



# QG-H1

MicCommander

# QG-N3

Network Gateway

User Manual

Rev: 1



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### *Document Description*

This document is the user manual for the QG-H1 MicCommander, providing in depth descriptions of its features as well as helpful guidance on its use.

## Manual Revision History

Rev 1	January 2, 2018	Original.

## FCC Notices

### ***Information to users:***

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

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

***Warning: Changes or modifications not expressly approved by Quantum5X Systems Inc, could void the user's authority to operate the equipment.***

***Warning: This device has been designed to operate with the supplied RP-SMA antenna having a maximum gain of 2 dBi. Replacing or modifying this antenna is strictly prohibited.***

## INDUSTRY CANADA Notices

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotopically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

The radio transmitter has been approved by Industry Canada to operate with the antenna types listed with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut





choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Le présent émetteur radio a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.



Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

### ***E-Labeling of the End Products:***

To access the Regulatory information follow the menu steps to below for the QG-H1 and the QG-N3.

QG-N3	QG-H1
	
	

Below is the screen shots of the Regulatory information screens

QG-N3	QG-H1
	

<p><b>Regulatory Info</b> ↑</p> <p>This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: ↓</p>	<p><b>Regulatory Info</b> ↑</p> <p>This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: ↓</p>
<p><b>Regulatory Info</b> ▲</p> <p>(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including</p>	<p><b>Regulatory Info</b> ▲</p> <p>(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including</p>
<p><b>Regulatory Info</b> ▲</p> <p>interference that may cause undesired operation.</p>	<p><b>Regulatory Info</b> ▲</p> <p>interference that may cause undesired operation.</p>

## Introduction

Quantum5X products are often prefaced by the “Q” in the company name, which combined with the second letter, indicates the type of device such as **QG-XX = Q5X Gateway** or **QT-XXX = Q5X Transmitter**, etc. The second set of numbers or letters indicate the model in a series or product family.

The Q5X remote control system is referred to as **RCAS, Remote Control Audio System**. Q5X pioneered wireless remote control for transmitters in 2009. Since this is a wireless control system, it will work through walls, clothing, uniforms, costumes, etc. and over longer distances than non-RF types of transmitter control systems on the market.

The **QG-H1** MicCommander is a handheld device used to control the QT-5100 series of Q5X audio transmitters, such as the QT-5100 PlayerMic. It can also control legacy QT-5000 transmitters. The QG-H1 allows the user to view, monitor and adjust any QT-5100 transmitter within the control range. The transmitter power state ON or OFF, RF power, UHF frequency, microphone muting and mic gain, groups and other operational parameters can be remotely configured using the QG-H1 without physical access to the transmitter.

The QG-H1 can control up to 32 transmitters as a stand-alone device.

USB connectivity allows the QG-H1 to be connected to a laptop or PC running Windows 7 and above. This connection allows the use of the MicControl software to control enhanced features of the transmitters including the ability to name transmitters. Naming transmitters makes it much easier to manage the system, for example instead of looking at a list of serial numbers like 10223 or 20567 you can now name them Player1 or Actor 2 or Joes Mic.

The RCAS system is also networked and uses the network enabled QG-N3 to remotely control the QT-5100 series of transmitters via MicControl software which can be installed on a Windows PC or laptop. Multiple QG-N3 units can be added to a network to manage large area installations.

The MicControl software can control over 300 transmitters for larger installations.

The QG-H1 MicCommander operates independently from any other gateway or computer. It communicates one-to-one with each transmitter and allows access to all necessary settings through a simple interface. It can over ride any setting made by the MicControl software and vice versa.

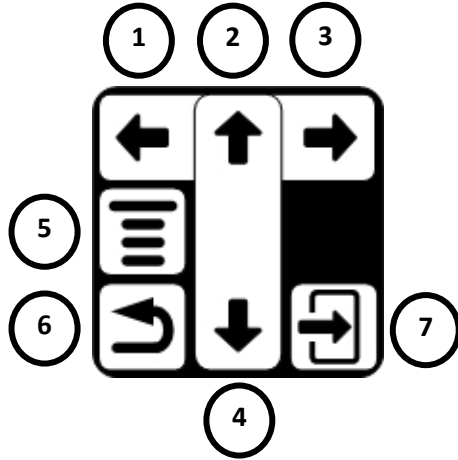
The QG-H1 offers the following benefits:

- Eliminates the need to physically handle the transmitters after they are installed on the user.
- Remotely turn the transmitter’s On/Off to conserve battery life when not in use.
- Provides the ability to change the frequency in the event of RF interference.
- Provides the ability to change the microphone’s gain if the audio is too loud or soft.

## The QG-H1 MicCommander

### The Keypad

All the buttons used to navigate the interface are on the front touch pad as shown below:



<b>1:</b> LEFT directional arrow
<b>2:</b> UP directional arrow
<b>3:</b> RIGHT directional arrow
<b>4:</b> DOWN directional arrow
<b>5:</b> MENU button – Open special menu when available
<b>6:</b> BACK button – Return to previous menu
<b>7:</b> ENTER button - Select item

### Out-of-the-Box Setup

The QG-H1 is powered by either two AA batteries or USB or with a 6V DC adapter (optional). The batteries are installed in the back of the QG-H1 by removing the back panel. This is done by pulling downward on the battery door.

### Powering On

The device will automatically turn on when a DC adapter or USB cable is plugged in, otherwise, pressing the power button on the top of the device will turn it on. While on, the QG-H1 will respond to any interaction with the keypad with haptic feedback via slight vibrations. The power button also functions as a “Heartbeat” indicator, flashing to indicate ongoing communication with nearby transmitters.



### USB Connectivity

The USB port can be used to connect the QG-H1 to a PC or laptop running Windows 7 or above. This allows the QG-H1 to be used to control up to 300 transmitters via the MicControl software. See the MicControl user manual for details on how to use and monitor all functions of the transmitters. One very important feature this enables is the ability to name transmitters to something more event specific, such as Player1, Athlete 2, Sally the Actor, etc.

To use the QG-H1's with a PC and the MicCommander software is fairly simple.


- 1) Plug a USB cable from the PC to the QG-H1, it will automatically install the drivers, wait until that completes.

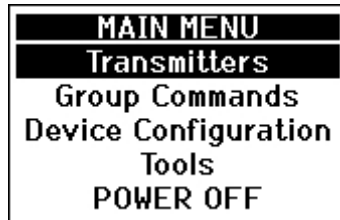


- 2) Open the MicControl software
- 3) On the Gateway Manager screen
- 4) Click on the USB dot to show USB connected devices
- 5) Click on any USB port reported and delete each, one at a time.
- 6) Click <Add> to find the currently active port
- 7) Highlight the active com port, click <OK>
- 8) Highlight the just added comm port and click on <Connect>
- 9) Close the Gateway Manager window by clicking on the red X in the top right corner.

Step 5 is to solve a minor problem where every time you connect a USB device it can change comm ports. By deleting any “old” ones before adding the new active port you avoid conflicts.

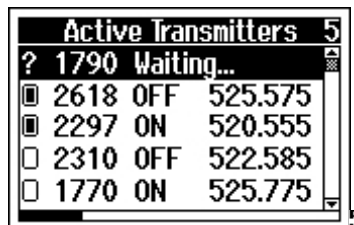
## The Main Menu

To access the Main menu, press the  button. From here you can navigate and select other menus, including the “Transmitters” menu.





## Transmitters – Status and Control

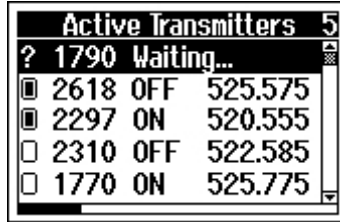
When first turned on, the Active Transmitters menu will appear:



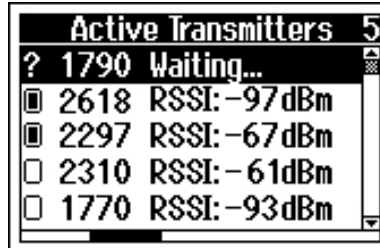
A list of all transmitters currently registered with the QG-H1 will be displayed. The transmitter list has five separate tabs. Tab 1 as indicated by the black line at the bottom left of the screen is displayed initially. The box to the left of the transmitter serial number indicates the control channel is active and will slowly change states as the transmitter and QG-H1 communicate. This indicator is referred to as the “heartbeat”, if a transmitter is not in communication range or the battery is discharged a ? will be displayed. The box indicates a good 2-way communication channel and the box fill will cycle in and out as the heartbeat cycles.

The transmitter list has five separate tabs, indicated by the position of the black line at the bottom of the screen. Press  or  arrows to move between tabs.

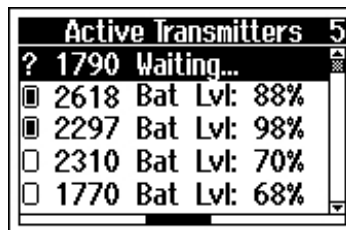
- The default tab displays the transmitters’ serial number, power state (ON or OFF) and its frequency.



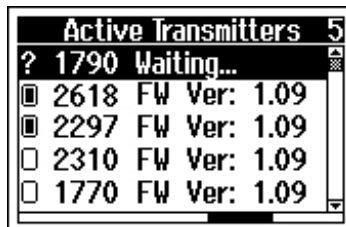
- The next tab to the right displays the RSSI (Received Signal Strength Indicator) of the 2.4 GHz link for each transmitter.



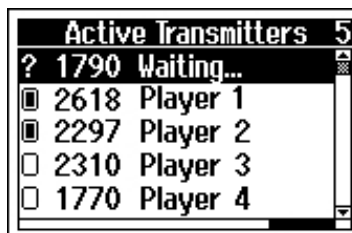
- The next tab to the right displays the battery level of each transmitter.



- The next tab to the right displays the firmware version number of each transmitter.



- The final tab to the right displays the name of each transmitter. Transmitters can be “named” with the PC based MicControl software but not with the QG-H1.

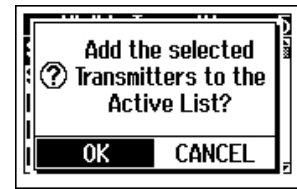
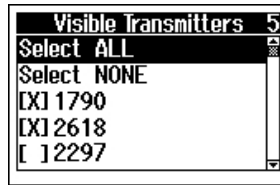
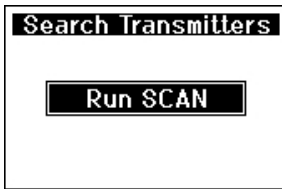


### Adding and Removing Transmitters

Press in the transmitter menu to add/remove transmitters. This will bring up a menu with the following options: “Scan...”, “Add...”, “Remove” and “Remove ALL”.



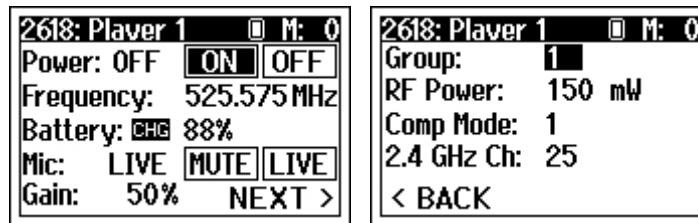
- To scan for all active transmitters nearby, select the “Scan...” item. After the scan has started, select the transmitters you wish to add from the list of recognized units. Press the BACK to add them.



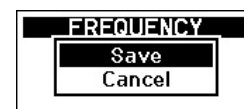
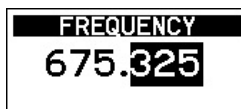
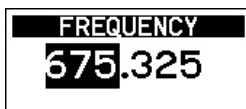
- To add an individual transmitter, select the “Add” option and enter the serial number found on the back of your transmitter (example: 2618).
- To remove a transmitter from the active list, move the cursor over the desired transmitter, then press . From this menu, select “Remove”.
- To clear the Active Transmitter list, select “Remove ALL”.



### Adjusting Transmitter Parameters

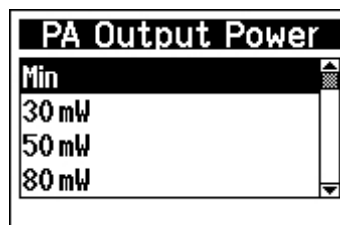
Select a transmitter with the button to view or edit its setting. When selected, the menu on the left will appear, the menu on the right is accessed by selecting **Next>**





- Power** either ON or OFF, this is the transmitter’s power state and can be changed here.
- Frequency** can be adjusted by moving the cursor to the value using the navigational arrows then pressing . This will bring up the screen shown below on the left. To change the mHz values use the UP/DOWN arrows. To edit the frequency’s kHz, press the button to highlight them then use the UP/DOWN arrows again. The or button can be used to save changes. Select “Save” to confirm or “Cancel” to cancel.



- **Battery** is the percentage of battery life remaining. The “CHG” to the left of the percentage denotes that the device is currently charging.
- **Mic** is the microphone state, either Live or Mute. Muting will turn the audio off and leave the transmitter on. This function can be used to override a muted mic such as the QT-5100 RefMic with it’s integrated mute switch or to remotely mute a mic whenever required
- **Gain** is the microphone gain percentage and can be adjusted in the same manner as the frequency.
- **Group** is the group number (1-16) to which the transmitter belongs, allowing it to be controlled with group commands (see **Group Commands** below). To change the group that the transmitter belongs to, select the transmitter, then the add it to the desired Group number. From here the number can be adjusted using the UP/DOWN arrows. Once satisfied, press  or  and select “Save” when prompted.
- **RF Power** is the power setting of the RF output of the transmitter. This can be adjusted by bringing up the menu below and selecting the desired value. A lower power level will conserve battery life.

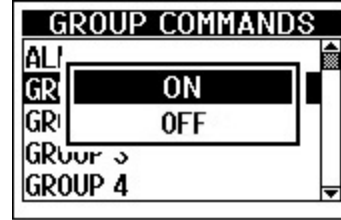
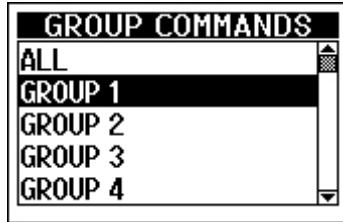


**Note: This feature is only available with the QT-5100,  
NOT the legacy QT-5000 transmitters.**

- **Comp Mode** is used to change between the available companding modes. There are two Q5X companding modes, i.e. 1 and 2. Mode 1 is the standard Q5X mode for use with any Q5X receiver. Mode 2 is not to be used, it is reserved for experimental purposes. Mode 3 or 4 is to allow the transmitter to work with other types of receivers. To change the active companding mode, select the appropriate number. The mode can be adjusted using the UP/DOWN arrows. Once satisfied, press  or  and select “Save” when prompted. (Note: different transmitter configurations support different companding modes and will only report the modes it is designed for, i.e. modes 1,2,3 or 1,2,4)
- **2.4 GHz Ch** the RCAS control channel default is 25, change this on the transmitter only if you are having control issues that can be seen when you have completed a 2.4GHz Spectrum scan. See **Device Configuration**, the **2.4 GHz Telemetry** section below for detailed instructions.

## Group Commands

1. Select the “Group Commands” item from the Main menu to view groups 1-16
2. Select the desired group to turn it On or Off.

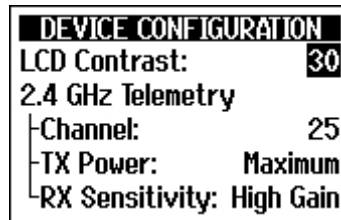


After turning a group of transmitters ON, there will be a brief waiting period while the MicCommander is broadcasting the command. The following message will appear:





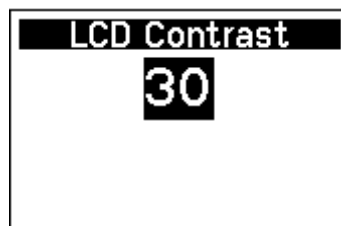
## Device Configuration

Selecting “Device Configuration” from the main menu will bring up the following menu:



### LCD Contrast

The contrast level of the LCD display can be adjusted by selecting the value next to “LCD Contrast” and using the  and  to change the value. As shown below.



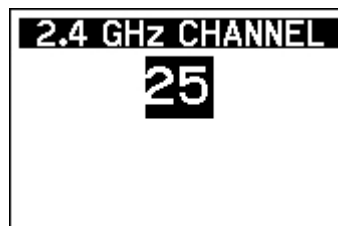
## 2.4 GHz Telemetry

The RCAS control system operates in the ISM 2.4GHz RF spectrum with the 802.15.4 protocol and utilizes Zigbee channels 11 to 26. In this menu, you can change the control channel if there is interference from nearby devices that may be using similar technology like ZigBee or Bluetooth communications. It is very important to make sure the QG-H1 and the transmitters are on the same control frequency. The factory default is channel 25. All new QG-H1's and new QT-5100 transmitters will come pre-set to use channel 25.

**Should you need to change the RCAS channel due to interference, it is important to first change all the transmitters you wish to control BEFORE changing the QG-H1 control channel. If a transmitter is not on the same channel as the QG-H1 it will still function as a UHF transmitter but will not be "seen" by the QG-H1 and cannot be controlled or monitored.**

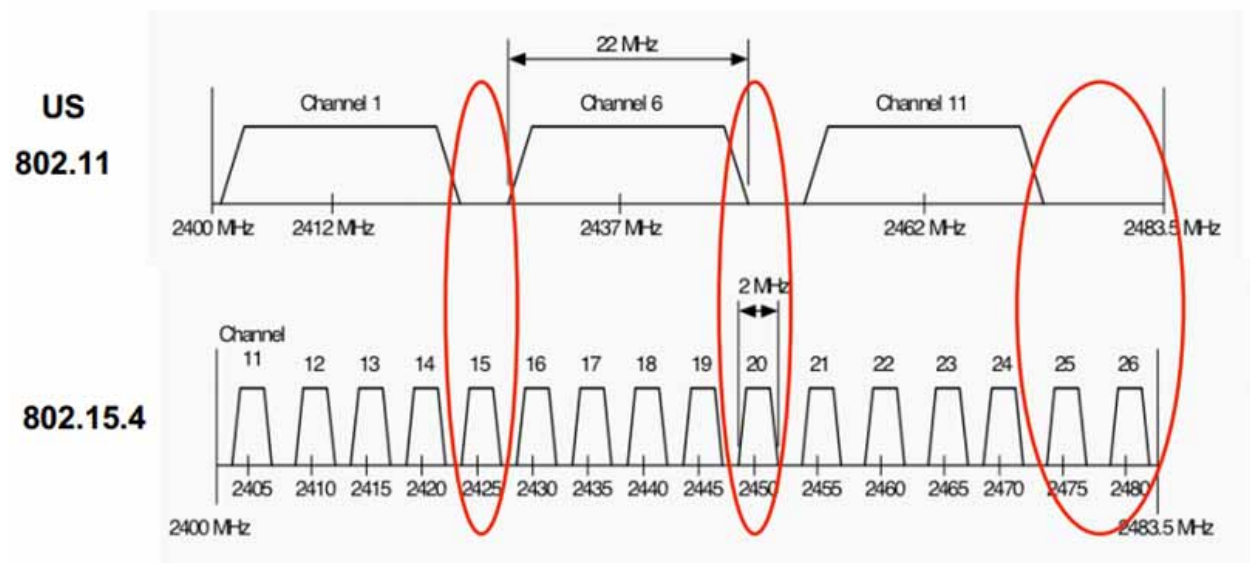
### Default Channel

Default is Channel 25 for RCAS as it is generally the channel with the least amount of interference. If the control process seems to be borderline, go to **Tools**, enter the **2.4 Spectrum** mode and view the local activity on the 2.4GHz band.



### Channel Selection

As noted above it's important to ensure the QT-5100 transmitter and QG-H1 or QG-N3 are on the same control channel. There are 16 pre-set channels which can be used; 11 to 26. They are 5MHz apart and 2MHz wide so there is no overlap. The chart below shows the channels and the specific frequency for each channel.



### Tx Power

Default is Maximum



### Rx Sensitivity

Default is High Gain



## Tools

The Tools Menu provides access to the 2.4 GHz Spectrum scanner, Diagnostics and the About display.



### 2.4GHz Spectrum

#### Auto Scan

View the spectrum and identify the best channel to operate the RCAS system on. Over time, the channel indicators will store the peak values for easy reference. Lower bars indicate less activity which is the desired result.

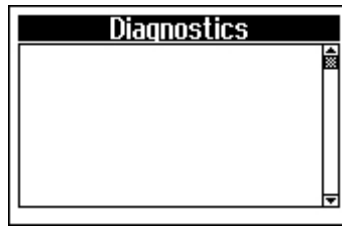
#### Reset

Select Reset to clear the stored peak values to start a fresh scan.



## Diagnostics

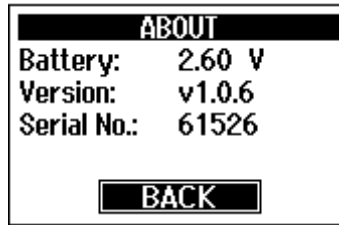
Reserved for factory service functions.





## About

To view the battery power, firmware version and serial number of your QG-H1 MicCommander, select the About item from the Tools menu.



## Power Off

To power off the device, press and hold the clear power button on top of the device or select the "Power Off" item at the bottom of the main menu.

Note: you cannot power off the QG-H1 MicCommander while the power adapter is connected.

## Contact Info

For technical support and sales;

Quantum5X Systems Inc.  
30 Adelaide Street North  
London ON,  
Canada N6B 3N5

519 675-6999  
[support@q5x.com](mailto:support@q5x.com)

## Specifications

### Technical Data 802.15.4 Radio

RF Carrier Frequency Range: 2.405 GHz – 2.480 GHz

Channel spacing is 5 MHz

Channel bandwidth is 2 MHz with no overlap

### Technical Data for QG-H1

Can control up to 32 transmitters.

Power Requirements:

Minimum Operating Voltage is 2.7vDC

2 AA batteries 3.0V

<http://www.energizer.com/batteries/energizer-ultimate-lithium-batteries>

Energizer® Ultimate Lithium™ Batteries are recommended due to their ability to maintain a consistently higher voltage over a longer period.

Current Drain: 125 mA

Overall Dimensions: W: 75mm X L: 120 mm X D: 25mm

Net Weight: 230 g

802.15.4 Radio Antenna: *Use supplied RP-SMA whip antenna with max gain of 2 dBi*

<b>Manufacturer:</b>	Q5X
<b>Type:</b>	¼ Wave 802.15. RP-SMA antenna
<b>Frequency Range:</b>	2.405GHz – 2.480GHz
<b>Max Gain (dBi):</b>	2 dBi

**NOTE:** there are 2 types of 2.4GHz antenna connectors, SMA and RP-SMA, use the RP-SMA Type only, as supplied by Q5X. The SMA antenna has a center pin. The SMA is not compatible with the RP-SMA connector and will not allow transmission or reception.

