CYT-166GC

User Manual

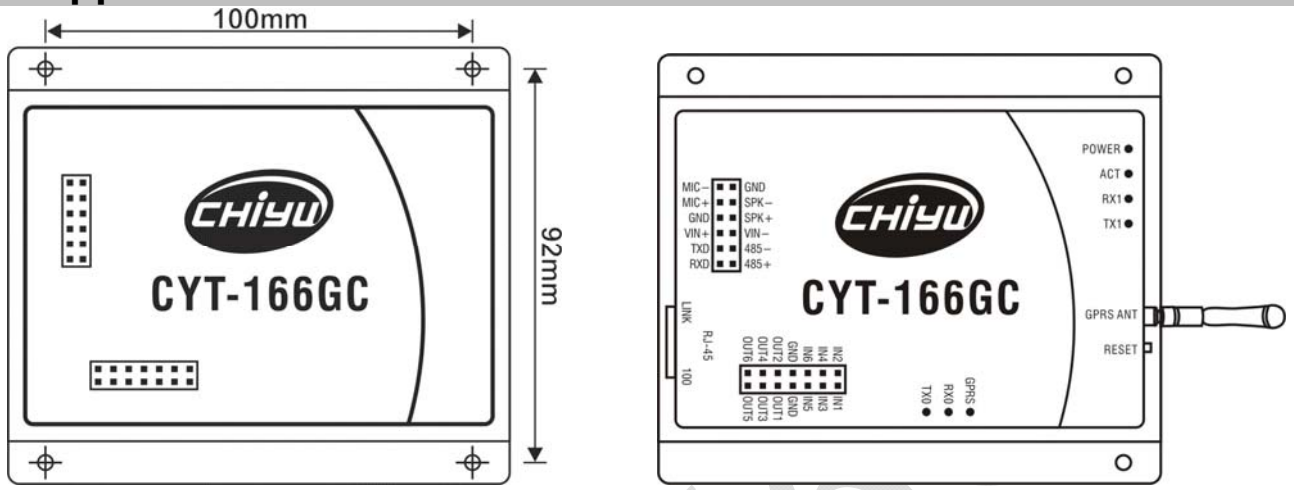
Document Version 1.0
Web Version 1.2 2011-04-28
Firmware Version 1.03.00,May 20 2011

【Index】

—CYT-166GC—

Ⅰ、Hardware Introduction

◆ Appearance

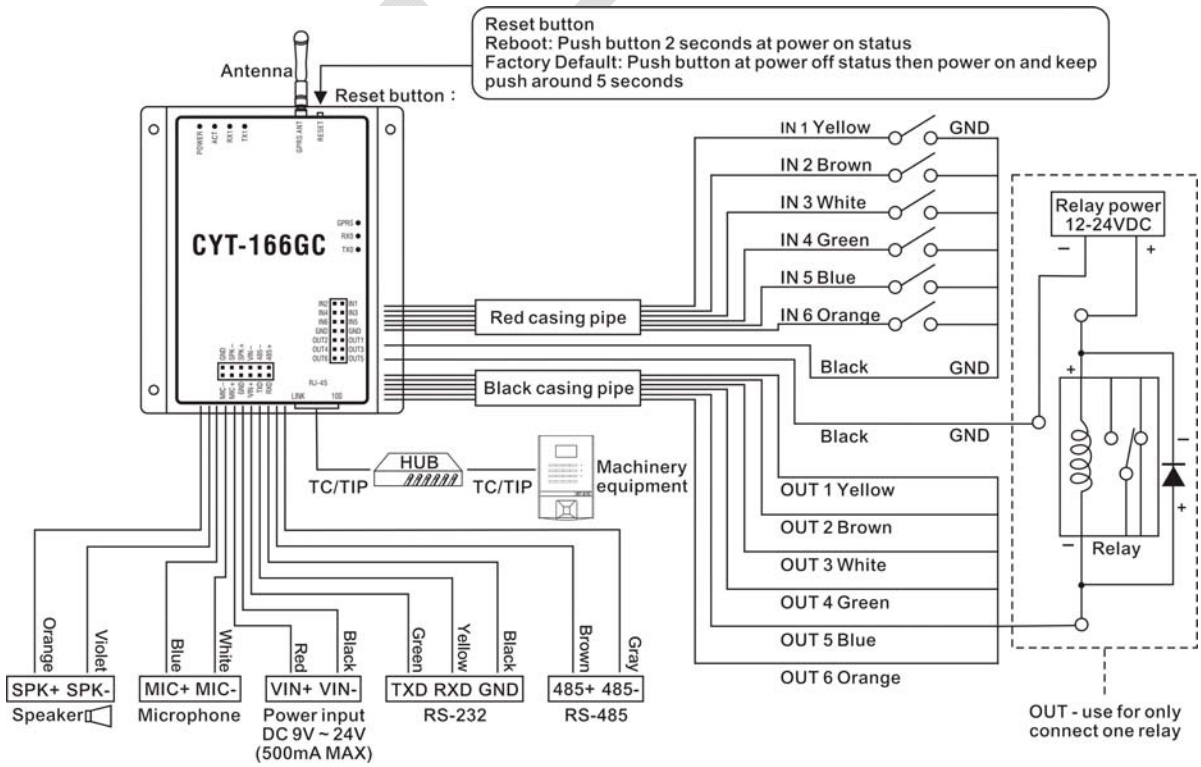


◆ Specification

Item	Specification
CPU	16 Bits, 100MHZ
Memory	4MB Flash & 8M SDRAM
Watchdog	System never halt
Ethernet	10/100 Base-T/Tx , Automatic MSI/MDI-x port
Communication Port	Choose one: RS232 or RS485
RS-232	TXD,RXD,GND (1200BPS ~ 230.4KBPS)
RS-485	Data+, Data- (1200M for the longest distance)
GSM/GPRS	**BAND descriptions** GSM850/ EGSM900/ DCS1800/ PCS1900 **GSM/GPRS Technical Standard** UMTS/WCDMA/GSM/GPRS/EDGE Specification Release '99 (3GPP R99) UMTS/WCDMA Spec Release 5:(3GPP R5) HSDPA & Equalizer;3.6 Mbps GSM/GPRS/EDGE Specification Release 4 (3GPP R4) GPRS/EDGE Multislot Class 12, Release 4 DTM Multislot Class 11 **GSM/GPRS Data Rate specifications** GSM CS: UL 14.4kbps/DL 14.4kbps

	GPRS:UL 85.6kbps/DL 85.6kbps EDGE: DL 236.8 kbps/UL: 236.8 kbps WCDMA CS: UL 64kbps/DL 64kbps WCDMA PS: UL 384kbps/DL 384kbps UL/DL HSDPA: UL Mbps/DL 3.6Mbps **Static Receiving Sensitivity for GPRS module** WCDMA/HSDPA: Compliant with 3GPP TS 05.05(R99) GSM/GPRS/EDGE 850 MHz/900 MHz/1800 MHz/1900 MHz: Compliant with 3GPP TS 05.05 (R99)
I/O Control	6 DI and 6 DO
LED Indicator	POWER / ACT / RX1 / TX1 / GPRS / RX0 / TX0
Power Input	DC 9~24V, 800mA(9V)
Operating Temperature	0℃ ~ 55℃
Operating Humidity	5% ~ 95%
Storage Temperature	-20℃ ~ 85℃
Surge Protection	Serial port 15KV ESD
Electromagnetic protection	Ethernet port 1.5KV
Weight	370g
Dimensions (L x W x H)	117(without antenna)*103*30 mm

◆ End point



Ⅱ、Product Overview

CYT-166GC is a converter to convert TCP/IP,RS232/485 to GPRS signal device and it integrate network management function and system. It designs for traditional industrial serial equipment or CHIYU web based controller, fingerprint controller to access and control thru GPRS signal.

Real time operation system and complete TCP/IP protocol enable CHIYU's CYT-166GC powerful converter not only providing complete system with highly efficiency but also able to link with network. Easy to install and wire. The Web interface of CYT-166GC is simple, easily to operate, and without operation system limitation.

Thru GPRS signal communication can remote control 6 sets of DIO and convenient for no network areas.

◆ Features

- Auto detecting 10/100 M Ethernet.
- Enable users to conduct data access or management on CYT-166GC through various operation system of IE , Netscape browser.
- Allows users to back up and store file system parameter and restore it, for security reasons the backup file will be stored encrypted.
- Support Heart Beat function. When CYT-166GC set the Serial Server Mode Setup into UDP, the Heart Beat function will be enabled. Every 600 seconds will send a UDP to server to prove the connection is still enabled.
- Remote control for 6 sets of DIO.

Ⅲ、WEB Login

CYT-166GC contains a HTTP server, thus CYT-166GC can link and connect through Web browser, and then conduct setting.

◆ Preparation

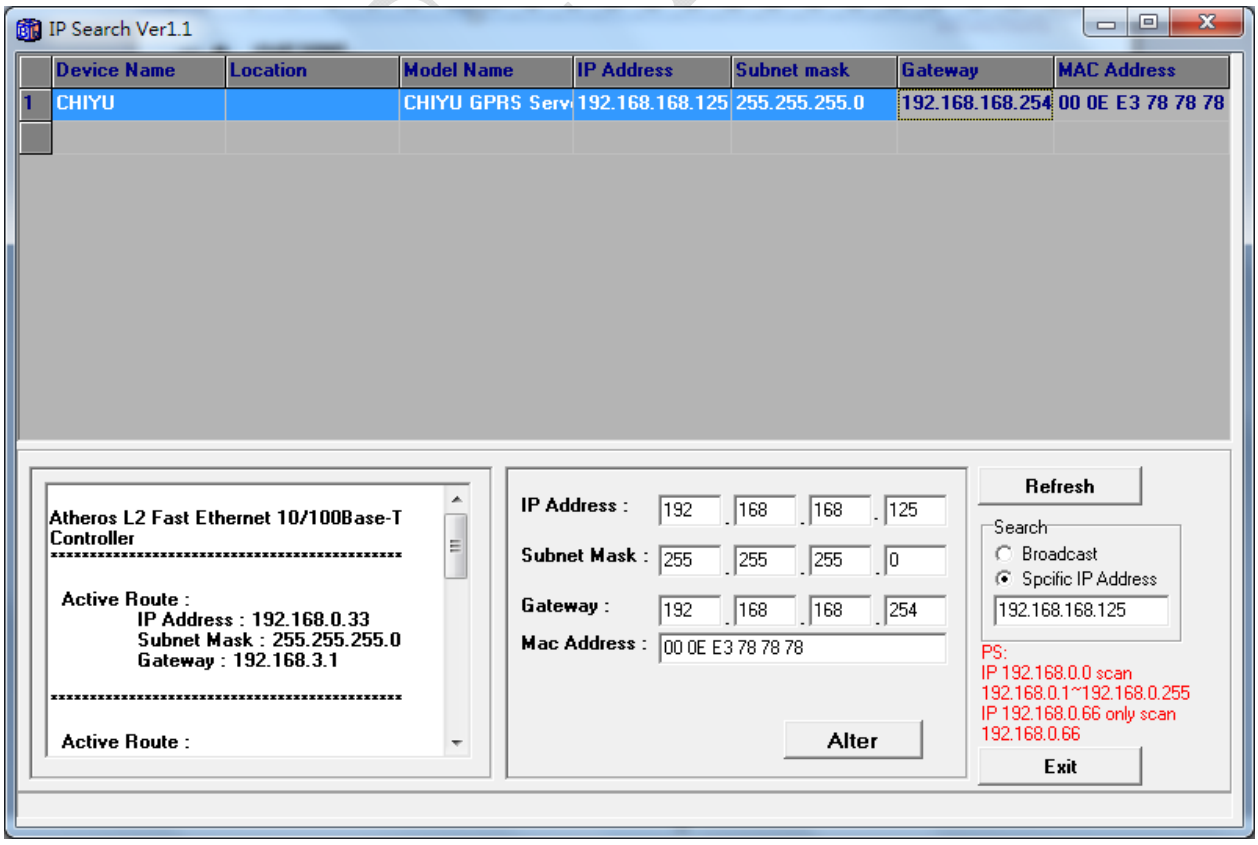
Before conducting CYT-166GC setting, please assure the following:

- PC has connected to CYT-166GC, and PC and CYT-166GC are situated in the same WAN with power supplied.
- If the default IP address (192.168.168.125) is occupied by else device, then it is a must to shut down that device first till the setting is over, and then allocate new IP address to CYT-166GC.

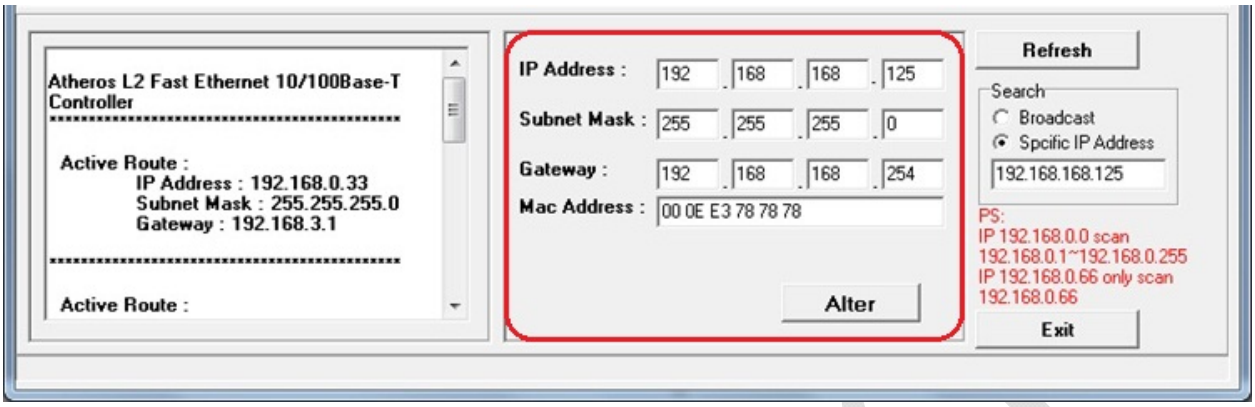
◆ How to search CYT-166GC

1、After installation of CYT-166GC and network cable is completed, use CYT-166GC's IP Search to search all CYT-166GC in a certain LAN, or download IP Search tool from CHIYU homepage. Desktop icon as below:

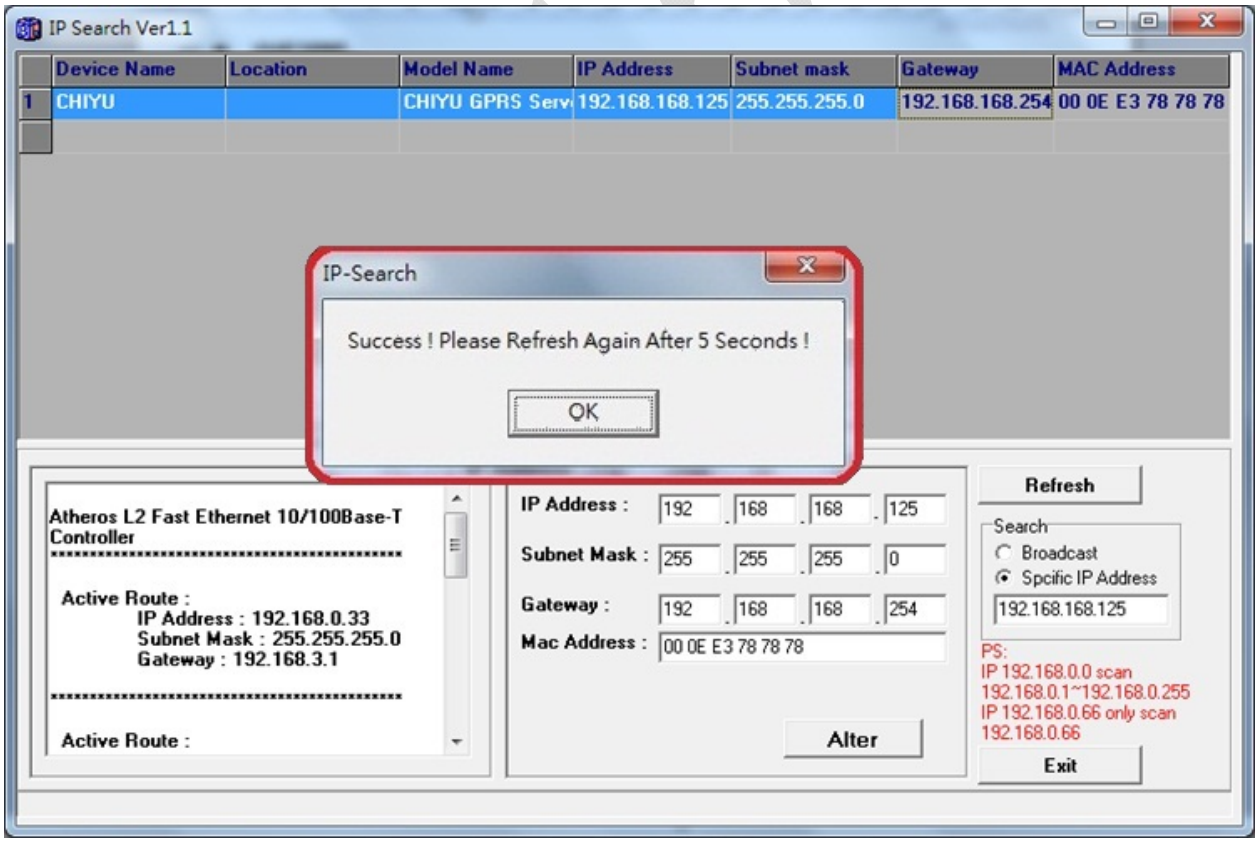
2、Click IP Search icon, will display a window, as shown:



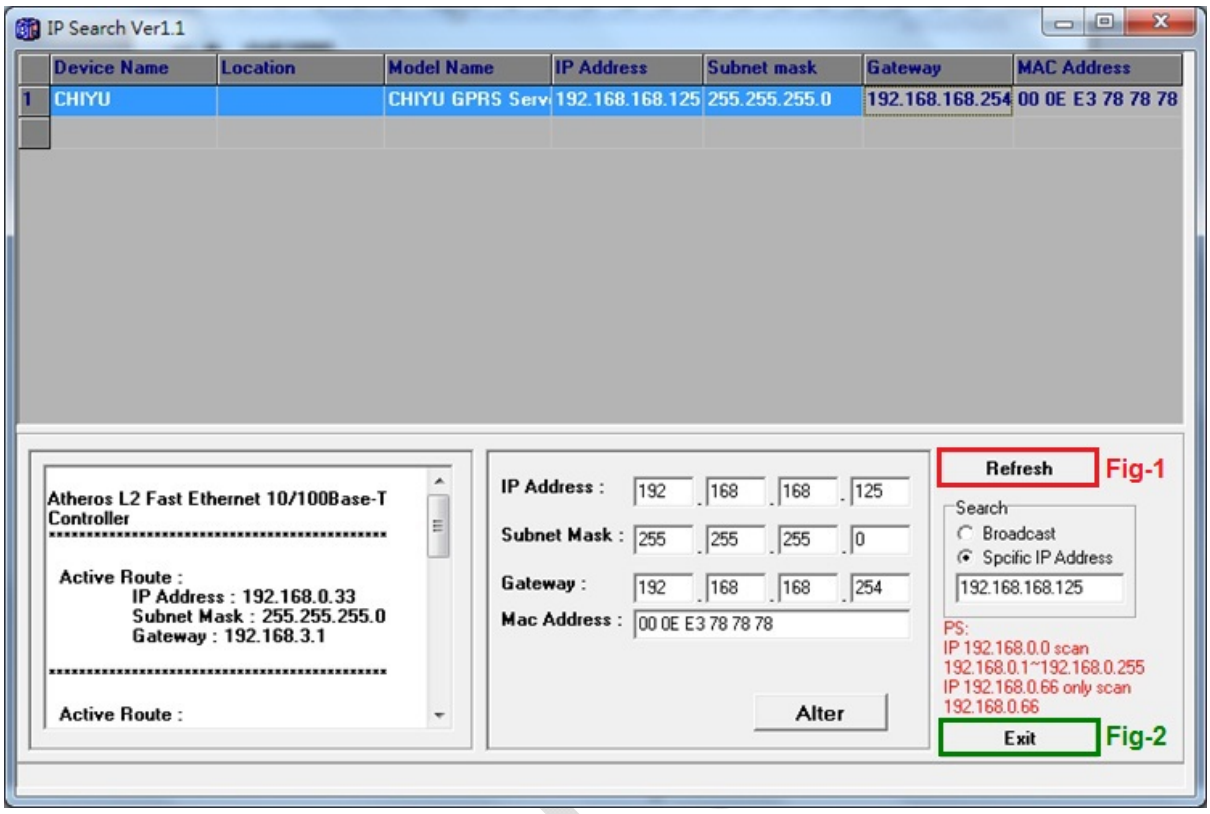
3、While the IP Search window shows up, it will display all CYT-166GC in LAN, and show its Device name, Location, Model Name, IP Address, Subnet Mark, Gateway, Mac Address. Select particular CYT-166GC, then its related information will appear below the window, as shown:



4、The showed information of CYT-166GC can be revised directly in the window, the part can be modified: IP Address, Subnet Mask, Gateway. After modification completed (MAC Address can not modify),click **Alter** then it will display the modified information, as shown:



5、After modification, if want to confirm whether the modification is correct or not, click Refresh button to refresh and check information (Fig-1), click Exit button to leave.(Fig-2)



6、After modification, the IP address of CYT-166GC has matched with its WAN, if want to get access into the Web of CYT-166GC, has two methods:

(1)Open IP Search, select and double click particular CYT-166GC, then to enter its webpage.

(2)While the internet explorer opened, input CYT-166GC IP address to enter its webpage

Remark：

WINDOWS XP：

《Step 1》

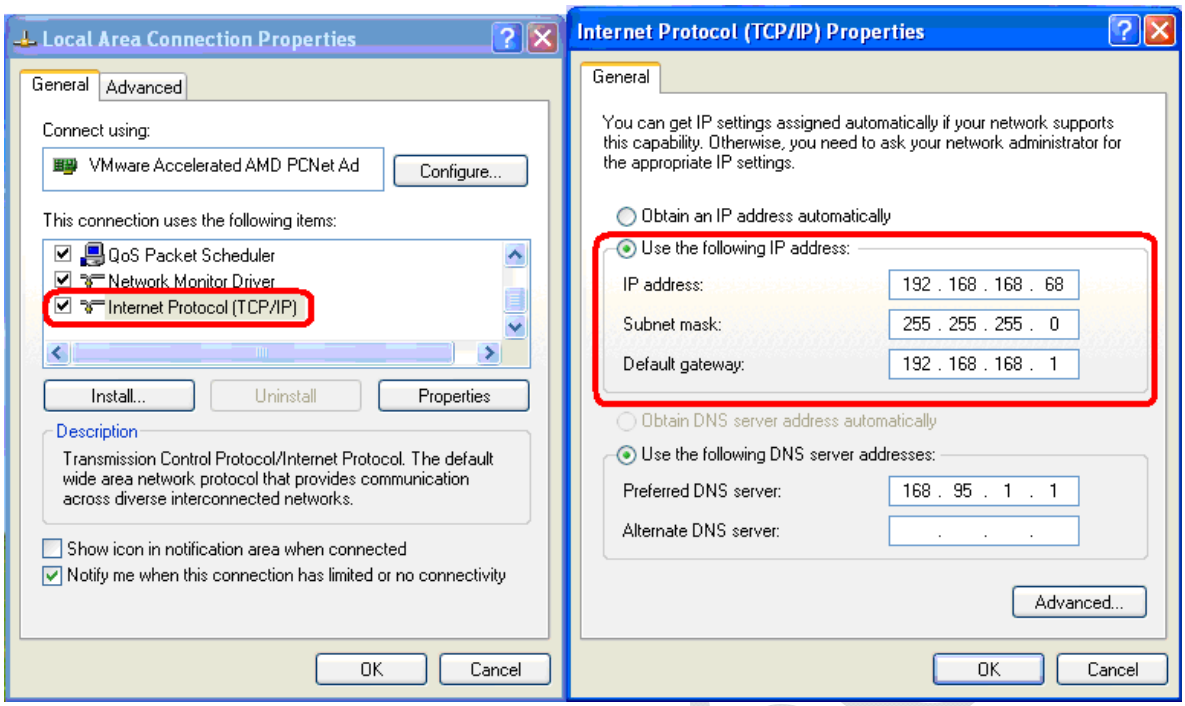
Click WINDOWS XP my computer 

, Open Control Pan 

on the left side, please turn to traditional overview and select network link

《Step 2》

Click LAN, then select content, the link configuration will be shown, click Internet Protocol (TCP/IP), then input the same setting as CYT-166GC, as below figure:



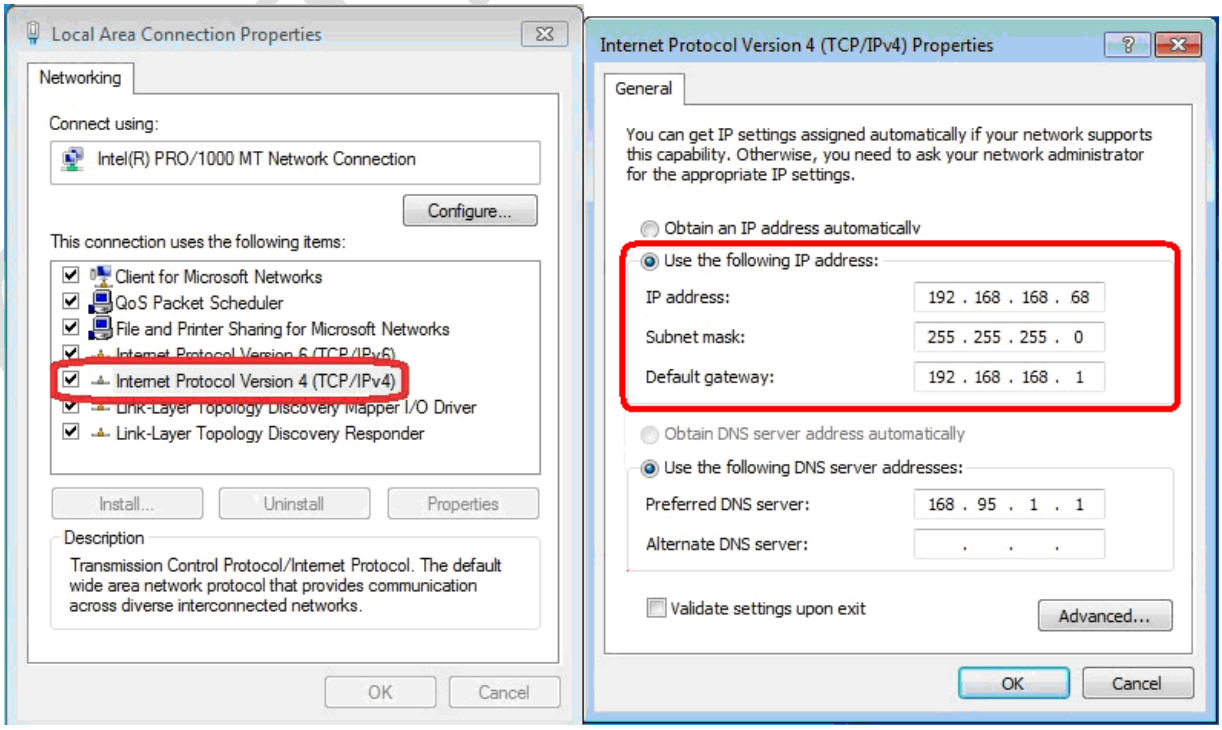
WINDOWS 7：

《Step 1》

Click Windows 7 icon,  select Control Panel , open and search for , Network and Sharing Center click Alter Interface Card on the upper-left side.

《Step 2》

Click LAN link, select content, then the LAN settings will be shown, click Internet Protocol(TCP/IPv4), click and input same setting as CYT-166GC, as below figure.



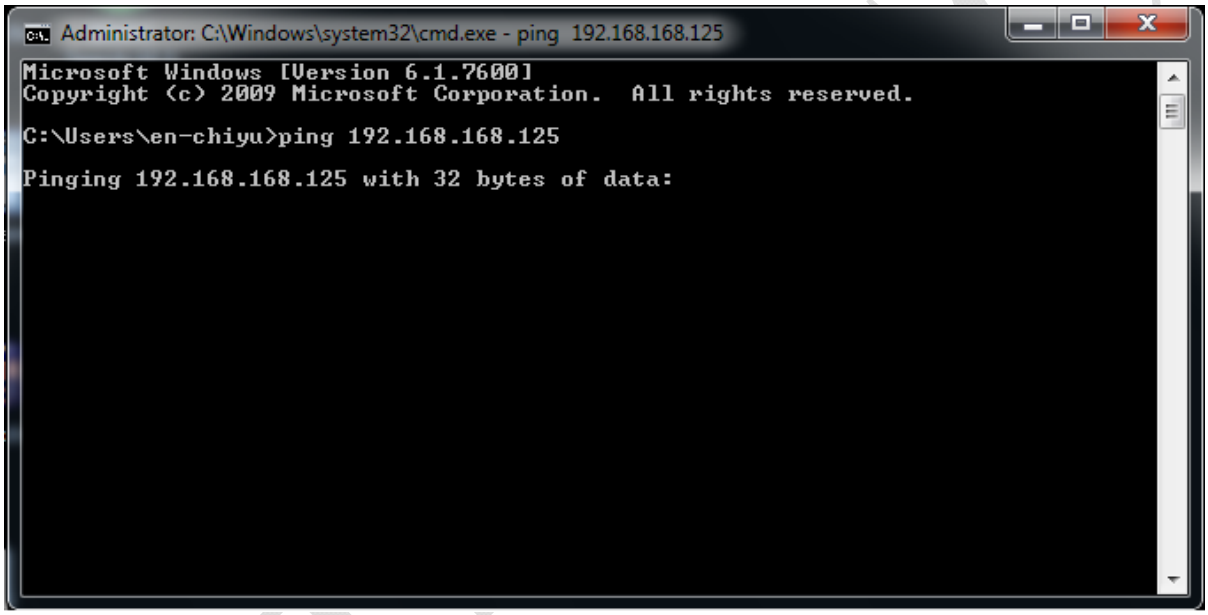
◆ How to login to CYT-166GC Web via web browser

1、Start Web browser (ig: WIN 7 IE), input CYT-166GC's IP Address, for example: use the default CYT-166GC IP Address: http://192.168.168.125

2、If connection failed, should check:

- If CYT-166GC installed and its power supplied properly

- To examine the LAN connection, can use start tools→Execute→Input cmd open MS-DOS, Input " ping" to test CYT-166GC connection, input command: ping 192.168.168.125, as shown below:

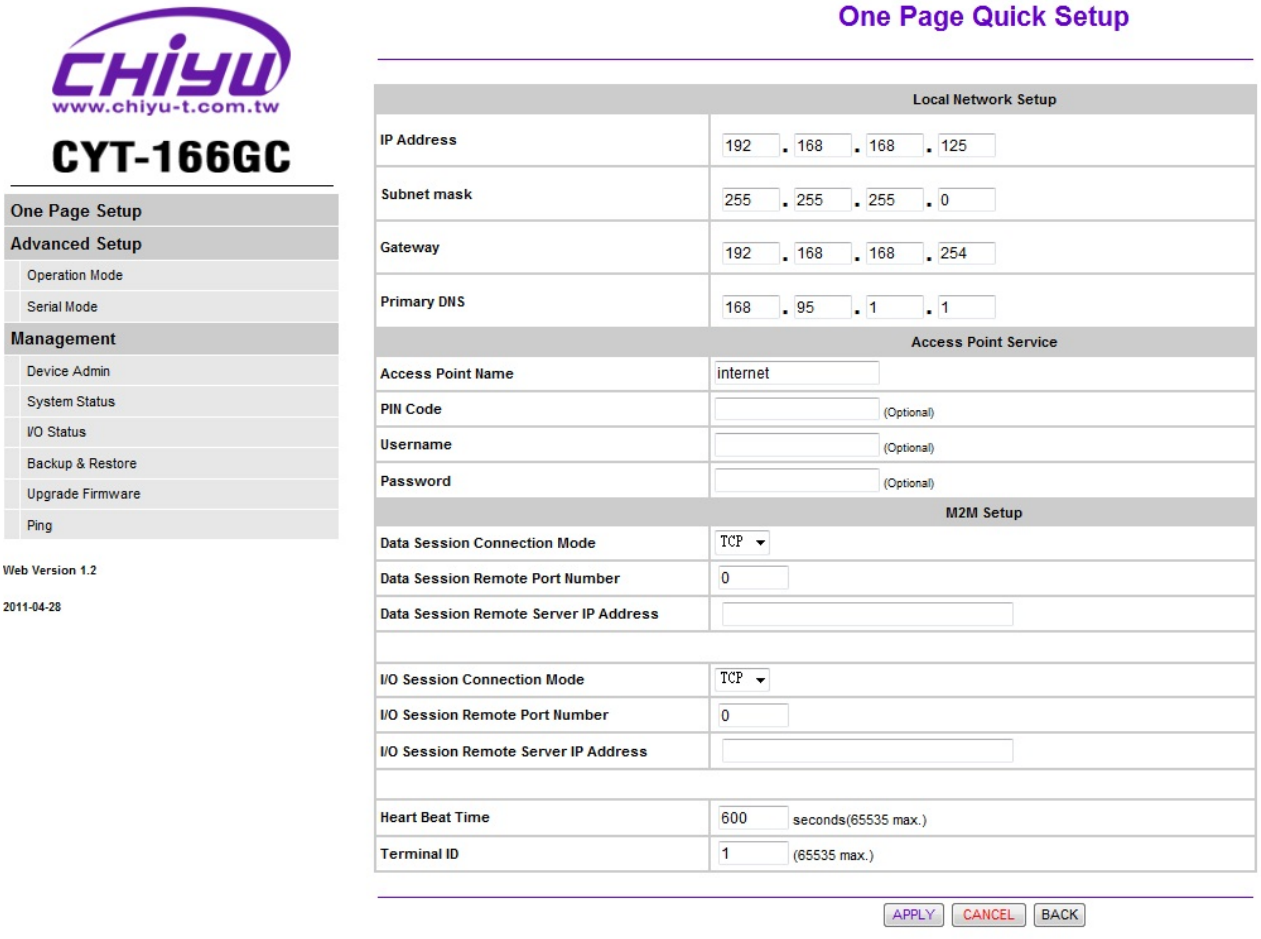


- If no response received, it explains the link has troubles either the connection is not proper or the PC's IP address can not match with CYT-166GC's IP address

- Set the PC's IP address with CYT-166GC's IP address with same segment, if the PC uses fixed IP address, the address must be ranged in: 192.168.168.1 ~ 192.168.168.65 or 192.168.168.67 ~ 192.168.168.254 , thus it can be compatible with CYT-166GC's default IP address: 192.168.168.125, the **Subnet Mask**'s setting must be: 255.255.255.0，please refer to page 6 ~ 7

3、If the connection with CYT-166GC is successful, then it will display a message window for User name and Password, the default for user name and Password is: admin/admin, as shown below:

4、While the user name and password entered, a Web setting interface of CYT-166GC will be showed, enter it then display a " One Page Quick Setup " page.



Ⅳ、Web Function Instruction

◆ One Page Quick Setup

CYT-166GC

- One Page Setup
- Advanced Setup
  - Operation Mode
  - Serial Mode
- Management
  - Device Admin
  - System Status
  - I/O Status
  - Backup & Restore
  - Upgrade Firmware
  - Ping

Web Version 1.2

2011-04-28

One Page Quick Setup

Local Network Setup	
IP Address	192 . 168 . 168 . 125
Subnet mask	255 . 255 . 255 . 0
Gateway	192 . 168 . 168 . 254
Primary DNS	168 . 95 . 1 . 1
Access Point Service	
Access Point Name	internet
PIN Code	(Optional)
Username	(Optional)
Password	(Optional)
M2M Setup	
Data Session Connection Mode	TCP
Data Session Remote Port Number	0
Data Session Remote Server IP Address	
I/O Session Connection Mode	TCP
I/O Session Remote Port Number	0
I/O Session Remote Server IP Address	
Heart Beat Time	600 seconds(65535 max.)
Terminal ID	1 (65535 max.)

APPLY CANCEL BACK

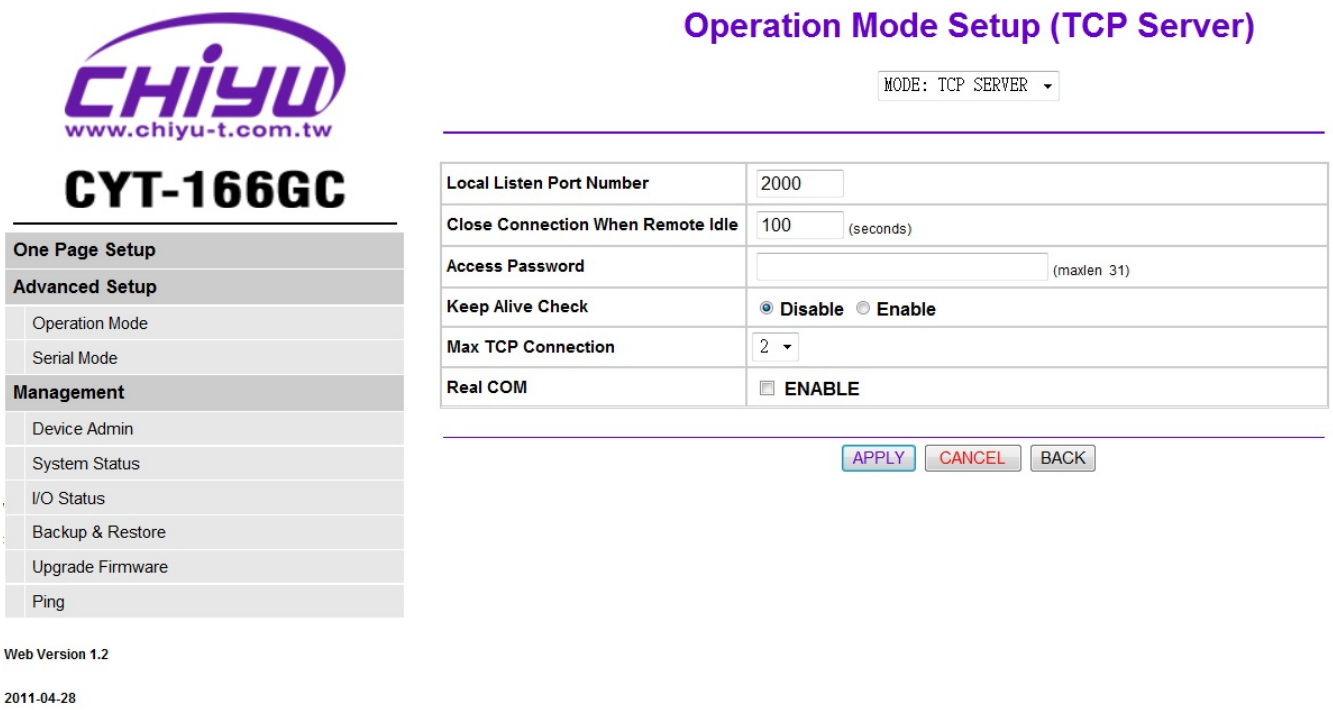
- **Function instruction**

Function	Description
IP Address	Set the IP address of the CYT-166GC，default setting is **192.168.168.125**
Subnet mask	Set the subnet mask of the CYT-166GC，default setting is **255.255.255.0**
Gateway	Set the gateway of the CYT-166GC，default setting is **192.168.168.254**
Primary DNS	Set the DNS of the CYT-166GC，default setting is **168.95.1.1**
Access Point Service	
Access Point Name	Fill in the access point name, default setting is **internet**
PIN Code	Fill in the PIN code, default setting is **blank**(Optional)
Username	Fill in the username, default setting is **blank**(Optional)
Password	Fill in the password, default setting is **blank**(Optional)
M2M Setup	
Data Session Connection Mode	Set data session connection mode, can select TCP or UDP in dropdown menu，default setting is **TCP**
Data Session Remote Port Number	Set data session remote port number, default setting is **0**
Data Session Remote Server IP Address	Fill in the data session remote server IP address , default setting is **blank**
I/O Session Connection Mode	Set I/O session connection mode, can select TCP or UDP in dropdown menu，default setting is **TCP**
I/O Session Remote Port Number	Set I/O session remote port number, default setting is **0**
I/O Session Remote Server IP Address	Fill in the I/O session remote server IP address , default setting is **blank**
Heart Beat Time	Can set the frequency of sending UDP heart beat to Server for proving the connection is enabled. The default setting is **600** seconds, and the maximum setting is 65535 seconds.
Terminal ID	Set Terminal ID, default setting is **1**，and the maximum setting is65535

◆ Advanced Setup

1、Operation Mode

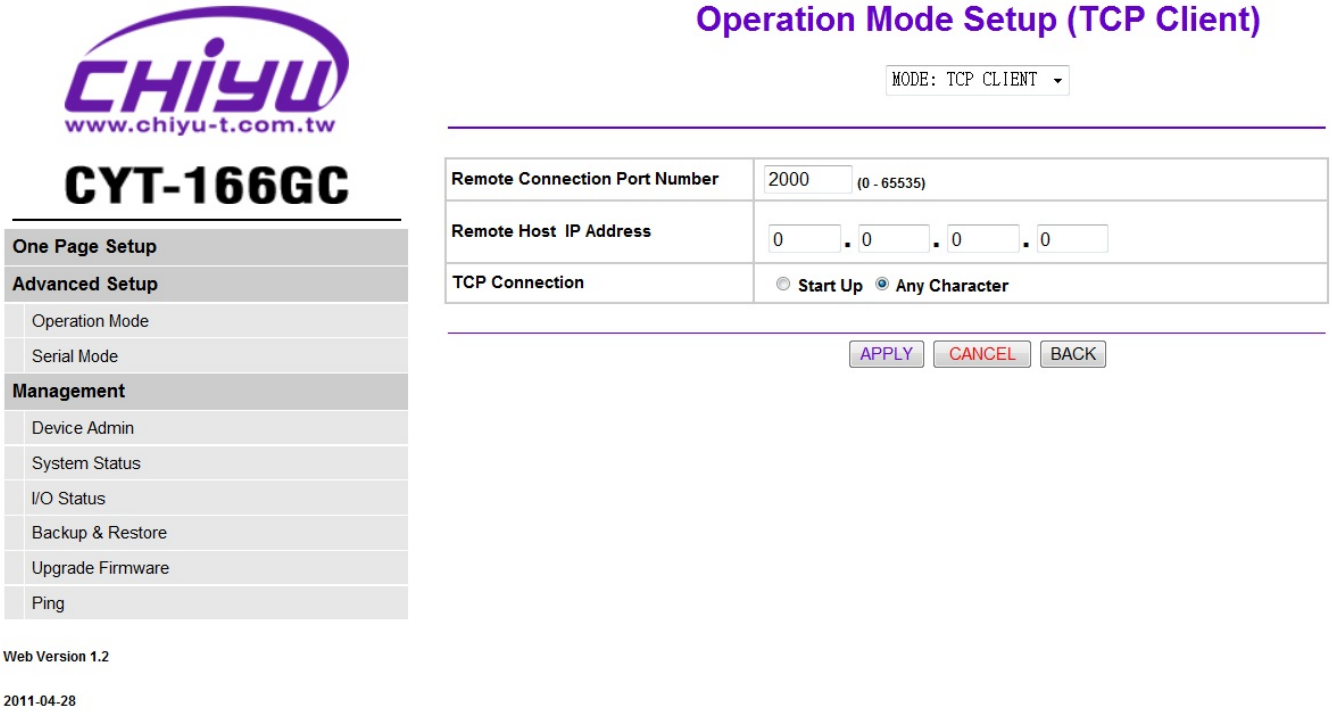
(1)TCP Server



- **Function instruction**

Function	Description
Local Listen Port Number	● If data transmit thru TCP/IP remote command, must select Serial Server Mode into TCP SERVER and set LISTEN PORT NUMBER into the same value with monitoring side. ● Default setting is **2000**
Close Connection When Remote Idle	● The default setting of close connection time is **100** seconds and the range is from 0 ~ 32768 ● The value must set to be 0 if you want to keep CYT-166GC connect with monitoring side or the connection will be off automatically when remote idle.
Access Password	● Make sure the data secure, user must set the code for management. User must inset the correct password and process the further procedure after authority. ● up to **31** characters
Keep Alive Check	● Set Enable or Disable keep alive check function，default setting is **Disable** ● While keep alive check enable, the pin packet will be send to Gateway every **30** seconds to make cure the connection.
Max TCP Connection	The maximum TCP connection is 4 sets , default setting is **2**
Real COM	When using the **Virtual COM**, if you need CYT-166GC with VCOM to send each other RTS / CTS, DTR / DSR signal, this option must be checked

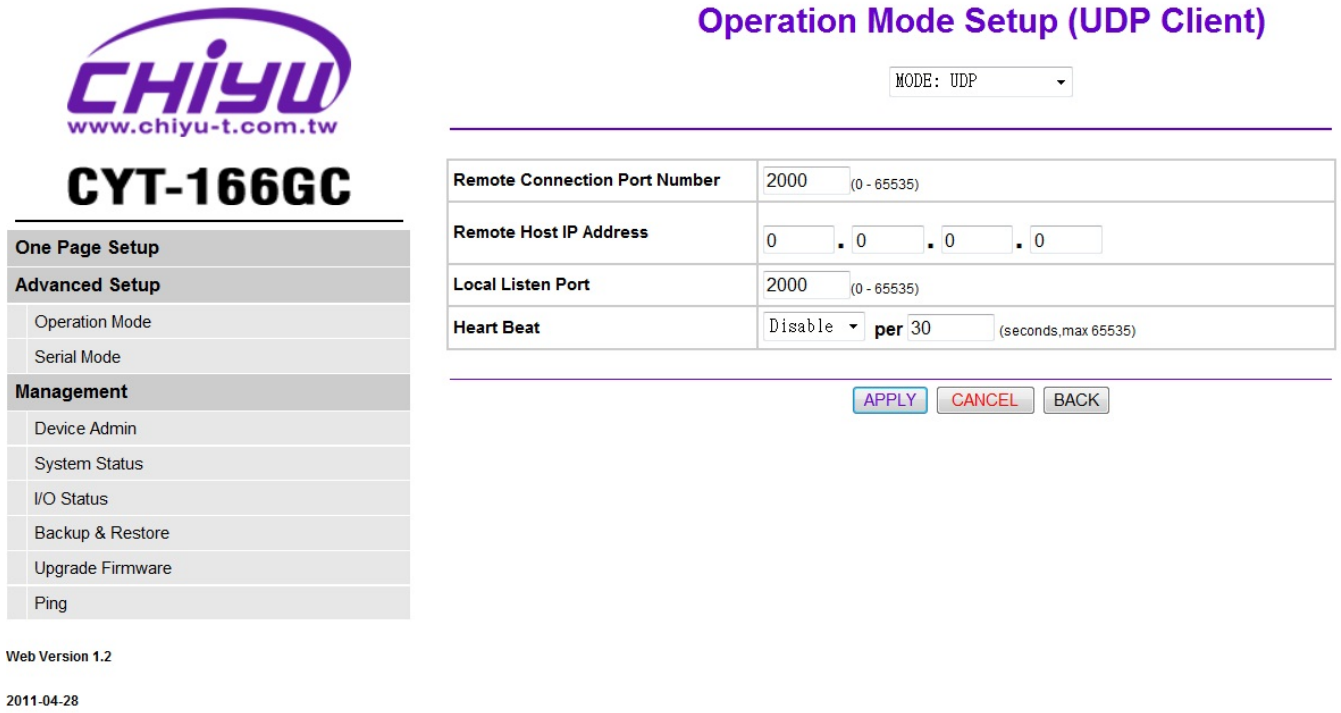
(2) TCP Client



- **Function instruction**

Function	Description
Remote Connection Port Number	Set the remote connection port number，the range is 0 ~ 65535，default setting is **2000**
Remote Host IP Address	Set remote host IP address or domain name，default setting is **0.0.0.0**
TCP Connection	● There are 2 modes to set TCP connection to server： 1.**Start Up**：This mode means when CYT-166GC enable, it will build the TCP connection with SERVER immediately. It will automatically build the TCP connection after disable and then re-connect again. 2.**Any Character**：This mode means only when CYT-166GC receives data from RS232/485, it will build TCP connection with SERVER. TCP connection will be disable if not receiving the data from RS232/485.

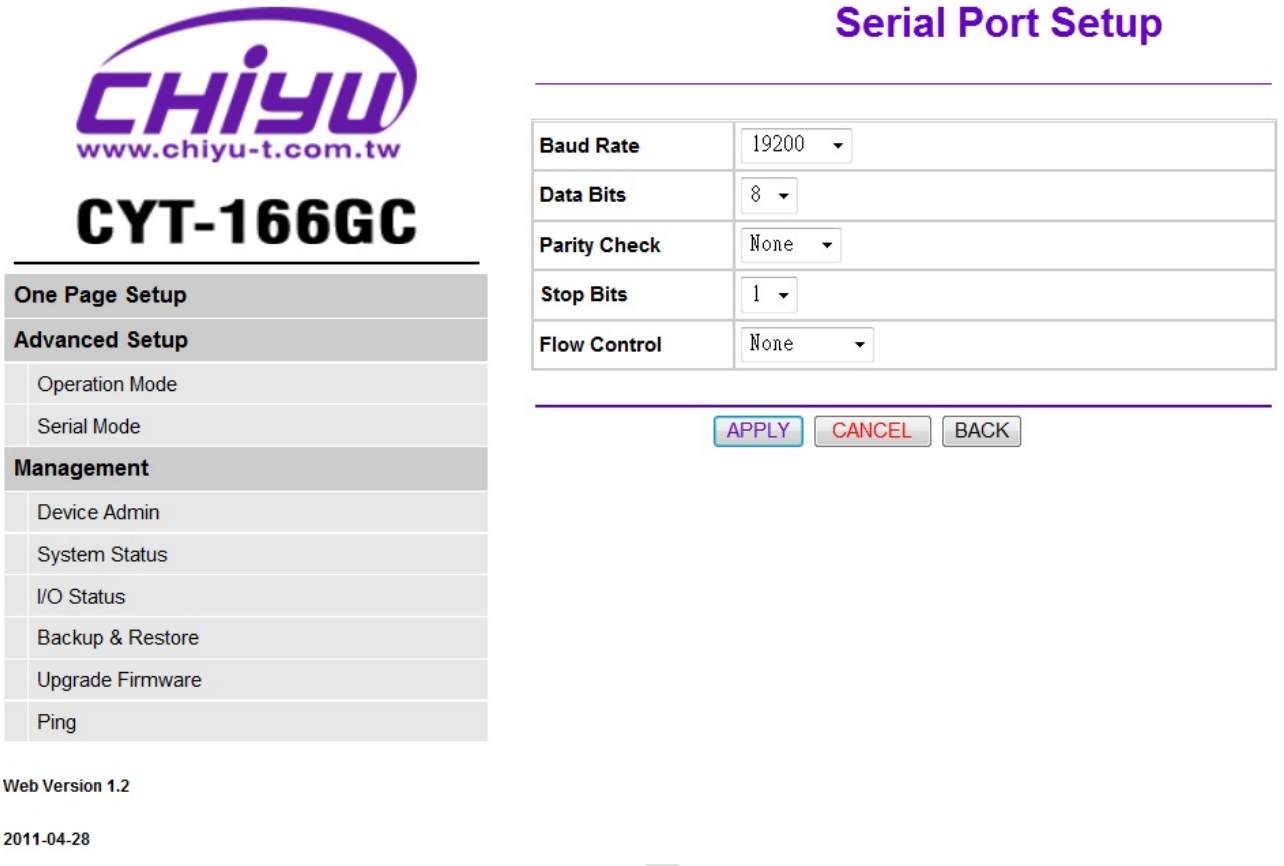
(3)UDP



- **Function instruction**

Function	Description
Remote Connection Port Number	Set the remote connection port number，the range is 0 ~ 65535，default setting is **2000**
Remote Host IP Address	Set remote host IP address，default setting is **0.0.0.0**
Local Listen Port	Set the local listen port，default setting is **2000**
Heart Beat	How many seconds to transmit a UDP heart beat to server can be selected. It's helpful to know the connection with SERVER enabled. Default setting is **Disabled**, and the maximum setting is 65535 seconds.

2、Serial Mode

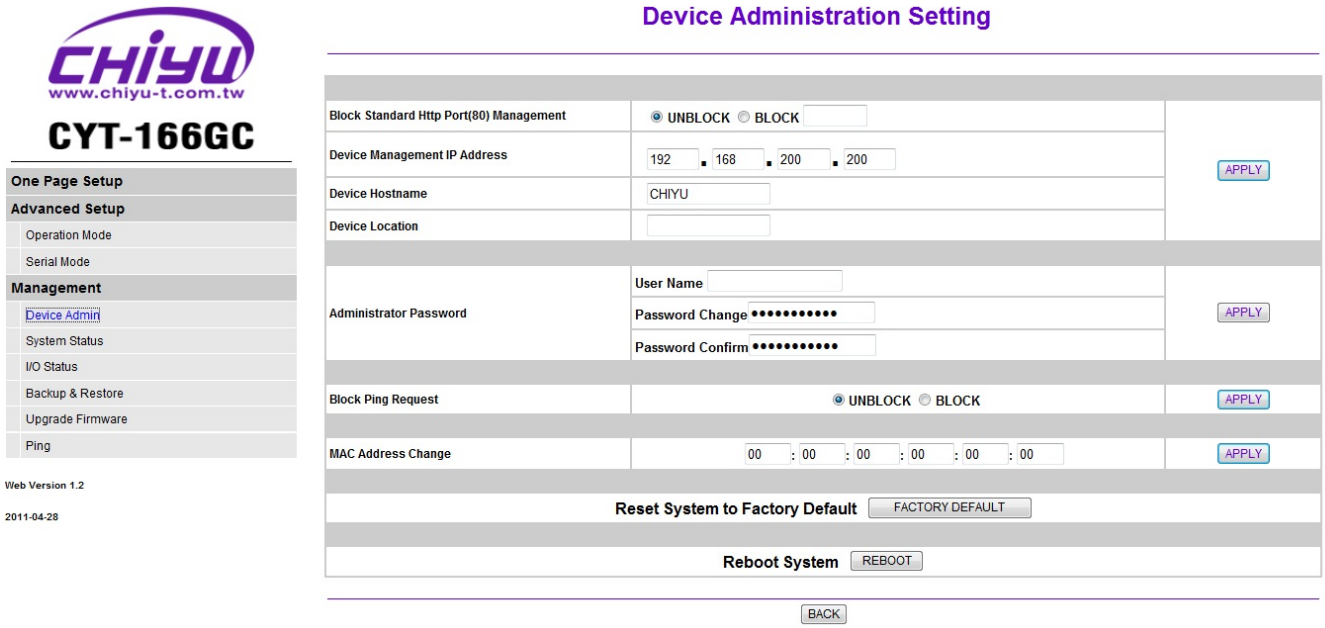


- **Function instruction**

Function	Description
Baud Rate	1.Set serial port baud rate, the parameters can be selected：**1200**、**2400**、**4800**、**9600**、**19200**、**38400**、**57600**、**115200**、**230400** 2.Default setting is **19200**
Data Bits	Set the data bits， 5,6,7,8 parameters can be selected, default setting is **8**
Parity Check	● Set the parity check，4 parameters can be selected： 1.odd 2.Even 3.Mark 4.Space ● Default setting is **None**
Stop Bits	Set the stop bits， 1,2 parameters can be selected, default setting is **1**
Flow Control	Set the flow control，2 parameters can be selected： ● Xon/Xoff：Software flow control ● CTS/RTS：Hardware flow control ● Default setting is **None**

◆ Management

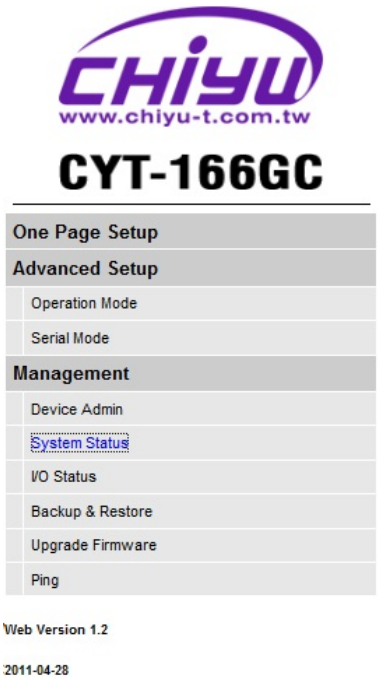
1、Device Administration Setting



- **Function instruction**

Function	Description
Block Standard Http Port(80) Management	● Select unblock or block standard http port，default setting is **UNBLOCK(80)** ● If other port sequence has to be set, select BLOCK, and then fill in the port sequence.
Device Management IP Address	Display and set the device management IP address , default setting is **192.168.200.200**
Device Hostname	Fill in the device hostname, default setting is **CHIYU**
Device Location	Fill in the device location , default setting is **blank**
Administrator Password	● User Name：Fill in the user name ● Password Change：Change the password, for security reasons, please fill in a new password to replace the default management ● Password Confirm：Confirm the new password
Block Ping Request	Select unblock or block ping request function , default setting is **unblock**
MAC Address Change	If you want to change the MAC address, fill in the new MAC address
Reset System to Factory Default	Execute this function will reset system to factory default
Reboot System	Execute this function will reboot system

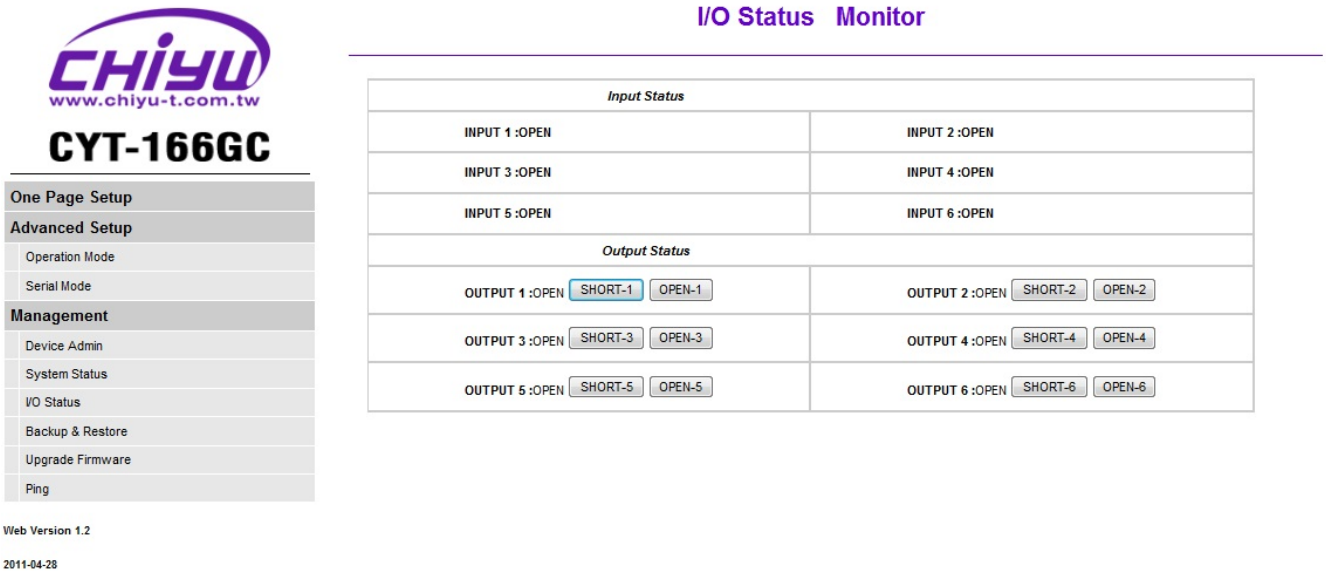
2、Status Monitor



- **Function instruction**

Function	Description
Product Name	Display the product name：**CHIYU GPRS Server**
Firmware Version	Display the firmware version：**1.03.00,May 20 2011**
System Up Time	Display system up time，the sequence is **hour/minute/second**
Local Network Status	
IP Configuration Mode	Display the IP configuration，default setting is **STATIC IP**
Operation Mode	Display the operation mode，default setting is **TCP SERVER**
Connection Port	Display the connection port，default setting is **2000**
MAC Address	Display the MAC address of CYT-166GC
IP Address	Display CYT-166GC address, default setting is **192.168.168.125**
Subnet mask:	Display CYT-166GC subnet mask, default setting is **255.255.255.0**
Default Gateway	Display CYT-166GC default gateway, default setting is **192.168.168.254**
Primary DNS:	Display CYT-166GC Primary DNS address, default setting is **168.95.1.1**
STATUS	Display CYT-166GC internet status
M2M GPRS Status	
M2M State:	Display the M2M state
Remote Server IP:	Display the remote server IP
Remote Server Port:	Display the remote serve port , default is **0/0**
M2M IP Protocol:	Display the M2M IP protocol, default is **TCP/TCP**
Statistic	
Ethernet	RX & TX display the total data amount of data receive and transmission of **Ethernet.**
Serial/GPRS:	There are RX and TX columns to display **serial port** or **GPRS** total amount of data reception and transmission

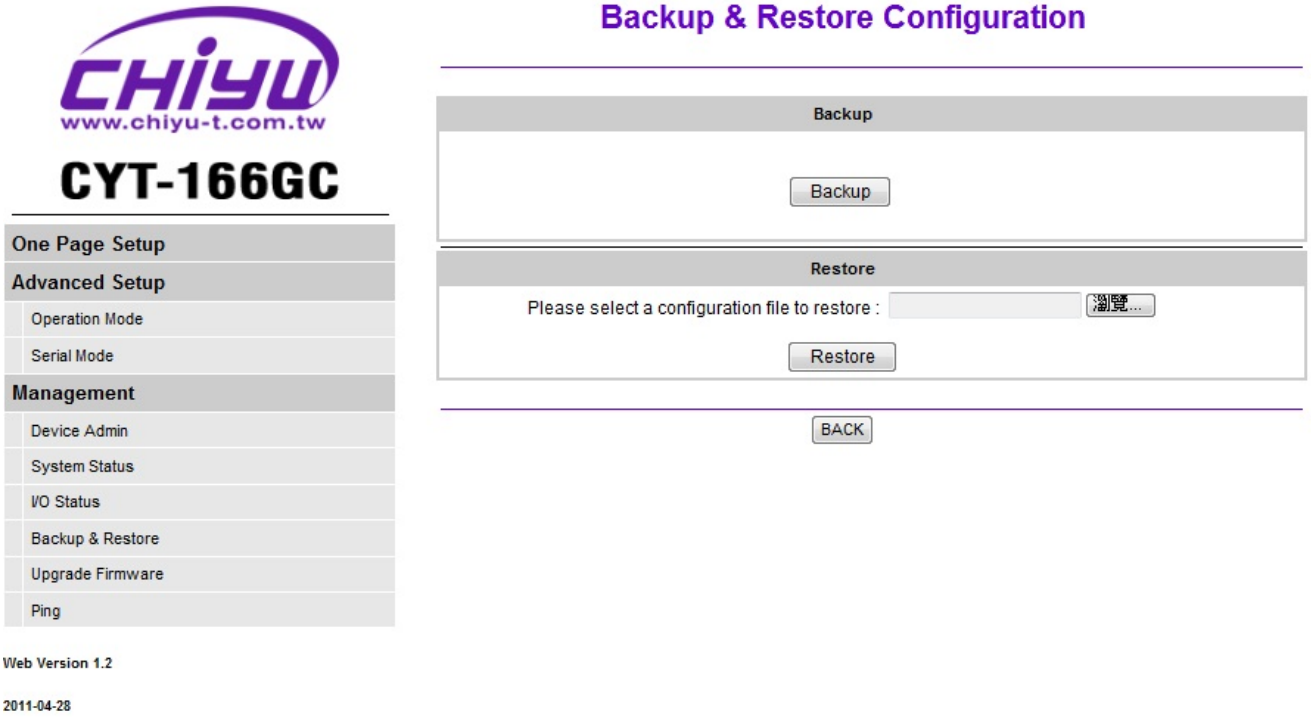
3、I/O Status



- **Function instruction**

Function	Description
INPUT 1	CYT-166GC INPUT 1 status display
INPUT 2	CYT-166GC INPUT 2 status display
INPUT 3	CYT-166GC INPUT 3 status display
INPUT 4	CYT-166GC INPUT 4 status display
INPUT 5	CYT-166GC INPUT 5 status display
INPUT 6	CYT-166GC INPUT 6 status display
OUTPUT 1	● CYT-166GC OUTPUT 1 status display ● Click SHORT-1 or OPEN-1 manual control OUTPUT 1
OUTPUT 2	● CYT-166GC OUTPUT 2 status display ● Click SHORT-2 or OPEN-2 manual control OUTPUT 2
OUTPUT 3	● CYT-166GC OUTPUT 3 status display ● Click SHORT-3 or OPEN-3 manual control OUTPUT 3
OUTPUT 4	● CYT-166GC OUTPUT 4 status display ● Click SHORT-4 or OPEN-4 manual control OUTPUT 4
OUTPUT 5	● CYT-166GC OUTPUT 5 status display ● Click SHORT-5 or OPEN-5 manual control OUTPUT 5
OUTPUT 6	● CYT-166GC OUTPUT 6 status display ● Click SHORT-6 or OPEN-6 manual control OUTPUT 6

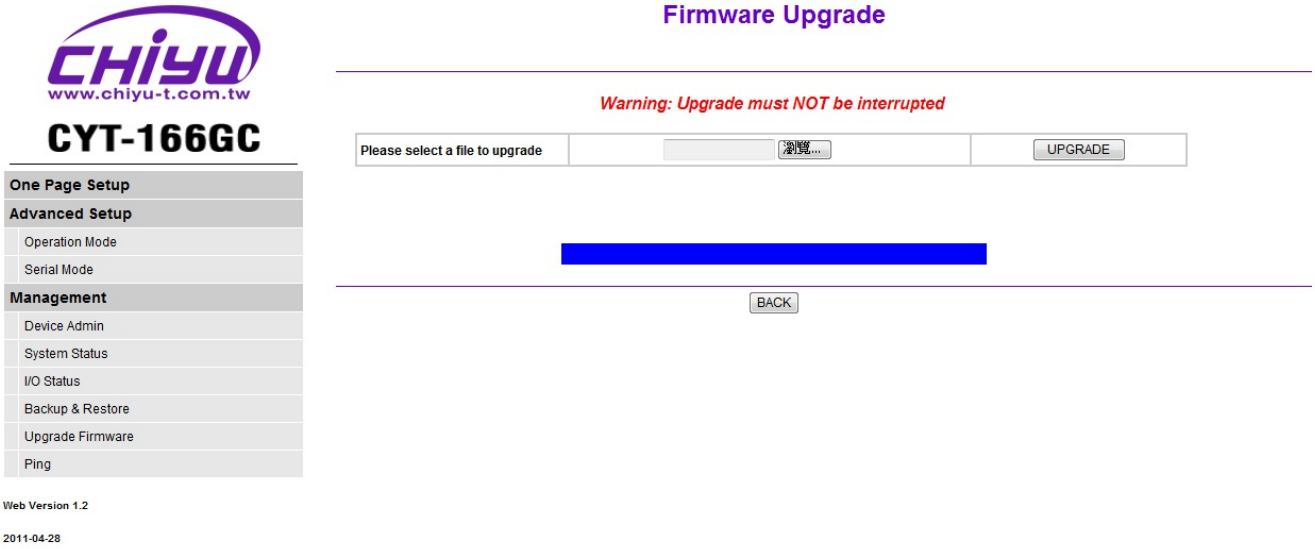
4、Backup & Restore Configuration



- **Function instruction**

Function	Description
Backup	After execution, can save the present system settings as a backup file, and save it in hardware, the sub-name of the saved file is .cfg
Restore	Browse and select saved file(.cfg), execute Restore to restore system settings

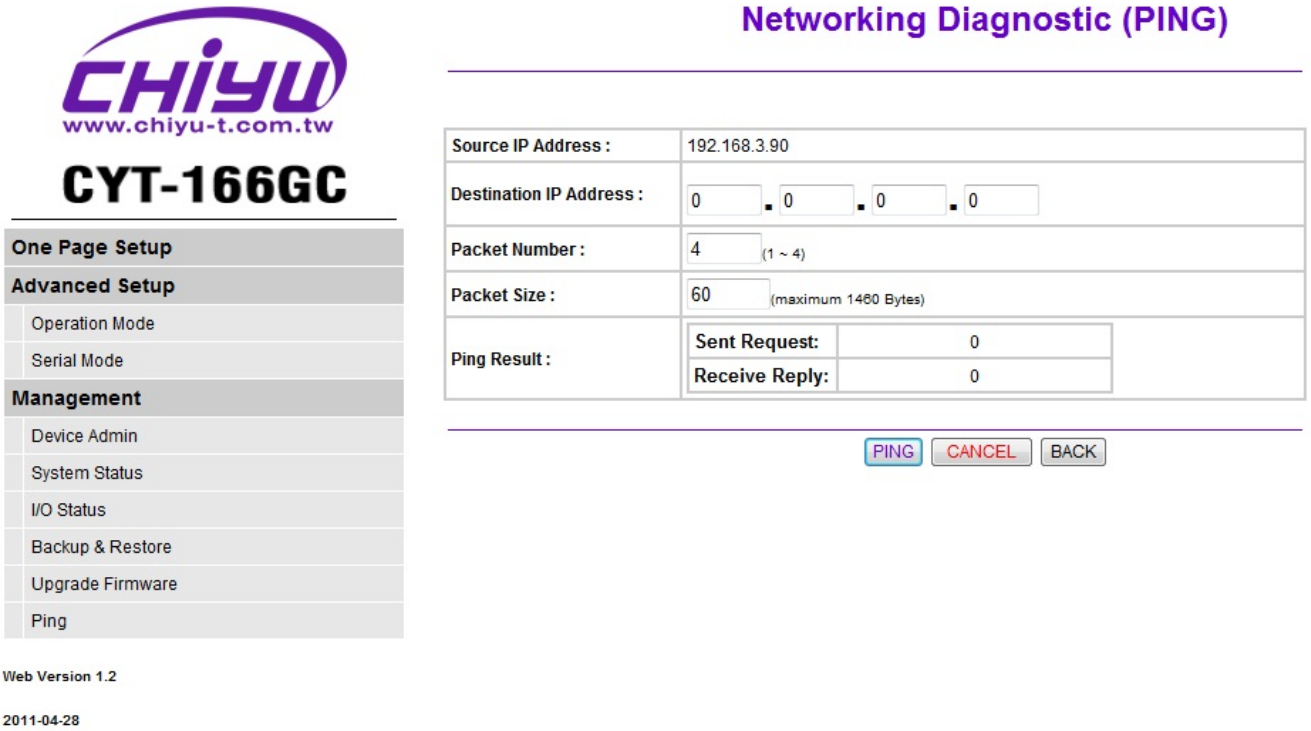
5、Firmware Upgrade



- **Function instruction**

Function	Description
Please select a file to upgrade	● Browse and select firmware, execute Upgrade to upgrade firmware ● Has to assure the possibility of power supply during the process of upgrading, or severe damage will be caused. What if upgrade different firmware to different products, and it will also cause severe damage.

6、PING



- **Function instruction**

Function	Description
Source IP Address	Display CYT-166GC IP address
Destination IP Address	Input IP address of Remote Host
Packet Number	Set up the number of PING package, ranged 1 ~4 , the default **4**
Ping Size	Set up the size of PING package, the utmost setting **1460 bytes.**
Ping Result :	● Display the **Sent Request** data ● Display the **Receive Reply** data

Appendix - CYT-166SC DIO Command Protocol

This DIO command protocol is described here to let customer's remote management software to access Digital I/O state through Ethernet network by a specific TCP/UDP port.

Command Packet Format: (Host → CYT-166GC)

Length(Bytes)	2	2	32	32	2	1
	Start Flag	Command	Data1	Data2	End Flag	CRC

Command:

0x0001 - Read Digital I/O state

0x0003 - Trigger Digital I/O

Note:

Start Flag: 0xF0F0

End Flag: 0xF0F0

Command Status: the definition of command code is as following

0x0002 – ACK of Read Digital I/O state

0x0004 – ACK of Trigger Digital I/O

0xFFFC – Flag error, incorrect Start Flag or End Flag received in command packet

0xFFFD – Length error, the length of command packet is invalid

0xFFFE – CRC error, incorrect CRC value

0xFFFF – Command error, no such command

CRC value = 0 – total sum from field of 'Start Flag" to "End Flag"

The format of each command code is as following:

1. Read Digital I/O state

Length(Bytes)	2	2	32	32	2	1
	0xF0F0	0x0001	Xxx (don't care)	Xxx (don't care)	0xF0F0	CRC

Return Successful Packet

Length(Bytes)	2	2	32	32	2	1
	0xF0F0	0x0002	Data1	Data2	0xF0F0	CRC

Data1

Data[0]	Data[1]	Data[2]	Data[3]					Data[30]	Data[31]
IN-1	IN-2	IN-3	reserved					reserved	reserved

IN-1: state of IN1, 0 for SHORT, 1 for OPEN
IN-2: state of IN2, 0 for SHORT, 1 for OPEN
IN-3: state of IN3, 0 for SHORT, 1 for OPEN

Data2

Data[0]	Data[1]	Data[2]	Data[3]					Data[30]	Data[31]
OUT-1	OUT-2	OUT-3	reserved					reserved	reserved

OUT-1: state of OUT1, 0 for SHORT, 1 for OPEN
OUT-2: state of OUT2, 0 for SHORT, 1 for OPEN
OUT-3: state of OUT3, 0 for SHORT, 1 for OPEN

2. Trigger Digital I/O

Length(Bytes)	**2**	**2**	**32**	**32**	**2**	**1**
	0xF0F0	**0x0003**	**Data1**	**Data2**	**0xF0F0**	**CRC**

Data1

Data[0]	Data[1]	Data[2]	Data[3]					Data[30]	Data[31]
OUT-1	OUT-2	OUT-3	reserved					reserved	reserved

OUT-1: the value you want to write into OUT1, 0 for SHORT, 1 for OPEN
OUT-2: the value you want to write into OUT2, 0 for SHORT, 1 for OPEN
OUT-3: the value you want to write into OUT3, 0 for SHORT, 1 for OPEN

Data2 for Latch Time in second

Data[0]	Data[1]	Data[2]	Data[3]					Data[30]	Data[31]
LT-1	LT-2	LT-3	reserved					reserved	reserved

Return Successful Packet

Length(Bytes)	**2**	**2**	**32**	**32**	**2**	**1**
	0xF0F0	**0x0004**	**Xxx (don't care)**	**Xxx (don't care)**	**0xF0F0**	**CRC**