400 ㎒ Band Wireless Device

(GIWICS-H)

2023 ver.1

G&I Tech Co., Ltd.

[R&D Dept.]

This document describes the 400 ㎒ ISM band 10 mW system specifications, and includes system specifications and configuration, electrical performance, interface communication, and equipment specifications.

* Contents *

1. System Overview and Features

A. Overview

This product is a wireless communication device that supports the ISM band in the 400 ㎒ band and transmits data through wireless by recognizing information on solar-powered road safety equipment.

B. Features

It is a device that transmits data from road safety equipment (road studs, delineators, landscape lighting, traffic signboards), and it can be locally linked with the central control system and provides an interface for controlling traffic mode and sensor switch mode.

2. Specifications

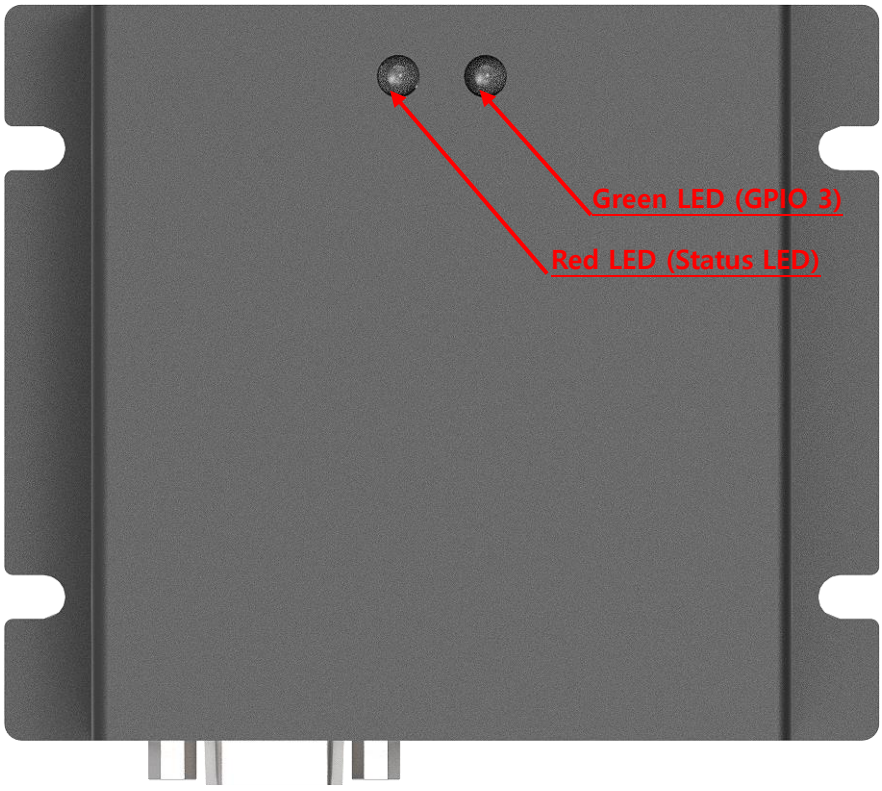
no	Item	Specification	Remarks
1	Frequency Lange	434.060 ~ 434.785MHz	
2	channel spacing	25.0Khz	
3	occupied bandwidth (OBW)	≤ 25.0KHz	
4	TX Output Power	Max 10mW. E.R.P	
5	Duty cycle	10% or 100%	
6	Modulation	2FSK	
7	Interface	RS-232C – 19200, 1, 8, n	
8	Supply Voltage	TBD	5V/1A 권장
9	Operating Temperature	-20℃ to 65℃	
10	Operating Humidity	95% Max	
11	Dimension	103 X 100 X 30	
12	Weight	TBD	

3. System Configuration

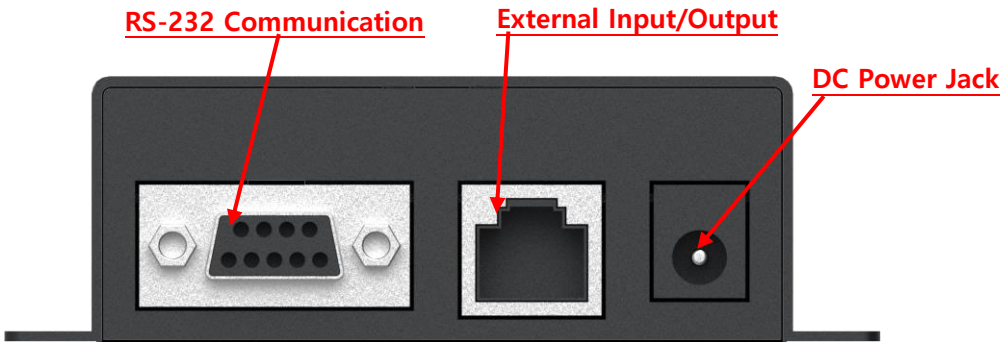
The GIWICS system turns on the LED when the signal unit (HVRS-WL) receives the data transmitted through the RF modem (GIWICS-H). The purpose is to operate the HVRS-WL by receiving sensor data through the external input/output of the RF modem (GIWICS-H).

4. Product Photos

A. Top View



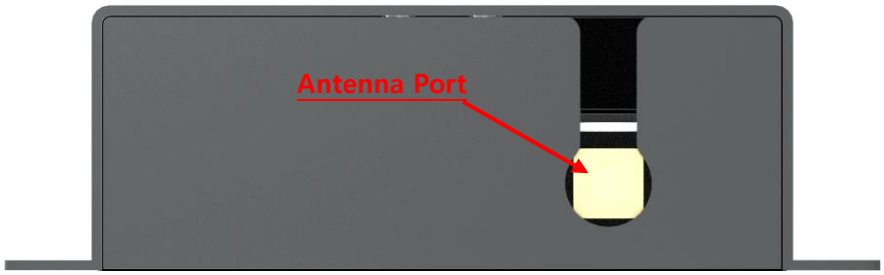
B. Front View



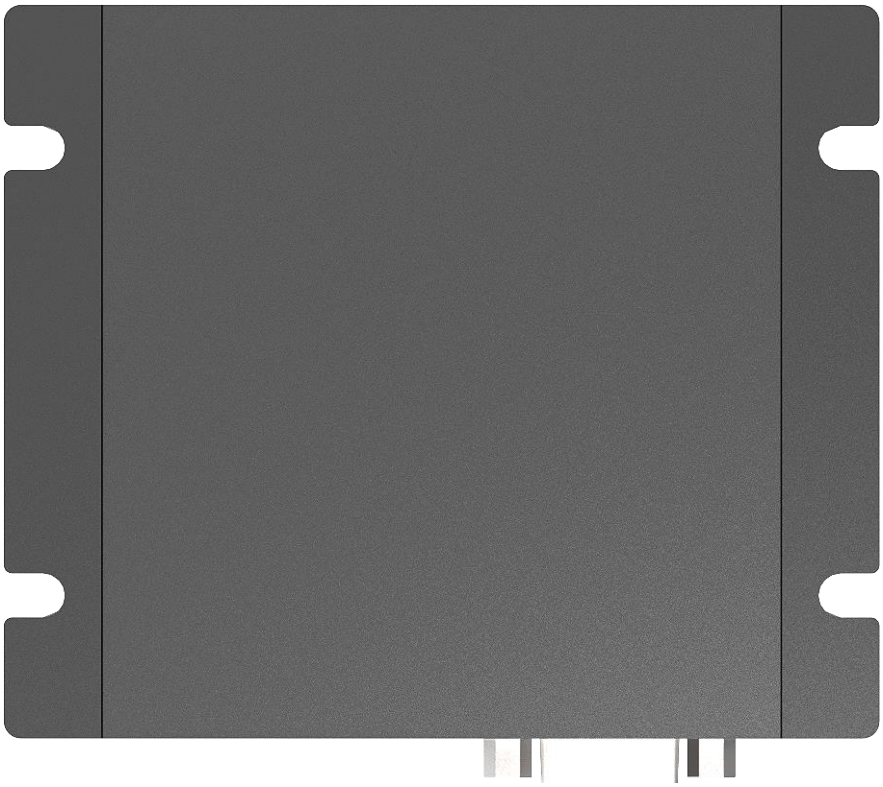
C. Left Side View

D. Right Side View

E. Rear View



F. Bottom View



5. Connector Pin Configuration

A. RS-232 Communication

This device uses a D-Sub 9-pin connector for serial communication with external devices.

Pin No.	Pin Name	Ref.
1	N.C.	
2	TXD	
3	RXD	
4	N.C.	
5	GND	
6	N.C.	
7	N.C.	
8	N.C.	
9	N.C.	

B. External Input/Output

You can connect and use external devices including CT sensors, timer sensors, and various other sensors to this device.

External input received from an external device is used to give commands to the device, and external output is used to operate an external device using commands given by the device.

Pin No.	Pin Name	Ref.
1	BLUE_LED_EN	
2	GREEN_LED_EN	
3	RED_LED_EN	
4	GPIO 22	
5	GND	
6	ADC1	
7	GND	
8	ADC2	
9	GND	
10	GND	

C. Antenna Port

The device can be used by connecting a dipole antenna that supports the 400 ㎒ band. If the device is operated without an antenna attached to the antenna port, it may be damaged. Please be sure to attach an antenna before use.

D. DC Power Jack

Please use a DC power jack to use an AC-to-DC adapter for 5V / 1A.

Pin No.	Pin Name	Ref.
1	GND	
2	VCC	5 V / 1 A
3	GND	

E. External Display

a) Red LED (Status LED)

- **If the status LED blinks every 500 ms, it means that the RF modem (GIWICS-H) is normal.**

b) Green LED (GPIO 3)

- **Green LED turn on when a sensor signal is received through an external input.**
- **Green LED turn off when a sensor signal is disappeared.**

FCC Caution.

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.

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

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.

FCC RF Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter