



WISE-2200-M

ADVANTECH

Enabling an Intelligent Planet

Copyright

The documentation and the software included with this product are copyrighted 2020 by Advantech Co., Ltd. All rights are reserved. Advantech Co., Ltd. reserves the right to make improvements in the products described in this manual at any time without notice. No part of this manual may be reproduced, copied, translated or transmitted in any form or by any means without the prior written permission of Advantech Co., Ltd. Information provided in this manual is intended to be accurate and reliable. How-ever, Advantech Co., Ltd. assumes no responsibility for its use, nor for any infringements of the rights of third parties, which may result from its use.

Product Warranty (2 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.

Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.

If your product is diagnosed as defective, obtain an RMA (return merchandize authorization) number from your dealer. This allows us to process your return more quickly.

Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.

Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Technical Support and Assistance

Visit the Advantech web site at www.advantech.com/support where you can find the latest information about the product.

Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:

- Product name and serial number
- Description of your peripheral attachments
- Description of your software (operating system, version, application software, etc.)
- A complete description of the problem
- The exact wording of any error messages

Document Feedback

To assist us in making improvements to this manual, we would welcome comments and constructive criticism. Please send all such - in writing to: support@advantech.com

Package List

Before setting up the system, check that the items listed below are included and in good condition. If any item does not accord with the table, please contact your dealer immediately.

WISE-2200-M

- 1 x WISE-2200-M module
- 1 x Mounting bracket
- 1 x Quick start manual
- 1x China RoHS declaration (WISE-2200-MNA only)

Safety Instructions

Read these safety instructions carefully.

Keep this User Manual for later reference.

Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.

For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.

Keep this equipment away from humidity.

Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.

The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**

Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.

Position the power cord so that people cannot step on it. Do not place anything over the power cord.

All cautions and warnings on the equipment should be noted.

If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.

Never pour any liquid into an opening. This may cause fire or electrical shock.

Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.

If one of the following situations arises, get the equipment checked by service personnel:

The power cord or plug is damaged.

Liquid has penetrated into the equipment.

The equipment has been exposed to moisture.

The equipment does not work well, or you cannot get it to work according to the user's manual.

The equipment has been dropped and damaged.

The equipment has obvious signs of breakage.

DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Safety Precaution - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.

警語 NCC Statement

取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前述合法通信，指依電信管理法規定作業之無線電通信。低功率射頻器材須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

Federal Communication Commission Interference Statement

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

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

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

FOR MOBILE DEVICE USAGE (>20cm/low power)

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.

Industry Canada statement:

This device complies with ISED's licence-exempt RSSs. 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.

Le présent appareil est conforme aux CNR d' ISED applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

FOR MOBILE DEVICE USAGE (>20cm/low power)

Radiation Exposure Statement:

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

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé à plus de 20 cm entre le radiateur et votre corps.

DETACHABLE ANTENNA USAGE

This radio transmitter [IC: 9404A-WISE2200M] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Le présent émetteur radio [IC: 9404A-WISE2200M] a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué pour tout type figurant sur la liste, sont strictement interdits pour l'exploitation de l'émetteur.

Manufacturer	Model	Antenna Type	Max Gain (dBi)	Impedance (Ω)
ADVANTECH	1750008837-01	Dipole	1.06	50

Chapter 1

Product Overview

1.1 Series Family and Specifications

Function	Model	Description
Modbus Reading	WISE-2200-M	LoRaWAN Smart I/O Module

1.2 Mechanical Design and Dimensions

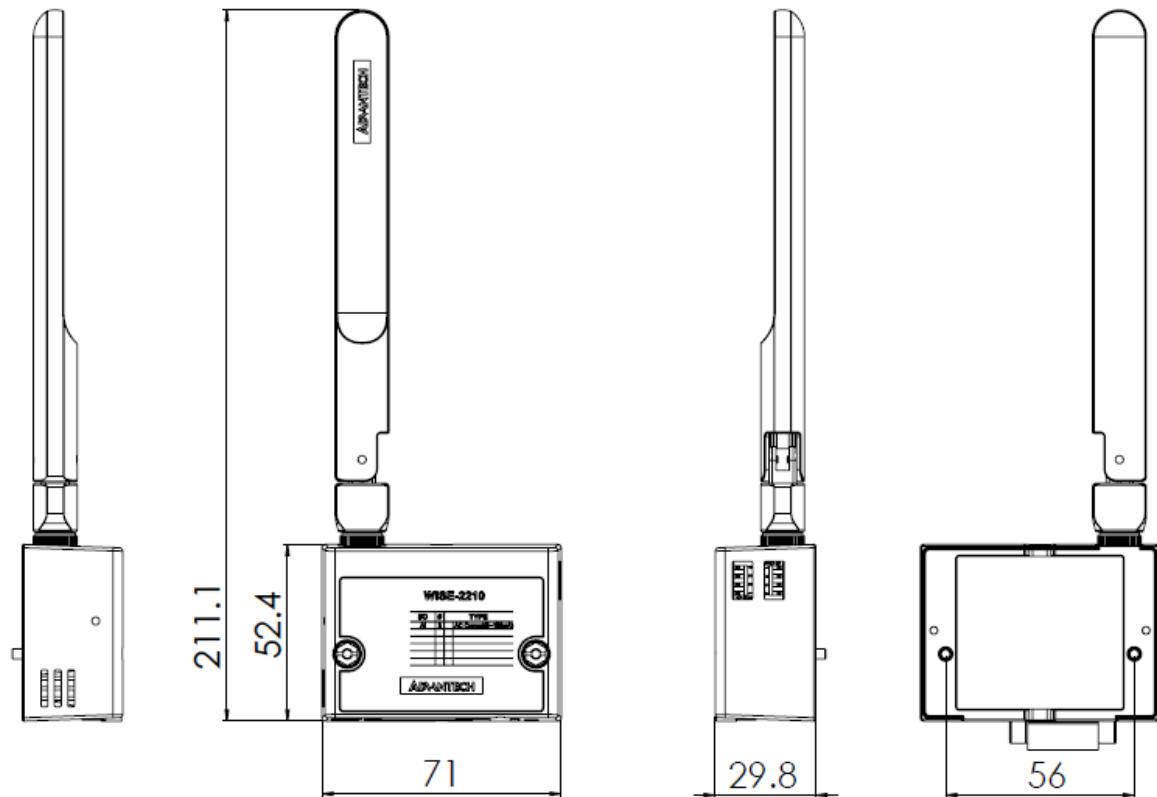


Figure 1.1 WISE-2200-M Dimension Front & Side

1.3 System Diagram

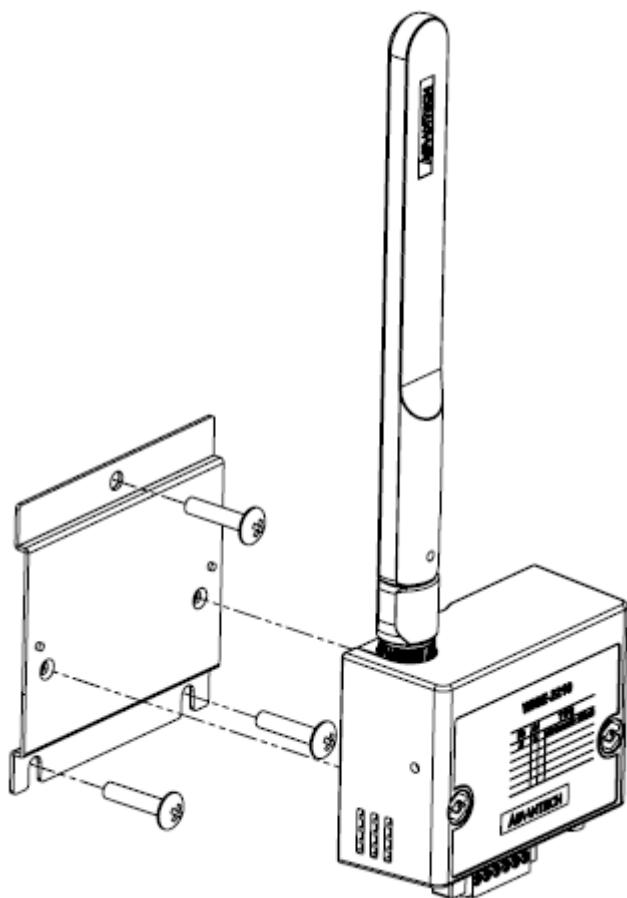


Figure 1.2 WISE-2200-M

1.4 LED Definition

1.4.1 WISE-2200-M Series

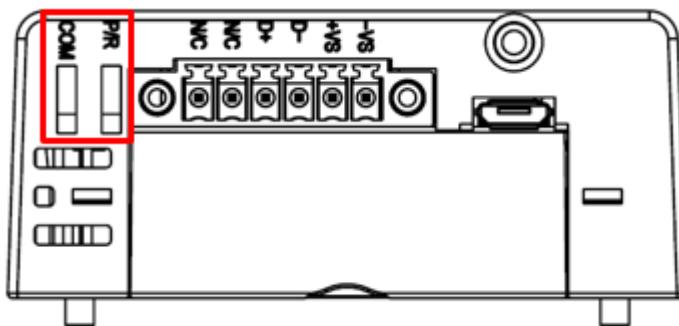


Figure 1.3 WISE-2200-M LED Indicator

LED Indication	Colour	Behaviour
P/R	Green	Turn on when power on
	Yellow	Turn on when OTAA join unsuccessfully Blink when send data to Gateway (On 0.2 sec) Blink when receive data from Gateway (On 0.2 sec)
COM	Green	Blink when RX on RS-485 channel
	Yellow	Blink when TX on RS-485 channel

Chapter 2

General Specification

2.1 General Specification

2.1.1 Wireless Interface

Protocol

- LoRaWAN

Operating Frequency

- 902.3~914.9MHz

Antenna Gain

- 902~928MHz: 1.06 dBi

Transmit Power

- +17.52dBm for 920.3~923.4MHz

Receiver Sensitivity

- BW=62.5KHz, SF=6: -119dBm
- BW=62.5KHz, SF=12: -137dBm
- BW=500KHz, SF=6: -109dBm
- BW=500KHz, SF=12: -128dBm

2.1.2 General

- Configuration Interface: Micro-B USB
- Connector: Plug-in screw terminal block (I/O and power)
- LED Indicator: Power, RF, Serial Communication(TX, RX)
- Mounting: wall mount
- Dimension (W x H x D): 71 x 211.1 x 29.8 mm
- Certification: NCC, CE, FCC
- I/O connector: 3.5-mm spacing plug-in screw terminal block
- Power connector: 3.5-mm spacing plug-in screw terminal block
- Enclosure: PC
- Operation temperature: -25~70°C (-13~158°F)
- Storage temperature: -40~85°C (-40~185°F)
- Operating humidity: 10~95% RH (non-condensing)
- Storage humidity: 5~95% RH (non-condensing)

2.1.3 Power

Power input voltage: 5 ~ 50 VDC

2.2 WISE-2200-M I/O Pinout

2.3.1 WISE-2200-M Terminal Block

WISE-2200-M Define

Pin Number	Pin Name	Description
N/C	N/C	N/C
N/C	N/C	N/C
D+	RS485_D+	RS-485 Data+
D-	RS485_D-	RS-485 Data-
+VS	+VS	Power input (+)
-VS	-VS	Power input (-)