



Home Gateway

Remote, Monitor and Secure Your Home from Anywhere

GWS-HZW1

Quick Installation Guide

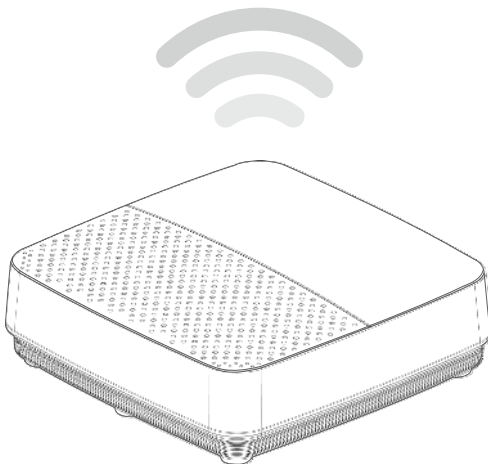


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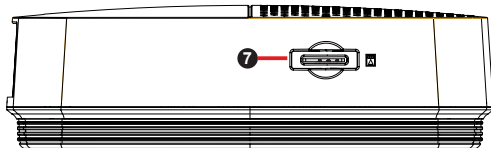
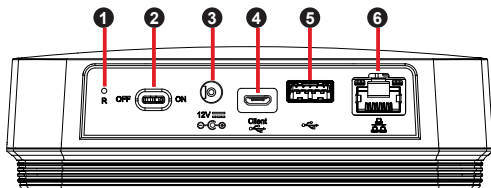
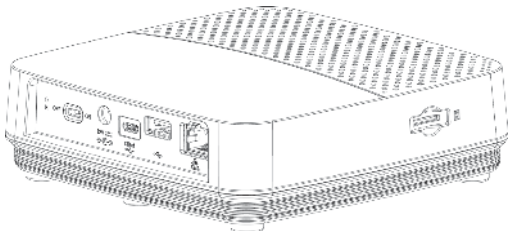
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Product Introduction

Model

GWS-HZW1



- | | |
|---------------------|-----------------|
| ❶ Reset | ❺ USB Port |
| ❷ Power Switch | ❻ LAN Port |
| ❸ DC Input Port | ❼ SIM Card Slot |
| ❹ Debug Client Port | |

What's in the Box?

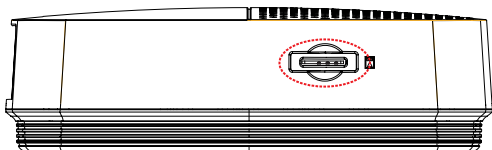
- ✓ GWS-HZW1 Home Gateway
- ✓ Power Adapter (12V DC, ASIAN POWER DEVICES INC. WA-24Q12FU) *
- ✓ User Quick Guide

*Note: * Only the enclosed adapter can be used to this device.*

Installing Micro SIM Card

Steps:

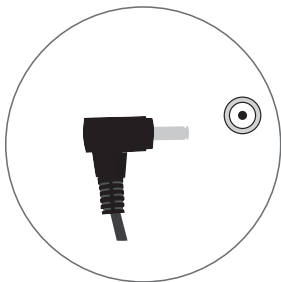
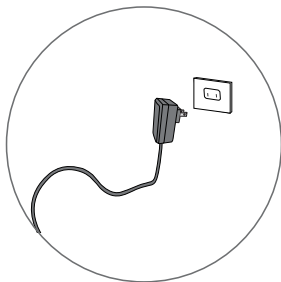
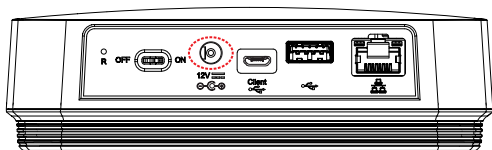
1. Locate the SIM card slot.
2. Insert the Micro SIM card gently.



Power on your device

Steps:

1. Plug the adapter to AC wall outlet.
2. Connect the Power adapter to the device.
3. Turn the power switch to the ON position.

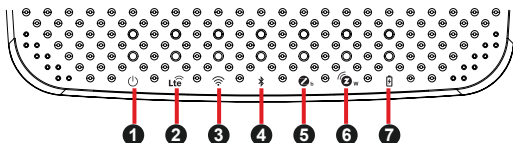


Note: * LED power indicator in RED, gateway in boot up stage.

Product Feature

Connectivity
LAN port, support WiFi and Bluetooth
Interface
DC-in port, USB port, SIM card slot, reset, LAN port, Debug client port, power switch
Dimensions & Weight
Dimension: 128 × 117 × 38.7 mm Weight: 335 g
Environmental Conditions
Operational temperature range: 0°C to +45°C (32°F to 113°F) Storage temperature range: -20°C to +60°C (-4°F to 140°F)

LED Indicator Behavior



No.	LED	Color	Function
1	Power	Blue/Red	1. Power on => Red 2. Boot up and OS is working => Blue
2	LTE	Blue	Enable => Blue
3	WiFi	Blue	Enable => Blue
4	BLE	Blue	Enable => Blue
5	Zigbee	Blue	Enable => Blue
6	Z-Wave	Blue	Enable => Blue
7	Battery	Blue	1. Charging => Blue 2. Charging complete => off

Using GWS-HZW1

Powering the System

Login as 'root' and then issue a 'poweroff' or 'reboot' command.

```
root@WR-IntelligentDevice:~# poweroff
```

```
root@WR-IntelligentDevice:~# reboot
```

Or send ssh remote command to GWS-HZW1.

```
ecs@ecs-IoT:~$ ssh root@192.168.0.1 poweroff
root@192.168.0.1's password:
ecs@ecs-IoT:~$
```

```
ecs@ecs-IoT:~$ ssh root@192.168.0.1 reboot
root@192.168.0.1's password:
ecs@ecs-IoT:~$
```

System Login

The system can be accessed and controlled via a Linux shell called 'console' by using micro-USB. The users may invoke Linux commands to configure something in the procedures of the following sections.



If using serial console or terminal emulator, the serial port settings are

Setting	Value
Baud	115200
Parity	No
Data Bit	8
Stop Bit	1
Flow Control	No

When using Secure Shell (or SSH), you can establish the communication through LAN 1 port, which is the RJ45 port right next to the USB port and is assigned with an IP address "192.168.0.1".

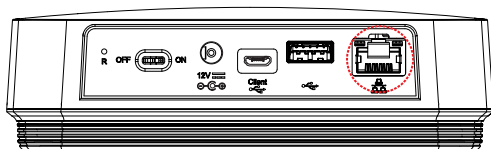
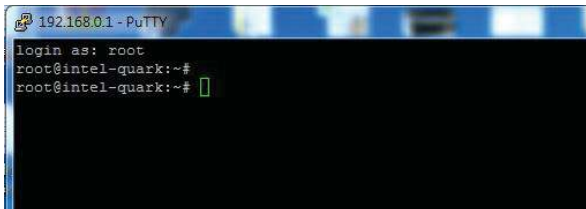


Fig 1: the location of LAN 1 port

The login account used here is 'root'.



LAN Configuration

The steps below are used to configure the local area networking (LAN) of GWS-HZW1.

If you use a serial console, you might setup networking by manual. Otherwise the networking is workable.

Step 1. Check the network interfaces by executing the ifconfig command.

```
192.168.0.1-PuTTY
login as: root
root@intel-quark:~# ifconfig
eth0      Link encap:Ethernet  HWaddr f4:4d:30:c0:1b:43
          inet addr:169.254.182.172  Bcast:169.254.255.255  Mask:255.255.0.0
          inet6 addr: fe80::f44d:30ff:fe0d:1b43/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST DYNAMIC MTU:1500  Metric:1
          RX packets:621 errors:0 dropped:0 overruns:0 frame:0
          TX packets:171 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:55593 (54.2 KiB)  TX bytes:32779 (32.0 KiB)
          Interrupt:32 Base address:0x4000

eth0:0    Link encap:Ethernet  HWaddr f4:4d:30:c0:1b:43
          inet addr:192.168.0.1  Bcast:192.168.0.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST DYNAMIC MTU:1500  Metric:1
          Interrupt:32 Base address:0x4000

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING MTU:65536  Metric:1
          RX packets:1297 errors:0 dropped:0 overruns:0 frame:0
          TX packets:1297 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1
          RX bytes:94597 (92.3 KiB)  TX bytes:94597 (92.3 KiB)

wlan0     Link encap:Ethernet  HWaddr 5c:d9:74:62:87:65
          inet addr:192.168.100.106  Bcast:192.168.100.255  Mask:255.255.255.0
          inet6 addr: fe80::5cd9:74ff:fe62:8765/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST DYNAMIC MTU:1500  Metric:1
          RX packets:10230 errors:0 dropped:0 overruns:0 frame:0
          TX packets:861 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:1134636 (1.1 MiB)  TX bytes:61997 (60.4 KiB)

root@intel-quark:~#
```

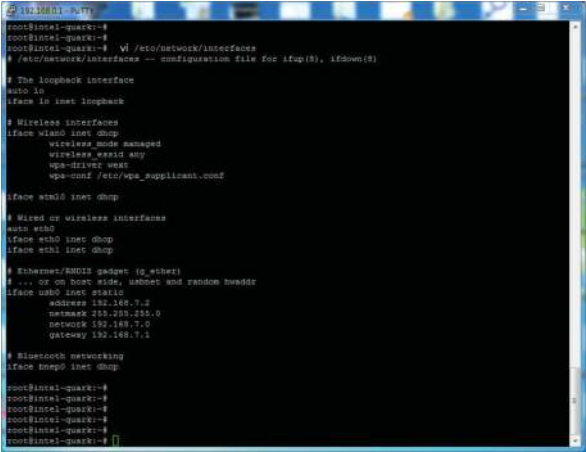
Step 2. Activate the network interface (e.g. eth0).

```
root@WR-IntelligentDevice:~# ifconfig eth0 up
```

Step 3. If the interface matching failed, please edit /etc/network/interfaces directly and then either restart the service or reboot the system to make the change effect.

The way to set DHCP connection is as follow:

vi /etc/network/interfaces



```
192.168.0.1 - PUTTY
root@intel-quark:~#
root@intel-quark:~#
root@intel-quark:~# vi /etc/network/interfaces
# /etc/network/interfaces -- configuration file for ifup(8), ifdown(8)

# The loopback interface
auto lo
iface lo inet loopback

# Wireless interfaces
iface wlan0 inet dhcp
    wireless_mode managed
    wireless_essid any
    wpa-driver wpa
    wpa-conf /etc/wpa_supplicant.conf

iface atn0 inet dhcp

# Wired or wireless interfaces
auto eth0
iface eth0 inet dhcp
iface eth1 inet dhcp

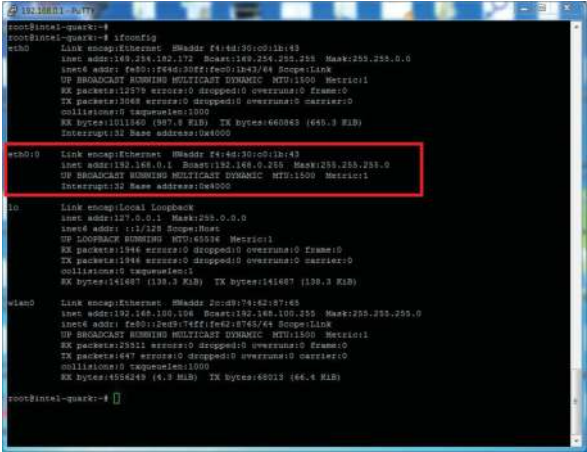
# Ethernet/BOND12 gadget (q_ethet)
# ... or on host side, usbnet and random hwaddr
iface usb0 inet static
    address 192.168.7.2
    netmask 255.255.255.0
    network 192.168.7.0
    gateway 192.168.7.1

# Bluetooth networking
iface bnep0 inet dhcp

root@intel-quark:~#
root@intel-quark:~#
root@intel-quark:~#
root@intel-quark:~#
root@intel-quark:~#
```

The way to set static IP connection is as follow:

eth0:0 → 192.168.0.1



```
root@intel-quark:~# ifconfig
eth0      Link encap:Ethernet  HWaddr f4:4d:30:c0:1b:43
          inet addr:169.254.182.172  Bcast:169.254.255.255  Mask:255.255.0.0
          inet6 addr: fe80::f44d:30ff:fe0c:1b43/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST DYNAMIC MTU:1500  Metric:1
          RX packets:12579  errors:0  dropped:0  overruns:0  frame:0
          TX packets:3046  errors:0  dropped:0  overruns:0  carrier:0
          collisions:0  sequence:1000
          RX bytes:1011940 (997.8 KiB)  TX bytes:660863 (645.3 KiB)
          Interrupt:32 Base address:0x4000

eth0:0    Link encap:Ethernet  HWaddr f4:4d:30:c0:1b:43
          inet addr:192.168.0.1  Bcast:192.168.0.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST DYNAMIC MTU:1500  Metric:1
          Interrupt:32 Base address:0x4000

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING MTU:65536  Metric:1
          RX packets:194  errors:0  dropped:0  overruns:0  frame:0
          TX packets:194  errors:0  dropped:0  overruns:0  carrier:0
          collisions:0  sequence:1
          RX bytes:141687 (139.3 KiB)  TX bytes:141687 (139.3 KiB)

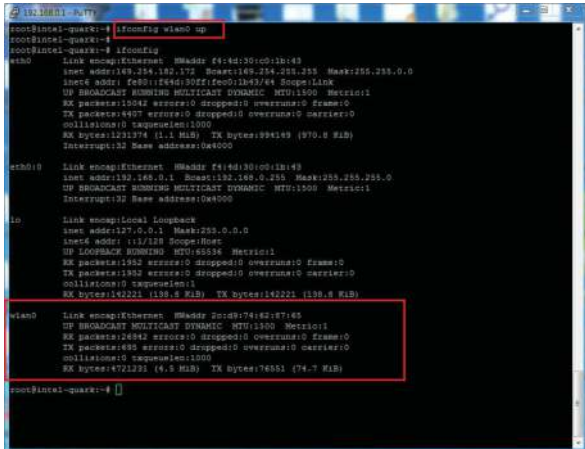
wlan0     Link encap:Ethernet  HWaddr 2c:d9:74:62:87:65
          inet addr:192.168.100.106  Bcast:192.168.100.255  Mask:255.255.255.0
          inet6 addr: fe80::2cd9:74ff:fe62:8765/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST DYNAMIC MTU:1500  Metric:1
          RX packets:29311  errors:0  dropped:0  overruns:0  frame:0
          TX packets:647  errors:0  dropped:0  overruns:0  carrier:0
          collisions:0  sequence:1000
          RX bytes:4556249 (4.3 MiB)  TX bytes:68013 (66.4 KiB)

root@intel-quark:~#
```

Wi-Fi Configuration

Step 1. Check the network interfaces by executing the `ifconfig wlan0 up` command.

- `ifconfig wlan0 up`



A terminal window titled '192.168.0.1 - PuTTY' showing the output of the `ifconfig` command. The output lists three interfaces: `eth0`, `eth0:0`, and `lo`. The `wlan0` interface is highlighted with a red box. The `wlan0` output shows it is an Ethernet interface with MAC address `2c:d9:74:b2:87:45`, IP address `192.168.0.1`, and is up and running. The `ifconfig wlan0 up` command is also highlighted with a red box at the top of the terminal.

```
root@intel-quark:~# ifconfig wlan0 up
root@intel-quark:~# ifconfig
eth0      Link encap:Ethernet  HWaddr f4:4d:30:c0:1b:43
          inet addr:169.254.162.172  Bcast:169.254.255.255  Mask:255.255.0.0
          inet6 addr: fe80::f44d:30ff:fe00:1b43/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST DYNAMIC MTU:1500  Metric:1
          RX packets:15542 errors:0 dropped:0 overruns:0 frame:0
          TX packets:4407 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 sequence:1000
          RX bytes:1231374 (1.1 MiB)  TX bytes:984149 (970.6 KiB)
          Interrupt:32 Base address:0x4000

eth0:0    Link encap:Ethernet  HWaddr f4:4d:30:c0:1b:43
          inet addr:192.168.0.1  Bcast:192.168.0.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST DYNAMIC MTU:1500  Metric:1
          Interrupt:32 Base address:0x4000

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING MTU:65536  Metric:1
          RX packets:1952 errors:0 dropped:0 overruns:0 frame:0
          TX packets:1952 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 sequence:1
          RX bytes:142221 (139.6 KiB)  TX bytes:142221 (139.6 KiB)

wlan0     Link encap:Ethernet  HWaddr 2c:d9:74:b2:87:45
          UP BROADCAST MULTICAST DYNAMIC MTU:1500  Metric:1
          RX packets:24942 errors:0 dropped:0 overruns:0 frame:0
          TX packets:693 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 sequence:1000
          RX bytes:4721231 (4.5 MiB)  TX bytes:74651 (74.7 KiB)

root@intel-quark:~#
```

Step 2. `connmanctl scan wifi` & connect

- `connmanctl scan wifi`
- `connmanctl services`
- `connmanctl`
- `agent on`
- `connect wifi_2.....`

Bluetooth Configuration

Input the following commands.

Send shell command.

(Connect)

- bluetoothctl
- agent on
- power on
- scan on
- scan off
- devices
- pair BT MAC Address
- trust BT MAC Address

(Disconnect)

- disconnect BT MAC Address
- remove BT MAC Address

4G LTE Network Configuration

Input the following commands.

Choose one of the following three commands(1~3) based on the corresponding LTE module.

- 1. `pppd call mu609 & -->` Huawei ME909s 120 module
- 2. `pppd call UC20 & -->` QuecTel UC21-JMINPCIE
- 3. `pppd call UC20 & -->` QuecTel EC21-AU
- `ifconfig`

```

COMMIT-PUTTY
Poky (Yocto Project Reference Distro) 3.2.2 intel-quark ttyQSD

intel-quark login: root
root@intel-quark:~# pppd call UCSD 0

COMMIT-PUTTY

root@intel-quark:~# ifconfig
eth0 Link encap:Ethernet HWaddr f8:4d:30:c2:06:0e
   UP BROADCAST MULTICAST DYNAMIC MTU:1500 Metric:1
   RX packets:0 errors:0 dropped:0 overruns:0 frame:0
   TX packets:14 errors:0 dropped:0 overruns:0 carrier:0
   collisions:0 queue:len:1000
   RX bytes:10.0 (0.0 KiB)  TX bytes:12789 (2.7 KiB)
   Interrupt:82 Base address:0x4000

eth0:0 Link encap:Ethernet HWaddr f8:4d:30:c2:06:0e
   inet addr:192.168.0.1 Bcast:192.168.0.255 Mask:255.255.255
   UP BROADCAST MULTICAST DYNAMIC MTU:1500 Metric:1
   Interrupt:32 Base address:0x4000

lo Link encap:Local Loopback
   inet addr:127.0.0.1 Mask:255.0.0.0
   inet6 addr: ::1/128 Scope:Host
   UP LOOPBACK RUNNING MTU:65536 Metric:1
   RX packets:1121 errors:0 dropped:0 overruns:0 frame:0
   TX packets:1121 errors:0 dropped:0 overruns:0 carrier:0
   collisions:0 queue:len:1
   RX bytes:81328 (79.8 KiB)  TX bytes:81328 (79.8 KiB)

ppp0 Link encap:Point-to-Point Protocol
   inet addr:10.195.110.220 P-t-P:10.64.64.64 Mask:255.255.255.255
   UP POINTOPOINT RUNNING NOARP MULTICAST MTU:1600 Metric:1
   RX packets:4 errors:0 dropped:0 overruns:0 frame:0
   TX packets:4 errors:0 dropped:0 overruns:0 carrier:0
   collisions:0 queue:len:0
   RX bytes:52 (32.0 B)  TX bytes:16 (36.0 B)

root@intel-quark:~#

```

Program Examples

Intel Quark - Programming GPIO From Linux

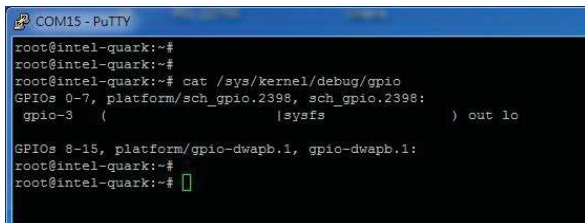
For GWS-HZW1 board, most of the GPIO features can be achieved through the Linux Sysfs interface and can be controlled using file I/O. In following sections, we will show you how to activate some features by using some simple shell commands. Of course, besides using shell commands, you can also perform I/O actions via using some file operations. All the concerned programs can be written in your desired language.

Digital GPIO - Sysfs Interface

GPIO Information

Following commands can display the system's GPIO information, showing which IO port is being assigned to which module or Sysfs.

Command : `cat /sys/kernel/debug/gpio`



```
root@intel-quark:~#  
root@intel-quark:~#  
root@intel-quark:~# cat /sys/kernel/debug/gpio  
GPIOs 0-7, platform/sch_gpio.2398, sch_gpio.2398:  
  gpio-3    (                               |sysfs                               ) out lo  
  
GPIOs 8-15, platform/gpio-dwapb.1, gpio-dwapb.1:  
root@intel-quark:~#  
root@intel-quark:~#
```

Examples For LED GPIO Control Method

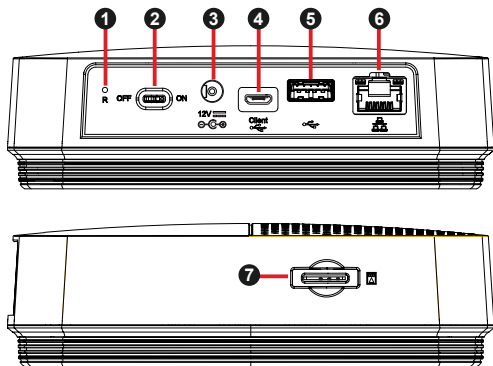
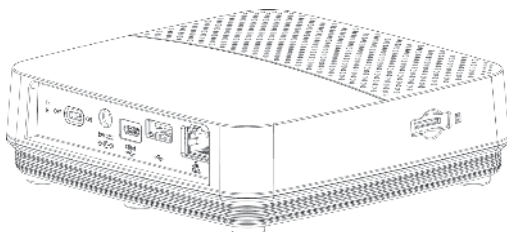
- Set GPIO pins

`echo 9 > /sys/class/gpio/export`

產品介紹

型號

GWS-HZW1



- ❶ 重置孔
- ❷ 電源開關
- ❸ 電源輸入插孔
- ❹ 客戶調試端口

- ❺ USB端口
- ❻ 網絡端口
- ❼ SIM卡插槽

包裝內容

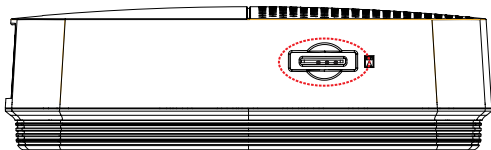
- ✓ GWS-HZW1 家用閘道器
- ✓ 電源供應器 (12V DC , ASIAN POWER DEVICES INC. WA-24Q12FU) *
- ✓ 快速使用指南

注意： * 本產品僅可使用隨附的電源供應器。

安裝Micro SIM卡

步驟：

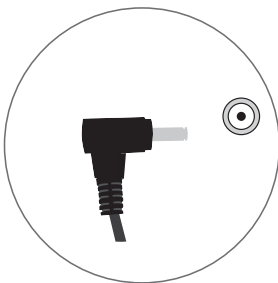
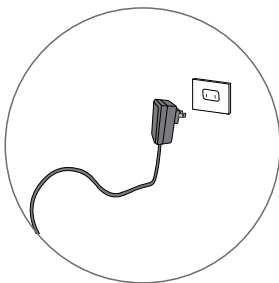
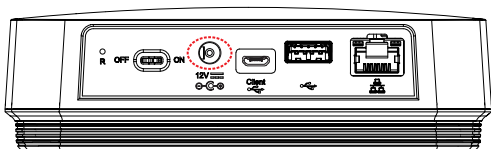
1. 對準設備的SIM卡插槽。
2. 輕輕地插入SIM卡。



設備供電

步驟：

1. 將電源供應器插入電源插座。
2. 將電源供應器插入本機電源插孔。
3. 將電源開關撥至ON位置。

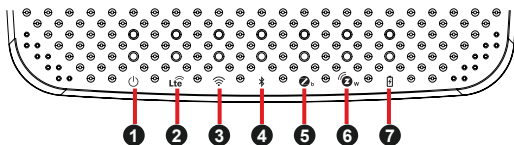


注意： * LED電源指示燈為紅色，且閘道器處於啟動狀態。

產品規格特色

連接方案
網絡端口，支援WiFi，藍牙
支援介面
DC-in供電插孔、SIM卡槽、重置孔、網絡端口、電源開關、客戶調試端口
產品尺寸、重量
尺寸：128 × 117 × 38.7 mm 重量：335克
環境條件
操作溫度：0°C to +45°C (32°F to 113°F) 儲存溫度：-20°C to +60°C (-4°F to 140°F)

指示燈行為



序號	LED指示燈	顏色	功能
1	電源指示燈	藍燈/紅燈	1. 通電 => 紅燈亮 2. 啟動，系統運行中 => 藍燈亮
2	LTE指示燈	藍燈	開啟 => 藍燈亮
3	WiFi指示燈	藍燈	開啟 => 藍燈亮
4	藍牙指示燈	藍燈	開啟 => 藍燈亮
5	Zigbee指示燈	藍燈	開啟 => 藍燈亮
6	Z-Wave指示燈	藍燈	開啟 => 藍燈亮
7	電池指示燈	藍燈	1. 充電 => 藍燈亮 2. 充電完成 => 燈滅

使用GWS-HZW1

系統啟動

以 'root' 帳號登錄，然後執行 'poweroff' 或 'reboot' 指令。

```
root@WR-IntelligentDevice:~# poweroff
```

```
root@WR-IntelligentDevice:~# reboot
```

或發送ssh遠程指令給GWS-HZW1。

```
ecs@ecs-IoT:~$ ssh root@192.168.0.1 poweroff  
root@192.168.0.1's password:  
ecs@ecs-IoT:~$
```

```
ecs@ecs-IoT:~$ ssh root@192.168.0.1 reboot  
root@192.168.0.1's password:  
ecs@ecs-IoT:~$
```

系統登錄

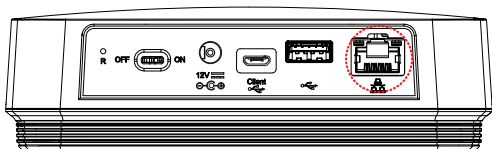
使用micro-usb通過稱為 'console (控制台)' 的Linux shell可進入及控制系統。使用者可調用Linux 指令來配置以下程式中的某些內容。 如下圖：



若使用串口console或終端模擬器，串口console的設定如下：

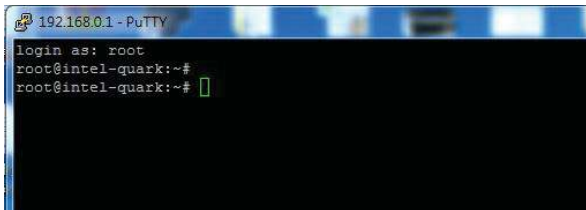
設定	值
Baud (波特)	115200
Parity (奇偶性)	No
Data Bit (數據位數)	8
Stop Bit (終止位數)	1
Flow Control (流程控制)	No

若使用Secure Shell (稱為SSH)，它將偵聽LAN 1，IP為192.168.0.1。LAN1 為靠近USB 插孔的RJ45 連接器。



圖為 LAN 1 連接器的位置

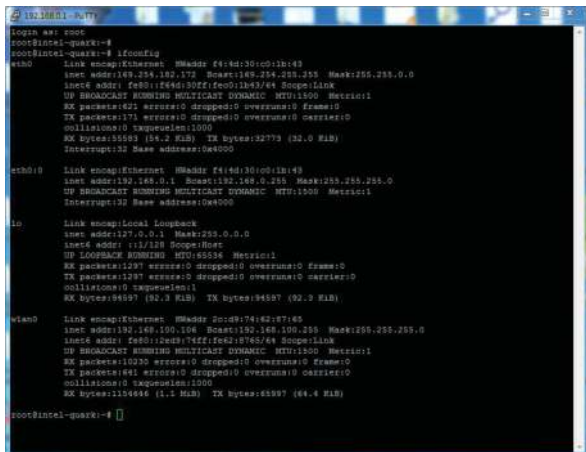
登錄的帳戶為 'root' 。



網路設定

以下步驟用來設定GWS-HZW1的局域網（LAN）。如果GWS-HZW1的網路無法正常使用，您應該需要使用串口 console，以手動的方式來設定或啟動網路。

步驟1. 檢查網路介面。 Command：ifconfig



```
192.168.0.1 ~ # ifconfig
login as: root
root@intel-quark:~# ifconfig
eth0      Link encap:Ethernet  HWaddr f4:4d:30:c0:1b:43
          inet addr:169.254.162.172  Bcast:169.254.255.255  Mask:255.255.0.0
          inet6 addr: fe80::f44d:30ff:fe00:1b43/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST DYNAMIC MTU:1500 Metric:1
          RX packets:421 errors:0 dropped:0 overruns:0 frame:0
          TX packets:171 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:5563 (54.2 KiB)  TX bytes:32773 (32.0 KiB)
          Interrupt:32 Base address:0x4000

eth0:0    Link encap:Ethernet  HWaddr f4:4d:30:c0:1b:43
          inet addr:192.168.0.1  Bcast:192.168.0.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST DYNAMIC MTU:1500 Metric:1
          Interrupt:32 Base address:0x4000

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING MTU:65536 Metric:1
          RX packets:1297 errors:0 dropped:0 overruns:0 frame:0
          TX packets:1297 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1
          RX bytes:94597 (92.3 KiB)  TX bytes:94597 (92.3 KiB)

wlan0     Link encap:Ethernet  HWaddr 2c:d9:74:62:87:65
          inet addr:192.168.100.106  Bcast:192.168.100.255  Mask:255.255.255.0
          inet6 addr: fe80::2cd9:74ff:fe62:8765/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST DYNAMIC MTU:1500 Metric:1
          RX packets:10230 errors:0 dropped:0 overruns:0 frame:0
          TX packets:662 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:1154646 (1.1 MiB)  TX bytes:62997 (64.4 KiB)

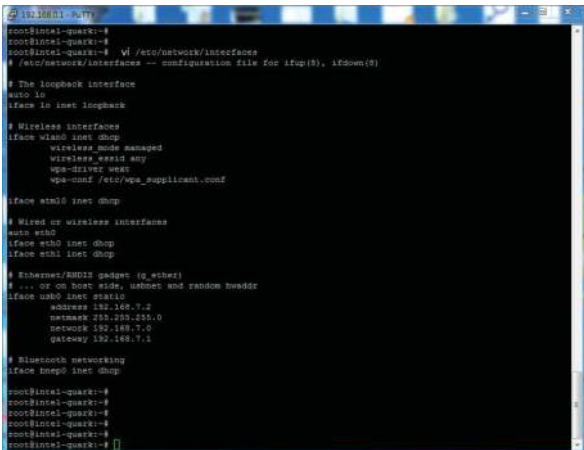
root@intel-quark:~#
```

步驟2. 啟用網路介面，e. g. eth0。若無eth0，請使用圖中command啟動。

```
root@WR-IntelligentDevice:~# ifconfig eth0 up
```

步驟3. 若設定不匹配，請編輯 /etc/network/interfaces 以便在啟動時生效。

DHCP連線的設定方式如下: vi /etc/network/interfaces



```
root@intel-quark:~#  
root@intel-quark:~#  
root@intel-quark:~# vi /etc/network/interfaces  
# /etc/network/interfaces -- configuration file for ifup(8), ifdown(8)  
  
# The loopback interface  
auto lo  
iface lo inet loopback  
  
# Wireless interfaces  
iface wlan0 inet dhcp  
        wireless_mode managed  
        wireless_essid any  
        wpa-driver wext  
        wpa-conf /etc/wpa_supplicant.conf  
  
iface stm0 inet dhcp  
  
# Wired or wireless interfaces  
auto eth0  
iface eth0 inet dhcp  
iface eth1 inet dhcp  
  
# Ethernet/802.11 gadget (g_ether)  
# ... or on host side, usbnet and random hwaddr  
iface usb0 inet static  
        address 192.168.7.2  
        netmask 255.255.255.0  
        network 192.168.7.0  
        gateway 192.168.7.1  
  
# Bluetooth networking  
iface hnp0 inet dhcp  
  
root@intel-quark:~#  
root@intel-quark:~#  
root@intel-quark:~#  
root@intel-quark:~#  
root@intel-quark:~#
```

固定IP如下 eth0:0 → 192.168.0.1

```
root@intel-quark:~# ifconfig
eth0      Link encap:Ethernet  HWaddr f4:4d:30:c0:1b:43
          inet addr:169.254.192.172  Bcast:169.254.255.255  Mask:255.255.0.0
          inet6 addr: fe80::f44d:30ff:fe00:1b43/64 Scope:link
          UP BROADCAST RUNNING MULTICAST DYNAMIC MTU:1500  Metric:1
          RX packets:12579 errors:0 dropped:0 overruns:0 frame:0
          TX packets:3046 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 sequence:1000
          RX bytes:1011840 (987.8 KiB)  TX bytes:660863 (645.3 KiB)
          Interrupt:32 Base address:0x4000

eth0:0    Link encap:Ethernet  HWaddr f4:4d:30:c0:1b:43
          inet addr:192.168.0.1  Bcast:192.168.0.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST DYNAMIC MTU:1500  Metric:1
          Interrupt:32 Base address:0x4000

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:host
          UP LOOPBACK RUNNING MTU:65536  Metric:1
          RX packets:1946 errors:0 dropped:0 overruns:0 frame:0
          TX packets:1946 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 sequence:1
          RX bytes:141687 (138.3 KiB)  TX bytes:141687 (138.3 KiB)

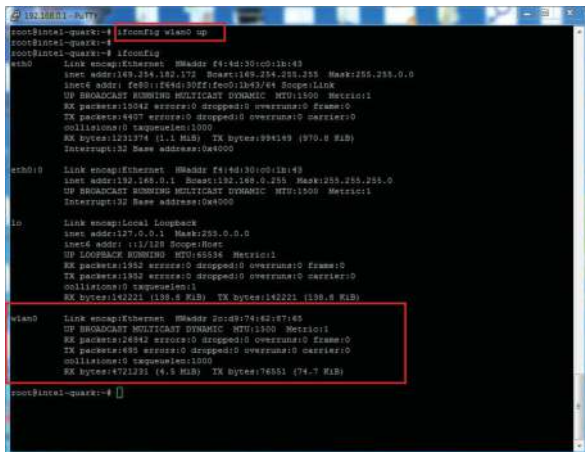
wlan0     Link encap:Ethernet  HWaddr 2c:d9:74:82:87:63
          inet addr:192.168.106.106  Bcast:192.168.106.255  Mask:255.255.255.0
          inet6 addr: fe80::2cd9:74ff:fe82:8763/64 Scope:link
          UP BROADCAST RUNNING MULTICAST DYNAMIC MTU:1500  Metric:1
          RX packets:23511 errors:0 dropped:0 overruns:0 frame:0
          TX packets:1647 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 sequence:1000
          RX bytes:4556249 (4.3 MiB)  TX bytes:68013 (66.4 KiB)

root@intel-quark:~#
```

WiFi網路設定

步驟1. 檢查網路介面。

- ifconfig wlan0 up



```
root@intel-quark:~# ifconfig wlan0 up
root@intel-quark:~# ifconfig
eth0      Link encap:Ethernet  HWaddr f4:4d:30:c0:1b:43
          inet addr:149.254.182.172  Bcast:149.254.255.255  Mask:255.255.0.0
          inet6 addr: fe80::f44d:30ff:fe00:1b43/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST DYNAMIC MTU:1500 Metric:1
          RX packets:10041 errors:0 dropped:0 overruns:0 frame:0
          TX packets:4047 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 sequence:1000
          RX bytes:1231374 (1.1 MiB)  TX bytes:994149 (970.8 KiB)
          Interrupt:32 Base address:0x4000

ethd10    Link encap:Ethernet  HWaddr f4:4d:30:c0:1b:43
          inet addr:192.168.0.1  Bcast:192.168.0.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST DYNAMIC MTU:1500 Metric:1
          Interrupt:32 Base address:0x4000

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING MTU:65536 Metric:1
          RX packets:1952 errors:0 dropped:0 overruns:0 frame:0
          TX packets:1952 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 sequence:1
          RX bytes:142221 (138.6 KiB)  TX bytes:142221 (138.6 KiB)

wlan0     Link encap:Ethernet  HWaddr 2c:d9:74:62:67:65
          UP BROADCAST MULTICAST DYNAMIC MTU:1500 Metric:1
          RX packets:24842 errors:0 dropped:0 overruns:0 frame:0
          TX packets:695 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 sequence:1000
          RX bytes:4721231 (4.5 MiB)  TX bytes:76551 (74.7 KiB)

root@intel-quark:~#
```

步驟2. connmanctl scan wifi & connect

- connmanctl scan wifi
- connmanctl services
- connmanctl
- agent on
- connect wifi_2.....

Bluetooth設定連結

依照下列command輸入

Send shell command.

(連接)

- bluetoothctl
- agent on
- power on
- scan on
- scan off
- devices
- pair BT MAC Address
- trust BT MAC Address

(中斷)

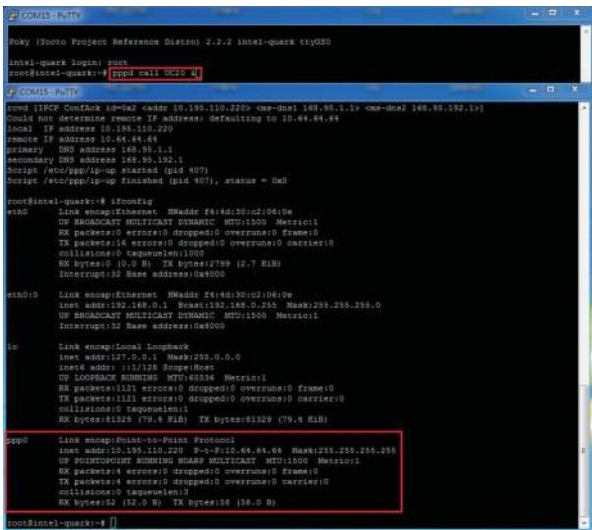
- disconnect BT MAC Address
- remove BT MAC Address

4G LTE網路設定如下

依照下列command輸入

(依照使用的LTE module 選擇1-3其中之一command)

- 1. **pppd call mu609 & -->** Huawei ME909s 120 module
- 2. **pppd call UC20 & -->** QuecTel UC21-JMINPCIE
- 3. **pppd call UC20 & -->** QuecTel EC21-AU
- **ifconfig**



```
Yocto Project Reference Distro 2.2.2 intel-quark ttyQSS
intel-quark login: root
root@intel-quark:~# pppd call UC20 &
root@intel-quark:~# ifconfig
eth0: Link encap:Ethernet HWaddr F4:4d:30:c2:06:0e
      UP BROADCAST MULTICAST DYNAMIC MTU:1500 Metric:0
      RX packets:0 errors:0 dropped:0 overruns:0 frame:0
      TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0 txqueuelen:1000
      RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
      Interrupt:32 Base address:0x4000

eth0:0  Link encap:Ethernet HWaddr F4:4d:30:c2:06:0e
      inet addr:192.168.0.1 Bcast:192.168.0.255 Mask:255.255.255
      UP BROADCAST MULTICAST DYNAMIC MTU:1500 Metric:0
      Interrupt:32 Base address:0x4000

lo      Link encap:Local Loopback
      inet addr:127.0.0.1 Mask:255.0.0.0
      inet6 addr: ::1/128 Scope:Host
      UP LOOPBACK RUNNING MTU:65536 Metric:1
      RX packets:1121 errors:0 dropped:0 overruns:0 frame:0
      TX packets:1121 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0 txqueuelen:1
      RX bytes:81329 (79.4 KiB)  TX bytes:81329 (79.4 KiB)

ppp0    Link encap:Point-to-Point Protocol
      inet addr:10.195.110.220 P-t-P:10.64.64.64 Mask:255.255.255.255
      UP POINTOPOINT RUNNING NOARP MULTICAST MTU:1000 Metric:0
      RX packets:4 errors:0 dropped:0 overruns:0 frame:0
      TX packets:4 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0 txqueuelen:1
      RX bytes:32 (32.0 B)  TX bytes:32 (32.0 B)

root@intel-quark:~#
```

程式範例

Intel Quark - Programming GPIO From Linux

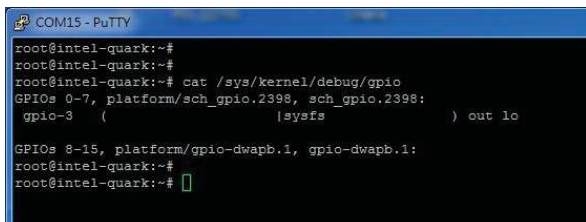
在GWS-HZW1板子上，大部分的GPIO功能都可以透過Linux Sysfs介面來動作，而且可以用檔案I/O的方式來進行控制。以下將介紹如何通過簡易的shell命令使用其中的某些功能。當然除了shell，您可以使用程式以檔案操作方式來執行I/O，這些程式可以用您最喜歡的程式語言進行編寫。

Digital GPIO - Sysfs Interface

GPIO Information

以下命令給出了有系統中GPIO的資訊，且顯示了一個IO埠被分配給哪一個Module或Sysfs（使用者）。

Command : `cat /sys/kernel/debug/gpio`



```
root@intel-quark:~#  
root@intel-quark:~#  
root@intel-quark:~# cat /sys/kernel/debug/gpio  
GPIOs 0-7, platform/sch_gpio.2398, sch_gpio.2398:  
  gpio-3      (                |sysfs                ) out lo  
  
GPIOs 8-15, platform/gpio-dwapb.1, gpio-dwapb.1:  
root@intel-quark:~#  
root@intel-quark:~#
```

LED GPIO的控制方法舉例

- 設定GPIO腳位

`echo 9 > /sys/class/gpio/export`

- 設定GPIO為input或output

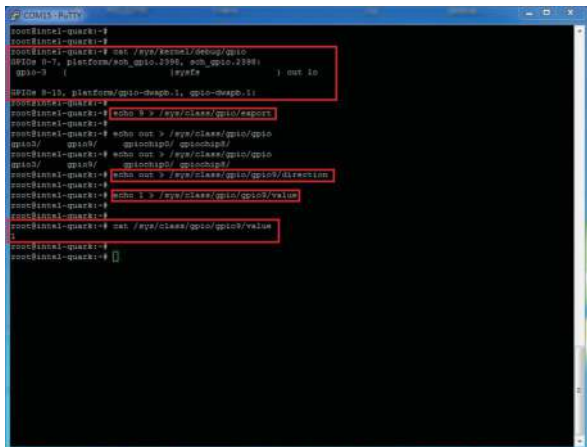
`echo out > /sys/class/gpio/gpio9/direction`

- 設定GPIO開關

echo 1 > /sys/class/gpio/gpio9/value

- 查詢GPIO目前的值

cat /sys/class/gpio/gpio9/value



```
COM15-PuTTY
root@intel-quark:~#
root@intel-quark:~#
root@intel-quark:~# cat /sys/kernel/debug/gpio
GPIO 0-7, platform/sdh_gpio.0000, sdh_gpio.0000:
gpio-0 {
    (sysfs)
} out io

GPIO 8-15, platform/gpio-dwapb.1, gpio-dwapb.1:
root@intel-quark:~#
root@intel-quark:~# echo 1 > /sys/class/gpio/export
root@intel-quark:~#
root@intel-quark:~# echo out > /sys/class/gpio/gpio
gpio0/ gpio0/ gpiochip0/ gpiochip0/
root@intel-quark:~# echo out > /sys/class/gpio/gpio
gpio0/ gpio0/ gpiochip0/ gpiochip0/
root@intel-quark:~# echo out > /sys/class/gpio/gpio9/direction
root@intel-quark:~#
root@intel-quark:~# echo 1 > /sys/class/gpio/gpio9/value
root@intel-quark:~#
root@intel-quark:~# cat /sys/class/gpio/gpio9/value
1
root@intel-quark:~#
```

Notice

 *Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.*

 *Operating temperature: 0°C~45°C (32°F~113°F)
Storage Temperature: -20°C~60°C (-4°F~140°F)*

注意事項

 如果電池更換不當會有爆炸危險。請僅更換相同型號或製造商推薦的同類型號的電池。請根據製造商的說明處置廢舊電池。

 本產品工作溫度：0°C~45°C（32°F~113°F）
存儲溫度：-20°C~60°C（-4°F~140°F）

此為非手持式裝置帶電池式產品，符合SAR的相關規定

(1) 此裝置不得導致有害干擾；以及 (2) 此裝置必須接受任何干擾，包括可能會導致非預期操作的干擾。

FCC Label Compliance 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
- (2) This device must accept any interference received, including interference that may cause undesired operation

To assure continued FCC compliance:

1. Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.
2. 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.

本產品符合低功率電波輻射性電機管理辦法 第十二條、第十四條等條文規定。

1. 經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。
2. 低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。

低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。



CCAO18LP0020T8



廢電池請回收

限用物質含有情況標示

單元	限用物質及其化學符號					
	鉛 (Pb)	汞 (Hg)	鎘 (Cd)	六價鉻 (Cr ⁺⁶)	多溴聯苯 (PBB)	多溴二 苯醚 (PBDE)
電路板(卡)	—	○	○	○	○	○
電子紙顯示 器模組	○	○	○	○	○	○
塑膠機構件	—	○	○	○	○	○
金屬機構件	—	○	○	○	○	○
線材	○	○	○	○	○	○
電源供應器	—	○	○	○	○	○
備考1. “○” 係指該項限用物質之百分比含量未超出百分比含量 基準值。						
備考2. “—” 係指該項限用物質為排除項目。						

進口/委製造商

Elitegroup Computer Systems Co., LTD.
No. 239, Sec. 2, Tiding Blvd., Neihu District, Taipei City,
Taiwan (11493)
精英電腦股份有限公司
台北市內湖區堤頂大道二段239號
+886-2-21621177

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