

# **Wireless Network System User Manual**

-USB DONGLE : **WIZ32**

-Gateway : **GW768**

-ROUTER : **QTGxxL-WIZ, QMCLxxx-WIZ**

**QLIGHT**

**November 4<sup>th</sup> 2019**



**Qlight**



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**a. Rule Part 15.19(a)(3):** 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.

**b. Rule Part 15.21:** The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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

# Wireless Network System User Manual

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## 1. What is Wireless Network System(WNS)?





Wireless Network System (WNS) is the system to allow a user to monitor or control the operation data or system of the equipment with PC, a smartphone, or a tablet device by receiving information about various production equipment wirelessly. WNS can visualize “capacity utilization rate”, “productivity”, etc. of production equipment utilizing the collected data and implement the communication system between production equipment wirelessly to advance production system.

WMS offers a simplistic way to realize a comprehensive management of status information by replacing signaling device where the work places not easy to apply integrated management system due to aged equipment or heterogeneous facilities.

Bundled PC Application software allows for instant application on existing facility without additional programming. Furthermore C# DLL realizes convenient programming when customized application development is required in order to meet specific demands of production facility.

# Wireless Network System User Manual

## 2. Components

Application software	GATEWAY	USB DONGLE	A Wireless Signal Information Device
			

### 1) Description

No.	Item	Description
1	PC Application and Mobile application	<p>PC Application would be a comprehensive control system by enabling the setting, monitoring, control and log analysis of the wireless signal information device.</p> <p>C# based application and software developer's API are provided.</p> <p>Mobile application can help to expand utility manager's coverage.</p>
2	USB Dongle (WIZ32)	<p>USB dongle can connect up to 32 wireless signal information devices and is connected to the PC through a USB port in serial communication.</p> <p>Customer can conveniently use the wireless network system by simply plug USB Dongle in USB port.</p> <p>Note : USB dongle does not support mobile application.</p>
3	Gateway (GW768)	<p>Gateway can connect up to 32 wireless signal information devices. Since it is possible to extend up to 24 gateways with a router, they can connect up to 768 wireless signal information devices.</p> <p>Note : Gateway supports mobile application.</p>
4	Router (Wireless signal information device)	<p>A wireless signal information device replaces an existing signal information device and converts the status data of production into wireless one so the management room can control the status information of production equipment more easily and quickly.</p> <p>It functions to transmit (send) the status information of production equipment wirelessly and help the management room controls a wireless signal information device and send specified information to a worker.</p>

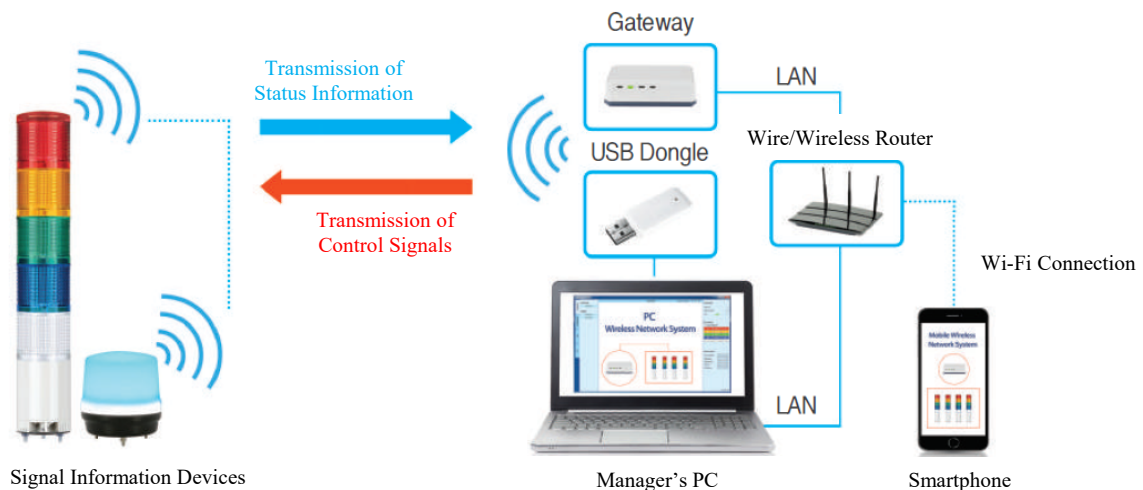
# Wireless Network System User Manual

## 3. Wireless Network System Configuration

### 1) WNS

It converts the signals of the external contact point sent from production equipment into wireless signals in order to monitor the status information of production equipment any time and anywhere with PC, tablet PC, and smartphone.

Depending on the situation, the operator can control the signal information device and transmit the signal information that are notified in advance.



<System Configuration>

### 2) Application example

It can easily manage and control the status information of heterogeneous equipment in each production line with a wireless signal information device, without installing separate communication cables.

Workers can be free from the harsh working environment where they have to keep the site in a dangerous environment and can monitor the condition of the equipment safely in the management office.

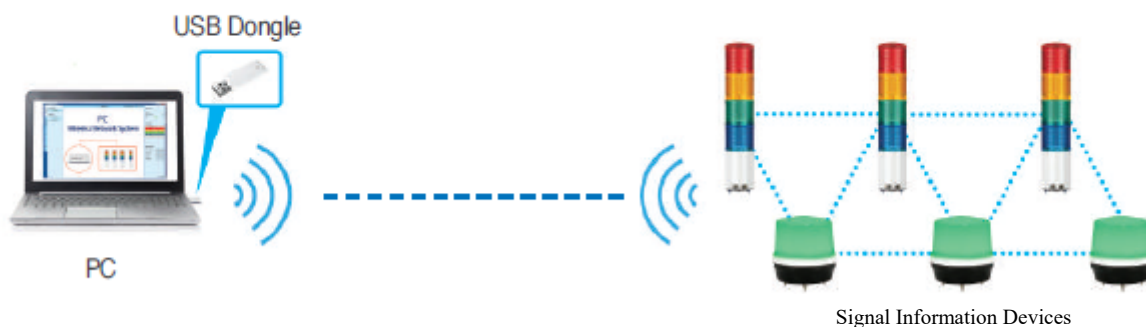


<Field Application (example)>

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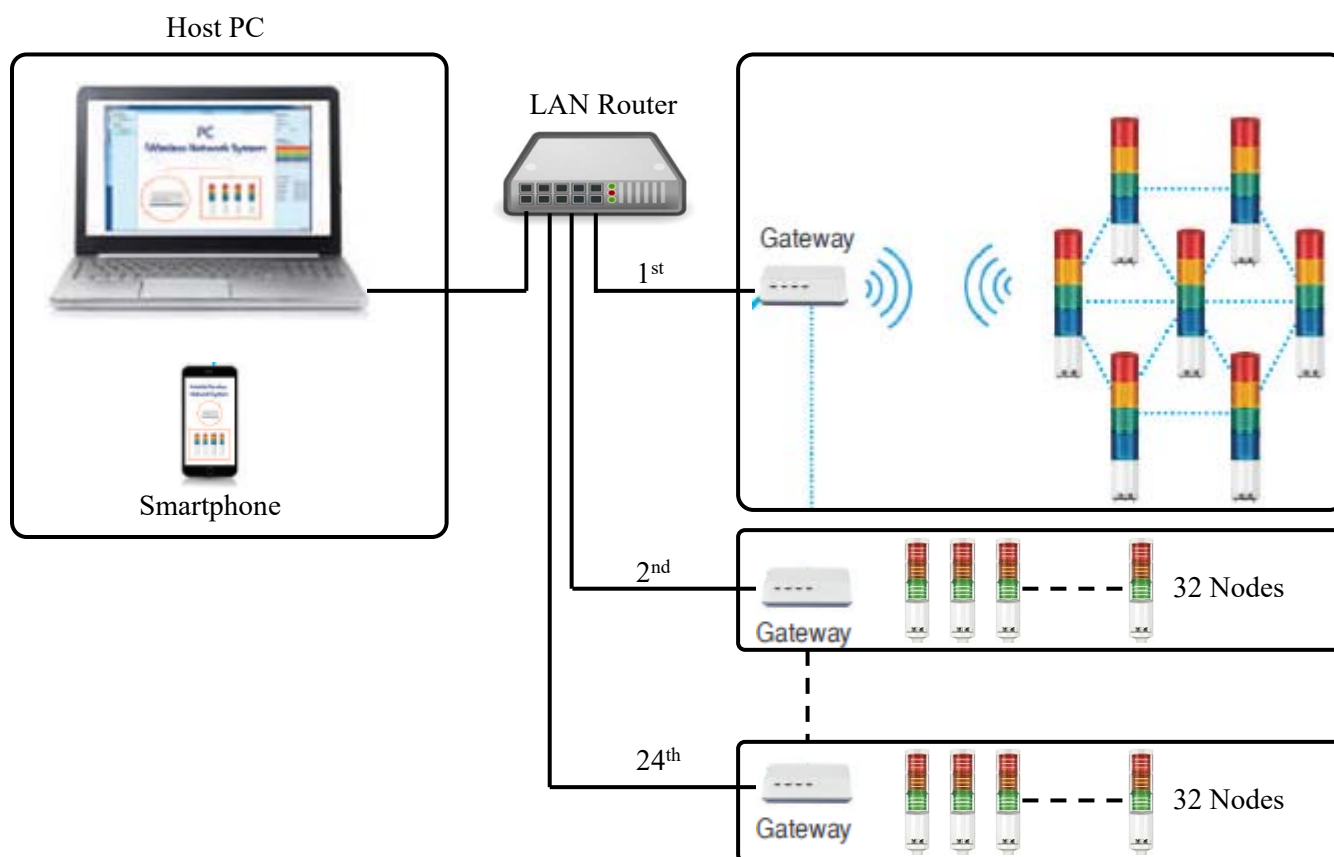
## 3) Connection through USB Dongle

- USB dongle can be easily inserted in the PC and this is a method suitable for building a small-sized single wireless network (up to 32 wireless control display lamps can be connected).



## 4) Connection through Gateway

- Up to 768 wireless control indicators can be connected by adopting multiple gateways. This is suitable for large-scale business sites.
- Smart phone can monitor or control the status of signal information devices.



# Wireless Network System User Manual

## 5. Terminology and Description

### 1) Frequency Band

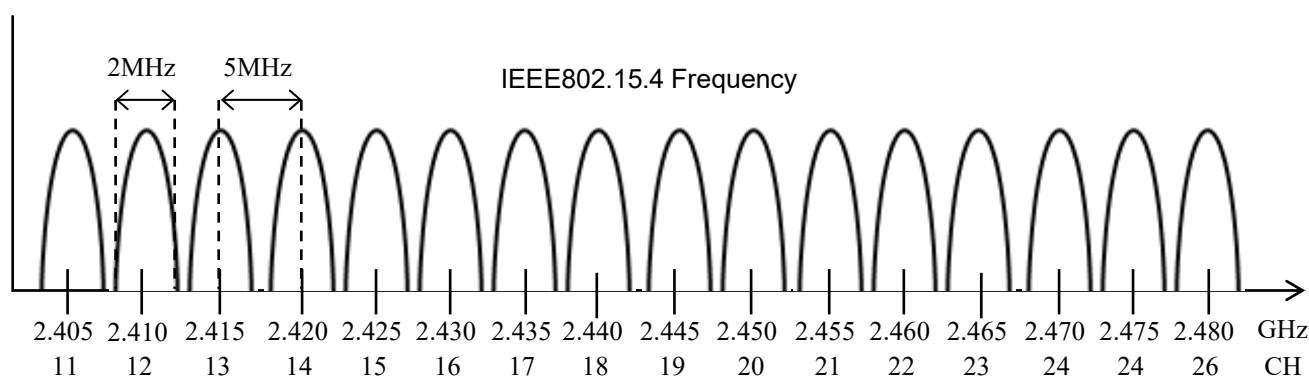
WNS uses 2.4GHz wireless frequency band in compliance with IEEE802.15.4(ZigBee) and has a total of 16 frequency channels.

Transmission (sending/receiving) time can be delayed if there is wireless LAN (Wi-Fi) around.

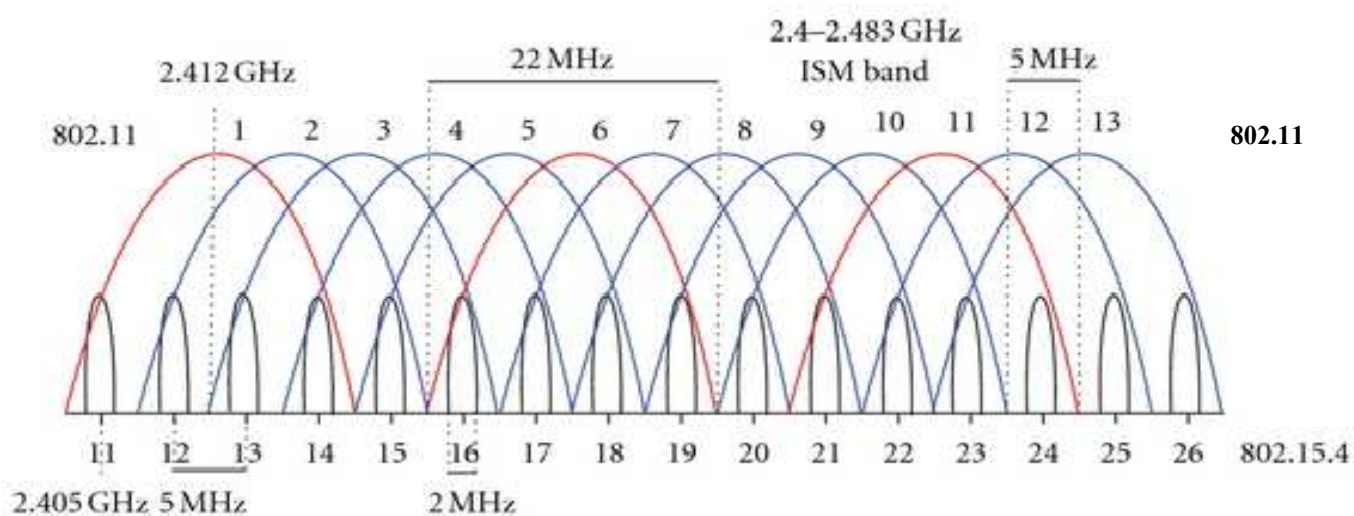
WLAN (Wireless LAN) uses 2.4GHz (IEEE802.11) and thus may overlap with 2.4GHz (IEEE802.15.4).

Therefore, to avoid communication failure, it is recommended to select the frequency band not used by WLAN.

- Frequency band for IEEE802.15.4(ZigBee) is as follows:



- The frequency bands of IEEE802.11(Wi-Fi) and IEEE802.15.4 are overlapped as follows:



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- Please refer to below table for each channel's frequency information of wireless system and wireless LAN.

- Please select the channel by referring below table when installing the wireless products.

	Ch. No.	Frequency (GHz)	Bandwidth (MHz)	Frequency Interval (MHz)
Wireless system 802.15.4	11CH	2.405	2	5
	12CH	2.410	2	5
	13CH	2.415	2	5
	14CH	2.420	2	5
	15CH	2.425	2	5
	16CH	2.430	2	5
	17CH	2.435	2	5
	18CH	2.440	2	5
	19CH	2.445	2	5
	20CH	2.450	2	5
	21CH	2.455	2	5
	22CH	2.460	2	5
	23CH	2.465	2	5
	24CH	2.470	2	5
	25CH	2.475	2	5
	26CH	2.480	2	5
Wireless Lan (Wi-Fi) 802.11	1CH	2.412	22	5
	2CH	2.417	22	5
	3CH	2.422	22	5
	4CH	2.427	22	5
	5CH	2.432	22	5
	6CH	2.437	22	5
	7CH	2.442	22	5
	8CH	2.447	22	5
	9CH	2.452	22	5
	10CH	2.457	22	5
	11CH	2.462	22	5
	12CH	2.467	22	5
	13CH	2.472	22	5



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## 2) Pan ID (Personal Area Network)

The Pan ID is the basic unit of wireless communication, used when grouping is necessary. However, it is used to assign a separate ID to each client in the environment of WNS for signal information devices.

When a client's devices, which should be distinguished from those of other companies around or in the same workplace, a different ID is assigned to each client.

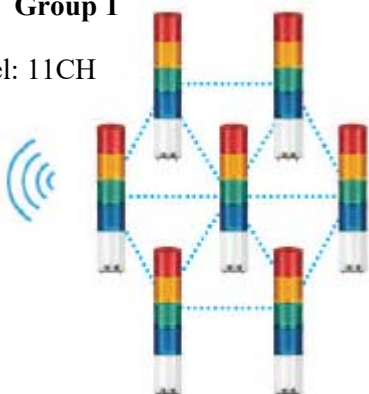
In case one workplace is divided into several groups for communication, it sets and manages separate channel IDs and group IDs.

The Pan ID can be assigned from 0 to 65535. A client is assigned Pan ID by his/her confirmation before shipped out of the factory.

### Pan ID: 01(Workplace 1)

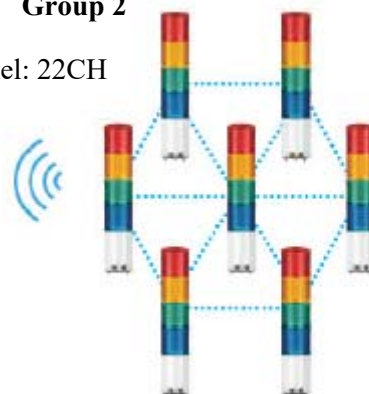
#### Group 1

Wireless Channel: 11CH



#### Group 2

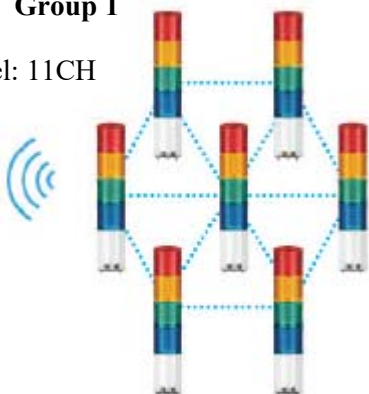
Wireless Channel: 22CH



### Pan ID: 02 (Workplace 2)

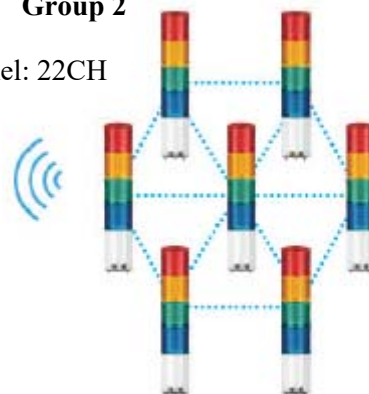
#### Group 1

Wireless Channel: 11CH



#### Group 2

Wireless Channel: 22CH

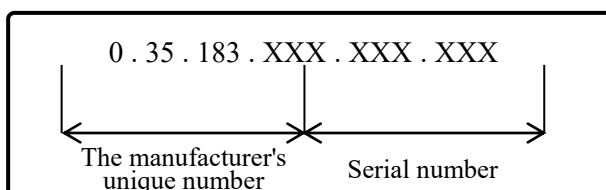


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## 3) MAC Address

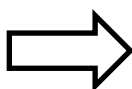
When it is necessary to divide wireless signal information devices into groups in WLAN, Gateway should be used. Gateways can exchange information with one another in Ethernet communication through a wire router. For Ethernet communication, each device connected to the gateways should be assigned with a unique MAC address. MAC address is assigned by the manufacturer when the product is shipped out from the factory.

MAC address has the following specification that consists of decimal codes.



### GATEWAY

The printed label of MAC address

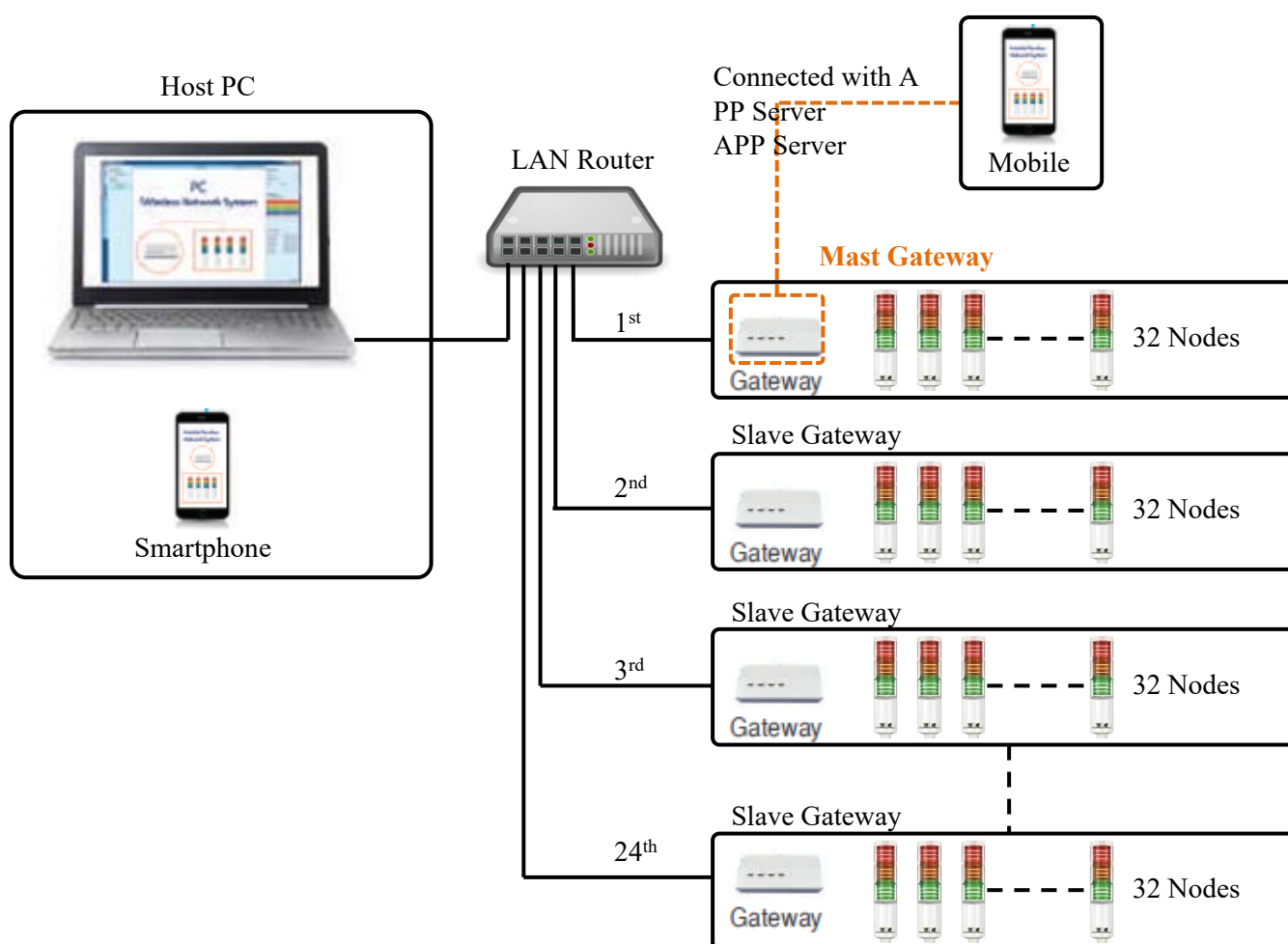


GATEWAY	NAME	GW768
	MAC ADDR	0-178-194-211-228-246
	GROUP ID	1
	Channel	11
	Pan ID	264

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## 4) What is Mast Gateway?

When configuring a system using multiple gateways in a wireless network system, a specific gateway should be designated as a mast gateway. Each gateway is directly connected to a host PC to transmit information but it is by the mast gateway that transmits information to a mobile device. No need to designate a mast gateway if smartphone is not used. See a diagram below.



## 5) Company ID

Company ID: an ID should be registered to the push server to transmit the status information of a wireless signal information device to a mobile application and each client should use a unique ID. It is set by the manufacturer when the product is shipped out from the factory.

\* ID consists of 20 characters max. regardless of letter or number.

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## 5. Installation environment

### 1) Wireless Network System installation

Nominal wireless signal transmission distance of Wireless Network System is 100m. However actual transmission distance would be 30 to 50m due to interference of other 2.4G bandwidth equipment and building. Wireless signal transmission distance may be varied depending on the environment.

### 2) Check points prior to installation of wireless product

No.	Check points	Discription
1	Interference with other wireless equipment	Wireless signal interference due to 2.4G bandwidth equipment such as Microwave, Wireless AP, etc.
2	Electromagnetic radiation interference with production facilities	Switching noise from powering equipment Noise from electric generator and motor
3	Physical interference with machines and equipment	Due to wireless signal's intensive linear feature and very low diffractive characteristic, it can be interfered by structure made of conductor

### 3) Selection of Wireless signal receiver installation point

If the outer wall of the administrative office in the workplace is a panel structure made of conductive material such as iron or aluminum, there may be wireless signal interference, so the receiver of the wireless signaling device(USB DONGLE, GATEWAY) must be installed outside the administrative office. It is recommended that wireless receivers would be installed in the middle of wireless signaling devices.

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## 4) Wireless Network System installation

The wireless signaling device supports Mesh Topology. Multi-hop feature allows relay between the devices depending on communication distance. Although it is possible to transfer the value of a device remotely by using the relay feature, it is not recommended to transfer multiple devices' signals via single device as shown in the example below.

Bad example)

장애물 : Obstacle

중계기 역할로 부적합함 : Not appropriate as a relay

Good example)

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Good example of relay)

장애물 : Obstacle

If it is inevitable to install behind of obstacle like #7, device #6 shall be as a repeater.

Please take care of device #6 that does not control more than 2 wireless signaling devices.

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## 6. Product Specifications

### 1) PC Application

- It is the basic PC program needed to operate and manage WNS.
- It can be downloaded from the homepage of Qlight Co.



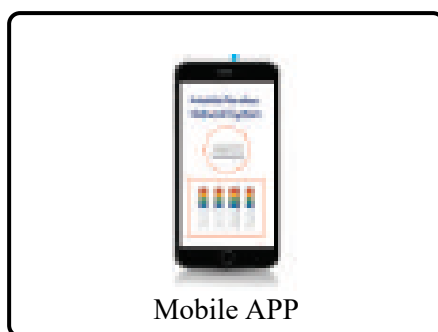
No.	Item	Description
1	Requirements for hardware	<ul style="list-style-type: none"><li>- Processor: 1GHz or higher</li><li>- RAM: 2GByte or more</li><li>- Disk space (minimum): 4.5 GB or more</li></ul>
2	Requirements for software	<ul style="list-style-type: none"><li>- Windows7 or later version</li><li>-.NET Framework 4.6.1</li></ul>
3	USB Driver	<ul style="list-style-type: none"><li>- USB dongle &amp; gateway USB connection device Driver (CP210x_Windows_Drivers)</li></ul>
4	Functions	<ul style="list-style-type: none"><li>- Monitoring the motion status of a router</li><li>- Controlling a router</li><li>- Setting USB dongle, gateway, a router</li><li>- Saving log files and view</li><li>- Setting USB dongle and gateway communication</li><li>- Quick manual for the operating program</li></ul>
5	DLL	<ul style="list-style-type: none"><li>- DLL provided for C#</li><li>- DLL provided as the basic functions to control a signal information device (e.g. router)</li><li>- The operating program should be implemented by a user himself.</li></ul>

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## 2) Mobile APP

- The status information of a wireless signal information device can be monitored or controlled by a mobile application.
- The mobile application is used to interlock with the gateway. The application can be downloaded from our website, [www.qlight.com](http://www.qlight.com) or Goggle App Store.



No.	Item	Description
1	Requirements for software	<ul style="list-style-type: none"><li>- Support Android 4.2 or higher</li><li>- Support IOS</li></ul>
2	Functions	<ul style="list-style-type: none"><li>- Monitoring the motion status of a router</li><li>- Controlling a router</li></ul>



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## 3) USB DONGLE

- Easy installation and operation by plugging it to a PC, controls and monitors up to 32 wireless devices.
- Suitable for a single or small-scaled wireless network connection needs.



## (1) Specifications

No.	Article	Description
1	Model name	WIZ32
2	Rated Voltage	USB 5V
3	Current	Max. 50mA
4	Ambient Temp.	-25°C to+50°C
5	Installation site	Indoor environment without radio interference by steel structures
6	Weight	0.01Kg
7	Wired communication protocol	-USB to Serial -1 PC per single connection
8	Wireless communication protocol	IEEE 802.15.4
10	Data rate	250Kbps
11	Node Q'ty	Client coverage : 32units
12	Communication output	Over 16dbm
13	Communication Frequency	2405MHz to 2480MHz
14	No. of communication channel	16 Channels
15	Communication Distance	Indoor 30-50 meter, Outdoor 100 meter(linear) * Can be varied depending on environment

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(2) Ordering Specification

(3) Technical Diagram

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## 4) Gateway

- Suitable for large-scaled network over 32 wireless networks. One gateway unit is a single group, can connect up to 24 groups.
- Support Smartphone Application



AC Adaptor  
(AC model is optionally available)

Ethernet cable

USB cable

## (1) Specifications

No.	Article	Description
1	Model name	GW768
2	Rated Voltage	12VDC to 24VDC, 110VAC to 220VAC(AC Adaptor)
	Current	DC : Max. 0.510A AC : Max. 0.115A
3	Display	Power, Communication status, Error
4	Ambient Temp.	-25°C to +50°C
5	Installation site	Indoor environment with less radio interference by steel structures

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6	Weight	0.22Kg
7	Wired communication protocol	-USB to Serial -1 PC per single connection -Ethernet (Conforms to the IEEE 802.3) 10BASE-T / 100BASE-TX -One gateway unit can connect up to 24 groups
8	Wireless communication protocol	IEEE 802.15.4
10	Data rate	250Kbps
11	Node Q'ty	-Up-to 32 Routers can be connected with single Gateway -Up-to 24 Gateways can be connected
12	Communication output	Over 16dbm
13	Communication Frequency	2405MHz to 2480MHz
14	No. of communication channel	16 Channels
15	Communication Distance	Indoor 50 meter, Outdoor 100 meter(Line of sight) * Can be varied depending on environment

## (2) Ordering Specification

## (3) Technical Diagram

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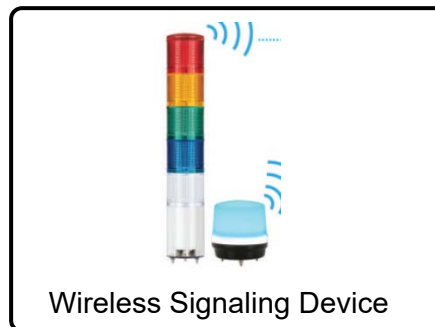
## (4) Feature

No	Description	Remark
1	Power LED(RED)	
2	Wireless Signal Receiving indicator LED(GREEN)	
3	Wireless Signal Transmission indicator LED(BLUE)	
4	Error & Boot LED(AMBER)	
5	Power ON/OFF Switch	
6	Power Connector(AC)	
7	Power Connector(DC)	
8	USB Cable Connector	
9	Ethernet Cable Connector	

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## 5) ROUTER(Wireless Signaling Device)

- The status information of the production equipment can be recognized by using an external contact and the status information is transmitted to USB DONGLE or GATEWAY.
- Router can receive control signal from USB DONGLE or GATEWAY.



## (1) Specifications

No.	Article	Description	
1	Model name	-QTG(A)60/70-WIZ Series -QTC(A)60/70-WIZ Series -QTR(A)60/70-WIZ Series	QMCL100-WIZ QMCL125-WIZ
2	Rated Voltage	12VDC, 24VDC, 110VAC to 220VAC	12VDC, 24VDC
3	Current	DC : Max. 0.500A AC : Max. 0.165A	DC : Max. 0.500A
4	Type of light source	5 layers, 5 colors	Single layer, 7 multicolored
5	Sound type	5 tone Buzzer	
6	Volume	85dB(at 1Meter)	
7	Operating characteristic	<ul style="list-style-type: none"> <li>- Built-in light and buzzer modules are operated by common line of relay contact</li> <li>- Operational status is being transferred wirelessly</li> <li>- Operated by control room's control signal</li> <li>- Full-duplex data transmission</li> </ul>	
8	Steady signal recognition	Steady signal recognition time : $T \geq 600\text{ms}$	

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	Flashing signal recognition	<p>T of H1, L1, H2 : <math>300\text{ms} \leq T &lt; 600\text{ms}</math></p> <p>H1, L1, H2 signals are recognized as Flashing signal in 't' time range when the signal input sequence is from H1, L1, to H2.</p> <p>When it recognized as Flashing mode, it transfers Flashing signal wirelessly. It does not transfer NO and OFF signals separately.</p>	
9	Ambient Temp.	-25°C to +50°C	
10	Installation site	Indoor environment without radio interference by steel structures	
11	Weight	60 Series : Max. 0.88Kg 70 Series : Max. 1.32Kg	<b>QMCL100 Series : Max. 0.28Kg</b> <b>QMCL125 Series : Max. 0.34Kg</b>
12	Wireless communication protocol	IEEE 802.15.4	
13	Data rate	250Kbps	
14	Networks Topology	-Mesh Topology -Multi hopping	
15	Node Q'ty	Up-to 32 Routers can be connected	
16	Communication output	Over 16dbm	
17	Communication Frequency	2405MHz to 2480MHz	
18	No. of communication channel	16 Channels	
19	Communication Distance	Indoor 30-50 meter, Outdoor 100 meter(linear) * Can be varied depending on environment	

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## (2) Ordering Specification

- Wireless Signaling Devices(QTG/QTC/QTR60L Series)**

- - Wireless Signaling Devices(QTG/QTC/QTR70L Series)

- **Wireless Signaling Devices(QMCL Series)**



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(3) Technical Diagram

# Wireless Network System User Manual

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## 7. Installation

This WNS uses wireless communication of 2.4GHz frequency band. Check if your environment is suitable for wireless communication before installing it.

### 1) USB Dongle

Just insert the USB dongle into one of the PC USB ports and installation completes.

- This way is suitable for building a small-sized single wireless network.

(One USB dongle can connect up to 32 wireless control display lamps.)



❖ In case the USB dongle is located where it is not proper to receive wireless signals, use a USB extension cable to install the USB dongle in a right location for wireless signals.

### 2) Gateway

- Like the USB dongle, the gateway can be connected in two ways: through (i) a USB cable and (ii) an Ethernet router.

- Connection through a USB cable allows connection up to 32 wireless information devices. One PC is connected to one gateway.

- Connection through an Ethernet router allows connection up to 24 gateways. For the connection with a mobile device, Ethernet router is necessary.

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## (1) Gateway Connection with USB

Used the enclosed USB cable to connect between the PC and the gateway.

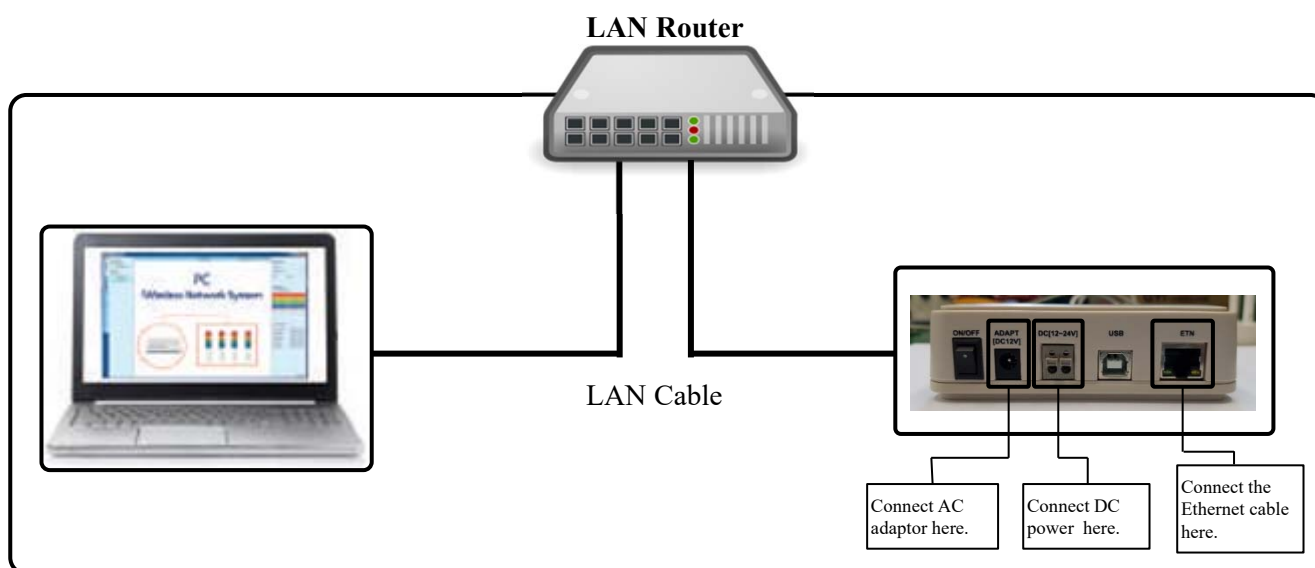


## (2) Gateway Connection with Ethernet

Use the LAN router to connect the PC and the gateway.

Use the enclosed cable. It doesn't matter whether it is cross or direct cable.

- Use DC power or enclosed AC adaptor to turn on the gateway.




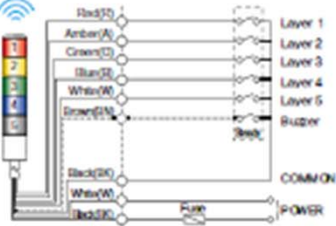

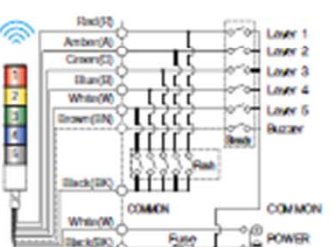

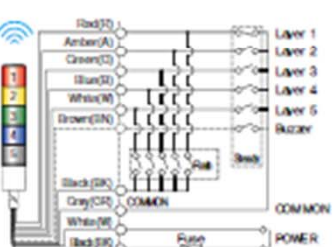
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## 3) Wiring Instructions



### Wiring Instructions

- Please wire the product by referring below instruction.
- You can monitor status of tower light and control them via wireless network.

Applied products	External Contact	
AC/DC Steady    QTG60ML-WIZ QTG60L-WIZ QTG70ML-WIZ QTG70L-WIZ  • QTG(A) □□(M)L - WIZ : Same wiring including buzzer type • QTG □□L Lens diameter 60(60mm) : QTG60(M)L 70(70mm) : QTG70(M)L		
DC Steady/ Flashing    QTG60MLF-WIZ QTG60LF-WIZ QTG70MLF-WIZ QTG70LF-WIZ  • QTG(A) □□(M)L - WIZ : Same wiring including buzzer type • QTG □□L Lens diameter 60(60mm) : QTG60(M)L 70(70mm) : QTG70(M)L	AC Steady/ Flashing    QTG60MLF-WIZ QTG60LF-WIZ QTG70MLF-WIZ QTG70LF-WIZ  • QTG(A) □□(M)L - WIZ : Same wiring including buzzer type • QTG □□L Lens diameter 60(60mm) : QTG60(M)L 70(70mm) : QTG70(M)L	


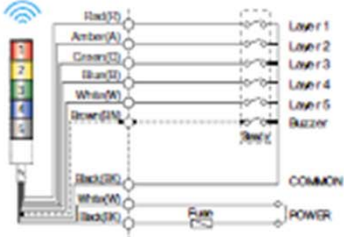

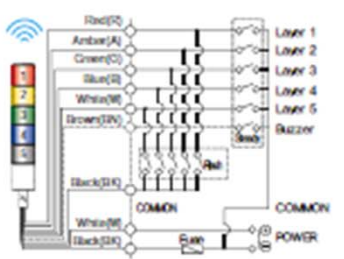

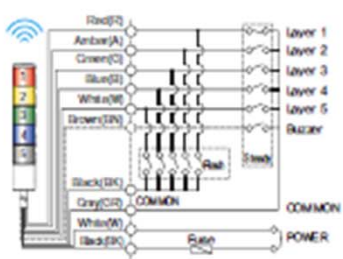
- DC Steady type External power line & Signal line standard : UL1007 AWG22(0.3sq) 400mm
- AC Steady, AC/DC Steady/ Flashing type External power line standard : UL1015 AWG18(0.75sq)×2C 400mm  
signal line standard : UL1007 AWG22(0.3sq) 400mm

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## Wiring Instructions


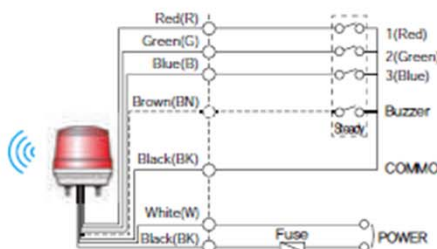

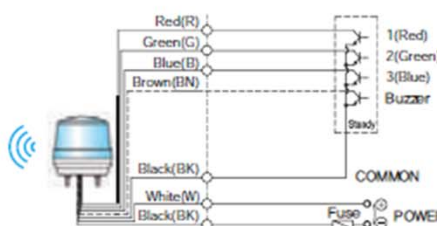
- Wiring to transistor, use the NPN transistor. Please wire properly based on wiring instructions below.

Applied products	External transistor	
Product AC/DC Steady	  QTG60ML-WIZ QTG60L-WIZ QTG70ML-WIZ QTG70L-WIZ <ul style="list-style-type: none"> <li>QTG(A) □□(M)L - WIZ : Same wiring including buzzer type</li> <li>QTG □□□□□               <ul style="list-style-type: none"> <li>Lens diameter 60(60mm) : QTG60(M)L</li> <li>70(70mm) : QTG70(M)L</li> </ul> </li> </ul>	
DC Steady/ Flashing	  QTG60MLF-WIZ QTG60LF-WIZ QTG70MLF-WIZ QTG70LF-WIZ <ul style="list-style-type: none"> <li>QTG(A) □□(M)L - WIZ : Same wiring including buzzer type</li> <li>QTG □□□□□               <ul style="list-style-type: none"> <li>Lens diameter 60(60mm) : QTG60(M)L</li> <li>70(70mm) : QTG70(M)L</li> </ul> </li> </ul>	  QTG60MLF-WIZ QTG60LF-WIZ QTG70MLF-WIZ QTG70LF-WIZ <ul style="list-style-type: none"> <li>QTG(A) □□(M)L - WIZ : Same wiring including buzzer type</li> <li>QTG □□□□□               <ul style="list-style-type: none"> <li>Lens diameter 60(60mm) : QTG60(M)L</li> <li>70(70mm) : QTG70(M)L</li> </ul> </li> </ul>

- DC Steady type External power line & Signal line standard : UL1007 AWG22(0.3sq) 400mm
- AC Steady, AC/DC Steady/ Flashing type External power line standard : UL1015 AWG18(0.75sq)x2C 400mm  
signal line standard : UL1007 AWG22(0.3sq) 400mm

# Wireless Network System User Manual

• Please refer to below wiring Instructions diagram to properly configure external contact and transistor options.

Applied products	External Contact																										
QMCL100-WIZ QMCL125-WIZ			<p>&lt; Wiring Configuration for Signal Color &gt;</p> <table><tr><th>No.</th><th>Color</th><th>Wiring</th></tr><tr><td>1</td><td>Red</td><td>1(Red)</td></tr><tr><td>2</td><td>Green</td><td>2(Green)</td></tr><tr><td>3</td><td>Blue</td><td>3(Blue)</td></tr><tr><td>4</td><td>Amber</td><td>1(Red)+2(Green)</td></tr><tr><td>5</td><td>Cyan</td><td>2(Green)+3(Blue)</td></tr><tr><td>6</td><td>Purple</td><td>1(Red)+3(Blue)</td></tr><tr><td>7</td><td>White</td><td>1(Red)+2(Green)+3(Blue)</td></tr></table>	No.	Color	Wiring	1	Red	1(Red)	2	Green	2(Green)	3	Blue	3(Blue)	4	Amber	1(Red)+2(Green)	5	Cyan	2(Green)+3(Blue)	6	Purple	1(Red)+3(Blue)	7	White	1(Red)+2(Green)+3(Blue)
No.	Color	Wiring																									
1	Red	1(Red)																									
2	Green	2(Green)																									
3	Blue	3(Blue)																									
4	Amber	1(Red)+2(Green)																									
5	Cyan	2(Green)+3(Blue)																									
6	Purple	1(Red)+3(Blue)																									
7	White	1(Red)+2(Green)+3(Blue)																									
Applied products	External Transistor																										
QMCL100-WIZ QMCL125-WIZ			<p>&lt; Wiring Configuration for Signal Color &gt;</p> <table><tr><th>No.</th><th>Color</th><th>Wiring</th></tr><tr><td>1</td><td>Red</td><td>1(Red)</td></tr><tr><td>2</td><td>Green</td><td>2(Green)</td></tr><tr><td>3</td><td>Blue</td><td>3(Blue)</td></tr><tr><td>4</td><td>Amber</td><td>1(Red)+2(Green)</td></tr><tr><td>5</td><td>Cyan</td><td>2(Green)+3(Blue)</td></tr><tr><td>6</td><td>Purple</td><td>1(Red)+3(Blue)</td></tr><tr><td>7</td><td>White</td><td>1(Red)+2(Green)+3(Blue)</td></tr></table>	No.	Color	Wiring	1	Red	1(Red)	2	Green	2(Green)	3	Blue	3(Blue)	4	Amber	1(Red)+2(Green)	5	Cyan	2(Green)+3(Blue)	6	Purple	1(Red)+3(Blue)	7	White	1(Red)+2(Green)+3(Blue)
No.	Color	Wiring																									
1	Red	1(Red)																									
2	Green	2(Green)																									
3	Blue	3(Blue)																									
4	Amber	1(Red)+2(Green)																									
5	Cyan	2(Green)+3(Blue)																									
6	Purple	1(Red)+3(Blue)																									
7	White	1(Red)+2(Green)+3(Blue)																									

# Wireless Network System User Manual

## 8. Software installation

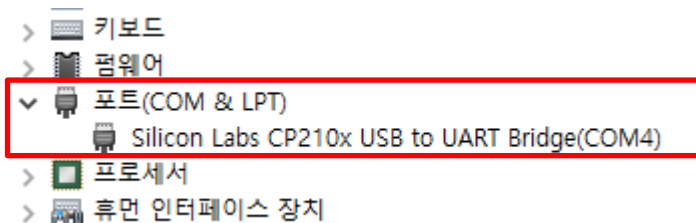
### 1) Serial to USB Driver installation

There are two ways of receiving or controlling the status information of a wireless signaling device: One is using USB dongle and the other one is gateway's USB interface. In both cases, 'USB to serial device driver' should be installed(download it from Qlight website).

- Select x64 or x86 .EXE file depending on your PC operating system.
- Device driver is from Silicon Labs.

x64	2018-03-23 오전 10:25	파일 폴더	
x86	2018-03-23 오전 10:25	파일 폴더	
CP210xVCPInstaller_x64.exe	2017-09-28 오전 2:58	응용 프로그램	1,026KB
CP210xVCPInstaller_x86.exe	2017-09-28 오전 2:58	응용 프로그램	903KB
dpinst.xml	2017-09-28 오전 2:45	XML 문서	12KB
SLAB_License_Agreement_VCP_Windows.txt	2017-09-28 오전 2:46	텍스트 문서	9KB
slabvcp.cat	2017-10-11 오전 2:52	보안 카탈로그	11KB
slabvcp.inf	2017-10-11 오전 2:52	설치 정보	15KB
v6-7-5-driver-release-notes.txt	2017-10-17 오전 7:49	텍스트 문서	14KB

- After the installation completes, check if COM# Port is displayed in the Device Manager of PC before connecting the USB dongle or the gateway through a USB port.
- COM# (number) can vary depending on your PC environment.



### (1) Installation of PC Application

The PC application is used to monitor, set, and control the status information of a wireless signal information device.

- In the case of using C# Library, refer to the Library User Manual, which is separately provided.

Please download the PC Application from our website and install it.

# Wireless Network System User Manual

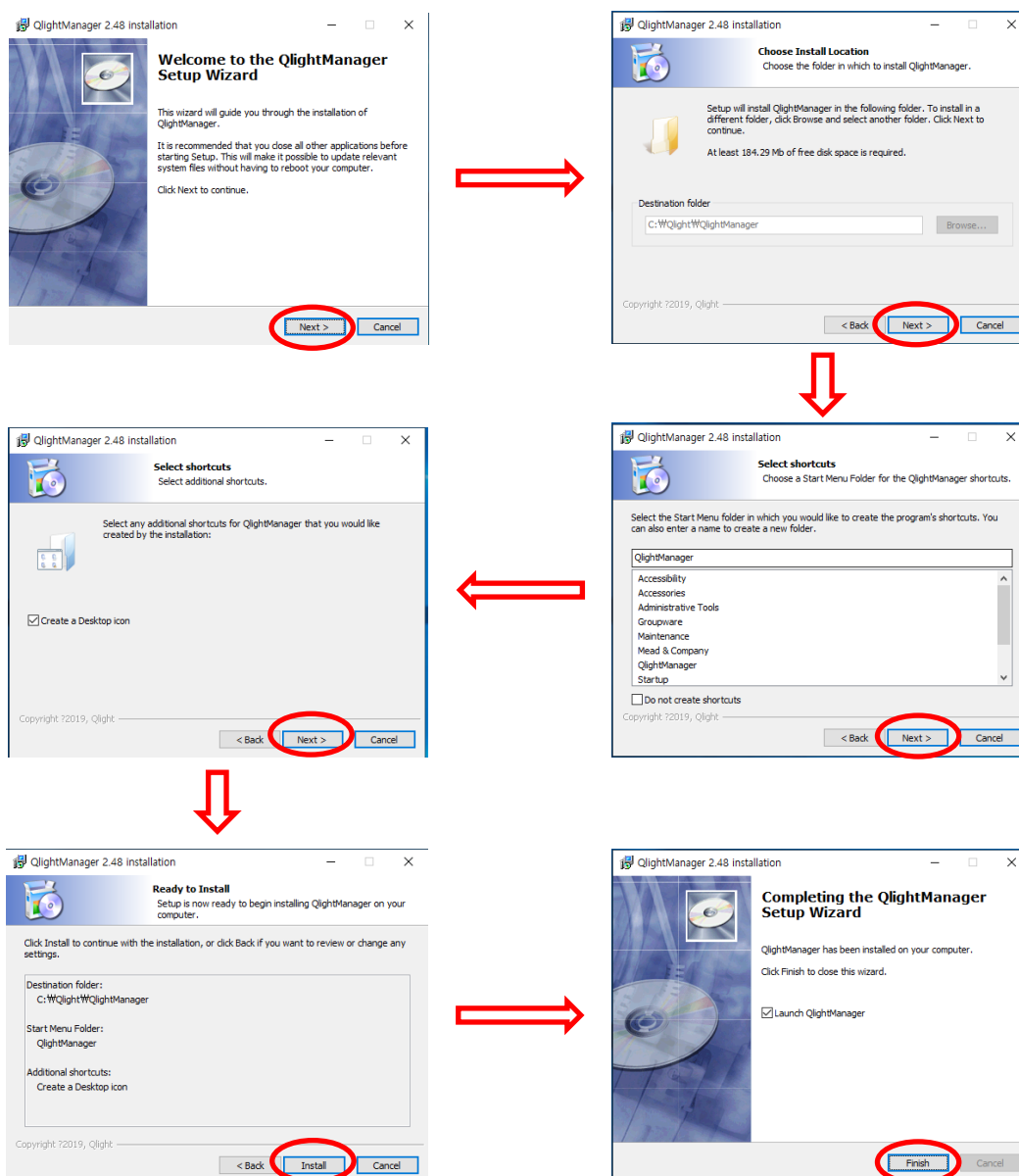
## 8. Operation

There are two ways of receiving or controlling the status information of a wireless signal information device: through i) USB dongle and (ii) USB interface with the gateway. In both cases, 'USB to serial device driver' should be installed (provided separately.)

- File name: CP210xVCPInstaller\_x64

After installing the PC program, you can set wireless devices such as gateways, USB dongle, and display lamps and also monitor or control their status.

### 1) Installation of PC Program

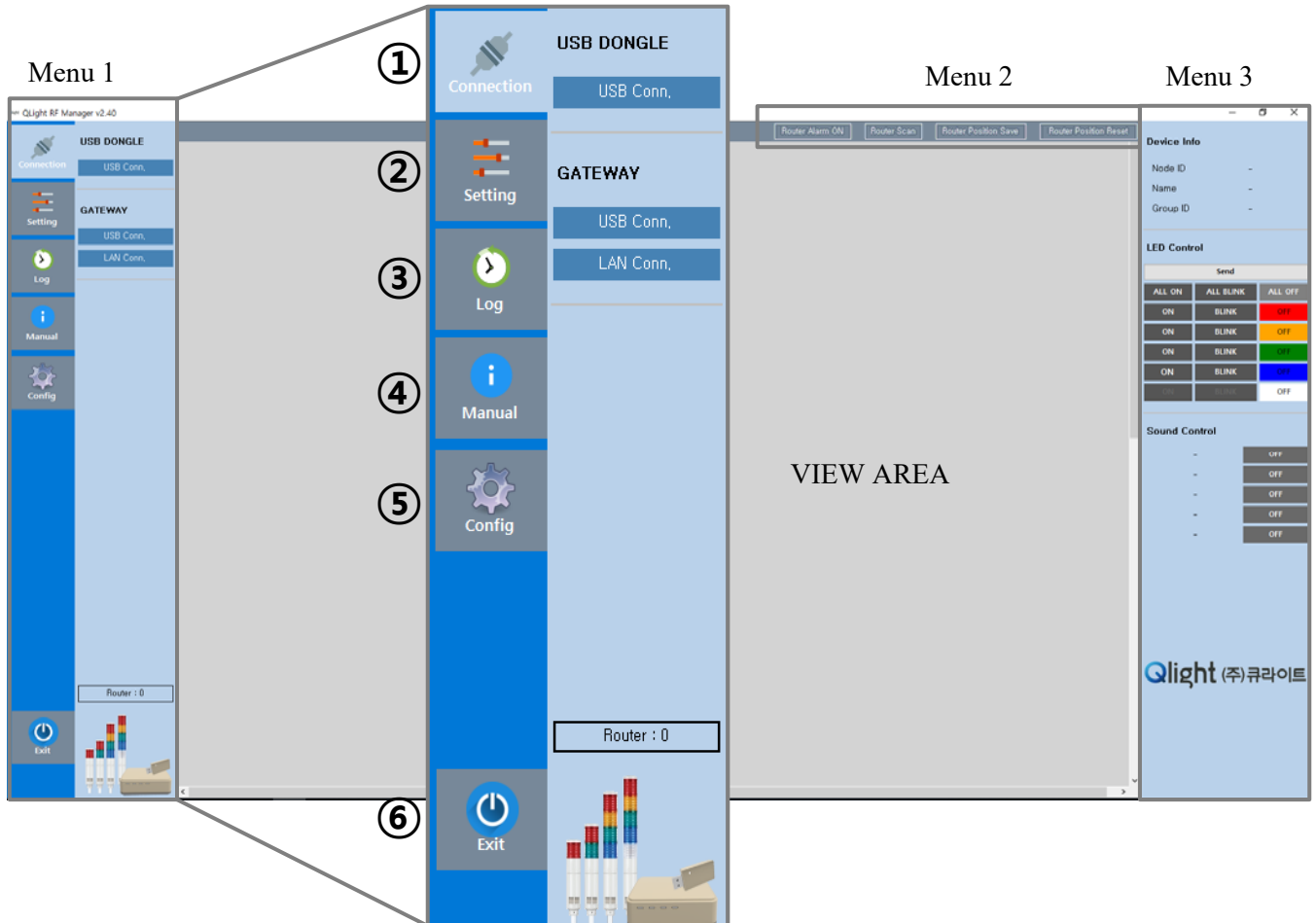




# Wireless Network System User Manual

## 2) Main Screen of PC Application

When Qlight Manager is installed, the screen below is displayed. Please read the name and the descriptions of the function of each item.



### (1) Description of Menu 1

No.	Item	Description
①	Connection	It shows the connection status with a wireless signal information device. In the sub-menu, you can choose to connect with either the USB dongle or the gateways.
②	Setting	It sets the functions of the devices used in the wireless network. - Besides the USB dongle, gateways, and wireless signal information devices, it sets a connection with mobile devices (mobile connection).
③	Log	You can check log data transmitted (sent/received) through the wireless network. With the log data, you can compute useful information such as the productivity and operation ratio of each equipment.
④	Manual	It shows the operations of the PC Application briefly.
⑤	Config	It sets the PC Application to operate the wireless network.
⑥	Exit	It ends the program.

# Wireless Network System User Manual

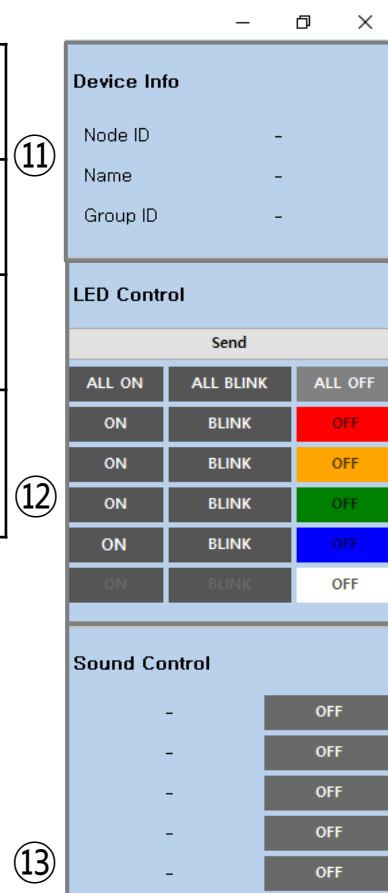
## (2) Description of Menu 2



No.	Item	Description
⑦	Router Alarm ON	The function to alert a manager when an alarm goes off in the wireless signal information device, even with the PC Application in the background mode.
⑧	Router Scan	It scans the wireless signal information devices connected to the USB dongle or the gateways and displays them on the screen. It can be implemented when necessary at the initial startup of the program.
⑨	Router Position Save	With this function, a user can control the position of the wireless signal information devices in the operating program and save their positions. When the program is re-executed without the position saved, the default position is retrieved.
⑩	Router Position Reset	It retrieves and arranges the data of the initial default positions of the wireless signal information devices.

## (3) Description of Menu 3

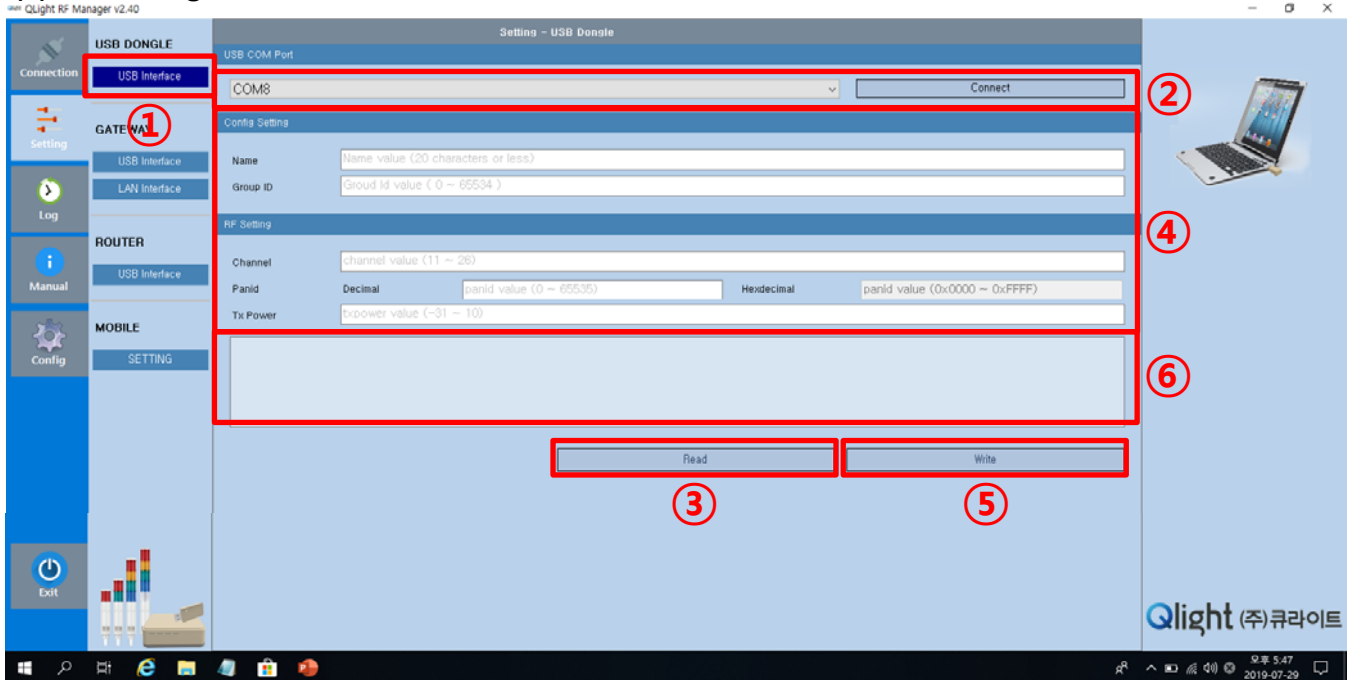
No.	Item	Description
⑪	Device Info	It displays the node ID, name, group ID of the device selected from the signal information devices connected in Manu 1.
⑫	LED Control	It controls the LED unit: select On, Blink, or Off and press the Send button.
⑬	Sound Control	By product, there are 5 WS sound sources, 5 WP sound sources, and 5 BUZZER sound sources. Choose one sound source to run the sound of a wireless signal information device.



# Wireless Network System User Manual

## 3) Setting

### (1) USB Dongle



- ①: Select USB DONGLE -> USB Interface in the setting menu.
- ②: Select the COM# Port in the drop-down list and press the Connect button to connect with the USB dongle.
- ③: Press the Read button to retrieve the initial settings of the USB dongle set by the manufacturer.
- ④: Confirm the status values of the retrieved field or modify them to suit a client's use environment.  
- For more details for the field, see the table below.
- ⑤: After changing the settings of the USB dongle, press (click) the Write button to save the changed settings.
- ⑥: When each button is pressed (clicked), it shows the status of communication between the USB dongles.

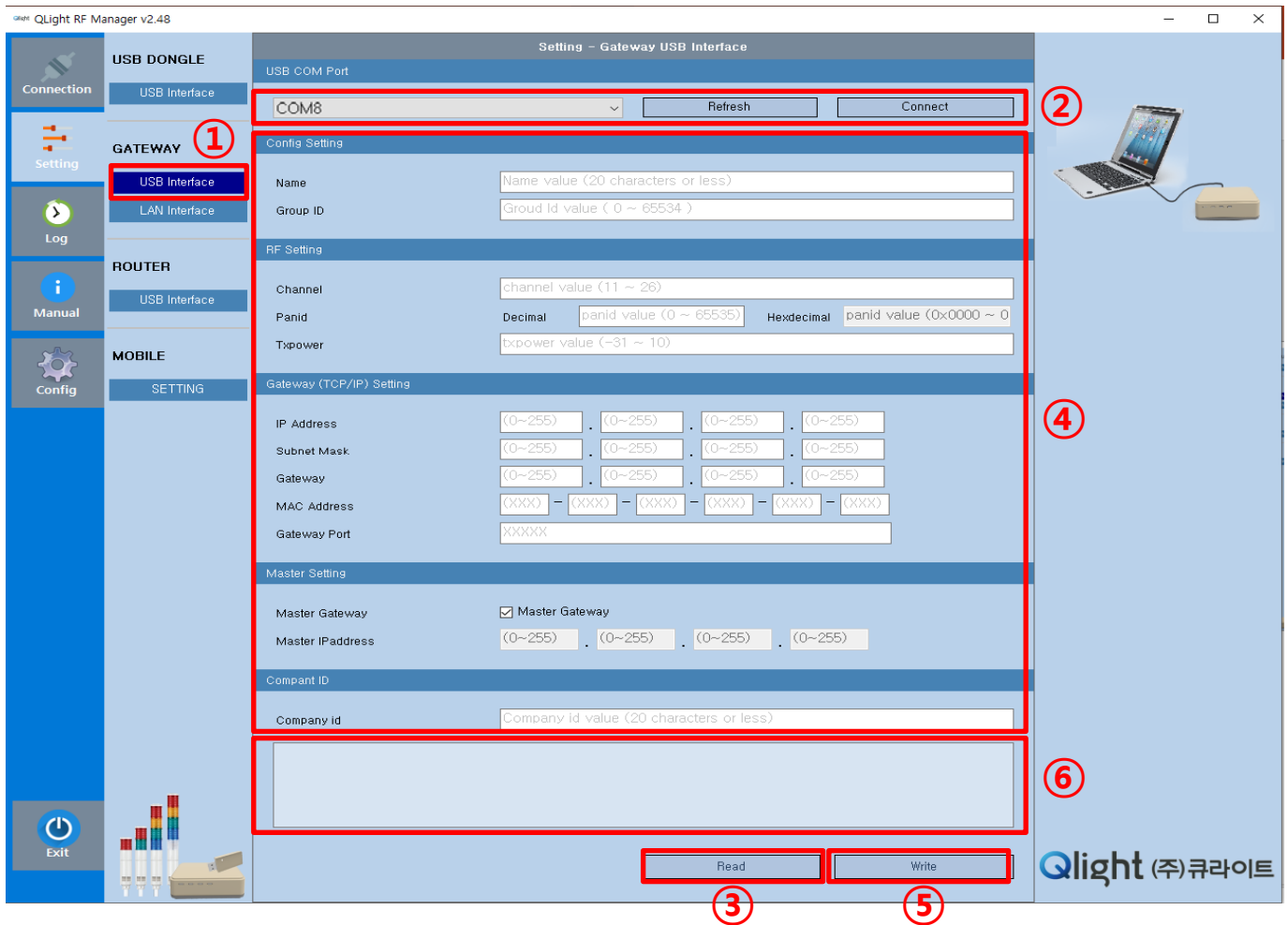
Field	Description	Setting Range
Name	It sets the name of the USB dongle.	Less than 20 alphabets
Group ID	It sets a group.	0 to 65535
Channel	Wireless channel frequency	11 to 26
Panid	It is an identifier for an individual network and is set by the manufacturer. A user cannot modify it. (it is used as a client's unique number).	0 to 65535
Txpower	It is a wireless transmission output value. The greater the setting is, the greater the power is. (The default value is set to 10 when the product is shipped out.)	-31 to 10

# Wireless Network System User Manual

## (2) Gateway

### - The Setting of USB Interface with Gateway

The GW768 device is connected with a PC through the USB Interface and can communicate with the wireless signal information devices. Furthermore, it is also possible to set the GW786 network using the USB Interface.



①: Select GATEWAY > USB Interface in the setting menu.

②: Select the COM# Port in the drop-down list and press the Connect button to connect with the gateway.

- In case COM# (numbers) are not seen, press the refresh button to update COM#.

③: Press the Read button to retrieve the initial settings of the manufacturer.

④: Confirm the status values of the retrieved field or modify them to suit a client's use environment.

- For more details for the field, see the table below.

⑤: After changing the settings, press (click) the Write button to save the changed settings.

⑥: When each button is pressed (clicked), it shows the status of communication between the gateways.

# Wireless Network System User Manual

Field	Description	Range
Name	Gateway name and details	Less than 20 alphabets
Group ID	Control group ID	0 to 65535
Channel	Wireless channel frequency	11 to 26
Panid	Network ID	0 – 65535
Txpower	The output value of the wireless transmission, the higher the setting the stronger the power (The factory default setting is 10)	-31 to 10
IP Address	Input IP address for Gateway(GW768) device	Please contact your network manager
Subnet Mask	Input Subnet Mask for Gateway(GW768) device	
Gateway	Input the Gateway address that the device will use. Please be careful of similar terms	
MAC Address	It refers to the Mac address of the gateway, which is entered by the manufacturer. Customer cannot change the value.	
Gateway Port	Assign Ethernet Port – <b>Default</b>	0 to 65535
<b>Master Gateway</b>	<b>Whether it is Master or Slave Gateway</b>	
Master IP address	Master Gateway IP address	

# Wireless Network System User Manual

## (2) Gateway

### - The Setting of LAN Interface of Gateway

①: Select GATEWAY -> LAN Interface in the setting menu.

②: Select the MAC Address in the drop-down list and press the Connect button to connect with the gateway.

- In case the MAC addresses are not seen, press the refresh button to update MAC addresses.

③: Press the Read button to retrieve the initial settings of the manufacturer.

④: Confirm the status values of the retrieved field or modify them to suit a client's use environment.

- For more details for the field, see the table below.

⑤: After changing the settings, press (click) the Write button to save the changed settings.

⑥: When each button is pressed (clicked), it shows the status of communication between the gateway and the gateway.

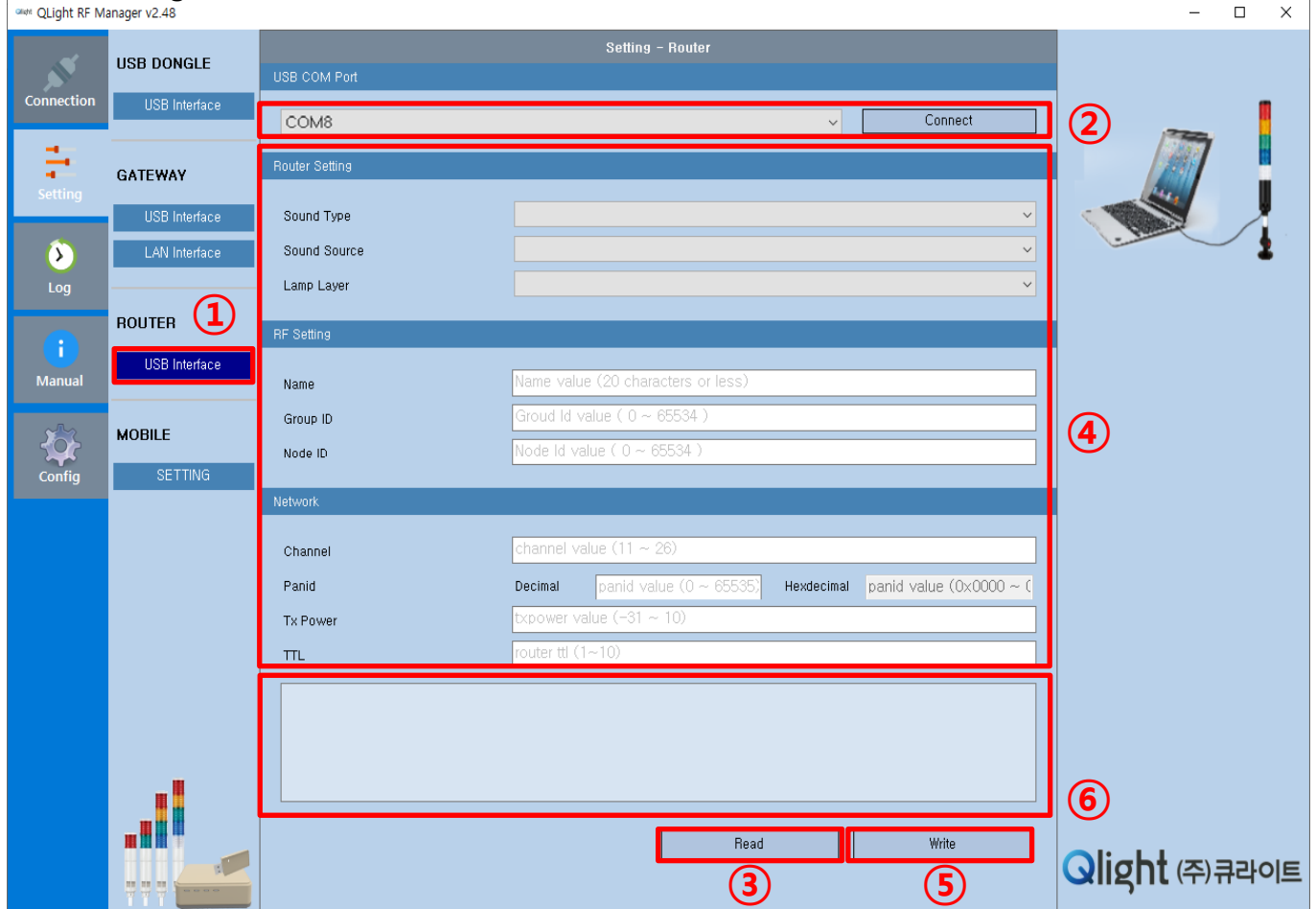
# Wireless Network System User Manual

Field	Description	Range
Name	Gateway name and details	Less than 20 alphabets
Group ID	Control group ID	0 to 65535
Channel	Wireless channel frequency	11 to 26
Panid	Network ID	0 to 65535
Txpower	The output value of the wireless transmission, the higher the setting the stronger the power (The factory default setting is 10)	-31 to 10
IP Address	Input IP address for Gateway(GW768) device	Please contact your network manager
Subnet Mask	Input Subnet Mask for Gateway(GW768) device	
Gateway	Input the Gateway address that the device will use. Please be careful of similar terms	
MAC Address	It refers to the Mac address of the gateway, which is entered by the manufacturer. Customer cannot change the value.	
Gateway Port	Assign Ethernet Port – <b>Default</b>	0 to 65535
<b>Master Gateway</b>	<b>Whether it is Master or Slave Gateway</b>	
Master IP address	Master Gateway IP address	

# Wireless Network System User Manual

## (3) Router

### - The Setting of USB Interface with Router



- ①: Select ROUTER -> USB Interface in the setting menu.
- ②: Select the COM# Port in the drop-down list and press the Connect button to connect with the router(s).
- ③: Press the Read button to retrieve the initial settings of the manufacturer.
- ④: Confirm the status values of the retrieved field or modify them to suit a client's use environment.  
- For more details for the field, see the table below.
- ⑤: After changing the settings, press (click) the Write button to save the changed settings.
- ⑥: When each button is pressed (clicked), it shows the status of communication between the gateways.

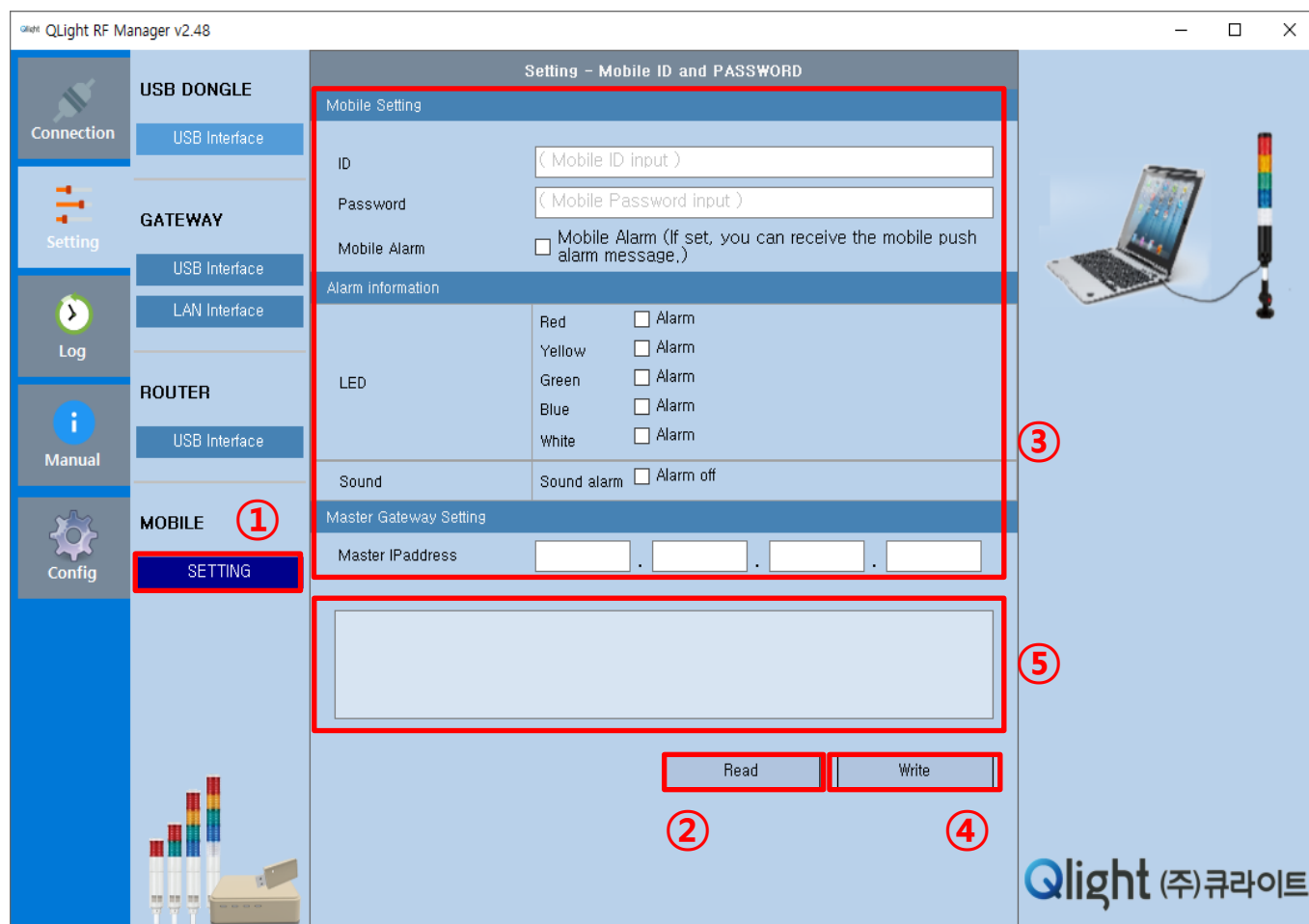


# Wireless Network System User Manual

Field	Description	Range
Sound Type	Select the sound output mode for the router.	Speaker/Buzzer
Sound Source	When the speaker is selected as the sound type, select the sound tone (color).	WS/WP/WM/WA/WV
Lamp Layer	Select the number of LED colors for the wireless signal information devices. It may vary depending on a product.	1 to 5
Name	It can change the name of a wireless signal information device.	Less than 20 alphabets
Group ID	It can change the group of wireless signal information devices. (It is recommended to use the same group ID as channel ID)	0 to 65535
Node ID	It can set the node ID of a wireless signal information device. The setting range of the node ID is wide but the groups can use overlapped node IDs. One group can connect up to 32 routers and thus most of the groups use node ID between 01 to 32.	0 to 65535
Channel	It can set the wireless channel frequency. There are a total of 16 frequency channels but be careful not to set an overlapped channel with a Wi-Fi frequency band. (It is advised to use the same ID as group ID.)	11ch to 26ch
Panid	It is an identifier for an individual network and used as a client's unique number. (It is set by the manufacturer when the product is shipped out.)	0 to 65535
Txpower	It is a wireless transmission output value. The greater the setting is, the greater the power is. (The default value is set to 10 when the product is shipped out.)	-31 to 10
TTL	It sets Hop transmission count in the mesh network. (The default value is set to 6 when the product is shipped out.) If many wireless information devices are being used and they are within the communication distance of 30 meters, reduce the count to 5 or lower. Otherwise, it could increase communication traffic.	3 to 8

# Wireless Network System User Manual

## (4) Setting of Mobile Device and Master IP Address



- ①: Select MOBILE -> SETTING in the setting menu.
- ②: Press the Read button to retrieve the initial settings of the manufacturer.
- ③: Confirm the status values of the retrieved field or modify them to suit a client's use environment.  
- For more details for the field, see the table below.
- ④: After changing the settings, press (click) the Write button to save the changed settings.
- ⑤: When each button is pressed (clicked), it shows the status of communication between the gateway  
s.

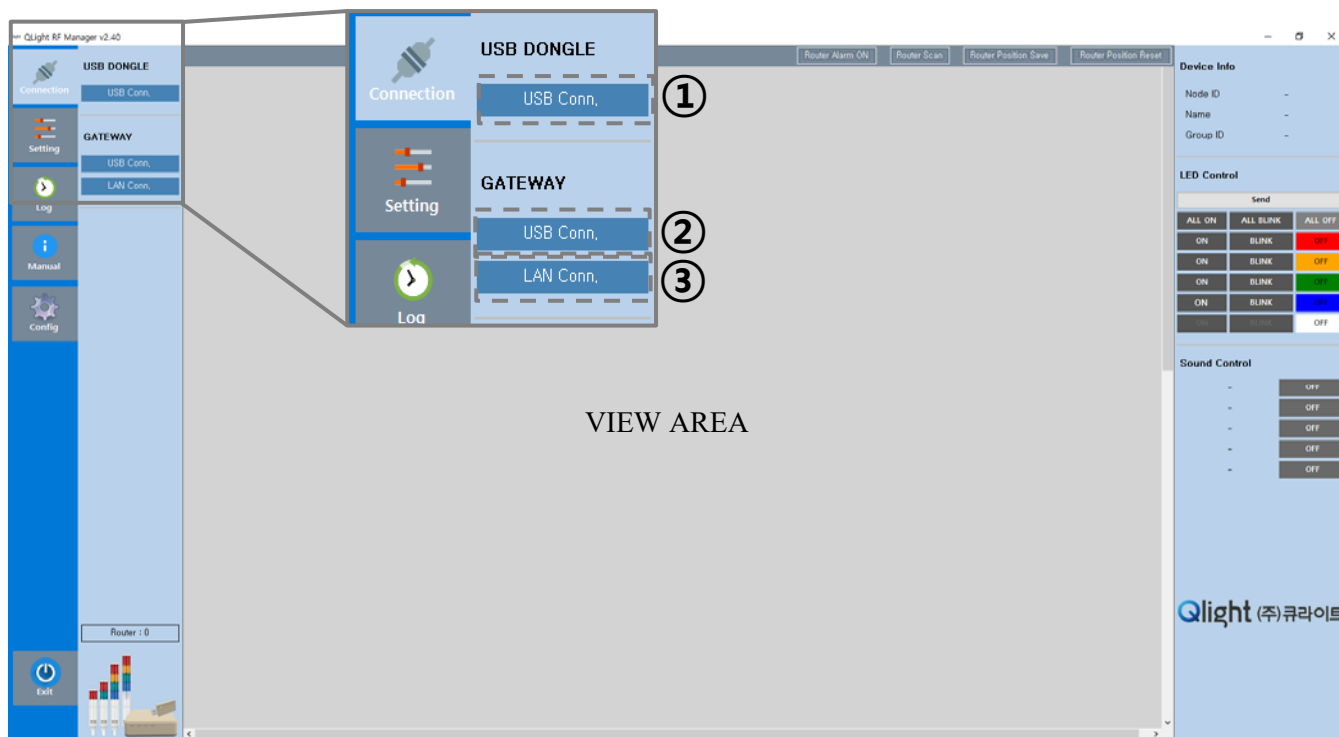
## Wireless Network System User Manual

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Field	Description	Range
ID	It sets the ID to be used in accessing a mobile application.	
Password	It sets the password to be used in accessing a mobile application.	
Mobile Alarm	Even with the mobile application on the background, it activates a push alarm message when a signal occurs in the wireless signal information device.	
LED	It sets a mobile push alarm message when there occurs a change in the LED Kit of the concerned color.	
Sound	It sets a mobile push alarm message when there occurs a sound signal in the wireless signal information device.	
Master IP address	In case multiple gateways are used, enter the IP address of the gateway designated as a master gateway.	

# Wireless Network System User Manual

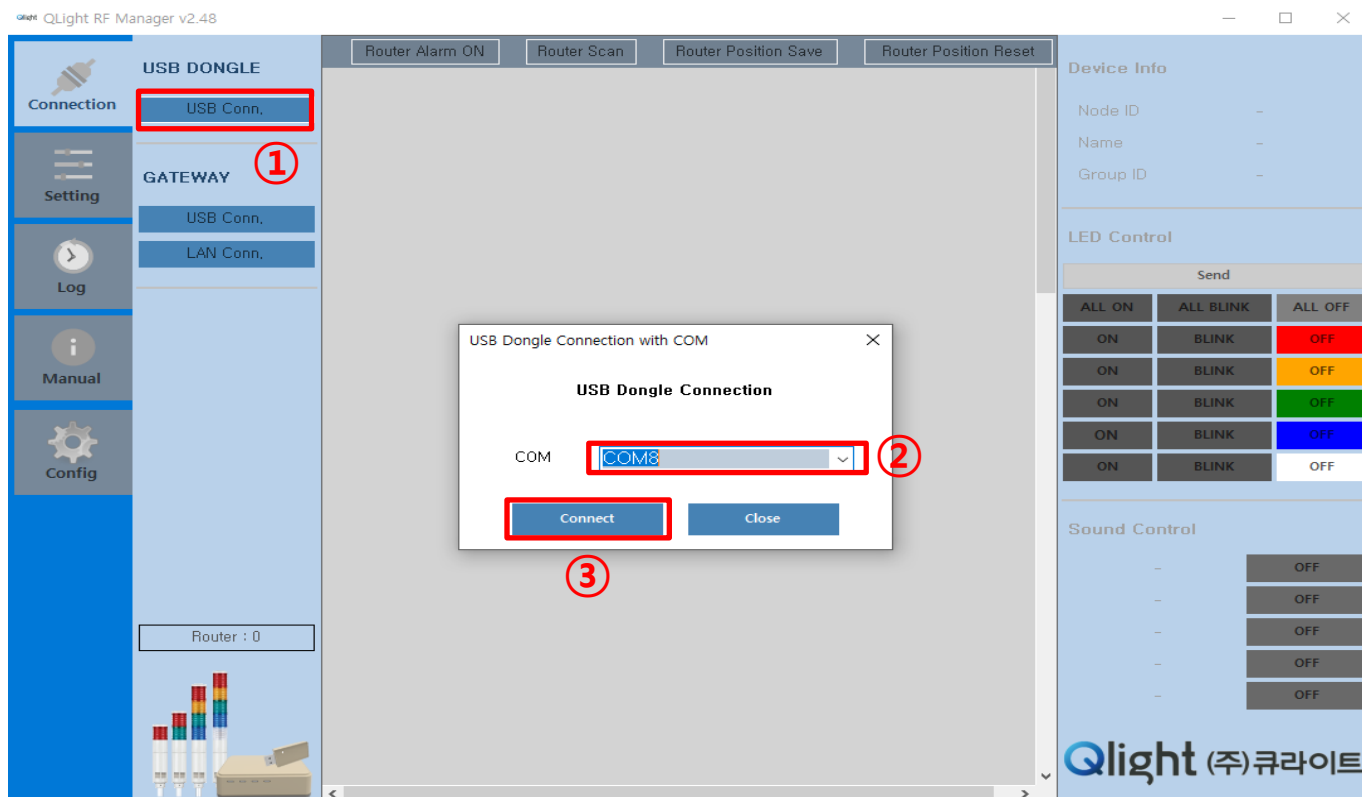
## 4) Connections



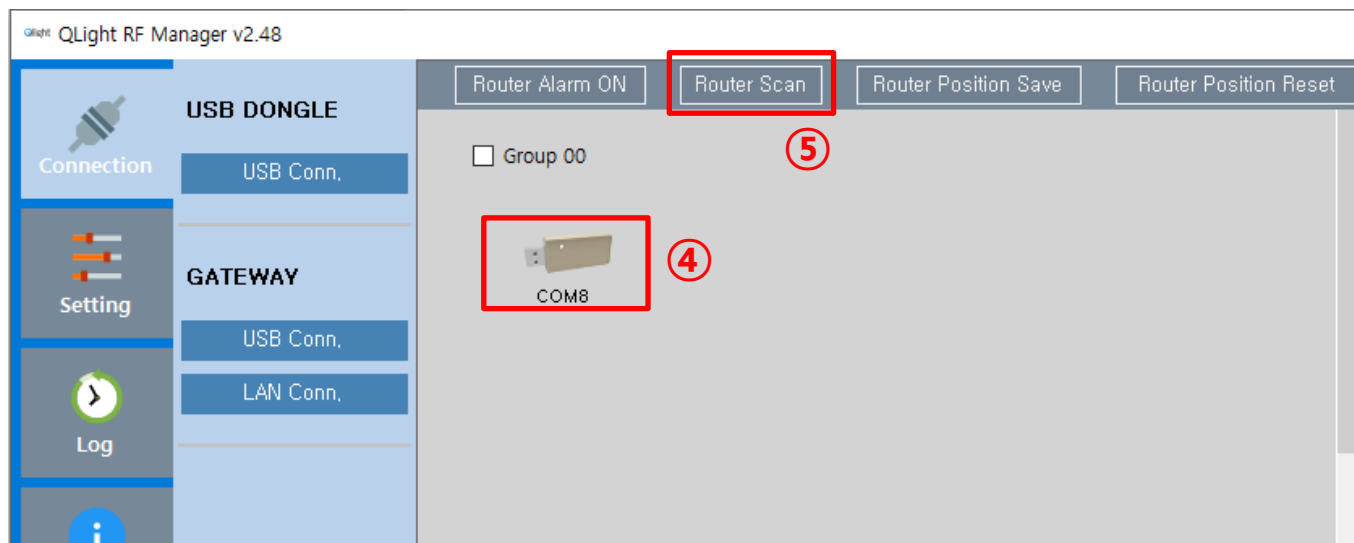
No.	Item	Description
①	USB DONGLE USB Conn.	When the wireless network system is connected through the USB dongle, select and use this menu.
②	GATEWAY USB Conn.	When the wireless network system is connected through the gateway USB, select and use this menu.
③	GATEWAY LAN Conn.	When the wireless network system is connected through the gateway in LAN communication, select and use this menu.

# Wireless Network System User Manual

## (1) Use of USB Dongle



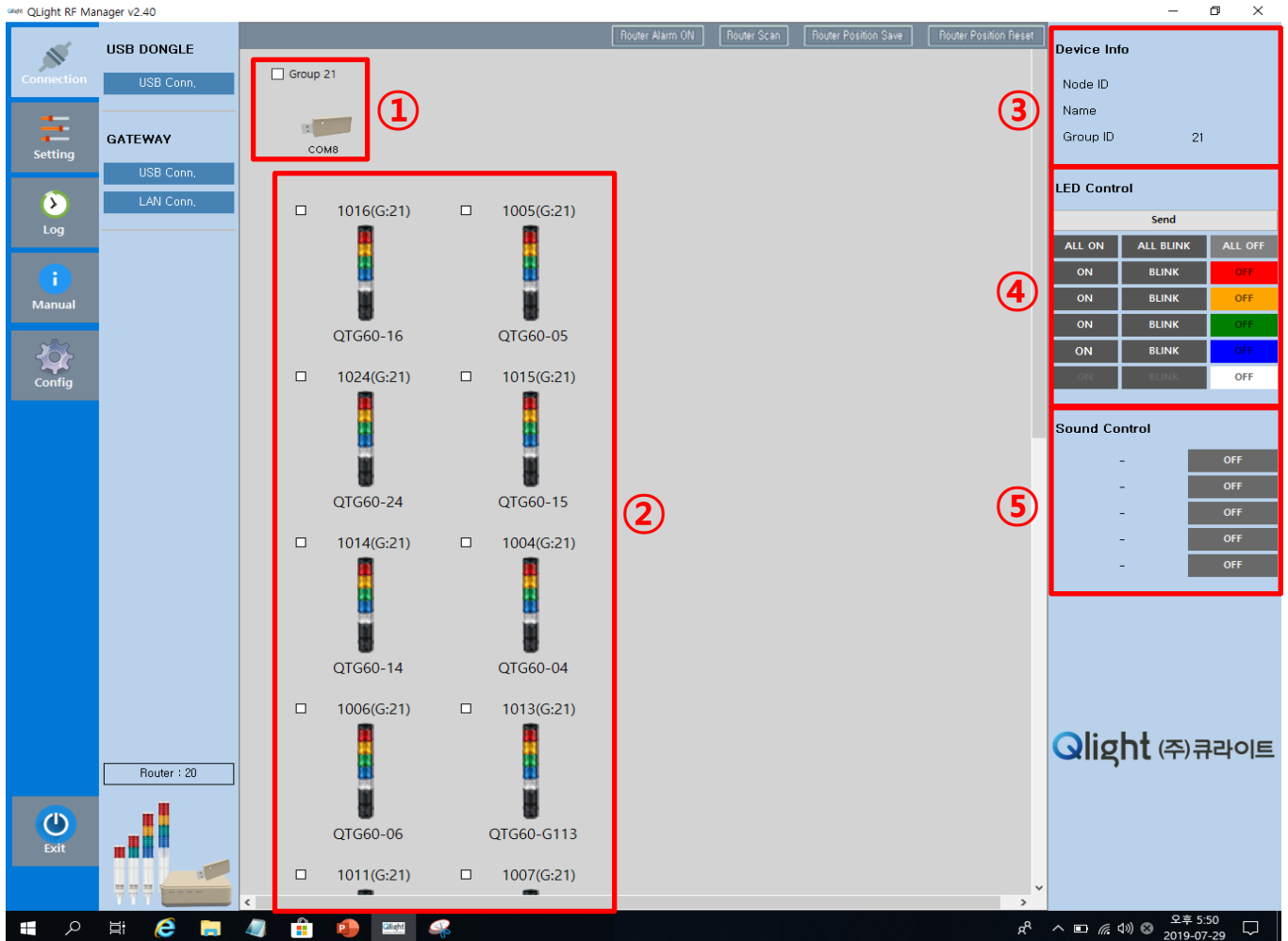
- ①: Select Connection -> USB DONGLE -> USB Conn.
- ②: Select the COM# Port in the drop-down list.
- ③: Press the Connect button to connect with the USB dongle.



- ④: Check if the USB dongle has been activated.
- ⑤: Click the Router Scan button and scan the routers connected to the USB dongle.

# Wireless Network System User Manual

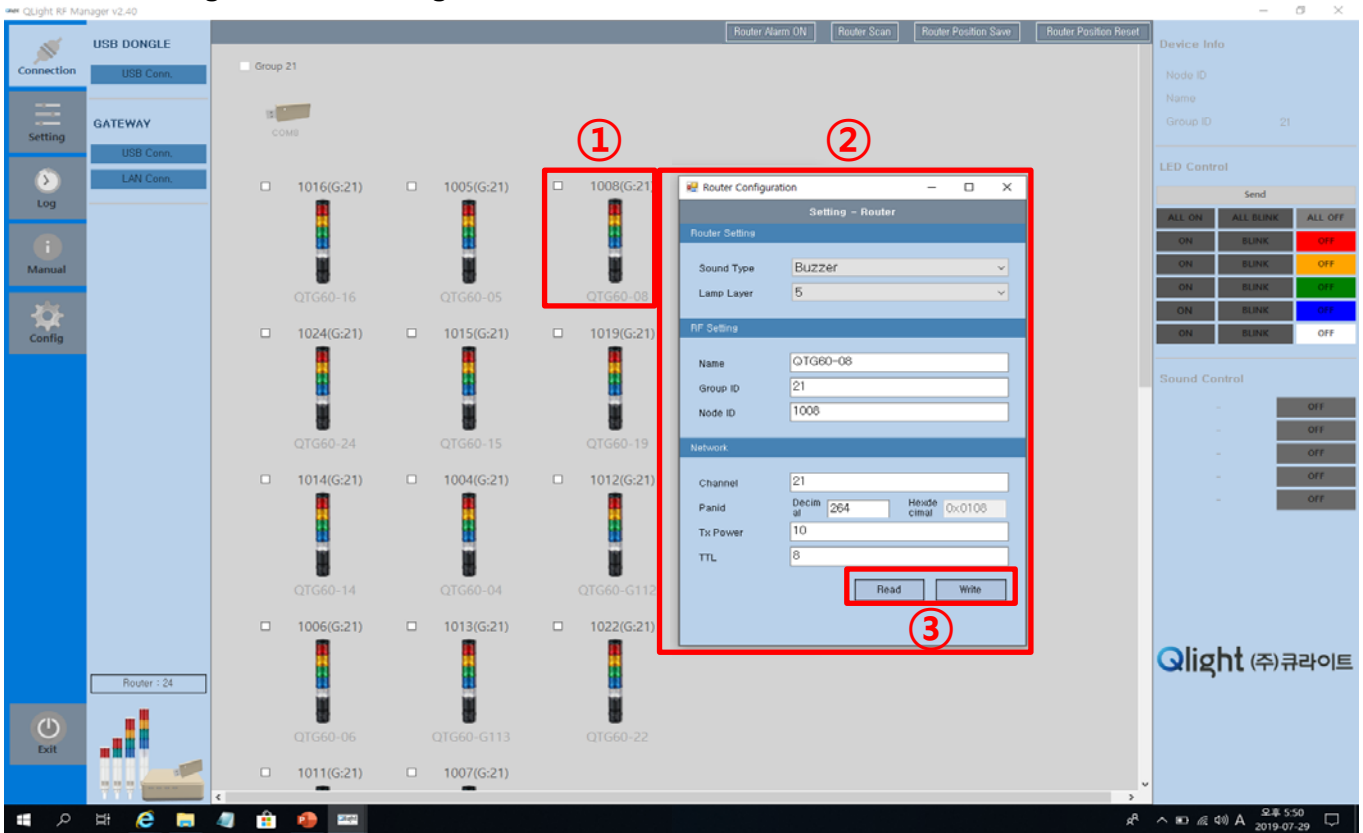
## - How to Control a Wireless Signal Information Device



- ①: Check the box of USB GROUP21 and the entire wireless signal information devices in ② will be selected or cleared.
- ②: Each router can be selected or cleared by checking individual boxes.  
When necessary, they can be selected or cleared individually or all together.  
User can monitor status of the wireless signaling devices by observing variation of LED color and Sound when the devices are in operational.
- ③: It displays information about the wireless signal information device. (only when wireless signal information devices are selected individually).
- ④: After selecting how to control the LED of the selected routers, press the Send button to control all the selected routers at once.
- ⑤: Press Sound ON or OFF button to control the sound for all the selected routers at once.

# Wireless Network System User Manual

## - How to Change Router Settings



- ①: It is possible to change the settings of a signal information device wirelessly. Place a mouse on the wireless signal information device whose settings are to be changed and click on the right mouse button. And choose the Configuration.
- ②: When the setup window has been activated, it shows the current settings.
- ③: After entering or changing the status value of the field, press (click) the Write button to save the changed settings.

Field	Description	Range
Sound Type	Select the sound output mode for the router.	Speaker/Buzzer
Sound Source	When the speaker is selected as the sound type, select the sound tone (color).	WS/WP/WM/WA/WV
Lamp Layer	Select the number of LED colors for the wireless signal information devices. It may vary depending on a product.	1 to 5
Name	It can change the name of a wireless signal information device.	Less than 20 alphabets
Group ID	It can change the group of wireless signal information devices. (It is recommended to use the same group ID as channel ID.)	0 to 65535

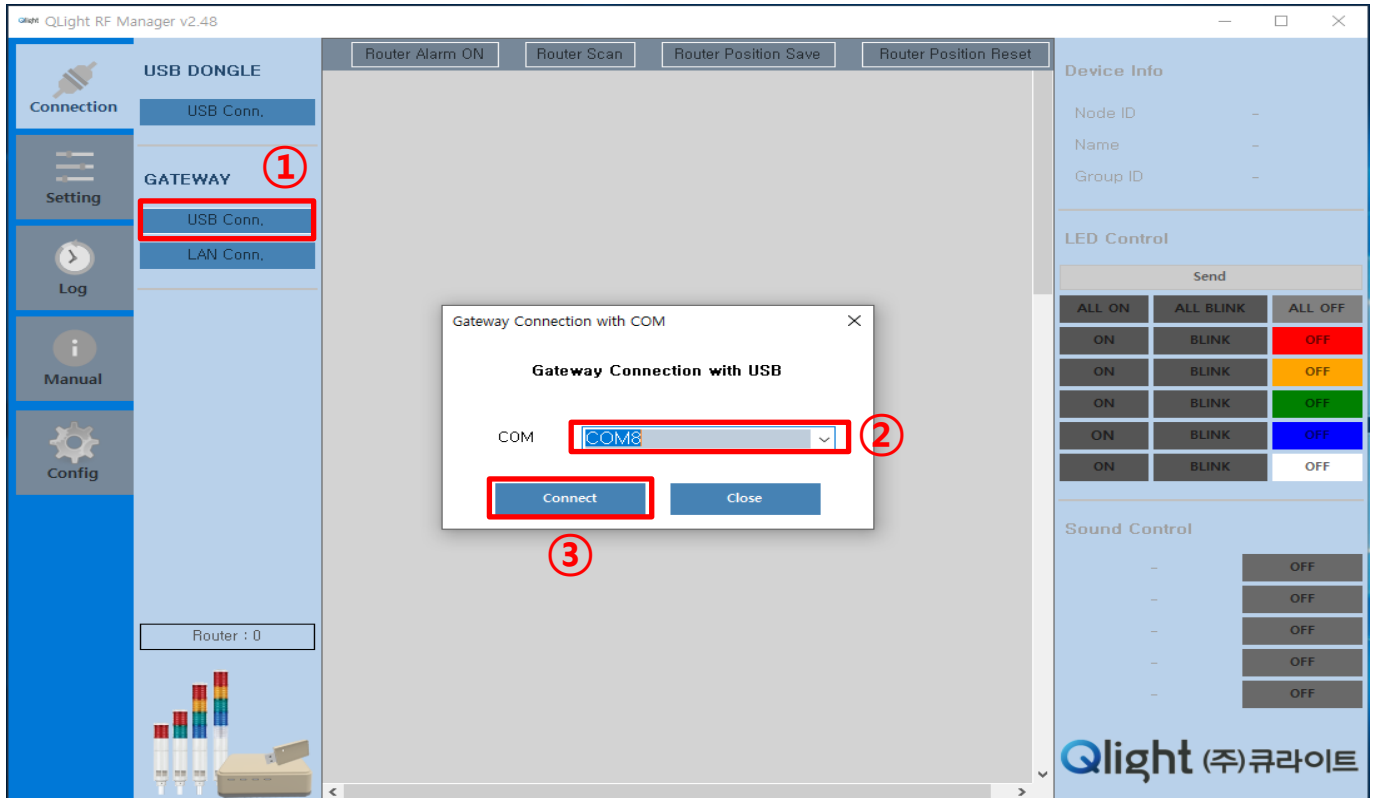
# Wireless Network System User Manual

Field	Description	Range
Node ID	<p>It can set the node ID of a wireless signal information device.</p> <p>The setting range of the node ID is wide but a group can use overlapped node ID.</p> <p>One group can connect up to 32 routers and thus most of the groups use node ID between 01 and 32.</p>	0 to 65535
Channel	<p>It can set the wireless channel frequency.</p> <p>There are a total of 16 frequency channels but be careful not to set an overlapped channel with a Wi-Fi frequency band.</p> <p>(It is advised to use the same ID as group ID.)</p>	11ch to 26ch
Panid	<p>It is an identifier for an individual network and used as a client's unique number.</p> <p>(It is set by the manufacturer when the product is shipped out.)</p>	0 to 65535
Txpower	<p>It is a wireless transmission output value. The greater the setting is, the greater the power is.</p> <p>(The default value is set to 10 when the product is shipped out.)</p>	-31 to 10
TTL	<p>It sets Hop transmission count in the mesh network.</p> <p>(The default value is set to 6 when the product is shipped out.)</p> <p>If many wireless information devices are being used and they are within the communication distance of 30 meters, reduce the count to 5 or lower. Otherwise, it could increase communication traffic.</p>	3 to 8

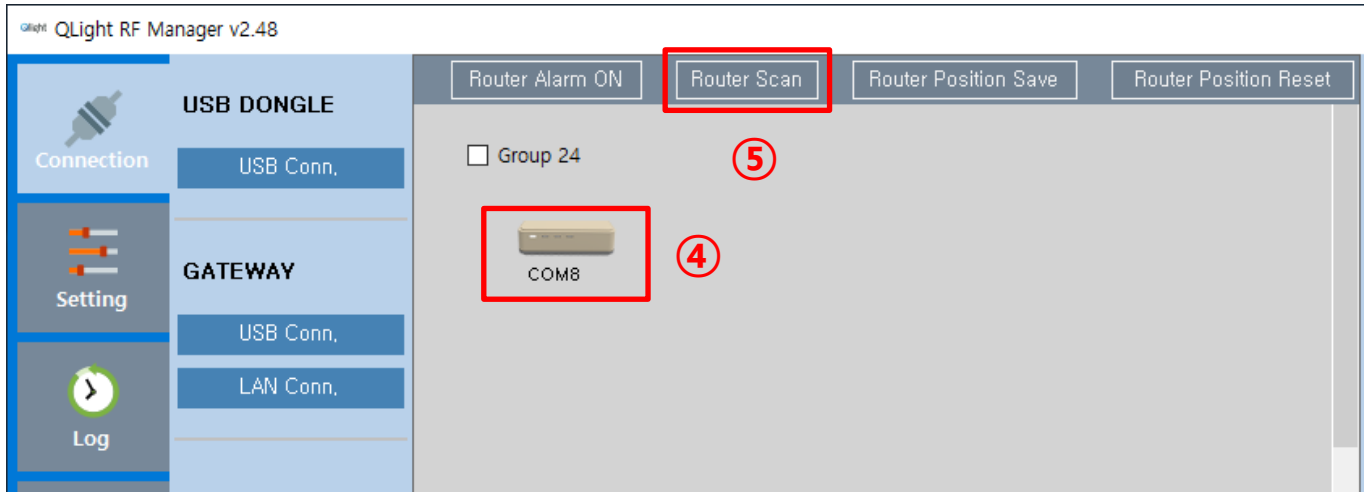


# Wireless Network System User Manual

## (2) Use of Gateway - With USB



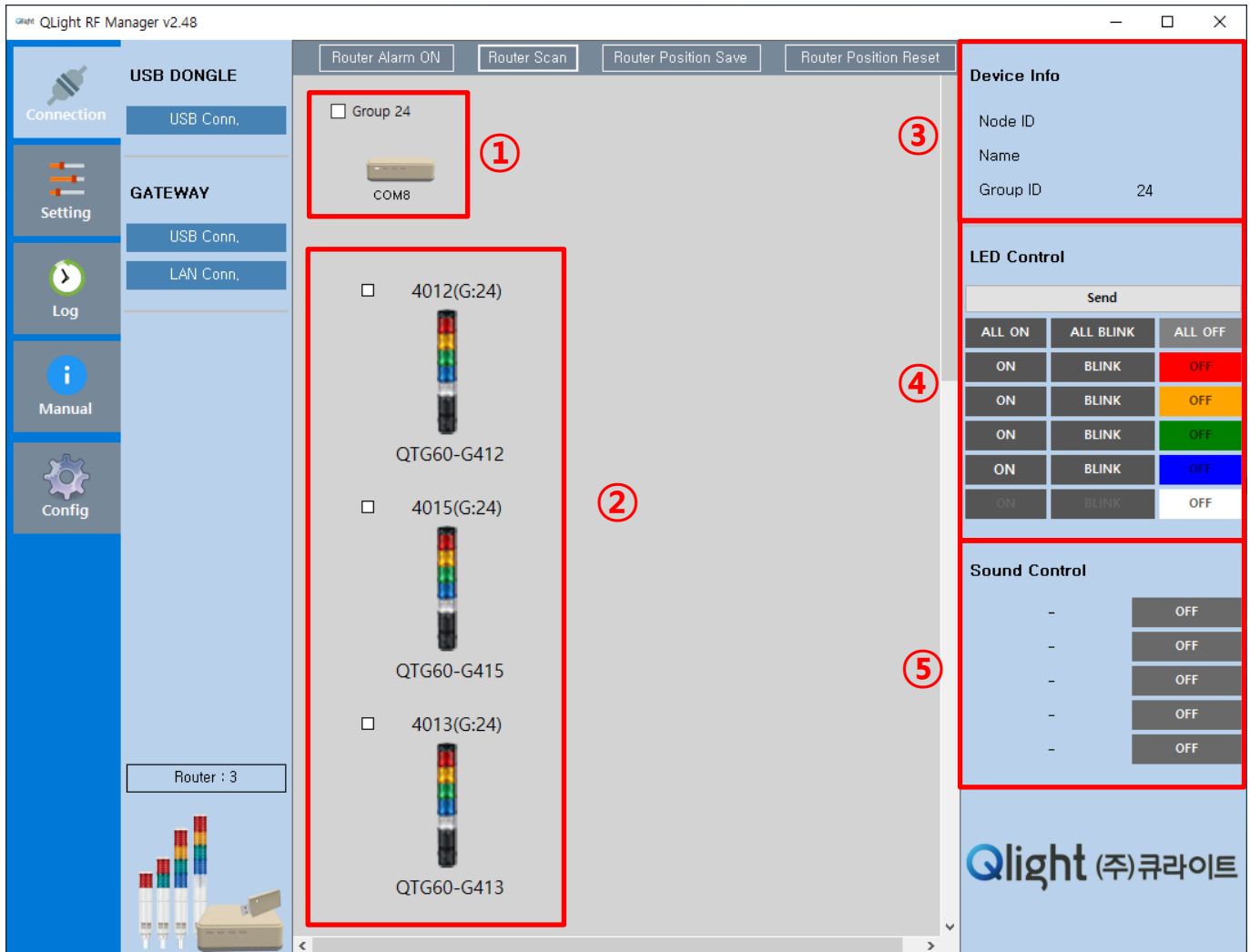
- ①: Select Connection -> GATEWAY -> USB Conn.
- ②: Select the COM# Port in the drop-down list.
- ③: Press the Connect button and connect with the gateway.



- ④: Check if the gateway has been activated.
- ⑤: Click the Router Scan button and scan the routers connected to the gateway.

# Wireless Network System User Manual

## - How to Control a Wireless Signal Information Device

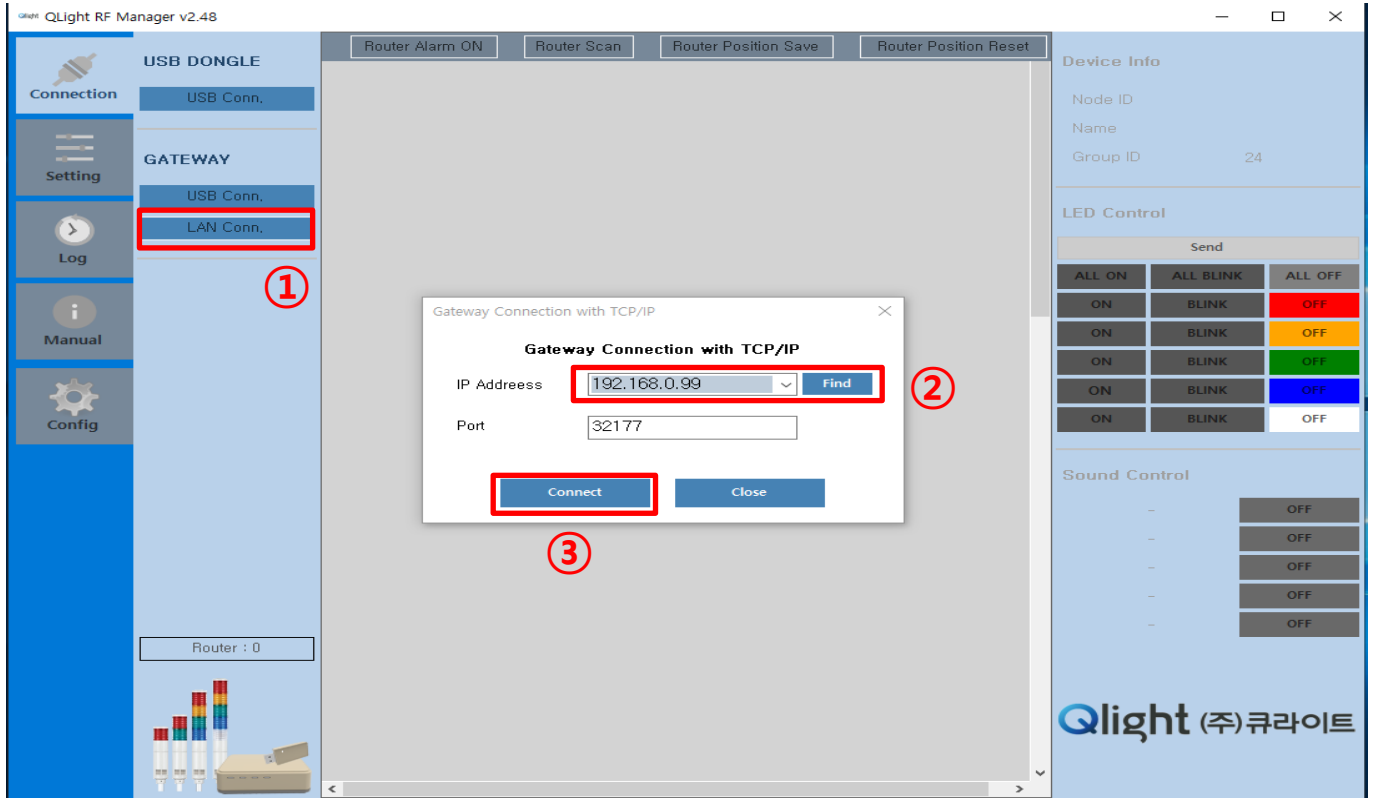


- ①: Check the boxes of GATEWAY GROUP24 and the entire wireless signal information devices in ② will be selected or cleared.
- ②: Each router can be selected or cleared by checking individual boxes.  
When necessary, they can be selected or cleared individually or all together.  
User can monitor status of the wireless signaling devices by observing variation of LED color and Sound when the devices are in operational.
- ③: It displays information about the wireless signal information device. (only when wireless signal information devices are selected individually).
- ④: After selecting how to control the LED of the selected routers, press the Send button to control all the selected routers at once.
- ⑤: Press Sound ON or OFF button to control the sound for all the selected routers at once.

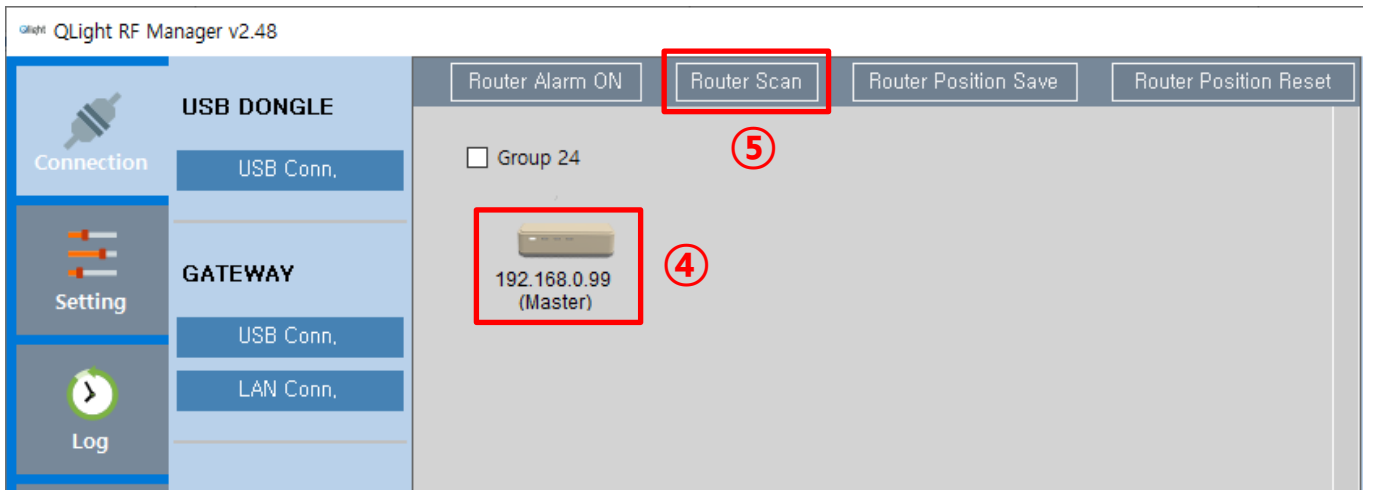
# Wireless Network System User Manual

## (2) Use of Gateway

### - With LAN



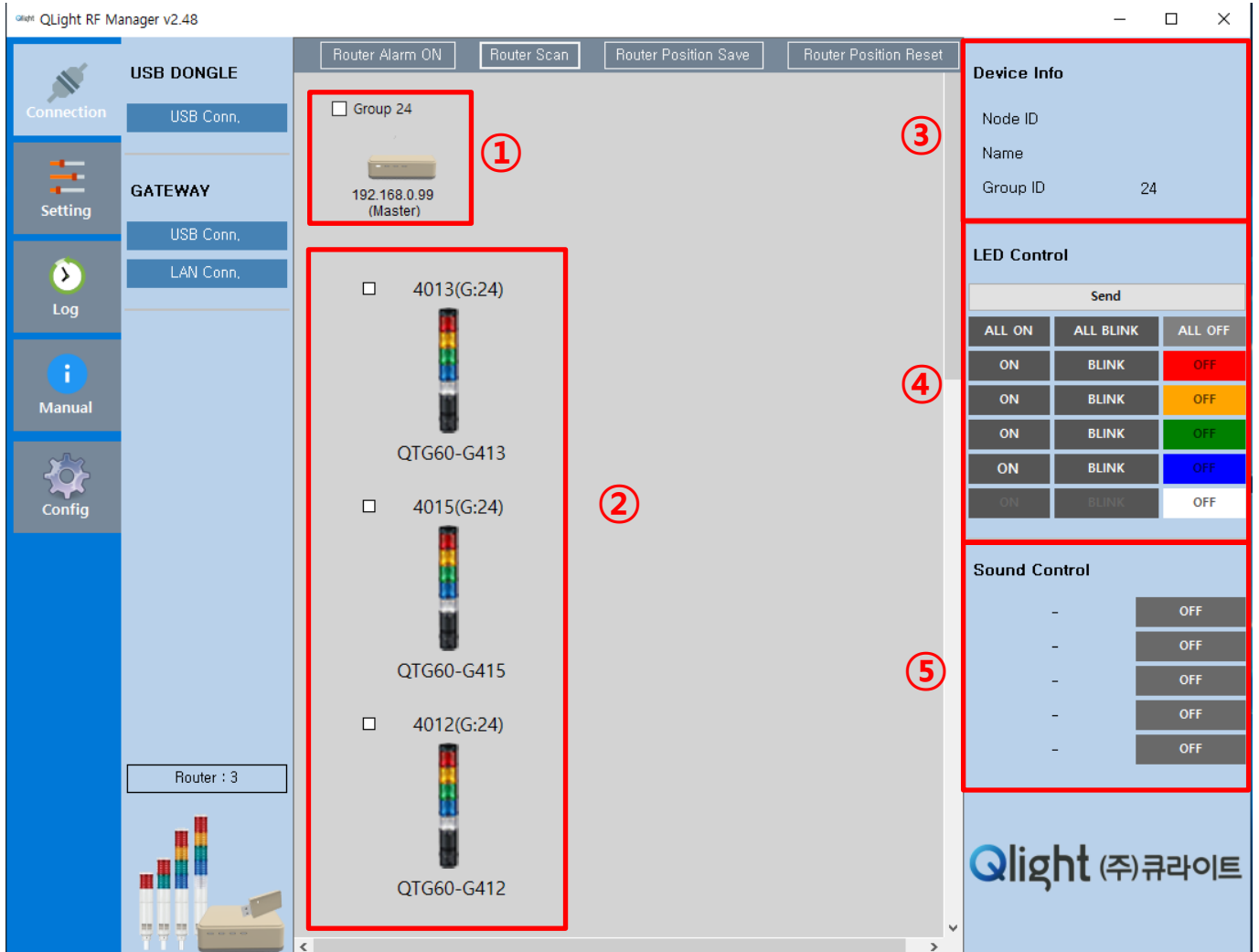
- ①: Select Connection -> GATEWAY -> LAN Conn.
- ②: Select the COM# Port in the drop-down list.
- ③: Press the Connect button and connect with the gateway.



- ④: Check if the gateway has been activated.
- ⑤: Click the Router Scan button and scan the routers connected to the gateway.

# Wireless Network System User Manual

## - How to Control a Wireless Signal Information Device



①: Check the boxes of GATEWAY GROUP24 and the entire wireless signal information devices in ② will be selected or cleared.

②: Each router can be selected or cleared by checking individual boxes.

When necessary, they can be selected or cleared individually or all together.

User can monitor status of the wireless signaling devices by observing variation of LED color and Sound when the devices are in operational.

③: It displays information about the wireless signal information device. (only when wireless signal information devices are selected individually.

④: After selecting how to control the LED of the selected routers, press the Send button to control all the selected routers at once.

⑤: Press Sound ON or OFF button to control the sound for all the selected routers at once.

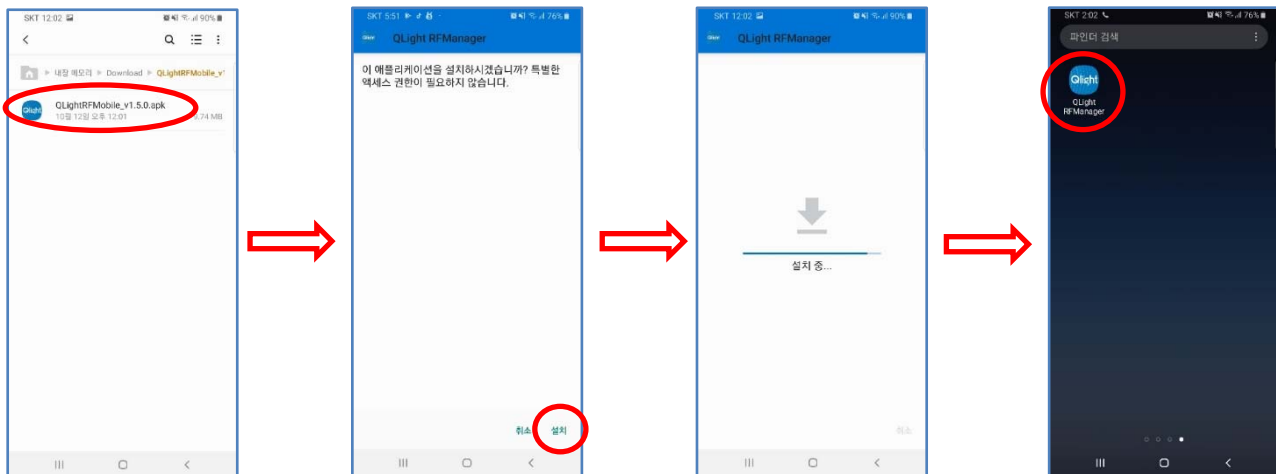
# Wireless Network System User Manual

## 5) Use of Mobile Device

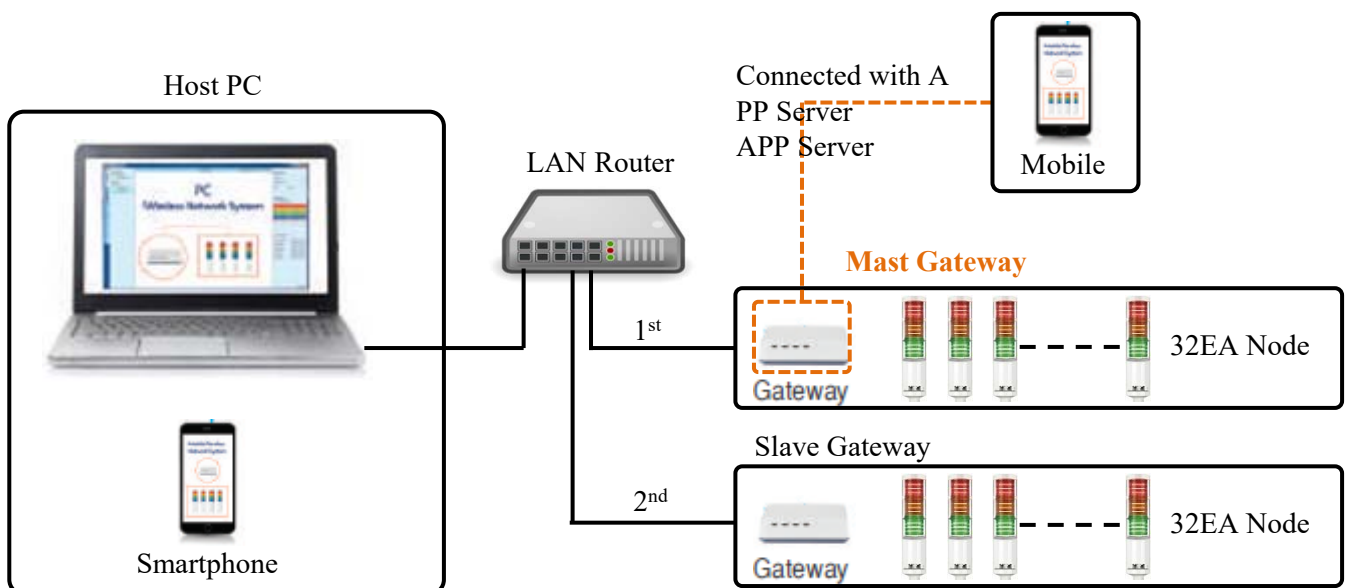
### (1) Installation of Mobile Application

The mobile application is used to monitor, set, and control the status information of a wireless signal information device with a mobile device.

Download the installation file of the mobile application (QlightRFMobile\_Vx.x.x) from Qlight website and install it.



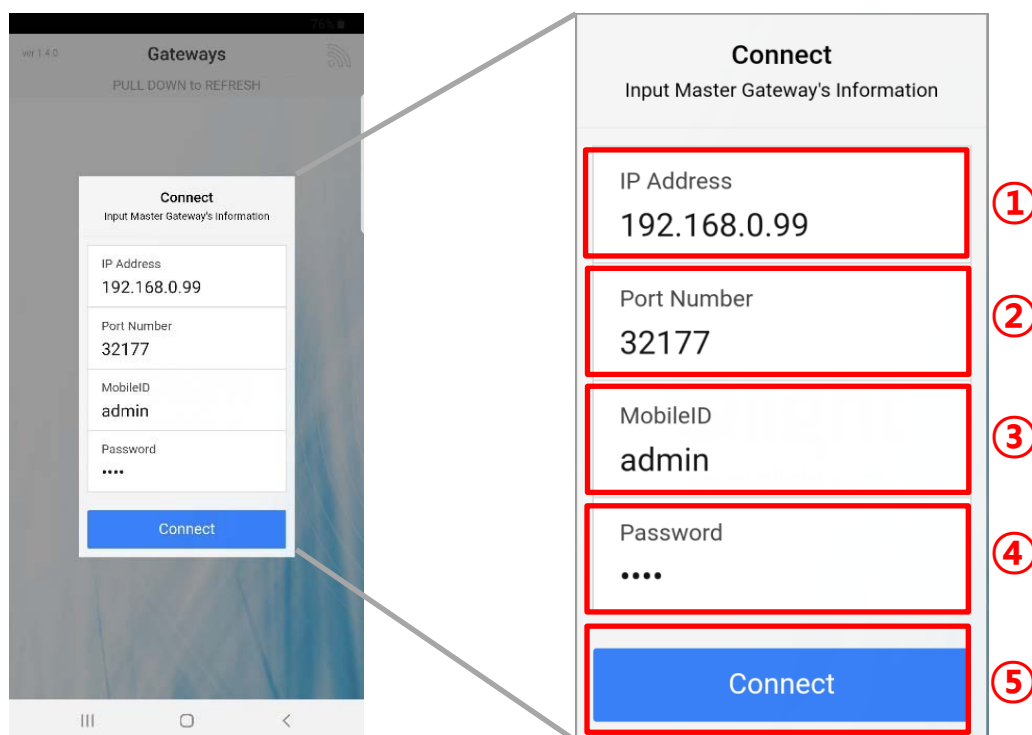
When installation is completed, Qlight RFManager application appears. Before run the mobile application, change the mobile Wi-Fi to LAN router Wi-Fi to synchronize with the master gateway.



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## (2) Login of Mobile Operating Program

When executing the mobile application, the screen below is displayed for logging in. Please read the name and the descriptions of the function of each item.



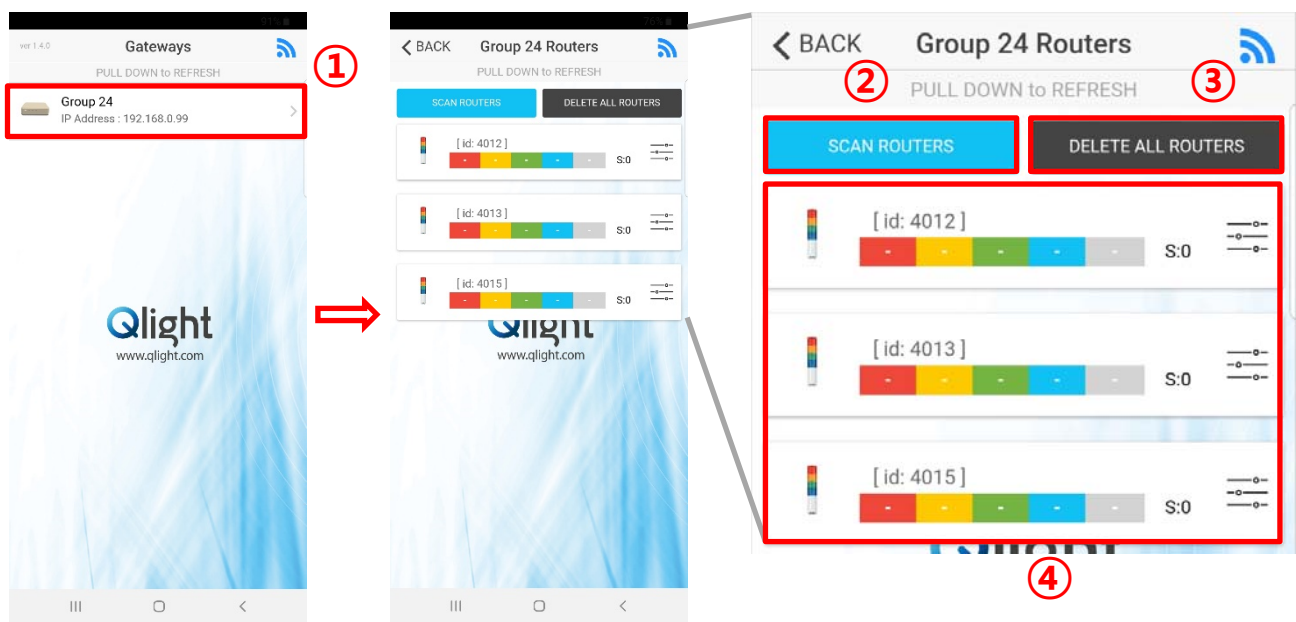
No.	Item	Description
①	IP Address	Enter the IP address of the gateway designated as a mast gateway to deliver information about the mobile device.
②	Port Number	Enter the port number of the gateway designated as a mast gateway to deliver information about the mobile device.
③	Mobile ID	Enter the mobile ID set in the Qlight Manager.
④	Password	Enter the password set in the Qlight Manager.
⑤	Connect	After entering all of ① to ④ items, click the Connect button and the mobile application logs in.

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## (3) Use of Mobile Application

When the mobile application logs in, all the gateways connected to it are displayed. Click each of them and it will display the routers in the group.

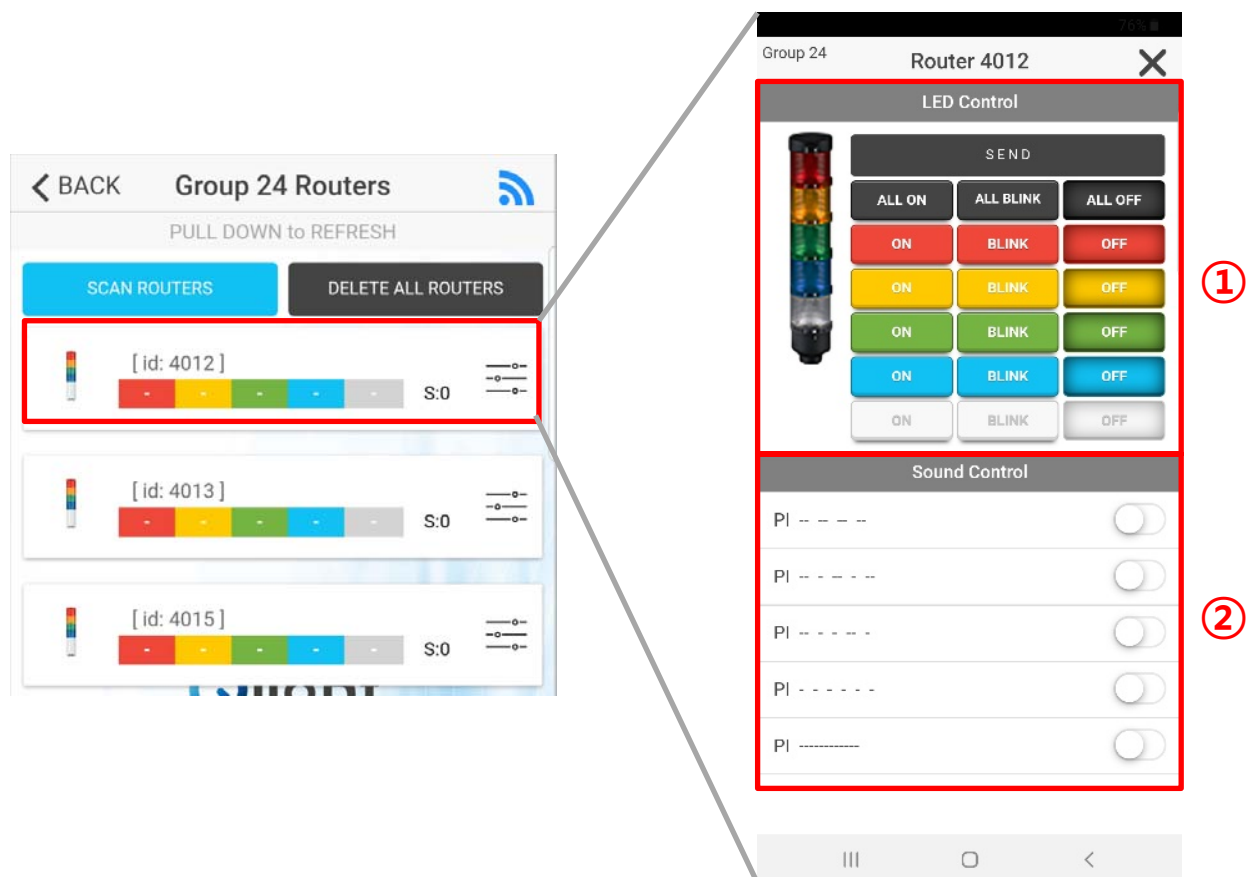
(Unlike the PC Application, the routers are not controlled by group in the mobile application. They are controlled individually.)



- ①: It displays on the screen the gateways connected to the mobile application by group.
- ②: It scans the wireless signal information devices connected to the gateways and displays them on the screen. It can be implemented when necessary at the initial startup of the program.
- ③: It deletes the wireless signal information devices connected to the gateways from the mobile screen.
- ④: It displays the wireless signal information devices connected to the gateways and can select and control them individually. User can monitor status of the wireless signaling devices by observing variation of LED color and Sound when the devices are in operational.

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## (3) Use of Mobile Application



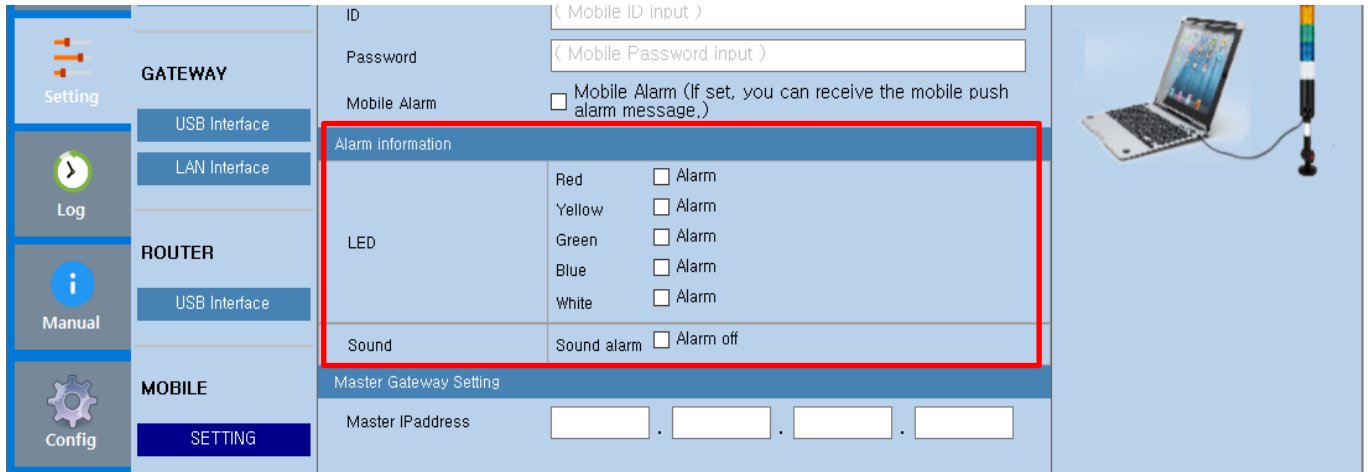
- ①: After selecting how to control the LED of the selected routers, press the Send button to control the selected routers.
- ②: Move the slide button of the Sound Control of the selected router to right or left to control the sound play of the selected router.



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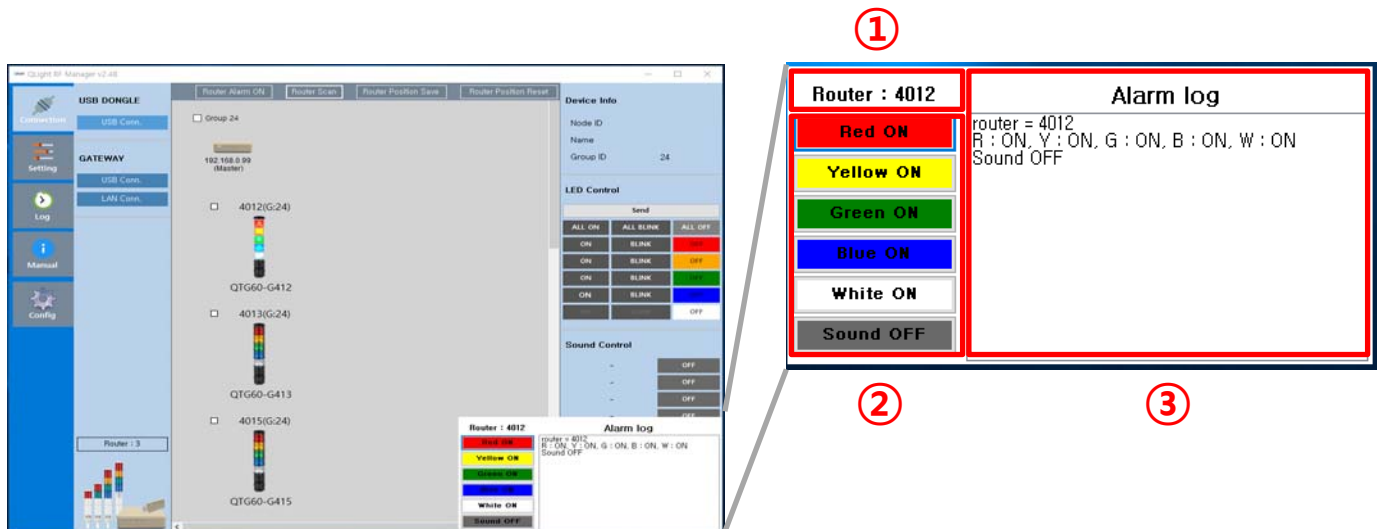
## 6) Router Alarm

Check the boxes (MOBILE SETTING -> Alarm information) in the setting menu and alarm logs are displayed in the PC Application or the mobile application and the operation status of the routers is indicated, depending on the operation of the router.



### - Router Alarm in PC Application

When a router is controlled by the external contact point, except for the PC Application, or in the mobile application, a router alarm log window pops up at the right bottom of the PC Application.



①: It displays the node ID of the selected router.

②: It displays on the screen the operating status of the selected router LED and sound by On and OFF.

③: It displays on the screen the operating status of the selected router LED and sound in text.

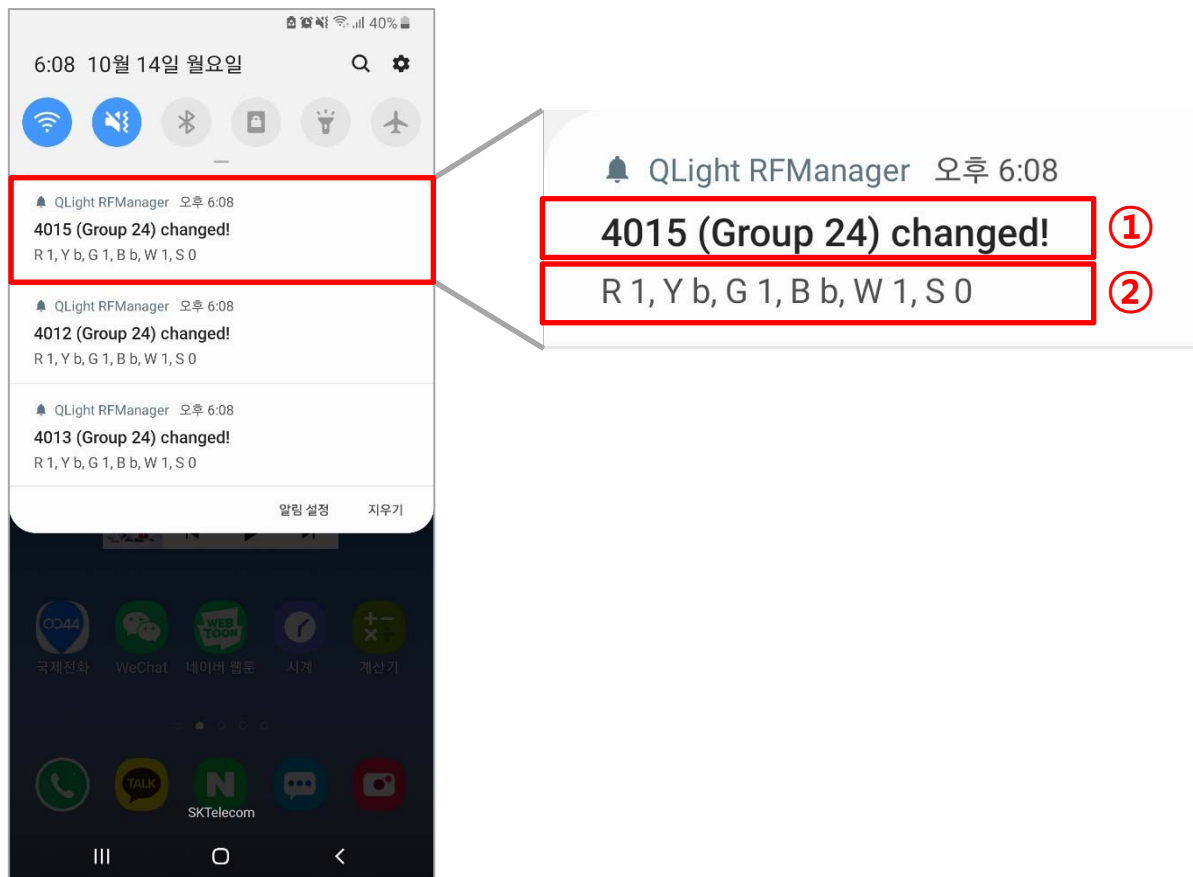
(LED colors are expressed in R, Y, G, B, and W and sounds are expressed in Sound1m Sound2, Sound3, Sound4, and Sound5)

(LED/Sound turns on: ON; LED flickers: BLINK, LED/Sound turns off: OFF)

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## - Router Alarm in Mobile Application

When a router is controlled by the external contact point, except for the mobile application, or in the PC Application, the mobile application displays a router alarm.



①: It displays the mode ID and group ID of the selected router.

②: It displays on the screen the operating status of the selected router LED and sound in text.

(LED colors are expressed in R, Y, G, B, and W and sound is expressed in S)

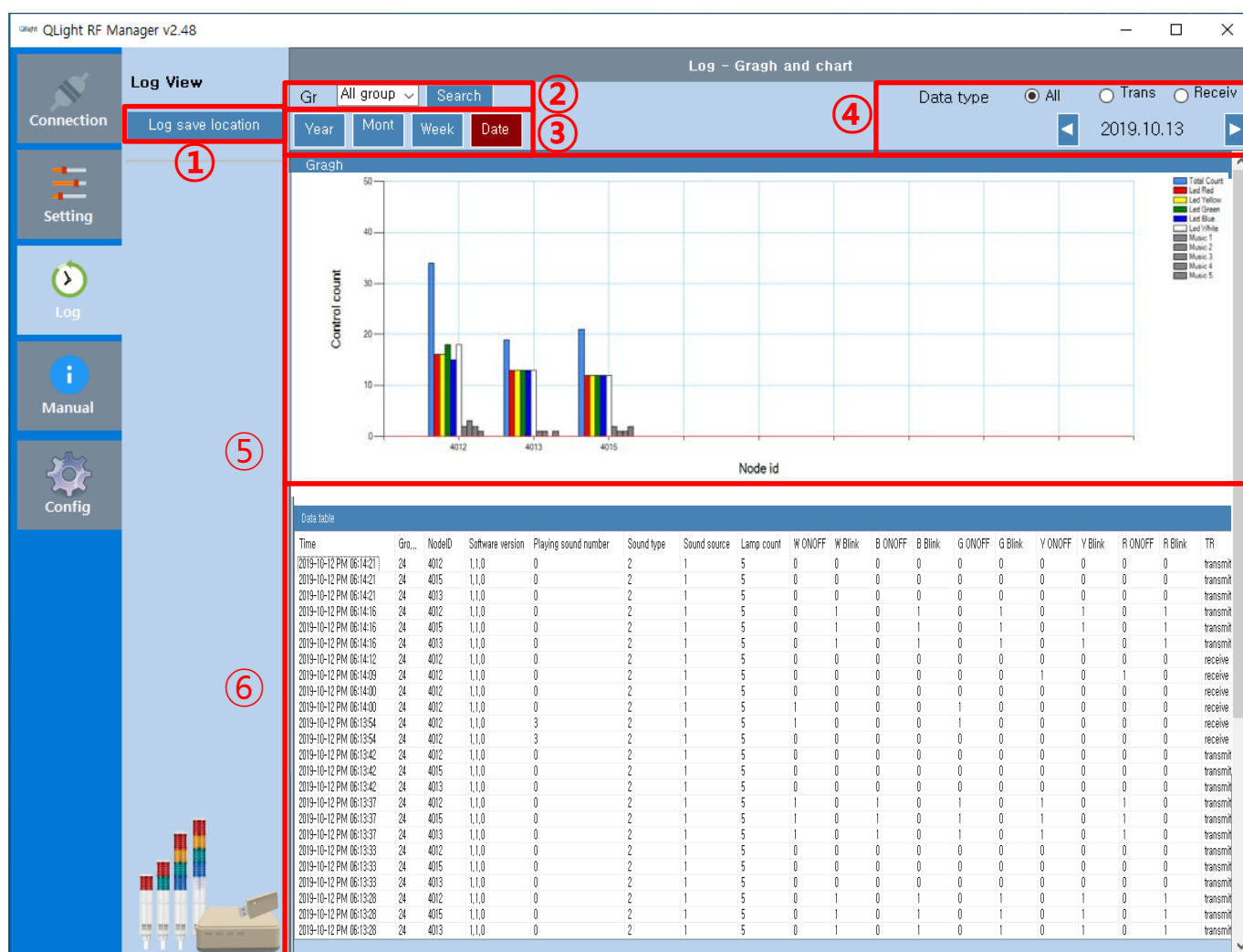
(LED turns on: 1; sounds turn on: S1/S2/S3/S4/S5; LED flickers: b, LED/Sound turns off: 0)

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## 7) Use of Log Files

The operation status of a wireless signal information device is saved in the format of CSV file. Using the log files saved in VIEW window, it can display the operation status of each wireless signal information device on a daily, weekly, monthly, or yearly basis.

- Using the CSV files, it can produce important information of clients such as “operation ratio”, “productivity”, etc. of production equipment.
- The graphic representation of the functions (Excel) makes it much easier to understand the, (a separate work for Excel is required.)



①: Designate the saving path for log files using 'Log save location' in the Log menu.

- The default path is C:\QLight\Logs.

②: It can select to view log files by group or product as a whole.

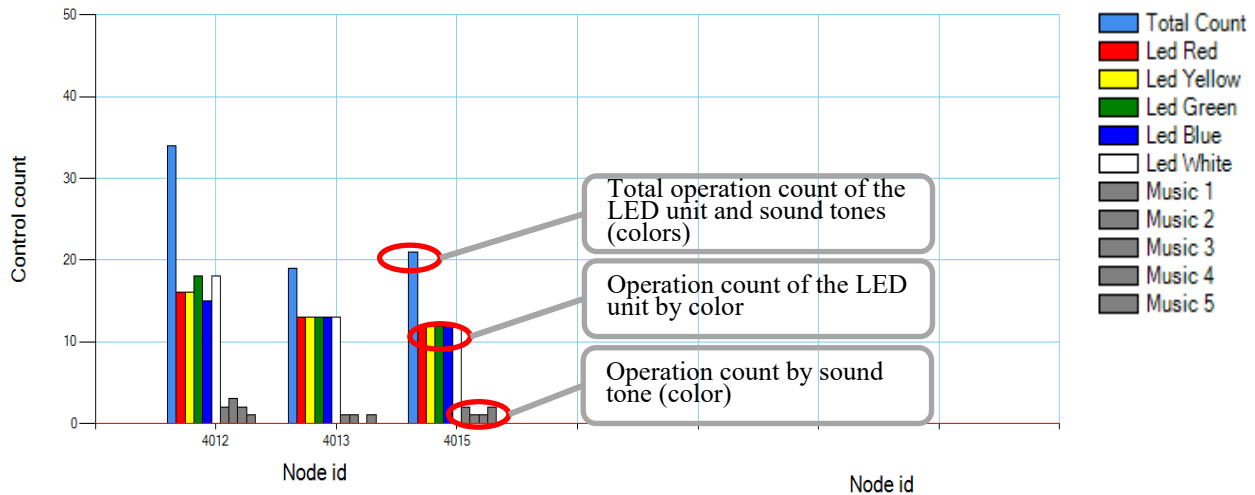
③: It can select log files on a daily, weekly, monthly, or yearly basis.

- Log CSV files are saved on a daily basis.

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④: It can search out the log files of a specific date and display them.

- The searching method varies by user.



⑤: The operation count can be displayed and easily understood by the node ID of each device.

⑥: It shows CSV files by the node ID of each device.

-Time: the transmission (sending/receiving) time of wireless data.

-Group ID: the group of wireless signal information devices.

-Node ID: the unique ID of a wireless signal information device.

- Software version: the firmware version of a wireless signal information device.

- Playing sound number: channel number

- Sound type: The WS/WP sound tone (color) of Qlight's sound sources (see the basic sound tones (colors) in the Qlight's homepage.)

- Sound source: speaker type or buzzer type.

- Lamp count: the number of layers in the LED unit. (1 to 5)

-R/A/G/B/W ON/OFF: the LED unit turns on or off by color (0: OFF and 1: ON)

-R/A/G/B/W Blink: the blinking state of the LED unit by color. (0: OFF and 1: blink)

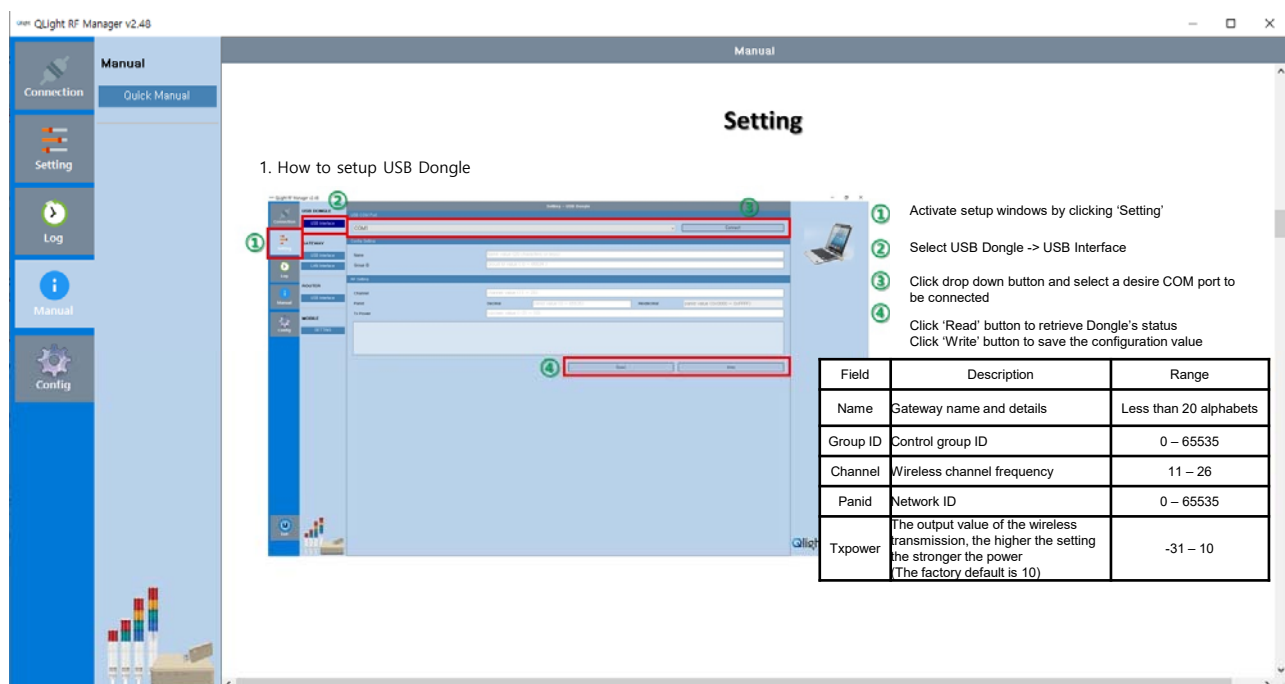
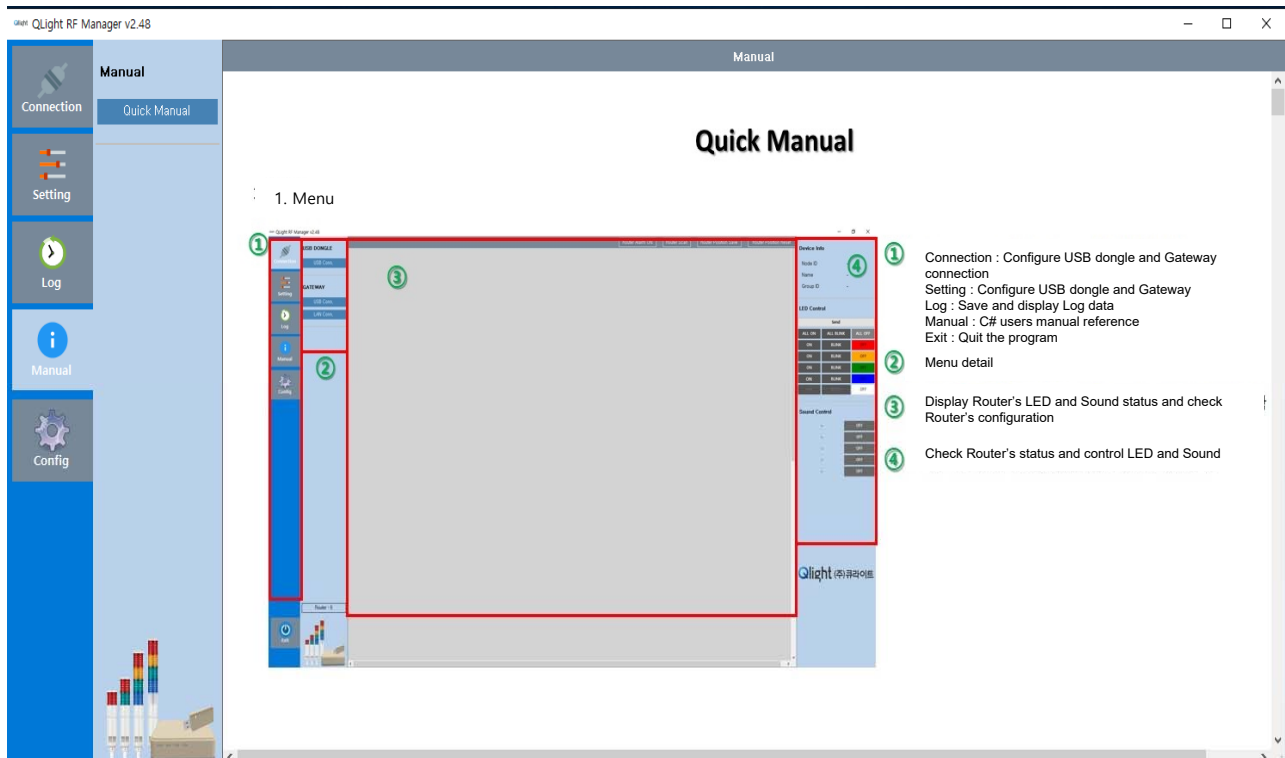
-TR: the indication of whether it is a signal from or to a wireless signal information device.

(A signal sent from the PC: transmit, A signal sent to the PC: receive)

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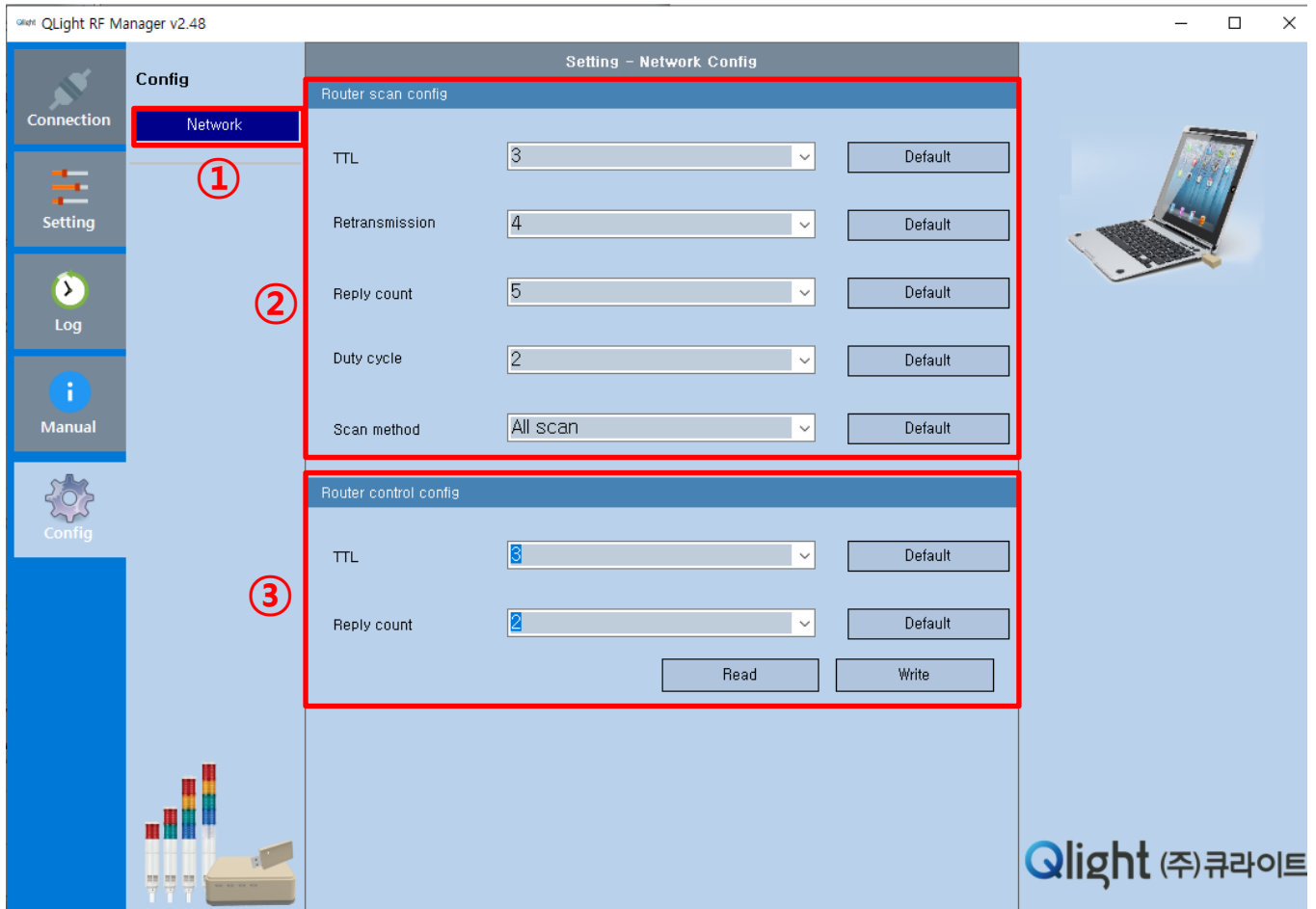
## 8) Manual

Manual part provides a brief description of the PC operation program so that the user can use the PC application easily. Brief manuals for Quick Manual, Connection, Setting, LED and Sound control.



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## 9) Use of Configuration Menu



- ①: Use the Network button in the Config menu to set wireless transmission (sending/receiving).  
 ②: It is a wireless setting used when sending the packets of the gateways or the USB dongle to the wireless signal information device.

No.	Item	Description
1	TTL	It is the number of hopping through a wireless signal information device when the packets are sent from Gateway or the US dongle to the wireless signal information device. The recommended count is 5 to 6.
2	Retransmission	It is the number of times the packets are sent to a wireless signal information device. The recommended count is 2 to 3.
3	Reply count	It is the number of times the statue of a wireless signal information device is checked. When it is sent to 3, a status check is conducted three times. If no response is given for three attempts, it is regarded as a communication failure. If there is at least one response, it is displayed as 'in communication mode'. An operation count of 2 to 3 is recommended.

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No.	Item	Description
4	Duty cycle	It is the interval (time) at which the status of a wireless signal information device is checked. When it is set to 5, it is checked every 5 seconds. Time indicates how long it takes to check one wireless signal information device. The recommended time is 2 to 3 seconds.
5	Scan method	ALL: the PC checks the status of all the wireless signal information devices one by one. GROUP: the PC checks the status of all the wireless signal information devices by group. For a swift status check, GROUP is recommended.

③: It is a wireless setting used when sending the packets of a wireless signal information device to the gateways or the USB dongle.

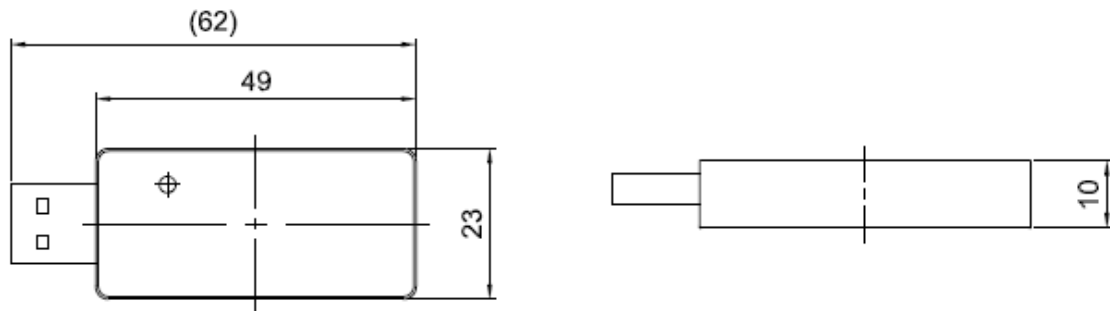
No.	Item	Description
1	TTL	It is the number of hopping through a wireless signal information device when the packets are sent from the wireless signal information device to Gateway or the US dongle. The recommended count is 5 to 6.
2	Reply count	It is the number of times the statue of a wireless signal information device i s checked. When it is sent to 3, a status check is conducted three times. If no response is given for three attempts, it is regarded as a communication failure. If there is at least one response, it is displayed as 'in communicatio n mode'. An operation count of 2 to 3 is recommended.

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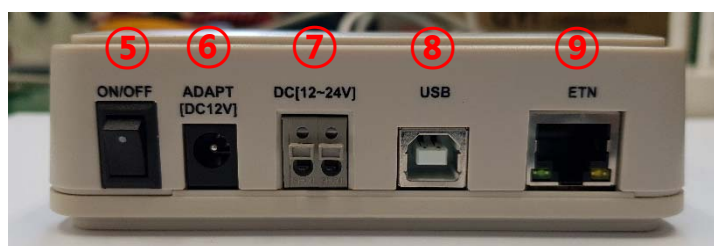
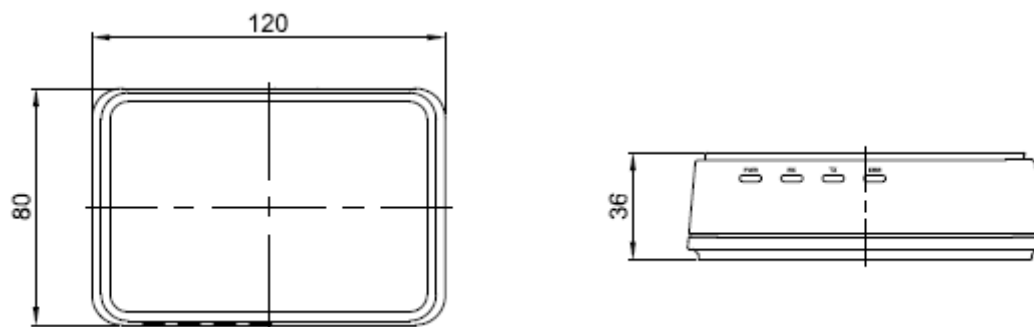
## 9. Layout and detailed information

### 1) Dimensional Drawing

#### USB DONGLE



#### GATEWAY





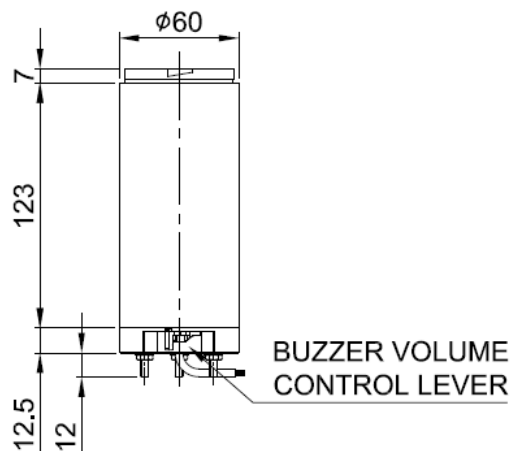
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## GATEWAY

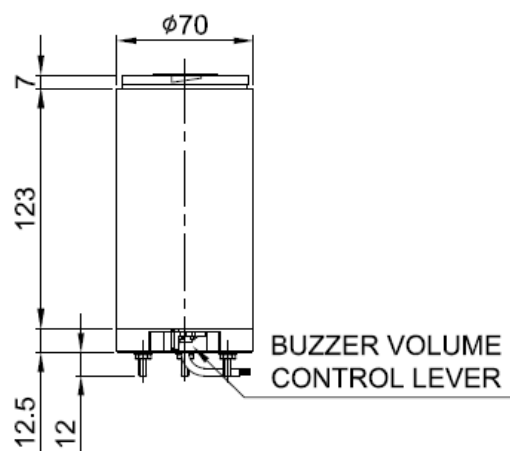
NO	Descriptions	Remark
①	Power Status Indicator LED (Red)	
②	Communication Status Indicator LED (Green)	
③	Communication Status Indicator LED (Blue)	
④	Error Indicator LED (Yellow)	
⑤	Power ON/OFF Switch	
⑥	Power input port (AC)	
⑦	Power input port (DC)	
⑧	USB CABLE Connector	
⑨	Ethernet CABLE Connector	

## Router(Signaling Device)

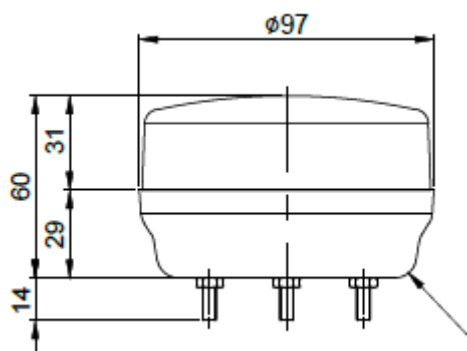
QTG60-WIZ



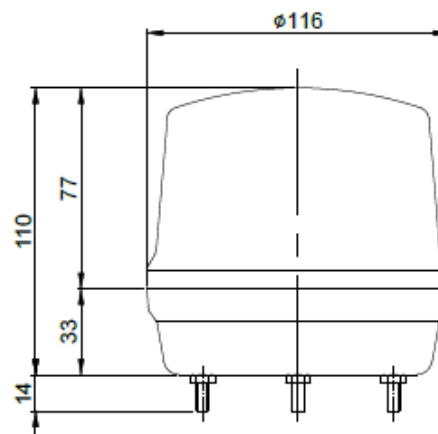
QTG70-WIZ



QMCL100-WIZ



QMCL125-WIZ



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## 2)USB Dongle



## 3)Gateway



Gateway



USB Cable



Ethernet  
Cable

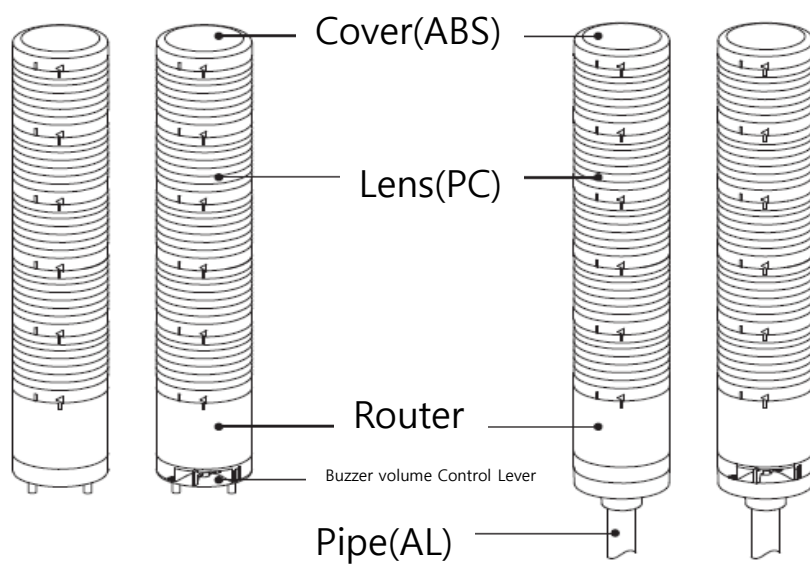


AC power  
adaptor  
(Optional)

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## 4) Signal Tower Light



# Wireless Network System User Manual

## 3. Ordering Specification

### 1)USB DONGLE

WIZ32

[Model Number]

- WIZ32

### 2)GATEWAY

GW768

[Model Number]

- GW768

12/24

[Voltage]

- 12/24
  - DC12V to 24V
  - 110/220
  - AC110V to 220V

### 3) Wireless LED Signal Lights(QCML Series)

QMCL125-WIZ

[Model Number]

- QMCL125-WIZ

BZ

[Buzzer Option]

- None
  - No buzzer
- BZ
  - Built-in buzzer

24

[Voltage]

- 12-DC12V
- 24-DC24V

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## 4) Wireless LED Tower Lights(QTG/QTC/QTR60L Series)

QTG60L-WIZ	3	110/220	RAG	LW18
[Model number]	[Layer]	[Voltage]	[Color]	[Mounting bracket]
<ul style="list-style-type: none"> <li>• QTG60L-WIZ</li> <li>• QTG60L-WIZ-BZ</li> <li>• QTG60LF-WIZ</li> <li>• QTG60LF-WIZ-BZ</li> <li>• QTGA60L-WIZ</li> <li>• QTGA60L-WIZ-BZ</li> <li>• QTGA60LF-WIZ</li> <li>• QTGA60LF-WIZ-BZ</li> </ul>	<ul style="list-style-type: none"> <li>• 1-1Layer</li> <li>• 2-2Layers</li> <li>• 3-3Layers</li> <li>• 4-4Layers</li> <li>• 5-5Layers</li> </ul>	<ul style="list-style-type: none"> <li>• 12-DC12V</li> <li>• 24-DC24V</li> <li>• 110/220</li> <li>-AC110V-220V</li> </ul>	<ul style="list-style-type: none"> <li>• R-Red</li> <li>• A-Amber</li> <li>• G-Green</li> <li>• B-Blue</li> <li>• W-White</li> </ul>	<ul style="list-style-type: none"> <li>• None -Standard</li> <li>• Bracket</li> <li>-LB18 -LW18</li> <li>-QZ18 -SZ18</li> <li>-QL18 -SL18</li> <li>-QLA18</li> </ul>

## 5) Wireless LED Tower Lights(QTG/QTC/QTR70L Series)

QTG70ML-WIZ	3	110/220	RAG
[Model number]	[Layer]	[Voltage]	[Color]
<ul style="list-style-type: none"> <li>• QTG70ML-WIZ</li> <li>• QTG70ML-WIZ-BZ</li> <li>• QTG70MLF-WIZ</li> <li>• QTG70MLF-WIZ-BZ</li> <li>• QTGA70ML-WIZ</li> <li>• QTGA70ML-WIZ-BZ</li> <li>• QTGA70MLF-WIZ</li> <li>• QTGA70MLF-WIZ-BZ</li> </ul>	<ul style="list-style-type: none"> <li>• 1-1Layer</li> <li>• 2-2Layers</li> <li>• 3-3Layers</li> <li>• 4-4Layers</li> <li>• 5-5Layers</li> </ul>	<ul style="list-style-type: none"> <li>• 12-DC12V</li> <li>• 24-DC24V</li> <li>• 110/220</li> <li>-AC110V~220V</li> </ul>	<ul style="list-style-type: none"> <li>• R-Red</li> <li>• A-Amber</li> <li>• G-Green</li> <li>• B-Blue</li> <li>• W-White</li> </ul>