



# RAK7432 WisNode Bridge Analog Datasheet

## Overview

### Description

RAK7432 WisNode Bridge Analog is a 4-20 mA analog to LoRaWAN converter designed for industrial applications. It can read values from devices supporting the current loop.

RAK7432 can operate in all of the LoRaWAN bands within the standard parameters defined by the LoRa Alliance. Its line of sight range is 15+ km and in industrial cases, where there are heavy obstructions in the path of the RF signal performance is improved compared to conventional wireless systems due to the characteristics of LoRa as a modulation technique. This allows for consistently good signal quality within large factories, densely populated offices, storehouses, etc.

Together with the RAK gateway and LoRa Server products, it can easily and quickly build a wireless industrial system or extend an already existing one. It adopts industrial protection design, supports a wide range voltage supply supports wall mounting and DIN rail installation and facilitates field installation and use.

### Features

- **LoRaWAN 1.0.3** protocol stack, supports Class A, B, and C modes
- **Low-power consumption mode**, wakes up regularly to collect analog input data and report
- **4-20 mA** acquisition accuracy 0.01 mA, error range 0.1%
- Remote management function
- Supports active query function. The remote server sends query commands to read 4-20 mA analog data
- Supports external LoRa antennas
- Maximum LoRa transmission power: **20 dBm**
- IP31 protection
- Mounting options: Wall mounting, DIN rail, & Magnetic installation

# Specifications

## Overview



Figure 9: RAK7432 WisNode Bridge Analog

## Networking Applications

RAK7432 WisNode Bridge Analog can convert 4-20 mA analog data into LoRaWAN wireless packets through ADC, which can be sent to the cloud via a standard LoRaWAN gateway. Using the RAK7432, you can extend your analog sensors and devices into a wireless network solution.

An example would be using the [RAK7289](#) LoRaWAN Gateway coupled with the RAK WisDM cloud management platform, to realize an end-to-end industrial field data acquisition and control system. Using the built-in LoRa Server, which comes standard with any RAK LoRaWAN Gateway, one could seamlessly achieve transmission of the end device data to any application server. Furthermore, the MQTT integration allows for a high level of security and efficiency.

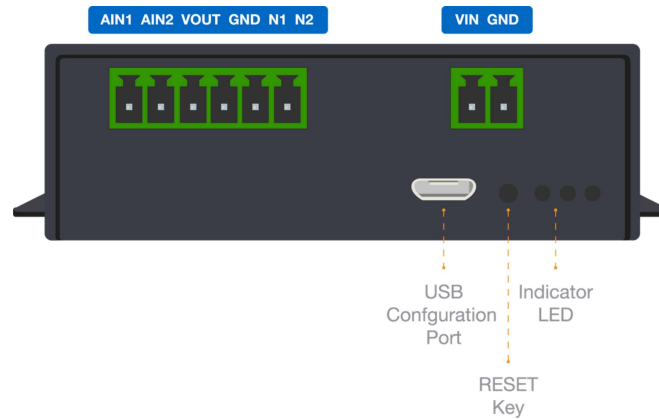


Figure 10: RAK7432 WisNode Bridge Analog network structure

## Hardware

The hardware specification covers not only the interfacing and detailed parameters and functions of the RAK7432 WisNode Bridge Analog. It also includes the installation of which different types of mounting are presented.

## Interfaces



**Figure 11:** RAK7432 WisNode Bridge Analog bottom panel

### Power Supply and Configuration Interface

RAK7432 WisNode Bridge Analog can be powered by its DC terminal or via its Micro USB port. The DC terminal works with 12-24  $V_{DC}$  input, and the rated power of the device is 1 W. Pay attention to the positive and negative pole directions when crimping the terminal. Vin is connected to the positive

X

The Micro USB port can also be used for powering the device (5 V / 500 mA DC). At the same time, the Micro USB port can be used as the configuration interface of the device.

Connect it to a PC and use the [RAK Serial Port Tool](#) to open a COM port. The default baud rate is 115200. There is a set of AT commands that can be used to configure the RAK7432 WisNode Bridge Analog.

### Reset Key and Indicator LED

Reset key	Press the reset key shortly to restart the system
Red LED	Power indicator (Only valid when using the USB power)
Green LED	System working indicator, flashing when there is data transmission

## Specifications

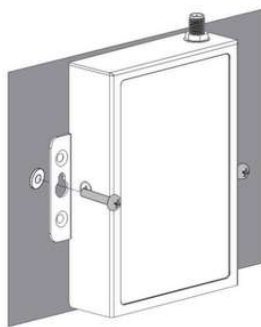
The table below shows the full specification of the RAK7432 WisNode Bridge Analog.

Parameter	Value	Remarks
LoRaWAN Protocol	LoRaWAN 1.0.3	
LoRa Frequency	RU864, IN865, EU868, US915, AU915, KR920, KR923	Different models support different frequency bands
LoRaWAN Mode	Class A/B/C	
LoRa Tx Power	20 dBm	
LoRa Antenna interface	RP-SMA FEMALE, External Omnidirectional Antenna	
4-20 mA input	2 inputs/channels	
4-20 mA input interface range	0-24 mA	
Interface protection	18 kV HBM protection	
	13 kV IEC61000-4-2 contact discharge	
	4 kV IEC61000-4-4 fast transient burst	
Input Voltage	12 V - 24 V	5 V for Micro USB
Rated Power	Maximum 1 W	
Output Voltage	12 V <sub>DC</sub>	
Configuration Interface	Micro USB	
Indicator LED	Power LED, Data LED	

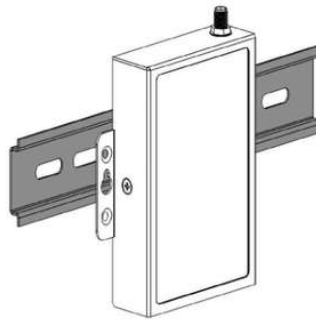
Parameter	Value	Remarks
Housing Material	Metal	
Dimension	93.6 x 100.3 x 24 mm	
Protection Grade	IP31	
Installation	Wall mounting, DIN rail installation, magnetic mounting	The magnetic mounting requires optional accessories
Working Temperature	-30° C ~ 65° C	
Storage Temperature	-40° C ~ 85° C	

## Installation

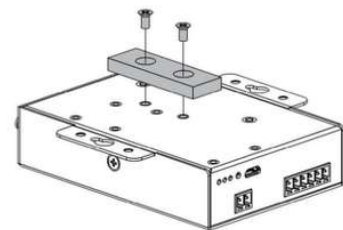
RAK7432 allows for three installation methods: wall mounting, DIN rail installation, and magnetic mounting. The wall installation and the DIN rail installation is the standard installation mode. The accessories required for magnetic mounting are optional.



Wall Mounting



DIN Rail Mounting



Magnetic Mounting

**Figure 12:** Different types of mounting

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