in the storage
- Path: The mount point in the file system.

5.3 Network

5.3.1 Ethernet

The "Ethernet" page provides basic settings for Ethernet0 (LAN1) and Ethernet1 (LAN2)

Ethernet0		
IP Address	192.168.255.1	
Mask	255.255.0.0	
Gateway		
Ethernet1		
IP Address	10.0.255.1	
Mask	255.255.255.0	
Gateway		
Modify		

- (1) IP Address: Ethernet IP.
- (2) Mask: Ethernet mask.
- (3) Gateway: Gateway IP.

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5.3.2 WLAN

This page provides basic settings for Wi-Fi AP mode or Station mode:

AP Mode:

AP Mo	de	Station Mode
IP Address	10.10.0.1	
Mask	255.255.255.0	
Network	10.10.0.0	
SSID	icpdas-ap	
Channel	6	(Channel 1~14)
Security	WPA2-PSK	
Password	1234567890	(8~64 characters)
Enable Function	Enable	
	Mo	dify
(1):The Wi-Fi will reboo (2):Remember to check r (2):Make sure Wi-Fi dev	t immediately. outing rule. ice can search the ch	annel.

(1) IP Address: IP of this Wi-Fi AP.

- (2) Mask: the Mask of this Wi-Fi AP.
- (3) Network: the Network of this Wi-Fi AP.
- (4) SSID: the name of this Wi-Fi AP.
- (5) Channel: the channel of this Wi-Fi AP.
- (6) Security: set no security or WPA2-PSK security mode.
- (7) Password: if use WPA2-PSK, need to set password for 8~64 characters.

Station Mode:

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AP M	ode	Station Mode
AP's SSID	None	
AP's Password	None	
IP Configure	Static 🔻	
IP Address		
Mask		
Gateway		
Enable Funcion	Enable	
	Modify	
(1):Need to wait for con (2):Remember to check	nection. routing rule.	

- (1) AP's SSID: the name of remote Wi-Fi AP.
- (2) AP's Password: the password of remote Wi-Fi AP.
- (3) IP Configure: use Static or DHCP method to get IP address
- (4) IP Address: if use Static mode, set IP of this Wi-Fi station.
- (5) Mask: if use Static mode, set Mask of this Wi-Fi station.
- (6) Gateway: if use Static mode, set Gateway of this Wi-Fi station. (if already have default gateway for 3G/4G, the default gateway for Wi-Fi station will be deleted)

5.3.3 PIN / APN Configure

The "PIN / APN Configure" page provides the basic settings of 4G / 5G network:

PIN / APN Configure		
PIN Code	0000	
Phone Number	*99***1#	(1)
APN	internet	(2)
User Name		(2)
Password		(2)
Modify		
(1):usually use *99# or *99***1# (2):please ask your SIM Card provider		

- PIN Code: The PIN code is a 4-character number provided by the SIM card provider.
- · Phone Number: It is generally filled in as "*99***1#" or "*99#", depending on the

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SIM card provider.

· APN:	Access point name.	Please consult the	SIM card provider.
• User Name:	Dial-up user name.	Please consult the	SIM card provider.

Password: Dial-up password. Please consult the SIM card provider.

5.3.4 Network Reconnection

The "Network Reconnect" page provides a function to keep the device on the mobile network at all times, but it will send an ICMP signal to check the mobile network.

Network Reconnection		
Server IP	8.8.8	
Max. Retry	5	
Retry Interval Time	30	
Enable Function	Enable	
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 		

• Server IP: The destination IP or URL of the ICMP signal.

Max. Retry: If the number of system retries exceeds this number, the 4G / 5G module will be reset and dialed again.

· Interval Time: System retry interval.

• Enable Function: Whether to enable this function. This setting will run immediately.

5.3.5 DNS

The "DNS" page provides the settings of the DNS server IP.

DNS Server		
Primary DNS Server	168.95.1.1	
Alternate DNS Server	8.8.8.8	
Modify		

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• Primary DNS Server: The device will first use it to obtain DNS service.

Alternate DNS Server: If the "primary DNS server" is invalid, the device will use it to obtain DNS service

5.3.6 DDNS Client

The "DDNS Client" page provides a real-time update of the dynamic domain name server to point to the changing IP address on the Internet

DDNS Configure		
Server	default@no-ip.com	
Domain Name	yourDomain.no-ip.org	
Username	yourUserName	
Password	yourPassword	
Period	0 seconds, 0 to disable function	
Modify		

• Server: The domain name of the DDNS service provider.

• Domain Name: The domain name registered by the user.

· Username: The username of DDNS service.

Password: The password of DDNS service.

Period: The time period (in seconds) to update the address; fill in 0 to disable this function.

5.3.7 VPN

The "VPN" page provides the function of creating a VPN connection (in PPTP protocol).

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VPN Configure		
VPN Server	vpnServerIP	
VPN Username	yourUserName	
VPN Password	yourPassword	
DDNS	Enable T	
DDNS Server	dynupdate.no-ip.com V	
DDNS Domain Name	yourDomain.no-ip.org	
DDNS Username	yourUserName	
DDNS Password	yourPassword	
DDNS Period	60	
FTP	Enable T	
FTP Server	ftpServerIP	
FTP Port	ftpServerPort	
FTP Username	yourUserName	
FTP Password	yourPassword	
FTP File Name	vpn_ip.txt	
FTP Period	60	
FTP Passive Mode	Enable	
VPN Enable	Enable	
	Modify	
 (1):The VPN of GRP uses PPTP protocol. (2):The DDNS and FTP in this page is used to let user get the VPN IP 		

· VPN:

- VPN Server: The IP of the VPN service provider
- VPN Username: The username of the VPN service.
- VPN Password: The username of the VPN service.

· DDNS:

- DDNS Server: The IP of the DDNS service provider.
- DDNS Domain Name: The domain name registered by the user.
- DDNS Username: The username of the DDNS service.
- DDNS Password: The password of the DDNS service.

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■ DDNS Period: The time period (in seconds) to update the address.

· FTP:

- FTP Server: The IP of the FTP service provider.
- FTP Port: The port of the FTP service provider.
- FTP Username: The username of the FTP service.
- FTP Password: The password of the FTP service.
- FTP File Name: The file used to save the user's address on the server.
- FTP Period: The time period (in seconds) to update the address.
- FTP Passive Mode: Whether to enable passive mode.

· VPN Enable: Whether to Enable this function. This setting will run after reboot.

5.3.8 DHCP Server

The "DHCP Server" page provides the settings of Ethernet 0 (LAN1) and Ethernet 1 (LAN2) for the DHCP server.

DHCP Server		
Ethernet0 Subnet	192.168.255.0	
Ethernet0 Netmask	255.255.255.0	
Ethernet0 Router	192.168.255.1	
Ethernet0 Range	192.168.255.100	~ 192.168.255.125
Ethernet1 Subnet	10.0.255.0	
Ethernet1 Netmask	255.255.255.0	
Ethernet1 Router	10.0.255.1	
Ethernet1 Range	10.0.255.100	~ 10.0.255.125
Enable	Enable	
Modify		

- Subnet: Subnet are a logical partition of an IP network into multiple, smaller network segments. Users can specify the required subnet by themselves
- Netmask: Mask is a 32 bits address used to distinguish between a network address and a host address in IP address.
- Router: IP address of this device.

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- Range: Users can specify the desired network IP range by this setting.
- Enable: Enable DHCP Server function

5.3.9 Routing & Port Mapping & White list

The "Routing Rule" page provides setting of routing rules.

ROUTING Rule			
Rule NO.	IP	Mask	Target
0	10.0.255.1	24 🗸	eth0 🗸
1		~	~
2		~	~
3		~	~
4		~	~
5		~	~
6		~	~
7		~	~
8		~	~
9		~	~

· Routing Rule

- IP: IP address.
- Mask: The mask will affect the number of IPs managed by this rule.
 - ♦"24" means "255" IP.
 - ◆"28" means "16" IP.
 - ♦ "32" means "1" IP.
- Target: The target interface of the rule.
 - ◆ "eth0" is "Ethernet0 (LAN1)"
 - ◆ "eth1" is "Ethernet1 (LAN2)"
 - "wwan0" is "4G network"
 - frmnet_usb0.1" is "5G network"

*** For example:**

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Rule 0 will push socket data packets with addresses from 10.0.255.1 to 10.0.255.255 to "eth0" (Ethernet0 (LAN1)).

Port Mapping Rule					
Rule NO.	Туре	From	Port	Target IP	Target Port
0	TCP 🗸	eth0 🗸	10080	10.0.255.100	80
1	~	~			
2	~	~			
3	~	~			
4	~	~			
5	~	~			
6	~	~			
7	~	~			
8	~	~			
9	~	~			
Modify					

The "Routing Mapping Rule" page provides setting of port forwarding.

· Port Mapping Rule

- Type: Protocol type supports "TCP" and "UDP"
- From: The interface from which the socket comes.
- Port: The port from which the socket comes.
- Target IP: The forward IP of the socket.
- Target Port: The forward port of the socket.

*** For Example:**

Rule 0 will bind sockets from "eth0" and port "10080" to "10.0.255.100:80".

The "Whitelist" page provides setting of white list.

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Whitelist			
Rule NO.	From	IP	
0	eth0 🗸	192.168.255.100	
1	►		
2	►		
3	▼		
4	►		
5	►		
6	►		
7	►		
8	►		
9	►		
	Mo	dify	

· Whitelist Rule

- From: Connection interface.
- IP: IP addresses allowed to connect

*** For Example:**

Only device at 192.168.255.100 of eth0 are allowed to connect.

Warning:

Please set it carefully, devices not in the list will not be able to connect

5.3.10 Diagnostic

The "Diagnostic" page provides tools for checking network issues.

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	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	
	route

- Ping Test: This tool will ping the "Target IP" and display the result below.
 Traceroute: This tool will trace the routing path to the "Target IP" and display the results below.
- Route Information: This tool will show route settings below.

5.3.11 Reset Network

The "Reset Network" page provides the function of resetting all Ethernet, DHCP, routing rules and port forwarding settings.

	Notice!!	
A It will reset your Ethernet, Please wait a minute	are you sure to reset network? WLAN, DHCP Server, and ROUT for system rebooting after you pres	ING Rule configure. ss reset button.
	Reset	
(1):The default Ethernet IP is 19 (2):The default WLAN IP is 10	2.168.255.1 10.0.1	

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5.4 System

5.4.1 Password

The "Change Password" page provides password settings.

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.			
· Password: Enter the new password.			

 \cdot Confirm: Confirm the new password.

5.4.2 Reboot

The "Reboot" page provides the function of restarting the device.

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

5.4.3 Reboot Timer

The "Restart Timer" page provides the function of automatically restarting the system.

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Reboot Timer (Reboot system automatically)			
Reboot Time (everyday) 0 : 0 (hour:minute)			
Enable Funcion	Enable		
Modify			
(1):This function will run immediately after you press "Modify" button			

· Reboot Time (everyday): Time to reboot the system.

Enable: Whether to Enable this function. This setting will run immediately.

5.4.4 Backup & Restore

The "Backup and Restore" page provides backup and restore of settings.

Backup & Restore		
Backup	Backup	
Restore	瀏覽… Restore	

· Backup: Press the "Backup" button to back up the settings to the user's PC.

• Restore: Press the "Browse" button to select the file, and then press the "Restore" button to store your settings.

5.4.5 Update

The "Update" page provides a firmware update function. Users can download the update file (".tarc") from the IPCDAS website, and then put it into the SD card. Please back up the configuration before updating and restore it after the update.

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	Update	
Are y It may re	you sure to update? set some configure file.	
	Update	
 (1):Must put "updateFile.tarc" file in SD card. (2):Need to wait several minutes for update. (3):It will reboot after update. 		

5.4.6 Restore Factory

The "Restore Factory" page provides the function to restore the settings to the factory settings.

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

5.4.7 Time

The "Time" page provides the time information of the device.

Time Configure		
Device Time (24-hour)	2015 / 11 / 06 10 23 38 Set Time	
NTP Server (Time Server)	tock.stdtime.gov.tw EX: tock.stdtime.gov.tw	
Timezone	+8 🖌 check timezone	
Enable NTP Funcion		
Modify		

Set Time: Set the device's time to be the same as your computer.
 NTP Server: The device will connect to the NTP server to synchronize the time.
 Timezone: If the user does not know your time zone, please click the "Check Time Zone" link to find it.

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• Enable NTP Function: If this function is enabled, the device will automatically update the time.

5.5 VxServer

Through "VxServer" and "VxComm Utility", users can create a virtual COM port on a remote PC to communicate with the COM port of the device.

5.5.1 VxServer

The "VxServer" page provides the function of establishing a connection with the VxServer.

Virtual COM Function (VxServer)			
Server IP	192.168.12.2]	
Server Port	11000	default=11000	
Heartbeat Time	10	10~65535 seconds	
Device ID	1	1~255, unique ID for device	
Alias	GRP-2841M	Max. Length = 8	
Time Interval	50	1~5000 ms, default=50	
Data Length	1000	10~1000 bytes, default=1000	
Modbus TCP to RTU (Port1)	🗆 Enable, COM1> TC	P Port 10001	
Modbus TCP to RTU (Port2)	🗆 Enable, COM2> TC	Enable, COM2> TCP Port 10002	
Modbus TCP to RTU (Port3)	Enable, COM3> TCP Port 10003		
Default Baudrate (Port1)	115200 ✔ bps		
Default Baudrate (Port2)	115200 🗸 bps		
Default Baudrate (Port3)	115200 🗸 bps		
Default Format (Port1)	8N1 🗸 (Data bit, Parity, S	Stop bit)	
Default Format (Port2)	8N1 V (Data bit, Parity, Stop bit)		
Default Format (Port3)	8N1 V (Data bit, Parity, Stop bit)		
Enable Function	Enable		
Firmware Version	v1.0.2		
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 			

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- Server IP: VxServer IP or domain name.
- Server Port: VxServer port number.
- Heartbeat Time: The time interval for sending heartbeat packets to VxServer.^[1]
 Device ID: The unique ID used to identify the device.
- Alias: The alias of the device. The maximum length is 8 characters.
- Time Interval: The time interval for sending serial port data to VxServer.^[2]
- Data Length: The data length of the serial port data sent to the VxServer.^[3]
- Modbus TCP to RTU: Modbus TCP to Modbus RTU gateway function.
 - "Port1" = "COM1 (RS-232)"
 - "Port2" = "COM2 (RS-485)"
 - "Port3" = "COM3 (RS-485)"
- Default Baudrate: This value depends on your serial device.
 - "115200" means baud rate is 115200 bps
 - "57600" means baud rate is 57600 bps
 - "38400" means baud rate is 38400 bps
 - "19200" means baud rate is 19200 bps
 - "9600" means baud rate is 9600 bps
- Default Format: The configuration of "data bit", "parity" and "stop bit".
 - Data bit support
 - ♦"8" means "8-bits"
 - ♦"7" means "7-bits"
 - Parity bit support

 - ♦"O" means "Odd"
 - "E" means "Even"
 - Stop bit support
 - ♦"2" means "2-bits"
 - ♦"1" means "1-bit"

• Enable Function: Whether to Enable this function. This setting will run after reboot.

- * [1] VxServer will detect the disconnection in advance and terminate the connection.
- * [2] If the time interval between two serial data is greater than this value, the data will be divided into two network packets. If there is not enough time interval, but the data length exceeds the "Data Length", the data is still divided into two network packets.

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*[3] If the serial port data length exceeds this value, the data will be divided into two data packets. If this function is not needed, users usually only need to set this value to 1000 bytes (default). This value is restricted by the network protocol.

5.6 RTU Client

The RTU device uploads its I/O information, Modbus RTU/TCP device I/O information and GPS information to the RTU Center.

5.6.1 RTU Client

The "RTU Client" page provides the function of establishing a connection with RTU Center and the setting of Modbus communication

Main Info.	Modbus Device	FTP / Email
Server Address	192.168.12.2	
Server Port	10000	default=10000
Station ID	1	1~65535
Data Update Period(sec.)	3	0~86400 (0=disable)
Heartbeat Period(sec.)	0	1~86400 (a day)
Baud Rate (for Modbus/RTU)	9600 🗸 bps	
Data Bit	8 🗸	
Parity	NV	
Stop Bit	1~	
Modbus Timeout (ms)	1000	50~99999, default=1000
Enable Firmware	🗆 Enable	
Firmware Version	V1.1.1 2016/10/07	
	Modify	

Main Info. tab

· Server Address:

RTU Center IP or domain name.

· Server Port:

RTU Center port number.

Station ID:

The unique ID used to identify the device.

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· Data Update Period (sec.):	The time in	terval for sending data	packet.
· Heartbeat Period (sec.):	The time in	terval for sending heartbeat	packet.[1]
·Baud Rate (for Modbus/RTU):	The baud r	ate of UART (COM1~3).	
· Data bit:	The data	bit of UART (COM1~3).	
· Parity:	The parity	bit of UART (COM1~3).	
• Stop bit:	The stop	bit of UART (COM1~3).	
• Modbus Timeout (ms): Modbus comm	unication tin	neout value.	

- Enable Firmware: Enable this feature.
- * [1] The RTU center will detect the disconnection in advance and terminate the connection. The "Heartbeat Period" must be less than "Data Update Period".

Modbus Number tab

Main Info.	Modbus D)evice	FTP / Email
Modbus Device Nu	mber : 0	Ad	dd ET-7050 🗸
1 Name :			Edit Delete
Device Name	1_ET-7050	Max Length=20	
Device ID	1]1~255	
IP	192.168.1.1 COM is for Modbus/RTU,] IP/COM1/COM2 , empty is for COI	2/COM3 M2
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	
	Modify	Cancel	

· Modbus Device Number: The Modbus device number is displayed here.

Users can select a model in the list, and then click "Add" to

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add a new Modbus device.

- · Device Name: The name of the Modbus device is displayed in the RTU Center.
- · Device ID: Modbus ID.
- · IP: The IP of Modbus TCP device.^[1]
- Port: The Port of Modbus TCP device.
- · DI Number: The number of DI channel.
- $\cdot\,\text{DO}$ Number: The number of DO channel.
- ·AI Number: The number of AI channel.
- · AO Number: The number of AO channel.
- · DI Address: The start address for reading DI value.
- · DO Address: The start address for reading DO value.
- · AI Address: The start address for reading AI value.
- · AO Address: The start address for reading AO value.

* [1] For Modbus RTU device, fill in COM number, ex: COM1 / COM2 / COM3. If blank, the default is COM2.

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FTP / Email tab

Main Info.		Modbus Device	FTP / Email
Data Log Interval (sec.)		5	0~86400 (0=disable)
Max. Time per Log File (1	nin.)	60	3~1440 minutes
FTP Server Address		192.168.12.2	empty> disable FTP
FTP Port		21	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 To		xyz@gmail.com	Ex: xyz@gmail.com
Example for 2 or more co	ntact	xx@gmail.com,yy@gmail	.com
Email Server		smtp.gmail.com	Ex: smtp.gmail.com
Email Server Port		25	Ex: 25
Email Username		abc	Ex: abc
Email Password		123abc	Ex: 123abc
Enable Email Funcion		🗆 Enable	
		Modify	

 Data Log Interval (sec.): 	The time interval for recording I / O data. ^[1]
\cdot Max. Time per Log File (min.):	The time interval for spliting new log files. ^[2]
· FTP Server Address:	FTP Server IP or Domain name.
· FTP Port:	FTP server port number.
· FTP Username:	The username of FTP account.
· FTP password:	The password of FTP account.
Enable FTP Function:	Enable FTP report function.
· Email From:	The email will be sent from this address.
· Email To:	The email will be sent to this address. ^[3]
· Email Server:	The server address of the email server.
· Email Server Port:	The server port of the email server. ^[4]
· Email Username:	The username of email account.
· Email Password:	The password of email account.
Enable Email Function:	Enable email report function.

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- * [1] Setting to "0" will disable all functions in this tab.
- * [2] The interval at which log files are sent via email or FTP. When the log file exceeds 3 MB or the new file split interval exceeds this value, the log file will be treated as an old log file and moved to the "LOGFILE" folder.
 If users enable the "Enable FTP Function" / "Enable Email Function", these old log files will be copied to "FTP_UPLOAD" / "MAIL_UPLOAD" and sent.
- * [3] Use "," to separate each email address
- × [4] Usually 25, 465, or 587.

5.6.2 FTP Test

The "FTP Configuration Test" page provides a tool to send test files to the FTP server.

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		

- FTP Server Address: FTP Server IP or Domain Name.
- FTP Port: FTP server port number.
- FTP Username: The username of FTP account.
- FTP password: The password of FTP account.

5.6.3 Email Test

The "Email Test" page provides tools for sending test emails.

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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		

- Email From: The email will be sent from this address.
- Email To: The email will be sent to this address.^[1]
- Email Server: The email server IP.
- · Email Server Port: The email server port number.^[2]
- · Email Username: The username of email account.
- · Email Password: The password of email account.

• "Test" button: Press this button to send test emails.

* [1] Using "," to separate each mail address.

* [2] Usually 25, 465, or 587.

5.6.4 Modbus Test

The "Modbus Configure Test" page provides tools for polling Modbus devices. The following is an example of ET-7026.

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Modbus Configure Test

 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, 65535)

 DEBUG [2014-08-15 17:20:57] [1] AO value= (0, 273)

Test

MODBUS Exception Codes: 01: ILLEGAL FUNCTION 02: ILLEGAL DATA ADDRESS 03: ILLEGAL DATA VALUE 04: SLAVE DEVICE FAILURE 05: ACKNOWLEDGE 06: SLAVE DEVICE BUSY 08: MEMORY PARITY ERROR 08: MEMORY PARITY ERROR 08: GATEWAY PATH UNAVAILABLE 0B: GATEWAY TARGET DEVICE FAILED TO RESPOND

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6. Example

6.1 4G / 5G Router Application

This example shows the steps to share 4G/5G network to 3 XPAC8000.



(1) The Ethernet configuration of XPAC8000 is as follows:

- · IP is from "192.168.0.10" to "192.168.0.12".
- Mask is "255.255.0.0".
- ·Gateway is "192.168.27.31".

(2) Fill in the Ethernet IP and mask. After finishing all the settings, click "Modify".

Ethernet	
IP Address	192.168.27.31
Mask	255.255.0.0
Gateway	
Modify	

(3) If necessary, fill in "PIN Code", "APN", "User Name" and "Password". After finishing all the settings, click "Modify".

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PIN / APN Configure		
PIN Code	0000	
Phone Number	*99***1#	(1)
APN	internet	(2)
User Name		(2)
Password		(2)
Modify		
(1):usually use *99# or *99***1#		
(2):please ask your SIM Card provider		

(4) Enable the "Network Reconnect" function to ensure that the mobile network is always online (usually, the ISP will disconnect once every 1 to 3 days).

Server IP can fill in user server IP or Google DNS server IP (8.8.8.8).

If the user uses MDVPN, please make sure that the server IP does not deny the ICMP service (Ping). After finishing all the settings, click "Modify".

Network Reconnection		
Server IP	8.8.8.8	
Max. Retry	5	
Retry Interval Time	30	
Enable Funcion	🗷 Enable	
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 		

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(5) Fill in the routing rules to share the 4G/5G network. Rule 0 will share the 4G/5G network to IP addresses from 192.168.0.1 to 192.168.0.255. After finishing all the settings, click "Modify".

ROUTING Rule						
Rule NO.	IP	Mask	Target			
0	192.168.0.1	24 🗸	wwan0 🗸			
1			×			
2		~	~			
3		~	~			
4		~	~			
5		~	~			
6		~	×			
7		~	×			
8		~	~			
9		~	~			

(6) Please reboot the device to enable the setting.

Information		
<u>Device Info</u>	l li	
<u>Network Info</u>		Notice!!
<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>		Reboot
<u>26/36</u>		
DDNS	4	
DHCP Server		
<u>Routing</u>		
Port Mapping	/	
<u>Diagnostic</u>		
Process		
<u>System</u> <u>User</u>		
System Password Reboot Backup/Restore		

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6.2 Web Server and IP Camera Application

This example shows the steps to share 3G/4G network to ET-7044 and IP camera.



- (1) The Ethernet configuration of ET-7044 is as follows:
 - ·IP is from "192.168.0.20" to "192.168.0.22".
 - Mask is "255.255.0.0".
 - ·Gateway is "192.168.27.31".
- (2) Fill in the Ethernet IP and mask. After finishing all the settings, click "Modify".

Ethernet					
IP Address	192.168.27.31				
Mask	255.255.0.0				
Gateway					
Modify					

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(3) If necessary, fill in "PIN Code", "APN", "User Name" and "Password". After finishing all the settings, click "Modify".

PIN / APN Configure						
PIN Code	0000					
Phone Number	*99***1# (1)					
APN	internet (2)					
User Name	(2)					
Password	(2)					
Modify						
(1):usually use *99# or *99***1# (2):please ask your SIM Card provider						

(4) Enable the "Network Reconnect" function to ensure that the mobile network is always online (usually, the ISP will disconnect once every 1 to 3 days).

Server IP can fill in user server IP or Google DNS server IP (8.8.8.8).

If the user uses MDVPN, please make sure that the server IP does not deny the ICMP service (Ping). After finishing all the settings, click "Modify".

Network Reconnection						
Server IP	8.8.8.8					
Max. Retry	5					
Retry Interval Time 30						
Enable Funcion	Enable Funcion 🖉 Enable					
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 						

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- (5) Fill in the routing rules to enable users to access the devices behind the GRP device through the Internet. Rules 0 to 2 bind the ports of the 4G/5G network interface to the "Target IP" and "Target port". After finishing all the settings, click "Modify".
 - · Bind port 12080 of 4G / 5G network interface to "192.168.0.20:80".
 - · Bind port 12180 of 4G / 5G network interface to "192.168.0.21:80".
 - · Bind port 12280 of 4G / 5G network interface to "192.168.0.22:80".

Port Mapping Rule								
Rule NO.	Туре	From	Port	Target IP	Target Port			
0	TCP 🗸	wwan0 🗸	12080	192.168.0.20	80			
1	TCP 🗸	wwan0 🗸	12180	192.168.0.21	80			
2	TCP 🗸	wwan0 🗸	12280	192.168.0.22	80			
3	~	~						
4	~	~						
5	~	~						
6	~	~						
7	~	~						
8	~	~						
9	~	~						
	Modify							

(6) Please reboot the device to enable the setting.

Information		
<u>Device Info</u>		
<u>Network Info</u>		Notice!!
<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>	[Reboot
<u>2G/3G</u>		
<u>DNS</u>		
<u>DDNS</u>	- 7	
<u>DHCP Server</u>		
<u>Routing</u>	/	
<u>Port Mapping</u>	/	
<u>Diagnostic</u>		
Process 💋		
<u>System</u>		
<u>User</u>		
System		
Password		
Reboot		
Backup/Restore		

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(7) To view the IP camera image from a web browser, please enter the IP address or domain name of the GRP device in the 4G / 5G network.



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6.3 Remote I/O Control / Temperature Monitor

This example shows the remote control application through "Serial port to 4G / 5G gateway function".



- (1) Connect the device (DL-100 or PLC) to the serial port of the GRP device.
- (2) Open VxServer. For more information about VxServer, please refer to: <u>https://www.icpdas.com/tw/download/index.php?nation=TW&kind1=&model=&kw=vxse</u> <u>rver</u>
 - **%** VxServer supports up to 128 GRP devices.

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(3) If necessary, fill in "PIN Code", "APN", "User Name" and "Password". After finishing all the settings, click "Modify".

PIN / APN Configure						
PIN Code	0000					
Phone Number	*99***1#	(1)				
APN	internet	(2)				
User Name		(2)				
Password		(2)				
Modify						
(1):usually use *99# or *99***1# (2):please ask your SIM Card provider						

(4) Enable the "Network Reconnect" function to ensure that the mobile network is always online (usually, the ISP will disconnect once every 1 to 3 days).

Server IP can fill in user server IP or Google DNS server IP (8.8.8.8).

If the user uses MDVPN, please make sure that the server IP does not deny the ICMP service (Ping). After finishing all the settings, press the "Modify" button.

Network Reconnection						
Server IP	8.8.8					
Max. Retry	5					
Retry Interval Time 30						
Enable Funcion	🗹 Enable					
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 						

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(5) Fill in the "Server IP" and "Server Port" (default 11000).

After finishing all the settings, check the "Enable" field, and then press the "Modify" button.

Virtual COM Function (VxServer)						
Server IP	192.168.12.2					
Server Port	11000	default=11000				
Heartbeat Time	10] 10~65535 seconds				
Device ID	1 1~255, unique ID for device					
Alias	GRP-2841M Max. Length = 8					
Time Interval	50 1~5000 ms, default=50					
Data Length	1000]10~1000 bytes, default=1000				
Modbus TCP to RTU (Port1)	🗆 Enable, COM1> TC	P Port 10001				
Modbus TCP to RTU (Port2)	Enable, COM2> TCP Port 10002					
Modbus TCP to RTU (Port3)	□ Enable, COM3> TCP Port 10003					
Default Baudrate (Port1)	[115200 ✔] bps					
Default Baudrate (Port2)	115200 V bps					
Default Baudrate (Port3)	115200 🗸 bps					
Default Format (Port1)	8N1 🗸 (Data bit, Parity, Stop bit)					
Default Format (Port2)	(BN1 🗸) (Data bit, Parity, Stop bit)					
Default Format (Port3)	8N1 🗸 (Data bit, Parity,	Stop bit)				
Enable Function	Z Enable					
Firmware Version v1.0.2						
	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 						

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(6) Please reboot the device to enable the setting.

Information		
Device Info		
<u>Network Info</u>		Notice!!
<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>	-	
DHCP Server		
<u>Routing</u>		
<u>Port Mapping</u>		
<u>Diagnostic</u>		
Process 💋		
<u>System</u>		
System 🥖		
Password		
Reboot		
Backup/Restore		

(7) After rebooting, the GRP device will automatically connect to VxServer.

15	🎸 VxServer Ver1.02 2014/07/21								
9	Setti	ngs Help	Exit						
		Virtual IP		Module	Alias	Com Number	Heartbeat	Remote Client IP	Remote Client
	0	127.53.0.1		GRP-2841	GRP-2841	3	10	12.3.9 12.738	8387

% The "Virtual IP" with subnet "127.53.0.0/24" is determined by the "Device ID" of the GRP device. The range is from "127.53.0.1 ~ 127.53.0.255".

- (8) After the GRP device is connected to VxServer, follow the steps below.
 - A. Open VxComm Utility. For more information about VxComm, please refer to: <u>https://www.icpdas.com/tw/download/index.php?nation=TW&kind1=&model=&kw=</u><u>vxcomm</u>

% VxComm Utility version must be greater than v2.14.03.

% VxComm Utility creates 3 virtual COM ports for each GRP device.

B.Press the "Search Servers" button to get the device list.

- C. Right-click on "GRP-2841"
- D. Click "Add Server".
- E. Select the starting number of the virtual serial port.

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- F. Change the settings tab to "Server Options" and set it as screenshot.
- G. Click "OK".

ding Servers				
P Range Server (ptions Port Optio	ns		
Server Informati	OD	E Get n	ame automati	ically
IP Range Start :	127.53.0.1		duplicated IP	cany
IP Range End : 127.53.0.1				
□ O (Net)	Wing special IP : 54 (Gateway)	255 (Broadcas	et)	
COM Port :	сом5			
Fixed baudrat Maps virtual	e, use current sett COM ports to "Port	ings of servers 1/0" on servers	s.	
			ок	Cancel

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P Range	Server Options	Port Options	
The follo	wing items are al	PC side settings, not device setting	s.
Keep Aliv	ve Time (Seconds	1: 1	
Connecti	on Broken (Secon	ds): 3	
Connect	Timeout (Seconds): 1	
Comman	d Port (TCP):	10000	
Virtual I/(O Port (TCP):	9999	

- (9) The user will see the virtual COM ports (COM5 and COM7 in this example). If the user cannot open them, please follow the below steps to open the virtual COM port.
 - A. Click "Tools / Restart Driver" to restart the driver.
 - B. Open the com port to connect your device.

🥩 VxComm Utility [v	2.14.03	3, Sep.28, 2021]			8	- • ×
File Server Port	Tools]	-			
	1	Restart Driver				
	T	Terminal		Port	Virtual COM	Baudrate
VyCom	-			Port I/O	Reserved	N/A
Where remote Service	S	Modbus RTU Master		Port 1	COM5	Dynamic
become part of your P		Modbus TCP Mester		Port 2	COM2	Dynamic
Add Sena	•	NIGODOS TOP NIGSLEI		r ac o	CON	Cyname
X Remove S	ĥ	Driver Options				
	0	System Information				
Web]			
Search Ser	vers					
Configuration (U	JDP]					
Exit		Status: OK				,

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6.4 Modbus TCP to Modbus RTU over 4G / 5G

After completing the following steps, please set the "IP:Port" of the Modbus TCP program to "127.53.0.1:10002" in your control center (TCP port 10001 for COM1/RS-232; TCP port 10002 for COM2/RS-485; TCP port 10003 for COM3/RS-485).



- Please connect your device (M-7017 or PLC) to RS-485 of GRP device. The baudrate of Modbus device is 9600 bps and the data format is 8N1.
- (2) Open VxServer. For more information about VxServer, please refer to: <u>https://www.icpdas.com/tw/download/index.php?nation=TW&kind1=&model=&kw=vxse</u> <u>rver</u>
 - **%** VxServer software supports up to 128 GRP devices.
 - **%** VxServer software creates 3 TCP server with virtual IP for each GRP device.

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(3) If necessary, fill in "PIN Code", "APN", "User Name" and "Password". After finishing all the settings, click "Modify".

PIN / APN Configure				
PIN Code	0000			
Phone Number	*99***1#		(1)	
APN	internet		(2)	
User Name			(2)	
Password			(2)	
Modify				
(1):usually use *99# or *99***1# (2):plage ask your SIM Card provider				
(2):please ask your SIM Card pr	(2):please ask your SIM Card provider			

(4) Enable the "Network Reconnect" function to ensure that the mobile network is always online (usually, the ISP will disconnect once every 1 to 3 days).

Server IP can fill in user server IP or Google DNS server IP (8.8.8.8).

If the user uses MDVPN, please make sure that the server IP does not deny the ICMP service (Ping). After finishing all the settings, click "Modify".

Network Reconnection				
Server IP	8.8.8.8			
Max. Retry	5			
Retry Interval Time	30			
Enable Funcion	🖉 Enable			
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				

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(5) Fill in the "Server IP" and "Server Port" (default 11000).

For Modbus RTU devices, set Port2 (RS-485) as follows.

After finishing all the settings, check "Enable Function", and then click"Modify".

Virtual COM Function (VxServer)					
Server IP	192.168.12.2]			
Server Port	11000	default=11000			
Heartbeat Time	10	10~65535 seconds			
Device ID	1	1~255, unique ID for device			
Alias	GRP-2841M	Max. Length = 8			
Time Interval	50] 1~5000 ms, default=50			
Data Length	1000] 10~1000 bytes, default=1000			
Modbus TCP to RTU (Port1)	🗆 Enable, COM1> TC	P Port 10001			
Modbus TCP to RTU (Port2)	Enable, COM2 -> TCP Port 10002				
Modbus TCP to RTU (Port3)	Enable, COM3> TCP Port 10003				
Default Baudrate (Port1)	115200 V bps				
Default Baudrate (Port2)	9600 🗸 bps				
Default Baudrate (Port3)	115200 🗸 bps				
Default Format (Port1)	8N1 🗸 (Data bit, Parity, S	Stop bit)			
Default Format (Port2)	8N1 🗸 (Data bit, Parity, S	Stop bit)			
Default Format (Port3)	8N1 V (Data bit, Parity, Stop bit)				
Enable Function	Z Enable				
Firmware Version	v1.0.2				
	Modify				
 Heartbeat Time: if this value is small, it is sensitive to detect network disconnected Virtual IP: please set it different from other virtual COM device 					

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(6) Please reboot the device to enable the setting.



(7) After rebooting, the GRP device will automatically connect to VxServer.

🎸 Vxs	erver Ve	r1.02 20	14/07/21	L					
Sett	ings	Help	Exit						
	Virtu	al IP		Module	Alias	Com Number	Heartbeat	Remote Client IP	Remote Client
0	127.	53.0.1		GRP-2841	GRP-2841	3	10	123.911.1733	8387

- % The "Virtual IP" with subnet "127.53.0.0/24" is determined by the "Device ID" of the GRP device. The range is from "127.53.0.1 ~ 127.53.0.255".
- (8) After the GRP device is connected to VxServer, user can connect to "127.53.0.1:10002" (TCP port 10001 for COM1/RS-232; TCP port 10002 for COM2/RS-485; TCP port 10003 for COM3/RS-485) to send/receive Modbus RTU commands using Modbus TCP program.

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6.5 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. This system has ET-7050, M-7022 and PLC.



- (1) Please connect the RS-485 or Ethernet of the device (ET-7k or M-7k module) to GRP-2841M
- If necessary, fill in "PIN Code", "APN", "User Name" and "Password". After finishing all the settings, click "Modify".

PIN / APN Configure				
PIN Code	0000			
Phone Number	*99***1#	(1)		
APN	internet	(2)		
User Name		(2)		
Password		(2)		
Modify				
(1):usually use *99# or *99***1# (2):please ask your SIM Card provider				

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(2) Enable the "Network Reconnect" function to ensure that the mobile network is always online (usually, the ISP will disconnect once every 1 to 3 days).
Server IP can fill in user server IP or Google DNS server IP (8.8.8.8).
If the user uses MDVPN, please make sure that the server IP does not deny the ICMP

service (Ping). After finishing all the settings, click "Modify".

Network Reconnection				
Server IP	8.8.8.8			
Max. Retry	5			
Retry Interval Time	30			
Enable Funcion	🗷 Enable			
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 				

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(3) Select "ET-7050" in the list, and then click "Add", the web will display all I/O number information, as shown below.

Modify the "Device Name", "Device ID", "IP" and "Port" of ET-7050, and then click "Modify".

Main Info.	Modbus E	Device FTP / Email		
Modbus Device Nu	mber : 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 COM is for Modbus/RTU, empty is for COM2			
Port	502	Default=502, 1~65535		
DI Number	12]0~32		
DO Number	6	0~32		
AI Number	0]0~16		
AO Number	Number 0 0~16			
DI Address	ess 0 0~65535			
DO Address	0 0~65535			
AI Address	0 0~65535			
AO Address	0	0~65535		
	Modify	Cancel		

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(4) Select "M-7022" in the list, and then press the "Add" button, the web will display all I/O number information, as shown below.

Modify the "Device Name" and "Device ID" of M-7022 (keep the default values of "IP" and "Port"), and then click "Modify".

Main Info.	Modbus De	evice	FTP / Email		
Mođbus Device Nun	nber : 1	F	Add M-7022 🗸		
1 Name : 1_E	ET-7050		Edit Delete		
2 Name :			Edit Delete		
Device Name	2_M-7022	Max Length=20			
Device ID	1	1~255			
IP	IP/COM1/COM2/COM3 COM is for Modbus/RTU, empty is for COM2				
Port 502 D		Default=502, 1~65535			
DI Number 0 0		0~32			
DO Number	DO Number 0 0				
AI Number	AI Number 0 0-				
AO Number	2	0~16			
DI Address 0		0~65535			
DO Address 0		0~65535			
AI Address	0	0~65535			
AO Address 0 0~65535					
Modify Cancel					

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(5) Select "Custom" in the list, and then press the "Add" button, the web will display all I/O number information, as shown below.

Modify the "Device Name", "Device ID", "DI Number", "AI Number" of PLC, and then click "Modify".

Main Info.			Modbus I) evic	FTP / Email			
Modbus Device Number : 2					A	.dd Cu	ustom 🗸	
1	Name : 1_ET-7050					Edit	Delete	
2	Name : 2_1	v I -702	2			Edit	Delete	
3	Name :					Edit	Delete	
Device	Name	myPL	.C	Max	Length=20			
Device	e ID	1]1~2	55			
IP COM is for Mod			is for Modbus/RTU	IP/COM1/COM2/COM3 bus/RTU, empty is for COM2				
Port		502	2 Default=502, 1~65535					
DI Nu	mber	4 0-			0~32			
DO Nu	ımber	0			0~32			
AI Nu	mber	4]0~16			
AO Nu	umber	0			0~16			
DI Ado	iress	0			0~65535			
DO Address 0				0~65535				
AI Address 0				0~65535				
AO Ad	ldress	0		0~65535				
			Modify	Can	cel			

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(6) Select the "Modbus Test" function, and then press the "Test" button to test the settings. If the result is successful, follow the next step.

<u>Time</u>	*	success									
<u>System Service</u>											
VxServer											
<u>VxServer</u>			Modbus Configure Test								
RTU Client			invalid object in data, converting to string								
<u>RTU Client</u>			invalid object in data, converting to string								
<u>FTP Test</u>			modbus debug start DEBUG [2014-08-18 15:55:56] [1] DI value= (0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0)								
<u>Email Test</u>		Result	DEBUG [2014-08-18 15:55:56] [1] DO value= (0, 0, 0, 0, 0, 0)								
<u>Modbus Test</u>			DEBUG [2014-08-18 15:55:56] [2] AO value= (291, 256)								
V112B07			DEBUG [2014-08-18 15:55:56] [3] DI value= (1, 1, 0, 0)								
2014/07/28			DEBUG [2014-08-18 15:55:56] [3] AI VAIUE= (0, 0, 0, 0)								
			Test								

If the result failed, please check your settings or wiring.

fails
Modbus Configure Test
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
Test

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(7) Configure "Main Info." Tab.

- · Fill in the "Server Address" and "Server Port" of RTU Center.
- \cdot Fill in the "Station ID" (different from other RTU equipment).
- · Fill in the "Data Update Period" and "Heartbeat Period" (0 disable).
- Fill in the RS-485 configuration of the Modbus RTU device.

Main Info.	Modb	ous Device	FTP / Email			
Server Address						
Server Port		10000	default=10000			
Station ID		1~65535				
Data Update Period(s	ec.)	3	0~86400 (0=disable)			
Heartbeat Period(sec.)	0	1~86400 (a day)			
Baud Rate (RS-485 fo Modbus/RTU)	r	9600 🔽 bps				
Data Bit		8 🕶				
Parity						
Stop Bit		1 🕶				
Modbus Timeout (ms)		1000 50~99999, default=1000				
Enable Firmware		☑ Enable				
Firmware Version		v1.0.0				
		Modify				

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- (8) Open the RTU Center, and then follow the steps below to add RTU devices.
 - A. Click the "New Device" icon.
 - B. Enter the alias of the GRP device
 - C. Fill in the "Station ID" as the "Station ID" of GRP device.

<u>e</u>		5
-	Parameter	Status
Device Properties		8
Device Name myG	RP2841	
(Тур	e:Unicode, Max. size: 20)	🗡 ок
Module Setting	V (1 ~ 55535)	Canad
history II I I	T (1 ~ 00000)	Cancer
Station IL 1		· ·
Describe		
Describe		

(9) After reboot, the GRP device will automatically connect to RTU Center.

🙀 M2M RTU Center				
File Settings Help				
🔁 🗟 💣 🍕				
□- myGRP2841	Parameter	Status		
- Local IO	Device Name	myGRP2841		
	Station ID	1		
mvPLC	Describe			
	Connected Priority	GPRS Master, Ethernet Slave		
	Connected Method	Ethernet		
	Date&Time	2021/11/01 13:44:13		
	Remote Client IP	61.219.167.31		
	Remote Client PORT	41484		
	Send once time (unit: sec)	3		
	Heartbeat time (unit: sec)	0		
	Modbus module number	3		

(10) Double-click "ET-7050" to call up the "Output Control Panel", and press "DO1" to control the remote DO.

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M2M RTU Cente	er				
<u>F</u> ile <u>S</u> ettings	Help				
6	3 💣 🌒 🕻	🕑 😓 🔕			
📄 😑 myGRP520 _		Parameter	Status		
Local IO	Write Output - ET-7050				
ET-7050	, Write Digital Output (Red Led: ON,	Gray Led: OFF)			
M-7022 myPLC		DO 2 DO 3	DO 4 DO 5	D0 6 D0 7	Exit
	DO 8 DO 9	DO 10 DO 11	DO 12 DO 13	DO 14 DO 15	-
	Write Analog Output	Read heads. Output value	Deed healt, Output value	Read heads. Output using	-
	Read back Output value	Read back Output value	Read back Output value	Read back Output value	-
	AO 0 (Hex)	AO 1 (Hex)	AO 2 (Hex)	AO 3 (Hex)	
	Read back. Output value	Read back. Output value	Read back. Output value	Read back. Output value	
		10.5 (Link)	0.0.6.(1)	10.7 (lim)	-
	AU 4 (HBX)	AO S (HEX)	AU 6 (HEX)	AO 7 (HEX)	-
	Read back Output value	Read back Output value	Read back Output value	Read back Output value	
					-
	AO 8 (Hex)	AO 9 (Hex)	AO 10 (Hex)	AO 11 (Hex)	
	Read back Output value	Read back Output value	Read back Output value	Read back Output value	
Date / Time					
2014/08/20 15:34	AO 12 (Hex)	AO 13 (Hex)	AO 14 (Hex)	AO 15 (Hex)	
2014/08/20 15:34					
2014/08/20 15:34	Set Counter				
2014/08/20 15:34		0 0 0 0 0 Set Zero	Counter 1: 00000	Set Zero	-
2014/08/20 15:34					-
2014/08/20 15:34					
2014/08/20 15:34	Counter 2: 00000	0 0 0 0 0 Set Zero	Counter 3: 00000	0 0 0 0 0 Set Zero	-
2014/08/20 15:34					
2014/08/20 15:34	Counter 4: 00000	0 0 0 0 0 Set Zero	Counter 5: 00000	0 0 0 0 0 Set Zero	
2014/08/20 15:34					
2014/08/20 15:34 2014/08/20 15:34	Counter 6: 00000	00000 Set Zero	Counter 7: 00000	0 0 0 0 0 Set Zero	
2014/08/20 15:34					

(11) Download the RTU API from the RTU center webpage and unzip it. There are RTU API library and some C#, VB.Net, VC6 demos, as shown below.

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

(12) Copy the pre-built demo to the folder in the RTU Center.

The demo must be in the same folder as RTU Center, because the same memory is shared in "M2M_RTU.dll".

Here we copied "RTU_CS_demo.exe" and "M2M_RTU_NET.dll" from the C# demo.

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]] V1.12\RTU	_API\demo\RTU_CS_Net_demo\RTU_CS	_demo\bin\Debug 🕇 😽
■ 開啟権	當案 新增資料夾	
愛	名稱 ^	修改日期
	🕘 icpdas_device	2009/11/13 下午
	🗊 icpdas_mdev	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
	Image: RTU_API Image: Icpdas_device Image: Icpdas_mdev Ima	

(13) Execute "RTU_CS_Demo.exe".

- A. Press "Get Information" to get all station information.
- B. Fill in the "Station ID" as the "Station ID" of GRP device.
- C. Press the "Read Data" button to read the local IO data. Because the GRP device has no local IO, we get the error code here.
- D. Fill in "Modbus ID" as "Modbus ID" of ET-7050, and "Modbus Name" as "ET-7050", and then press "ReadData" to get all IO data.
- E. Press the "Write Dos (add 1)" button to control DO.

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

- (1) For RTU Client and RTU Center, please refer to the previous section.
- (2) Open NAPOPC.M2M DA Server, and then click "Search" to automatically add all the tags of the device.



ICPDAS NAPOPC.M2M DA Server - 未命名 File Add Edit View Options Help

	M	B		2			•	G		<u>Se</u>	3<	F
New	Open	Save	Save as	Device	Group	Таа	Produc	e Search	Monitor	Debua	Cut	Cor
⊡¦				Name		Device	Туре	Location	Cha	annel Type		Chanr
	ET-7050			🕀 Ch00)	ET-70	50	1		Bit Input		0
	🔁 DI			the Choi	L	ET-70	50	1		Bit Input		1
	🔁 DO			🗛 Chữ	2	ET-70	50	1		Bit Input		2
	🖆. DIs			the ChO	3	ET-70	50	1		Bit Input		3
	DOs			the Chool	1	ET-70	50	1		Bit Input		4
	M-7022			the Chos	5	ET-70	50	1		Bit Input		5
				😓 ChO	5	ET-70	50	1		Bit Input		6
	myPLC			😓 Ch07	7	ET-70	50	1		Bit Input		7
	AI-			🕀 Ch08	3	ET-70	50	1		Bit Input		8
				Ch09)	ET-70	50	1		Bit Input		9
				🖧 Ch1()	ET-70	50	1		Bit Input		10
	🔁 DIs			م به آها!!								

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(3) Double-click the device node to modify the device name.

New	Open	Save	Save as	Device	Group	Таа	Produc	e Search	Moni
	. (1) Doub	le Clieck			Name		Device Type	
- <u>+</u> k	ET-7050	1) DOUR	ne eneer						
÷Ē	a M-7022								
Ē	🛯 myPLC								
	🛯 Unknown	Device							
C)evice Prope	erties							x
	Device Name	GRP-5	20 1				_	ОК	
		1		D) Terrer to b I	aux Mana	-	- 1		
	⊙ M2M Mo	odules	(,	2) Input N	ew Nam	le		Cancel	
	\square Module Se	etting —							
	Module	G-4500	-						
		,							
	Location	1	• (1~6	5535)					

(4) Now users can use OPC Client to read I/O data from NAPOPC.M2M DA Server, or use

the client "Monitor" to monitor all I/O data.

थ् ICPDAS NAPOPC.M2M DA Server - 未命名.tdb															
<u>F</u> ile	<u>File Add Edit View Options H</u> elp														
2	1 🕅	B		1			•	G		<u>A</u>	3<	P	F	X	
Nev	v Open	Save	Save as	Device	Group	Таа	Produce	Search	Manitar	Debua	Cut	Capy	Paste	Delete	F
⊡ 1	GRP-520_	L		Nam	ne	Device	е Туре	Location	CI	nannel Type		Channel		Value	,
ļ	- 🖆 ET-705	0		🚱 CI	n00	ET-7	050	1		Bit Output		0		OFF	_
	🚽 🔁 DI			🕒 🕀 Cl	n01	ET-7	050	1		Bit Output		1		ON	
	🔁 DO			🕒 🚱 CI	n02	ET-7	050	1		Bit Output		2		OFF	
	🔤 🖬 DIs			🕒 😓 Cl	n03	ET-7	050	1		Bit Output		3		ON	
P Dos			😔 🖓 CI	n04	ET-7	050	1		Bit Output		4		OFF		
±	M-702	2		A ⊖ CI	n05	ET-7	050	1		Bit Output		5		OFF	

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6.7 RTU Client for Remote Control Application with InduSoft.

This example shows how to use SCADA "InduSoft" to control/monitor the remote I/O.

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



(3) Select OPC Server from the "Server Identifier", and then select the "NAPOPC.M2M" item from the combo box.

	ST OPCCL00	1.0PC ×						
F F	Description: Read Update R. Remote Server I	ate (ms): Name:	Server Identif NAPOPC.M2 NAPOPC.Svr Studio.Scada Studio.Scada Browse	ier: M A.HDA.OPC a.OPC.2 Read before v Read after wri Accept Tag N	Disable: Status: witing ting ame in the	ltem column		
	Tag Name	Item		Scan		(Project Texts)		Add
	🔍 Filter tex	🔍 Filter text	🔍 (All)		\checkmark	🔍 Filter text	🔍 Filter text	
*			Always		~			
*			Always		*			
*			Always		~			
*			Always		~			
*			Always		~			

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- (4) Configure label names and item columns
 - A.Fill in the "Tag Name".

B.Double-click the "Item" column and select the point from the pop-up window.

C. Click "OK".

30 OPCCL001.OPC ×		
Description: Server Identifier: NAPOPC.M2M Read Update Rate (ms): Percent Deadband:	Disable:	
Remote Server Name: Read t Browse Accept	OPC Browser: 'NAPOPC.M2M' [LOCAL]	OK Cancel
Tag Name Item Pilter text Filter text DO[0] GT-540_0.DOS.Ch00 DO[1] GT-540_0.DOS.Ch01 DI[0] GT-540_0.DIS.Ch00 DI[0] GT-540_0.DIS.Ch00 DI[1] GT-540_0.DIS.Ch01 DI[2] GT-540_0.DIS.Ch02 DI[2] GT-540_0.DIS.Ch03 DI[2] GT-540_0.DIS.Ch03 DI[3] GT-540_0.DIS.Ch03 DI[4] GT-540_0.DIS.Ch05 PAI Image: Comparison of the second	Alwa Alwa Alwa Alwa Alwa Alwa Alwa Alwa	Filter: Read Write Both

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6.8 Email or FTP report I/O logger file.

This example shows how to use GRP devices to periodically report I/O recorder files.



(1) For Modbus configuration, please refer to section 4.5.

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- (2) Configure Email / FTP function in "Email / FTP" tab.
 - A. Fill in "Data Log Interval" to record I/O data to the log file.
 - B. Fill in "Max. Time per log file" to report log files.
 - C. To use FTP function, fill in all setting and check "Enable FTP Function". To use Email function, fill in all setting and check "Enable EmailFunction".
 - D. Click "Modify"

Main Info.		Modbus Device	FTP / Email			
Data Log Interval (sec.)		5	0~86400 (0=disable)			
Max. Time per Log File (m	uin.)	3	3~1440 minutes			
FTP Server Address			empty> disable FTP			
FTP Port		221	default=21			
FTP Username		test				
FTP Password		test				
Enable FTP Funcion		🗷 Enable				
F 1F		abc@gmail.com empty> disable Email Ex: abc@gmail.com				
Email From		Ex: abc@gmail.com	• •			
Email From Email To		Ex: abc@gmail.com xyz@gmail.com	Ex: xyz@gmail.com			
Email From 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 m			
Email From 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 From 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	Ex: xyz@gmail.com m Ex: smtp.gmail.com Ex: 25			
Email From 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			
Email From Email To Example for 2 or more con Email Server Email Server Port Email Username Email Password	tact	Ex: abc@gmail.com xyz@gmail.com xx@gmail.com,yy@gmail.co smtp.gmail.com 25 abc 123abc	Ex: xyz@gmail.com m Ex: smtp.gmail.com Ex: 25 Ex: abc Ex: 123abc			
Email From Email To Example for 2 or more con Email Server Email Server Port Email Username Email Password Enable Email Funcion		Ex: abc@gmail.com xyz@gmail.com xx@gmail.com,yy@gmail.co smtp.gmail.com 25 abc 123abc Enable	Ex: xyz@gmail.com m Ex: smtp.gmail.com Ex: 25 Ex: abc Ex: 123abc			

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(3) Finally, enable this function in the "Main Info" tab.

If the user does not need to send data to the RTU Center, set the "Data Update Period" to 0.

Main Info.	odbus Device		FTP / Email		
Server Address		26.164.17 2			
Server Port	10000] 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 bps			
Data Bit		8 •			
Parity		NV			
Stop Bit	1 •				
Modbus Timeout (ms)	1000		50~99999, default=1000		
Enable Firmware	🗹 Enable				
Alive	True				
		Modify			

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Appendix A. Revision History

This chapter provides revision history information to this document. The table below shows the revision history.

Version	Date	Description of changes				
1.0.0	2021-10-05	The First Release Revision				
1.1.0	2022-08-05	1. Add "Node-RED" Application				
		2. Add Wi-Fi module support				
1.2.0	2023-02-09	1. Change RF Wiring Configuration				
		2. Modify VxServer and VxComm description for				
		Remote I/O Control example				
		3. Modify VxServer description for Modbus TCP to				
		Modbus RTU example.				
1.3.0	2023-09-21	1. Add LE910C4-WWX & FN990A28 Modem support				
1.4.0	2024-06-17	1. Add M2-JODY-W377-00C Wi-Fi module support				

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