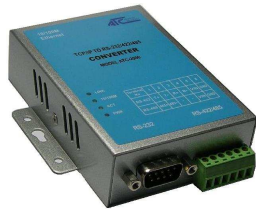


# GC-ATC-2000

## TCP/IP TO RS-232/422/485 CONVERTER

### User's Manual



#### 1.1 Introduction

The GC-ATC-2000 is a RS232/RS485 to TCP/IP converter integrated with a robust system and network management features designed for industrial equipment to be accessed and controlled via Intranet or Internet. By integrating RTOS (Real Time Operating System) and complete TCP/IP protocol stack capability, GC-ATC-2000 provides not only a robust and high performance system to make your device connecting to Network, but also ease installation and Internet access.

The GC-ATC-2000 Web Configurator is a breeze to operate and totally independent of the operating system platform you use.

#### 2.0 Main features

##### ► TCP/UDP server/client support

The GC-ATC-2000 support four types of connection: TCP server, UDP server, TCP client and UDP client, user can select one of types to meet application requirement.

##### ► DHCP Client

DHCP (Dynamic Host Configuration Protocol) client obtains the TCP/IP configuration at start-up from a centralized DHCP server, which means it can get IP address, an IP default gateway and DNS server.

##### ► PPPoE Over Ethernet

PPPoE is a protocol for connecting remote hosts to the Internet over DSL connection by simulating dial-up connection.

##### ► Dynamic DNS

With dynamic DNS support, you can have a static hostname alias for a dynamic IP address, allowing the host to be more easily accessible from various locations on the Internet.

##### ► Auto-negotiating 10/100Mbps Ethernet

The Ethernet interface automatically detects if it is on a 10 or a 100 Mbps Ethernet.

##### ► Full Network Management via Web

This feature allows you to access or manage device through IE or Netscape on any platform. The firmware also can be upgraded via Web browser.

##### ► Backup and Restore configuration

This feature allows you to backup system configuration to a file and restores it, for the security issue, the file which backup from system is an encryption format.

#### 3.0 Hardware Installation & Initial Setup

##### 3.1 RS-232 Pinout : ( DB9 Male )

( DB9Male )	Signal	I/O
PIN1	DCD	IN
PIN2	RXD	IN
PIN3	TXD	OUT
PIN4	DTR	OUT
PIN5	GND	-
PIN6	DSR	IN
PIN7	RTS	OUT
PIN8	RTS	IN
PIN9	RI	IN

##### 3.2 RS-422/485 Pinout : ( six Terminal from left )

Terminal No	1	2	3	4	5	6
RS-422	T+	T-	R+	R-	VIN	GND
RS-485	485+	485-	-	-	VIN	GND



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[www.gridconnect.com](http://www.gridconnect.com)

3.3 Connect to Ethernet 10/100M :

GC-ATC-2000 10/100/M Port connect to switcher or HUB use straight-Through Cable, figure1

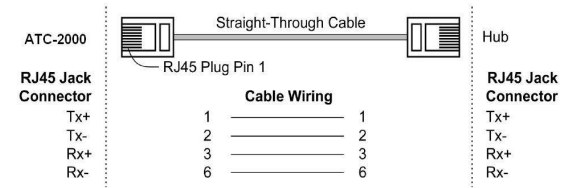


Figure1

GC-ATC-2000 10/100 Port t connect to Ethernet card use cross-Through Cable, figure2

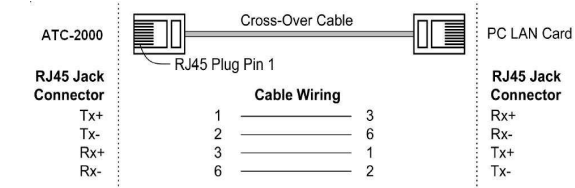


Figure2

3.4 Power Supply :

GC-ATC-2000 TCP/IP converter can adopt the product's AC power adapter for power supply or adopt power from other DC power or device (+9 to +24V @500-100mA).

3.5 GC-ATC-2000 LED indication :

LINK	Indication Ethernet Link , Green on Ethernet
	Link established
10/100M	Indication LINK speed, Green ON LINK
	100M Ethernet
ACT	Data Sending/Receiving between Serial and the Ethernet
PWR	Indication Power

4.0 Configure your GC-ATC-2000

Use this section to set up your computer to assign it a static IP address in the 192.168.168.1 to 192.168.168.254 range with a subnet mask of 255.255.255.0. This is necessary to ensure that your computer can communicate with your GC-ATC-2000. Your computer must have an Ethernet card and TCP/IP installed. TCP/IP should already be installed on computer using Windows 98/2000/XP and later operating systems.

Step 1 : Open your web browser and type

<http://192.168.168.125> in the browser's *address box*. This address is the factory set IP Address of your GC-ATC-2000. Press **“Enter”**.

Step 2 : The **“Username and Password required”** prompt

box will appear. Typing **“admin”** (default username) in the Username field and typing **“admin”** (default password) in the Password field. Click **“OK”**. The setup screen will then appear.



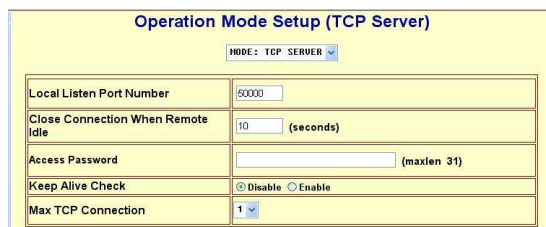
This chapter will show you how to configure GC-ATC-2000 to function in your network and gain access to your device through Intranet or Internet.

## 4.1 Operation mode

The GC-ATC-2000 support four operation mode: TCP Server, TCP Client, UDP Server and UDP Client.

These modes are listed in the drop-down menu for the Operation Mode setting. Each setup screen and available features will differ depending on what kind of operation mode you select. Default is TCP Server.

### TCP Server



The screenshot shows the 'Operation Mode Setup (TCP Server)' window. It has a dropdown menu set to 'MODE: TCP SERVER'. The fields include: 'Local Listen Port Number' set to 50000, 'Close Connection When Remote Idle' set to 10 seconds, 'Access Password' (empty), 'Keep Alive Check' with 'Disable' selected, and 'Max TCP Connection' set to 1.

**Listen Port Number:** default 50000, range 0 to 65535

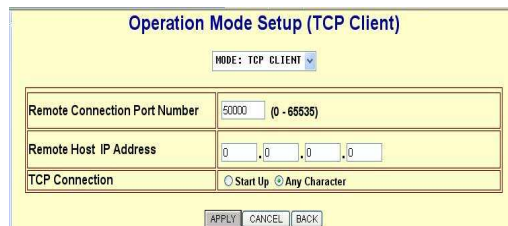
If your device is acted as passive to accept commands from remote and the data be guaranteed to be received by peer is your concern, then you can set GC-ATC-2000 as TCP Server.

Be sure the value of item **Listen Port Number** is same as your remote control application using.

**Close Connection When Remote Idle (second):** default 300, range 0 to 32768

If you want to keep the connection between GC-ATC-2000 and your remote control application always on, then set the value of item **Close Connection When Remote Idle** to 0, otherwise, when the idle time of no any traffic on line reach the setting value, GC-ATC-2000 will terminate this connection.

### TCP Client



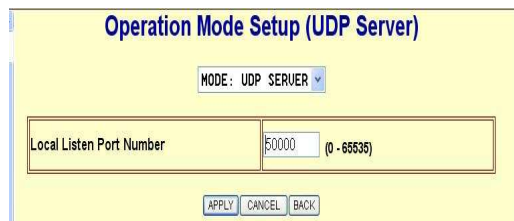
The screenshot shows the 'Operation Mode Setup (TCP Client)' window. It has a dropdown menu set to 'MODE: TCP CLIENT'. The fields include: 'Remote Connection Port Number' set to 50000, 'Remote Host IP Address' set to 0.0.0.0, and 'TCP Connection' with 'Start Up' selected.

**Remote Connection Port Number:** default 50000, range 0 to 65535

**Remote Host IP Address:** default 0.0.0.0

If your device is acted as active to report real-time status to remote and the data be guaranteed to be received by peer is your concern, then you can set GC-ATC-2000 as TCP Client. Be sure the value of item **Remote Connection Port Number** is same as your remote control application using and set the correct value of **Remote Host IP Address**.

### UDP Server

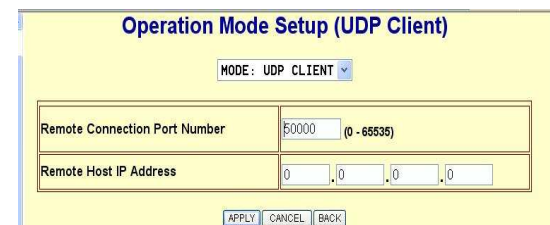


The screenshot shows the 'Operation Mode Setup (UDP Server)' window. It has a dropdown menu set to 'MODE: UDP SERVER'. The field 'Local Listen Port Number' is set to 50000.

**Listen Port Number:** default 50000, range 0 to 65535

If your device is acted as passive to accept commands from remote and the data be guaranteed to be received by peer is *not* your concern, then you can set GC-ATC-2000 as UDP Server. Be sure the value of item **Listen Port Number** is same as your remote control application using.

### UDP Client



The screenshot shows the 'Operation Mode Setup (UDP Client)' window. It has a dropdown menu set to 'MODE: UDP CLIENT'. The fields include: 'Remote Connection Port Number' set to 50000 and 'Remote Host IP Address' set to 0.0.0.0.

**Remote Connection Port Number:** default 50000, range 0 to 65535

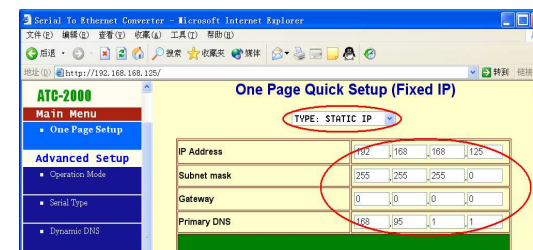
**Remote Host IP Address:** default 0.0.0.0

If your device is acted as active to report real-time status to remote and the data be guaranteed to be received by peer is *not* your concern, then you can set GC-ATC-2000 as TCP Client. Be sure the value of item **Remote Connection Port Number** is same as your remote control application using and set the correct value of **Remote Host IP Address**.

### IP Configuration

The GC-ATC-2000 support three IP connection types: Static IP, DHCP and PPPoE. These types are listed in the drop-down menu for the IP Configuration setting. Each setup screen and available features will differ depending on what kind of IP connection types you select. Default is Static IP

### Static (or Fixed) IP



The screenshot shows the 'One Page Quick Setup (Fixed IP)' window. It has a dropdown menu set to 'TYPE: STATIC IP'. The fields include: 'IP Address' (192.168.1.125), 'Subnet mask' (255.255.255.0), 'Gateway' (0.0.0.0), and 'Primary DNS' (168.95.1.1).

**IP Address:** default **192.168.168.125**

**Subnet mask:** default **255.255.255.0**

**Gateway:** default **192.168.168.254**

**Primary DNS:** default **168.95.1.1**

If you are connecting through a static or fixed IP from your

network environment, perform these steps :

**Step 1:** Enter IP address

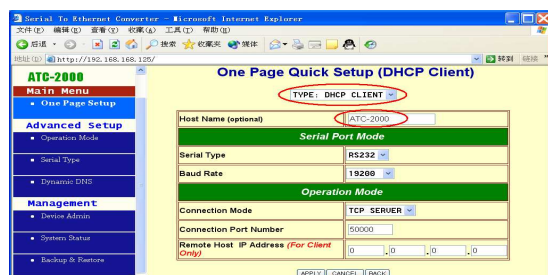
**Step 2:** Enter Subnet mask

**Step 3:** Enter Gateway IP address

**Step 4:** Enter Primary DNS IP address

**Step 5:** click Apply button

## DHCP



**Host Name (Optional):** default **GC-ATC**, maximum length **15** characters

If there is a DHCP Server existing in your network environment or you subscribe a CABLE service from your ISP, you can set IP configuration to DHCP to get a dynamic IP address. The **Host Name** is an *optional* item, depending on your DHCP Server setting.

## Serial Type

The GC-ATC-2000 support three serial types: RS232, RS422 and RS485, These types are listed in the drop-down menu for the Serial Type setting. Each setup screen and available features will differ depending on what kind of Serial Types

you select and GC-ATC-2000 product model you buy. Default is RS232

**Baud Rate:** default **115200**, range 1200bps to 230.4Kbps

**Data Bits:** 5, 6, 7, 8 (default)

**Parity Check:** **None** (default), even, odd

**Stop Bits:** **1** (default), 2

**Flow Control:** **None** (default), CTS/RTS (or Hardware), XON/XOFF (or Software)

**Force Packet Transmit Time (ms):** default **40**, range **20** to **65535**

The timing of transmitting an Ethernet packet, in order to get the whole data in on packet, you can tune this setting value to fit the data length of your device per transmission. The more small value be set will get more less data in one packet.

## RS422

The settings are similar with RS232.

## RS485

RS485 Transmission Delay Time (ms): default **0**, range **0** to **65535**

Due to different device has different capability in handling data received from serial port. So you can tune this setting value to slow down the speed of GC-ATC-2000 to fit the speed of your device handling.

Once the GC-ATC-2000 receives 1 delimiter through its serial port, it immediately packs all data currently in its buffer and sends it to the GC-ATC-2000's Ethernet port.

## 4.1 GC-ATC-2000 Management Setup

This chapter will show you how to manage GC-ATC-2000's access setting as well as configure E-mail alert and firmware upgrade.

## 4.2 Device Admin



Block Standard HTTP Port(80) Management: default

## UNBLOCK

If for some reason, the HTTP (80) service is blocked in your network environment and result to fail to configure or manage GC-ATC-2000, then you select **BLOCK** this function with using port **8080**, instead of standard port 80. So you should enter: <http://192.168.168.125:8080> in your browser.

Device Management IP Address: default **192.168.1.10**

In case, you forgot the GC-ATC-2000's IP address you ever set, this management IP can be used to connect to GC-ATC-2000 to figure out what's the current IP address be used.

In case, you set GC-ATC-2000's IP Configuration as DHCP or PPPoE which will assign dynamic IP address to GC-ATC-2000, you also can use this management IP address to find what's the current working IP address in Intranet.

**Note: If you forgot the IP address setting even management IP address, please use the broadcast utility we offer in CD to search it.**

Device Hostname: default **GC-ATC**, maximum length **15** characters

To describe the name of GC-ATC-2000 for manage purpose.

Device Location: no default, maximum length **15** characters

To describe the location of GC-ATC-2000 for manage purpose.

**Administrator Password**

User Name: default **admin**

Password: default **admin**

To ensure the GC-ATC-2000's security, you will be asked for your password when you access the GC-ATC-2000's Web-based Utility.

**User Name:** Enter the user name to one of your choice.

**Password:** It is recommended that you change the default password to one of your choice.

**Password Confirm:** Re-enter the GC-ATC-2000's new Password to confirm it.

**Block Ping Request:** default **UNBOCK**

To prevent hacker intruding your network, check the **BLOCK** option to enable this function to reject the PING requests from Internet.

**MAC Address Change**

The GC-ATC-2000's MAC address can be changed from the original values if necessary. Some ISPs require users to change the MAC address to a registered one when users change their access equipment. (Detail sees Appendix B)

**Reset System to Factory Default**

Click **“Apply”**, if you want to return all the GC-ATC-2000's current settings to its factory default. *Note: do not restore the factory defaults unless it is absolutely necessary.*

**Reboot System**

Click **“Apply”**, if you want to clear a connection, reboot, and re-initialize the unit without affecting any of your configuration setting.

**4.3 Device Status**

This screen shows the GC-ATC-2000's current status. All of the information provided is read-only.

**Product Name:** the product model name of this GC-ATC-2000.

**Firmware Version:** the installed version of the firmware.

**System up Time:** the time of system from start up to current.

**Management IP Address:** the current setting of management IP.

**Ethernet Status:** the GC-ATC-2000's IP Configuration, MAC address, IP address, subnet mask, default gateway IP address, primary DNS IP address and current connection status.

**Serial Status:** the GC-ATC-2000's setting in serial type

**Statistic:** the transmission and receive bytes and packets count in Ethernet and Serial port separately.

**4.4 E-Mail Alert**

The GC-ATC-2000 allows you send E-Mail to alert the event of I/O state changing. This service default is disabled.

E-mail Alert: default **DISABLE**

Domain Name (optional): no default, maximum length **59** characters

SMTP Mail Server: no default, maximum length **27** characters

E-mail Alerts To: no default, maximum length **27** characters

Return Address: no default, maximum length **27** characters

Select **ENABLE** in **E-mail Alert**

Enter the **Domain Name** in this field if needed. **(this is optional)**

Enter the **SMTP Mail Server** in the field.

Enter the e-mail account you want to reach or notice in the field of **E-mail Alerts To**.

Enter the e-mail account you want to return in the field of **Return Address**.

**4.4 Backup and Restore**

This function allows you to save GC-ATC-2000's configuration as backup, or retrieve the configuration file you saved before to turn the setting back.

**Backup:** Click “Backup” button save the current configuration as a backup file in your hard disk.

**Restore:** Enter path of the configuration file you saved on the PC. You can click “Browse” to view the folders and select the file. Click “Restore” to retrieve it.

**Note: the sub-name of file you retrieve must be “.cfg”**

**4.5 Upgrade Firmware**

This function allows you to upgrade the latest version firmware to keep your GC-ATC-2000 up-to-date. Before you upgrade the firmware, you have to get the latest firmware and save it on the PC you use to configure the GC-ATC-2000.



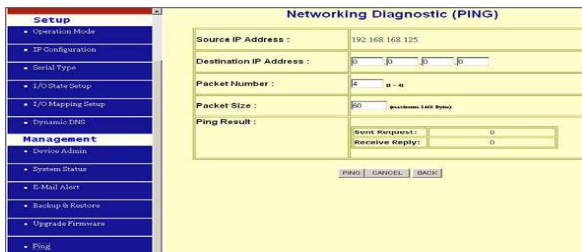
**Browse:** To select a file to upgrade, you have to enter path of the latest firmware you saved on the PC. You can choose “Browse” to view the folders and select the firmware.

**Upgrade:** After you enter or select the path, click “Upgrade” to start the firmware upgrade process.

**Note:** don't power off the router during the firmware upgrading; otherwise the incompleteness of firmware upgrading will cause serious damage to the integrity of the GC-ATC-2000's firmware that will lead to fail to boot the GC-ATC-2000 again.

#### 4.6 Ping

This function allows you to test the connection between GC-ATC-2000 and LAN or between GC-ATC-2000 and Internet.



**Source IP Address:** the current GC-ATC-2000's IP address (Read Only).

**Destination IP Address:** the IP Address of destination device you want to ping.

**Packet Number:** the packet numbers you wish to use to ping the destination device. The maximum numbers are 4.

**Packet Size:** the numbers of packet size you wish to use to ping the destination device. The maximum packet sizes are 1400.

**Ping Result:** The result will show the numbers of sending packet, numbers of packet receiving (Read Only).

#### 5. Troubleshooting

PROBLEM	CORRECTIVE ACTION
None of the LEDs turn on when you turn on the GC-ATC-2000	Make sure that you have correct power connected to GC-ATC-2000 and plugged in to an appropriate power source. Check all cables connections.  If the LEDs still do not turn on, you may have a hardware problem. In this case, you should contact your local vendor.
Can not access GC-ATC-2000 from Ethernet	Check cable connection between GC-ATC-2000 and computer or hub. Ping GC-ATC-2000 from computer. Make sure your computer Ethernet card is installed and functioning properly.
Can not ping any computer on the LAN	If the 10/100M LED are off, check the cable connection between GC-ATC-2000 and your computer. Verify that the IP address and subnet mask of the GC-ATC-2000 and computer are in the same IP address range.

Can not access GC-ATC-2000 from Serial	Check the Serial cable connection between GC-ATC-2000 and your device.  Verify that the GC-ATC-2000 setting of Serial type is same as your device and make sure the hardware jumper is in the correction position.
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