IOT-4GW01-A User Manual

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1



Content

1. Overview	3
1.1. Brief introduction	3
1.2. Product feature	3
1.3. Hardware introduction	4
1.4. Band	5
2. Product Functions	5
2.1. Install procedure	6
2.2. APN	6
2.2.1. Create a VPN client	7
2.3. Networking mode	7
2.3.1. WAN+LAN+4G	7
2.3.2. LAN+LAN+4G	8
2.4. Common functions	9
2.4.1. 4G interface	9
2.4.2. LAN interface	9
2.4.2.1. DHCP Function	10
2.4.3. WAN interface	
2.4.4. WLAN interface	
2.4.5. Network Diagnosis	
2.4.6. Module Name and Time Zone	
2.5. Basic Functions	
2.5.1. Web Server Password	
2.5.2. Restore	
2.5.3. Upgrade Firmware Version	
2.5.4. Reset	
3. Web Server	16
4. Contact us	17
5. Disclaimer	17
6. Updated History	
Appendix: 4GW01-A certification	
ISEDC WARNING	
FCC WARNING	

2



1. Overview

If user has any question, please submit it back to customer center: https://www.hinovision.com

1.1. Brief introduction

IOT-4GW01-A is an industrial 4G LTE router for North American which supports WAN, LAN, WLAN and 4G interface. User can access to 3G/4G network by WLAN interface or Ethernet interface.

1.2. Product feature

- 1 wired LAN ports, 1 wired WAN ports (WAN ports can be switched to LAN ports).
- 2.4G WIFI wireless 802.11 b/g/n
- LED communication indicators
- Configure device by webpage
- Support one button to restore factory settings.
- The wired net ports support 10/100Mbps rate.
- Support VPN Client (PPTP/L2TP/IPSEC/GRE/OPENVPN/SSTP) and supports VPN encryption and static IP functions.
- Support APN automatic checking network, 2/3/4G system switching, SIM information display, support APN/VPDN special network card.
- Support for wired wireless multi network simultaneous online and multi network intelligent switching backup function
- Support remote upgrade and remote monitoring.
- Support Dynamic Domain Name System (DDNS), Static Routing, PPPOE, DHCP, Static IP Function
- Support mandatory portal (WIFIDOG), this function needs to be customized accodeing to customer needs.
- Support the firewall, NAT, DMZ host, access control black-and-white list, IP speed limit, NTP, MAC speed limit.
- Support SMS AT command
- Support external hardware watchdog design to ensure system stability.



1.3. Hardware introduction



Figure 1 LED

LED	Function	n	
RSSI	The more green LEDs lighten,	, the signal is stronger.	
2G	2G:On 3G:Off	2G network accessing	
	2G:Off 3G:On	3G network accessing	
3G	2G:On 3G:On	4G network accessing	
WLAN	On: Wi-Fi enabled	Off: Wi-Fi disabled	
LAN	Blink: LAN port working	Off: LAN port not working	
WAN	Blink: WAN/LAN port working	Off: WAN/LAN port not working	
PWR	On: Power on	Off: Power off	
Button	Function	n	
WPS	Reserve	d	
Reload	Restore default	settings	



Figure 2 LED functions



Figure 3 Interface

1.4. Band

To check if the IOT-4GW01-A works in specific country, please check which 3G/4G technology and band is used in this country and operator. Then please contrast our form of different model.

	4GW01-A 4G Band
	2
FDD-LTE	4
	12
	2
WCDMA	4
	5

2. Product Functions

This chapter introduces the functions of IOT-4GW01-A, as the following diagram shown, you can get an overall knowledge of it.



Figure 11 Product function

2.1. Install procedure

- (1) Connect the 4G antenna and Wi-Fi antenna to the router. (Longer one is 3G/4G antenna and Shorter one is Wi-Fi antenna.)
- (2) Plug the SIM card in socket.
- (3) Power on the module by power adaptor and check the LED status.
- (4) Connect PC or mobile to the 4GW01-A router via LAN interface or Wi-Fi interface. Wi-Fi password is "www.usr.cn".
- (5) Log in Web Server of router. (Default IP address of router is 192.168.1.1, either the username and password is "root".)
- (6) Configure APN parameters according to SIM card. Some SIM card APN can be recognized automatically.(Network->APNSET)
- (7) Configure other parameters according to user applications.

2.2. APN

APN configuration by Web Server as follow:



Figure 12 APN configuration

To choose the network type, please configure the LTE configuration.



Mode(Please Select 2/3/4G,When selecting o, default 4G>3G>2G)	AUTO	v		
Priority(When selecting to, default 4G>3G>2G)	AUTO	•		
			sed To Check 4G Network Connect	ion Status
Enable 4G Ping Check	💷 🕜 Enable Or	Disable 4G Ping Check, Us		
Enable 4G Ping Check	💷 😰 Enable Or	Disable 4G Ping Check, Us		
Enable 4G Ping Check	🔟 🔞 Enable Or	Disable 4G Ping Check, Us		

Figure 13 LTE configuration

2.2.1. Create a VPN client

User can set VPN client configuration by Web Server as follow:

HINO 🚳			
IOT-4GW01	Interfaces		
> Status	Interface Overview		
> Services	Network	Status	Actions
Network Interfaces SIM Card	LAN g声 (証金) br-lan	Uptime: 0h 53m 33s MAC-Address: 9CA5:25:AD:48:7A RX: 2.43 MB (18576 Picts.) TX: 1.25 MB (5445 Picts.) IPv4: 192.168.1.1/24	Connect Stop Z Edit Delete
IPSEC Wifi DHCP and DNS	WAN_4G	Uptime: 0h 0m 0s MAC-Address: 12:0F:3C:0F:CD:9B RX: 0.00 B (0 Pkts.) TX: 0.00 B (0 Pkts.)	 Connect Stop Edit Delete
AP Client Hostnames	WAN_WIRED	MAC-Address: 00:00:00:00:00:00 RX: 0.00 B (0 Pkts.) TX: 0.00 B (0 Pkts.)	Connect Stop C Edit Delete
Static Routes Diagnostics QoS	Add new interface		
> Firewall > WAN/LAN Port		•	



2.3. Networking mode

2.3.1. WAN+LAN+4G

In this networking mode, user can access internet through WAN interface and 4G interface. WAN interface has higher priority than 4G interface to ensure communication and save 4G flows. When WAN interface occurs problems, router can change to 4G interface to connect internet. In this mode, user can also connect to router through WIFI.

To achieve this mode, user don't need to change the router's parameters. Just connect the cable to router and insert SIM card, then power the router.

Application diagram as follow:



Figure 15 WAN+LAN+4G networking

2.3.2. LAN+LAN+4G

In this networking mode, two devices can connect to router through LAN and access the Internet by 4G network. User can achieve this by Web Server as follow:



Figure 16 Switch WAN/LAN interface

Application diagram as follow:



Figure 17 LAN+LAN+4G networking



2.4. Common functions

2.4.1. 4G interface

4GW01-A supports one 4G interface to access internet. Functional diagram as follow:



Figure 18 4G interface

User can configure 4G interface by Web Server as follow:

IOT-4GW01	Interfaces		
> Status	Interface Overview		
> Services	Network	Status	Actions
Network Interfaces SIM Card	LAN ئېڭ (ئىتىچە) br-lan	Uptime: 0h 58m 19s MAC-Address: 9C:A5:25:AD:48:7A RX: 2.67 MB (20325 Pits.) TX: 1.39 MB (5958 Pits.) IPv4: 192.168.11/24	 Connect Stop Edit Delete
IPSEC Wifi DHCP and DNS	WAN_4G	Uptime: 0h 0m 0s MAC-Address: 12:0F:3C:0F:CD:9B RX: 0.00 B (0 Pkts.) TX: 0.00 B (0 Pkts.)	Ø Connect Image: Stop Ø Edit Image: Delete
AP Client Hostnames	WAN_WIRED	MAC-Address: 00:00:00:00:00:00 RX: 0.00 B (0 Pits.) TX: 0.00 B (0 Pits.)	 Connect Stop Edit Delete
Static Routes Diagnostics DoS	Add new interface		
> Firewall			
> WAN/LAN Port			
> System			

Figure 19 4G interface

2.4.2. LAN interface

4GW01-A supports two LAN interface (one is WAN/LAN interface).

Default settings: One LAN interface (WAN/LAN used as WAN interface; IP address: 192.168.1.1; Subnet mask: 255.255.255.0; Open DHCP function).



User can configure LAN interface by Web Server as follow:

-4GW01	Interfaces		
tus	Interface Overview		
Services	Network	Status	Actions
Network Interfaces SIM Card	LAN 炎5 (空生金) br-lan	Uptime: 0h 59m 5s MAC-Address: 9C:A5:25:AD:48:7A RX: 2:70 MB (20557 Pits.) TX: 1:41 MB (6047 Pits.) IPV4: 192:168.1.1/24	Connect Stop C Edit
IPSEC Wifi DHCD and DNS	WAN_4G	Uptime: 0h 0m 0s MAC-Address: 12:07:3C:07:CD:9B RY: 00:08 (0 Ptks.) TX: 0:00 B (0 Ptks.)	Connect Stop Stop Call Edit
P Client Iostnames	WAN_WIRED	MAC-Address: 00:00:00:00:00:00 RV: 0.00 B (0 Pkts.) TX: 0.00 B (0 Pkts.)	Connect Stop Edit Edit
tic Routes gnostics S	Add new interface		
Firewall			
WAN/LAN Port			

2.4.2.1. DHCP Function

DHCP default range of distribution is from 192.168.1.100 to 192.168.1.250 and default address lease time is 12 hours. Address range and lease time can be changed.

After you enter Web Server LAN interface, you can find 'DHCP Server' on Web Server as follow:

> WAN/LAN Port > System > Logout	DHCP Server	
> System > Logout	DHCP Server	
> Logout		
	Constal Satur	
	General Setup	
	Ignore interface 🔲 🎯 Disable <u>DHCP</u> for this interface.	
	Start 100	
	Lowest leased address as offset from the network address.	
	Limit 150	
	maximum number or tessed aduresses.	
	Leasetime 12h	
	Expiry time of leased addresses, minimum is 2 minutes (2m).	

Figure 21 DHCP function

2.4.3. WAN interface

4GW01-A supports one WAN interface and WAN interface can switch between WAN/LAN interface. WAN interface supports DHCP and Static IP, and default setting is DHCP.

User can configure WAN interface by Web Server as follow:



HINO 🚳			
IOT-4GW01	Interfaces		
> Status	Interface Overview		
> Services	Network	Status	Actions
Vetwork Interfaces SIM Card	LAN 8 ¹² (空意爱) br-lan	Uptime: 1h 3m 375 MAC-Address: 9C:A5:25:AD:4B:7A RX: 2.98 MB (22533 Pits.) TX: 1.68 MB (6835 Pits.) IPV4: 192.168.1.1/24	 Connect Stop C' Edit Delete
IPSEC Wifi	WAN_4G	Uptime: 0h 0m 0s MAC-Address: 12:0F:3C:0F:CD:9B RX: 0:00 B (0 Ptts) TX: 0:00 B (0 Ptts)	S Connect Stop C Edit Delete
AP Client Hostnames	WAN_WIRED	MAC-Address: 00:00:00:00:00:00 RX: 0.00 B (0 Pkts.) TX: 0.00 B (0 Pkts.)	S Connect Stop C Edit Delete
Static Routes Diagnostics QoS	Add new interface		
> Firewall			
	Fi	gure 22 WAN interface	

2.4.4. WLAN interface

4GW01-A supports at most 24 STA device connection.

Default parameters as follows:

SSID	IOT-4GW01-XXXX(XXXX is MAC)
Password	www.higoiotcloud.com
Channel	Auto
Bandwidth	40MHz
Encryption Mode	WPA2-PSK

Figure 23 WALN default parameters

WLAN interface on Web Server as follow:

IOT-4GW01	Wirel	ess Overview					
> Status > Services > Network	2	802.11 b/g/n Channel: 9 (2.452 SSID: IOT-4GW BSSID: 9C:A5:2	Wireless Controller GHz) Bitrate: 150 Mbit/s 01-487A Mode: Master 5:AD:48:79 Encryption: -				C Edit
Interfaces SIM Card IPSEC	Assoc	iated Stations					
Wifi DHCP and DNS AP Client	No int	SSID	MAC-Address	Host	Signal / Noise	RX Rate / TX Rate	
Hostnames Static Routes							
Diagnostics QoS > Firewall							
> WAN/LAN Port							

Figure 24 WLAN interface

After clicking "Edit" and entering WLAN interface configuration web, user can change follow parameters.

User can configure SSID on Web Server as follow:



IOT-4GW01		BSSID: 9C:A5:25:AD:48:79 Channel: 9 (2 GHz) Bitrate: 150.0 Mbit/s
> Status	Radio on/off	on •
> Services	Network Mode	802.11b/g/n *
> Network	Channel	auto
> Firewall		
> WAN/LAN Port	Interface Configuration	
> System		
> Logout	General Setup Wireless	s Security
	ESSID	IOT-4GW01-4B7A
	Mode	Access Point *
	Network	🖉 lan: 💯 🙊
		wan_49: 2
		wan_wired: 2
		Occose the network(s) you want to attach to this wireless interface or fill out the create field to define a new network.
	Hide <u>ESSID</u>	
		Save Apply

Figure 25 Configure SSID



IOT-4GW01	мненеза некиона (п иле такио пакимате та пили-эздо саракле), г.е. пекиотк зекинда пке епстурцоп от орегакон тнове аге дновреч in кле мненеза некиона (п иле такио пакимате та пили-эздо саракле), г.е. пекиотк зекинда пке епстурцоп от орегакон тнове аге дновреч in кле
101 40001	Device Configuration
> Status	General Setup Advanced Settings
> Services	
> Network	Status Mode: Master SSID: IOT-4GW01-4B7A BSSID: 9C:A5:25:AD:4B:79
> Firewall	Channel: 9 (2 GHz) Bitrate: 150.0 Mbit/s
WAN/LAN Port	
System	Radio on/off on V
Jagout	Network Mode 802.11b/g/n 🔻
> Logout	Channel auto 🔻
	Interface Configuration
	General Setup Wireless Security
	Encryption WPA2-PSK
	Cipher Force CCMP (AES)
	Key et al.
	Save

Figure 26 Configure password

Other settings on Web Server as follow:



HINO 🚥	
IOT-4GW01 Status Services Network Firewall WAN/LAN Port System Logout	Wireless Network: Master "IOT-4GW01-4B7A" (ra0) The Device Configuration section covers physical settings of the radio hardware such as channel, transmit power or antenna selection which are shared among all defined wireless networks (if the radio hardware is multi-SSID capable). Per network settings like encryption or operation mode are grouped in the Interface Configuration. Device Configuration General Setup Advanced Settings Status Mode: Master SSID: 9C:A52:SAD:4B:79 Channel: 9 (2 GHz) Bitrate: 150.0 Mbit/s
	Radio on/off on v Network Mode 802.11b/g/n v Channel auto v

Figure 27 Other settings

User can close WLAN interface by changing 'Radio on/off' into off.

2.4.5. Network Diagnosis

User can use network diagnosis function by Web Server as follow:

IOT-4GW01	Diagnostics		
> Status	 Network Utilities		
> Services	D Ping	Traceroute	Nslookup
Interfaces			
SIM Card			
IPSEC			
AP Client			
Hostnames			
Static Routes			
Diagnostics			
QoS			
Firewall			
WAN/LAN Port			
System			
Logout			

Figure 28 Network diagnosis

- > Ping: User can do PING test to a specific address in 4GW01-A.
- > Traceroute: Can acquire routing path to visit a specific address.
- Nslookup: Can analyse DNS into IP address

2.4.6. Module Name and Time Zone

4GW01-A default module name is IOT-4GW01-A and default Time Zone is Beijing time zone.

User can configure module name and Time Zone by Web Server as follow:



HINO 🚥	
IOT-4GW01	System Here you can configure the basic aspects of your device like its hostname or the timezone.
 > Status > Services > Network 	System Properties
Firewall WAN/LAN Port	General Settings Remote log Local log Local Time Mon Apr 13 01:56:05 2020 📵 Sync with browser
System System Administration	Hostname IOT-4GW01 Timezone America/Chicago 🔻
Scheduled Tasks Backup/Upgrade Bobaat	Time Synchronization
> Logout	Enable NTP client 🕑

Figure 29 Module name and Time Zone

2.5. Basic Functions

2.5.1. Web Server Password

Default password is root, this password is used to enter Web Server.

User can change password by web server as follow	User	can	change	password	by Web	o Server	as follow
--	------	-----	--------	----------	--------	----------	-----------

-4GW01	Pouter Password		
tus	Changes the administrator password for acco	essing the device	
es			
vork	Password	2	
vall	Confirmation	8	
AN Port			
			Save Apply
tration			
ed Tasks			
Upgrade			

Figure 30 Change Web Server password

2.5.2. Restore

Hardware restore: Press Reload button over 5 seconds and release, 4GW01-A will restore default settings and reset.

User can restore default settings by Web Server as follow:



IOT-4GW01	Flash operations
> Status > Services	Actions
Network Firewall	Backup / Restore Click "Generate archive" to download a tar archive of the current configuration files. To reset the firmware to its initial state, click "Perform reset".
> WAN/LAN Port	Download backup: Generate archive Reset to defaults: Perform
System Administration	To restore configuration files, you can upload a previously generated backup archive here.
Scheduled Tasks Backup/Upgrade	Kestore backup. presse select me
Reboot	Flash new firmware image
> Logout	Upload a proper image here to replace the running firmware. Check "Keep settings" to retain the current configuration.
	Keep settings: Check firmware:

Figure 31 Restore default settings

2.5.3. Upgrade Firmware Version

Upgrade by Web Server as follow:

HINO 🚳	
IOT-4GW01	
	Flash operations
> Status	Actions
> Services	
Network	Backup / Restore
Firewall	Click "Generate archive" to download a tar archive of the current configuration files. To reset the firmware to its initial state, click "Perform reset".
WAN/LAN Port	Download backup: 🔲 Generate archive
 System 	Reset to defaults: 🥘 Perform
System	To restore configuration files, you can upload a previously generated backup archive here.
Administration	Restore backup: Please select file I Browse I Upload archive
Scheduled Tasks	
Backup/Upgrade	
Reboot	Flash new firmware image
> Logout	Upload a proper image here to replace the running firmware. Check "Keep settings" to retain the current configuration.
	Keep settings:
	Check firmware: 🗹
	Image: Please select file Browse G Flash image

Figure 32 Upgrade firmware version

Note:

- > The whole upgrade process will last about 1 minute, user can enter Web Server after about 1 minute.
- User can choose saving settings.
- ▶ User should keep powering up and LAN/WIFI connection during the whole upgrade process.

2.5.4. Reset

Reset time is about 40~60 seconds.



Reset by Web Server as follow:

н	
	IOT-4GW01
>	Status
	Services Network
	Firewall WAN/LAN Port
~	System
	Administration
	Scheduled Tasks Backup/Upgrade
	Reboot
	5



3. Web Server

When user need to configure the 4GW01-A, user can connect PC to IOT-4GW01-A through LAN interface or WLAN, then open Web Server.

Default parameters of 4GW01-A as follows:

SSID	IOT-4GW01-XXXX
IP Address	192.168.1.1
User name	root
Password	root
WLAN Password	www.higoiotcloud.com

Figure 34 Default parameters

Take default parameters as example: User can connect PC to SSID IOT-4GW01-XXXX. Then open browser and enter 192.168.1.1, log in with User name and Password(both are root), user can enter Web Server.



Figure 35 Web Server login web

4. Contact us

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Web: www.hinovision.com

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5. Disclaimer

This document provides the information of IOT-4GW01-A products, it hasn't been granted any intellectual property license by forbidding speak or other ways either explicitly or implicitly. Except the duty declared in sales terms and conditions, we don't take any other responsibilities. We don't warrant the products sales and use explicitly or implicitly, including particular purpose merchant-ability and marketability, the tort liability of any other patent right, copyright, intellectual property right. We may modify specification and description at any time without prior notice.



6. Updated History

2018-01-05 IOT-4GW01-A English version user manual V1.0.4.2.

Appendix: IOT-4GW01-A certification

ISEDC WARNING

This device complies with Innovation, Science, and Economic Development Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

(1) this device may not cause interference, and

(2) this device must accept any interference, including interference that may cause undesired operation of the device.
 Le présent appareil est conforme aux CNR d' Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil nedoit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Radio apparatus containing digital circuitry which can function separately from the operation of a transmitter or an associated transmitter, shall comply with ICES-003. In such cases, the labeling requirements of the applicable RSS apply, rather than the labelling requirements in ICES-003.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

SAR tests are conducted using standard operating positions accepted by the ISEDC with the phone transmitting at its highest certified power level in all tested frequency bands, although the SAR is determined at the highest certified power level, the actual SAR level of the phone while operating can be well below the maximum value, in general, the

closer you are to a wireless base station antenna, the lower the power output.

Before a new model phone is a available for sale to the public, it must be tested and certified to the ISEDC that it does not exceed the exposure limit established by the ISEDC, Tests for each phone are performed in positions and locations (e.g. at the ear and worn on the body) as required by the ISEDC.

For body worn operation, this model phone has been tested and meets the ISEDC RF exposure guidelines when used with an accessory designated for this product or when used with an accessory that Contains no metal and that positions the handset a minimum of 10 mm from the body.

Non-compliance with the above restrictions may result in violation of RF exposure guidelines.

Le présent appareil est conforme

Après examen de ce matériel aux conformité aux limites DAS et/ou aux limites d'intensité de champ RF,les utilisateurs peuvent sur l'exposition aux radiofréquences et la conformité and compliance d'acquérir les informations correspondantes La distance minimale du corps à utiliser le dispositif est de 10 mm

FCC WARNING

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

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.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

---Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator& your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.