CTL-001 Series
WCDMA/GPRS Wireless
Data Terminal
User manual

【Revision History】

Rev.	Revised content	Comment	Date	Officer
1.0	First edition	Create new	2017-02-01	CTT
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1. Overview

　　CTL-001 series device is router with wireless communication function that does IP connection via the mobile phone network 2G/3G of GPRS/W-CDMA system.Also, it has 10Base-T/100Base-TX LAN port and RS-232C serial interface as device interface. It serves IP network connection environment to connected device, and it is capable to communicate certain protocol data between different interfaces.

This device has network router function connects local network or device to internet or closed network via the IP network of 2G/3G mobile phone network. It can realize several functions, service by making system with cloud computing network system (Hereinafter referred to as "cloud system".

) and closed network.

Figure 1 shows a conceptual diagram of the network.
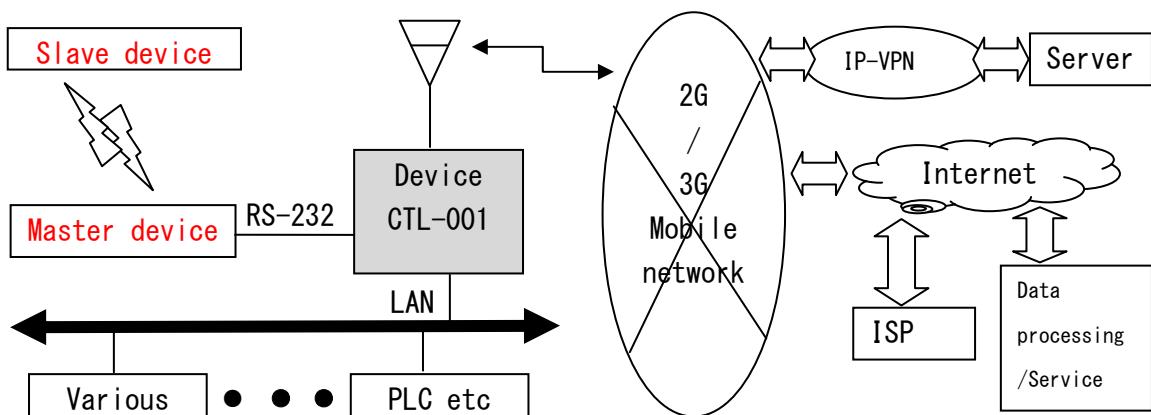

Figure 1　　Conceptual diagram of system using this device

2. Name of appearance and parts

### 2.1. Appearance

Appearance of this device indicated below

<Front face appearance>

<Back face appearance >

2.2. Name of parts

<Front face>   <Front face (after cover taken) >
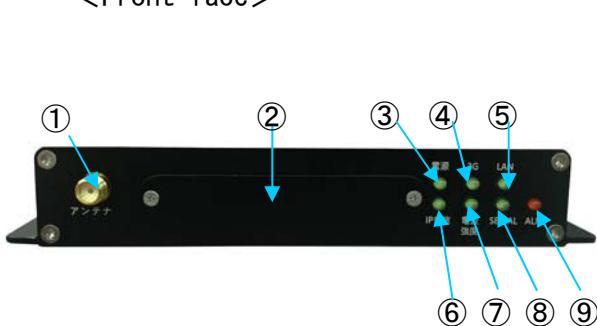
Details of front

No	Name	Description
①	Antenna terminal	GPRS/3G antenna terminal
②	SIM card slot blindfold panel	Remove the panel and install the SIM card
③	Power indicator LED "Green"	PowerOn → Lights On , Power Off → Lights Off
④	Communication status LED "Green"	Communicating → Lights On
⑤	LAN port status LED "Green"	In use → Lights On
⑥	IP Calling status LED "Green"	IP incoming function enabled → Lights On
⑦	Wireless strength indication LED "Green"	Disconnected → Lights Off Communication strength → Flashing or Lights On
⑧	Serial status LED "Green"	Connecting → Lights On
⑨	Alarm indication LED "Red"	Device abnormality detection → Lights On
⑩	Micro USB terminal	Terminal for connecting maintenance PC
⑪	DIP switch	For setting:environmental response,internal setting initialization, firmware update
⑫	PUSH button	Press the button → Take SIM card holder off
⑬	SIM card slot	Insert the SIM card holder with the SIM card installed

<Back face>
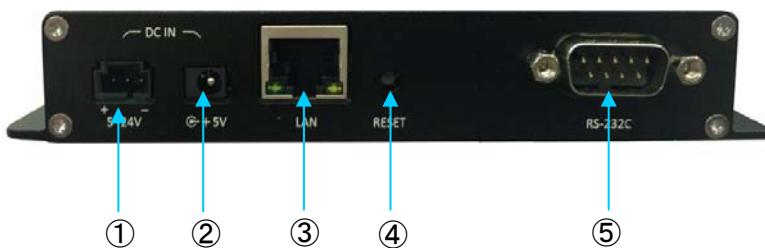
Details of back

No	Name	Description
①	Molex connector for DC power supply	Connect the 3 terminal power cable to supply power
②	EIAJ 2 standard connector for DC power supply	Connect the AC power to supply power
③	LAN port	RJ45 socket Lower LED Left: Terminal connection status Lower LED Light: Transmit / receive state
④	Reset button	Press the button → Force reset
⑤	RS-232C connector	Connect RS-232C cable

2.3. DIP switch setting
DIP switch placed under blindfold cover is for operation mode change

<Front DIP switch parts>

SW1   SW4
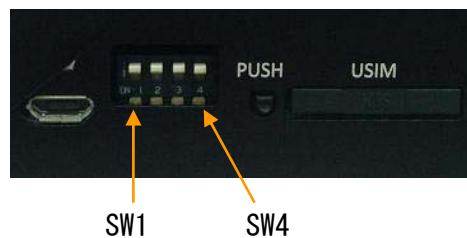
DIP switch setting specification

Switch number	Off (Factory default)	On
SW 1	Start up with the current setting (Normal operation mode: Default)	On startup:All setting items of this device to the factory shipment state ＊1
SW 2	Prohibit firmware update of this device via the LAN port ＊2	Allow firmware update of this device via the LAN port
SW 3、4	Detach internal GND and case (Default)	Connect internal GND and case

2.4. Earth processing at installation

When installing this equipment, it is recommended to ground using a ground wire to ensure safety and prevent noise influences. As shown in the figure below, install the ground wire so that the ground wire is sandwiched between the screw to attach the main body and the main body.

Mounting screw

Ground wire :
To a power
outlet or a
nearby ground
terminal

Body

How to attach the ground wire
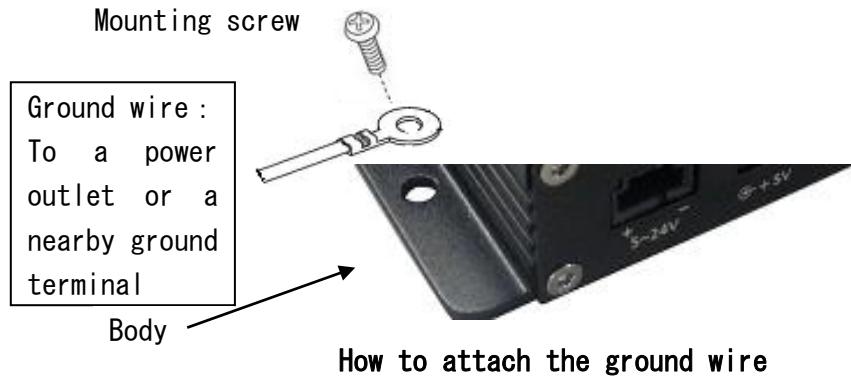
3. Function specification

3.1. GPRS/3G network function

Items		Specification	Remarks
Communication function	Communication method	2G : GPRS/EDGE 3G : W-CDMA/HSDPA	
	Frequency band	CTL-001A : GPRS/EDGE:850/1900MHz W-CDMA 850/1900MHz CTL-001E : GPRS/EDGE: 850/900/1800/1900MHz W-CDMA 900/2100MHz	
	Provider settings specified editing method	PPP dialup registration number (cid), APN, user name, password	
	Packet calling	IP calling service correspondence	Enable / Disable can be set

3.2. Router function

Items		Remarks
Routing protocol		IPv4
Routing method		Static
DHCP	WAN	DHCP client
	LAN	DHCP server (MAX 128 addresses can be distributed)
NAT		Dynamic NAT
NAPT		Static NAPT WAN port⇔LAN address: Do the port conversion
DNS server		DNS cache server (Forwarder)
Access control	Packet filtering	LAN→WAN, WAN→LAN Each accept / drop mode can be specified. IP address + Portnumber:Up to 100 combinations can be set up. Object protocol TCP, UDP, ICMP.
	Security	Can be detect and block DoS attacks WAN:PING response can be rejected WAN:DNS Query can be discarded
DDNS setting		DDNS server / ID / PW configurable
PING setting		Capable to maintain network connection when connecting to the Internet
RS-232C Protocol conversion function	Conversion protocol	Start-stop synchronous serial/IP conversion
	TCP/IP server	Listening for connection: WAN / LAN can be switched
	TCP/IP client	Provider settings IP address, port Option can be specified

4. Operation maintenance function

4.1. Operation setting function

Various operation settings of the device are set up via the setting Web page inside the device. This section shows each screen and various setting functions.

4.1.1. Operation guarantee browser

Operation verified Web Browser:Internet Explorer 8 or later

4.1.2. Access to the device settings menu

1) Access from the LAN port

URL for HTTP access :   http://192.168.11.1:8080
URL for HTTPS access :   https://192.168.11.1:8443

2) Remote access
When using IP-VPN, "Remote operation setting" in the setting menu is enabled and access is possible from the browser of the remote PC where the IP address is registered.

3) Default user name / Password : admin / admin

4) Login

When accessing the setting menu of this device by the browser by the above, the following login input screen is displayed in the browser.

Login	
User	
Password	
	LOGIN

Login input screen

Enter the correct user name and password and click the "Login" button to display the system information screen shown in 6.2.1.

5. Setting menu screen specification

5.1. Common specification

1) On each screen, by selecting the menu item on the left side, it transits to the arbitrary setting menu screen.

2) Setting menu screen as common items, except for 6.2.1 System information screen, after setting on each screen, When "Save" button is clicked, "((Saved for screen but it is not valid)" is displayed next to button or below.

3) After making settings on each setting screen and clicking the "Save" button, reset it by clicking the "Setting" button on the enable setting screen, the setting contents will be reflected after rebooting.

5.2. Main setting screen specification

5.2.1. System information screen

When accessing this device, or by selecting the "System Information" menu, the system information of this device is displayed.

5.2.2. PPP setting

Figure 16 PPP setting screen specification

5.2.3. IP Calling setting

Setting screen when you use IP calling

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5.2.4. LAN setting

System information	LAN side IP address	192.168.11.1
PPP setting	Subnet mask	255.255.255.0
IP incoming setting	DHCP server enable / disable	☑ To enable
LAN setting	Gateway address	192.168.11.1
NAPT setting	DNS server address	192.168.11.1
DDNS setting	Lease time (H)	240
Packet filter setting	Start IP address	192.168.11.100
PING setting	End IP address	192.168.11.220
RS232C setting		
PLC setting		
PIN setting	Save	
Change ID / Password		
Remote operation setting		
Other setting		
Activation setting		
Maintenance setting		
Firmware updade		
Logout		

Figure 18 LAN setting screen specification

5.2.5. NAPT setting

When not using the DHCP server function, NAPT setting is a required item because it is the address of LAN side / WAN side, port conversion.

5.2.6. DDNS setting

When the DDNS client function is enabled on the DDNS setting menu, this device notifies the DDNS server of the IP address when it is connected

5.2.7. Packet filter setting

You can set packet filtering individually for LAN → WAN direction, WAN → LAN direction.
A packet containing the specified IP address, port, protocol (as data):accept / drop can be set.

5.2.8. PING setting

It is a function to maintain communication by periodically sending pings to prevent network disconnection by the telecommunications carrier side when a certain period of idle state elapses when connecting to the Internet. It is a function to realize the so-called Keep alive.

5.2.9. RS232C setting

This is the screen to set the communication specification of RS232C port.

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5.2.10.PLC setting

In the case of the local PLC mode (see "maintenance setting" for mode switching), this page is used.

5.2.11.PIN setting

PIN authentication of SIM card:enable / disable setting,vailed PIN code setting.

5.2.12.Change ID / password

This is a screen to set the user name and password to access WEBGUI.

5.2.13.Remote operation setting

It is a setting screen of whether access to WEBGUI from the Internet is possible.

5.2.14.Other setting

It is a function setting of security, time synchronization, and periodic reset.

5.2.15.Enable setting
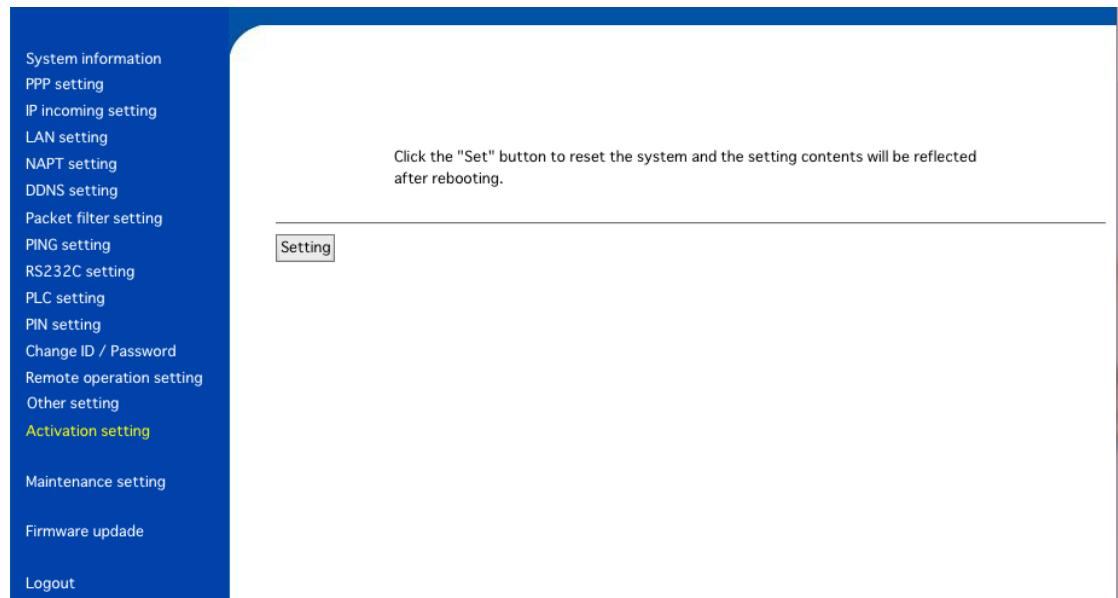
5.2.16.Maintenance setting

It is a maintenance function screen such as importing and exporting the setting file, exporting the log file, switching the operation mode, returning to the shipping setting.

5.2.17.Firmware update

Capable to update firmware at this screen

5.2.18.Logout

Select this when logging out from the setting menu of this device. If logout is done, you will return to the WEBGUI login screen.

6. Specification table

The specifications of this device are shown in Figure 32 below.

Figure 32　Body specification table

Items		Specification
Product name		WCDMA/GPRS Wireless Data Terminal
Size (W x H x D, mm)		143×23.5×93 (Protruding parts not included)
Weight		Approximately 260g
Interface	Antenna terminal	SMA jack x 1
	Power input terminal	Molex 3Pin x 1, EIAJ-2 round x 1、Back Side
	LAN terminal	RJ45 jack x 1, wit LED display
	RS-232C terminal	D-SUB 9Pin male x 1
	SIM slot	Tray type x 1
	USB terminal	Micro USB-B jack x 1
DIP switch for setting		4 pole switch x 1
Display LED		7, (Green x 6, Red x 1)
Reset button		1
Abnormality monitoring		By watchdog
Power supply allowance input		DC 5～24V±5%
Current consumption		During communication MAX: 750mA (At 5V) Standby MAX: 200mA (At 5V)
Environmental condition	Operational guarantee	Temperature : 45℃ Humidity : 10～90%
	Storage guarantee	Temperature : -40～80℃ Humidity : 5～95%
Used communication module		Made for SIMCOM SIM5320A/E use
CPU		Freescale i.MX280 454MHz
ROM/RAM		128MB/64MB
OS		Linux 2.6.35.3

FCC Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Radiation Exposure Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons.

Caution!

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Hereby, Cathay Tri-Tech.,Inc, declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.The full text of the EU declaration of conformity is available at the following internet address: http://www.cathay.jp/support/oversea/eu-doc.html

Warning
This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
Warning: Operation of this equipment in a residential environment could cause radio interference.

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