

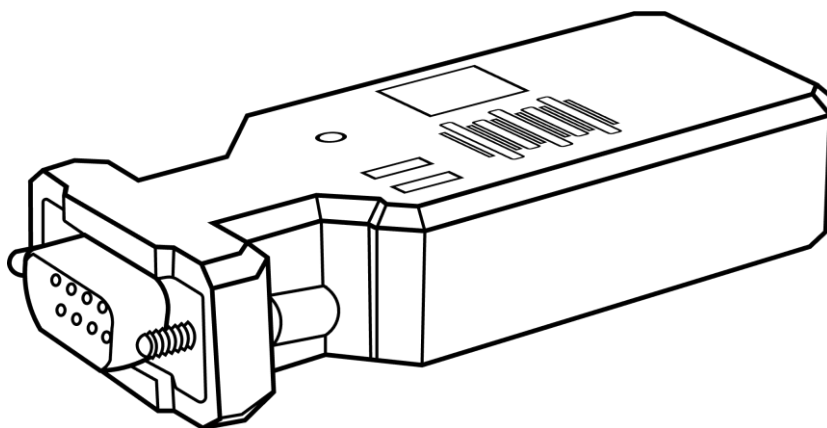
BlueRange Wireless Modbus

with RS-485 Modbus RTU support

Data sheet

The BlueRange Wireless Modbus adapter exists to integrate Modbus devices into the BlueRange Mesh. The adapter converts the wired input signal from a Modbus slave device into a wireless message within the BlueRange Mesh.

Product number: BR-WA-V1-MODBUS



BlueRange Wireless Modbus

with RS-485 Modbus RTU support

Bottom line

- Plug-and-play device to connect standard Modbus devices to BlueRange Mesh
- Compatible with most standard RS-485 Modbus RTU devices through DB9 male connector or provided terminal screw block connector
- Conversion of BlueRange Mesh input messages to Modbus output messages and vice versa
- Supports a variety of baud rates, none or even parity, 1 stop bit
- Power supply via Micro-USB, DB9 male connector or 2-wire screw terminal
- Fanless device that can be operated silently
- Full access to all Modbus data points
- Ability to configure automatic polling of up to 20 Modbus data point ranges using the BlueRange AutoSense firmware feature
- Ability to streamline Modbus messages to the BlueRange IoT-Platform (requires the BlueRange Gateway)

Functional Description

The BlueRange Wireless Modbus adapter is used in various types of IoT installations where standard Modbus devices need to be integrated in the BlueRange Mesh. Without additional hardware development, manufacturers are able to use their existing components while accessing new smart building requirements.

Instead of the Modbus device itself, the adapter is enrolled in the BlueRange Mesh and communicates with the BlueRange Gateway and possibly other sensors. The adapter can enable full access to all Modbus data points. It is possible to configure an automatic device polling for up to 20 Modbus data points using BlueRange AutoSense.

Specifications

Basic	
Protocol	Modbus, BlueRange Mesh
Interface	RS-485, DB9 Male
Input voltage range	5 to 40 V
Serial Port	
Baud Rates	1200, 2400, 4800, 9600, 19200*, 38400, 57600, 115200, 230400 (more on request)
Parity	None / even* (without odd)
Data bits	8
Stop bits	1
Radio	
Max. Tx power	+4 dBm
Rx. sensitivity	-96 dBm typical
Frequency range	2.402 to 2.483 GHz
Typical range	20m (open space)
Other	
Geometry (L/W/H)	81.6 / 31.75 / 17 mm
Weight	approx. 40 g
Operating and storage temperature	0 to 60 °C
LED blink codes	Supported

* Default settings

DIP Switch Settings

DIP switches can now be used to configure some settings such as baud rate and parity. These settings can be overridden by the platform by storing a persistent configuration on the device. However, if you reset a device to factory settings, e.g. by enrolment, the DIP switch settings will be used.

Example: The configuration for a baud rate of 115200 with even parity is as follows:

1=ON, 2=OFF, 3=OFF, 4=OFF, 5=ON, 6=OFF, 7=OFF, 8=OFF, 9=ON

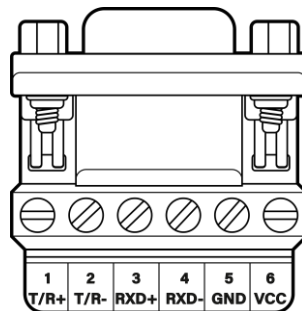
Important note: The DIP switch settings are only evaluated once at startup, so you need to remove power from the device and power it again for the new settings to apply. Also make sure that switch 9 is activated if you want to use the DIP switches.

DIP Switch	Type	Description
1 + 2 + 3	Baudrate	OFF+OFF+OFF = 1000000 ON+OFF+OFF = 115200 OFF+ON+OFF = 57600 ON+ON+OFF = 38400 OFF+OFF+ON = 19200* ON+OFF+ON = 9600 OFF+ON+ON = 4800 ON+ON+ON = 2400
4	-	Reserved (Must be OFF!)
5	Parity	OFF = No Parity ON = Even Parity*
6	-	Reserved (Must be OFF!)
7	-	Reserved (Must be OFF!)
8	-	Reserved (Must be OFF!)
9	Enable Settings	This DIP Switch must be set to ON to enable the DIP switch settings. If it is in the OFF* position, all the other switches will be ignored.

* Default settings

Setup

The BlueRange Wireless Modbus adapter is connected via serial RS-485 DB9 Male interface to a Modbus device. See the connector pin functions below.





Pin	Function
1	A (RX+ aka. T/R+) for Modbus over RS-485
2	B (RX- aka. T/R-) for Modbus over RS-485
3	Not required for desired functionality
4	Not required for desired functionality
5	GND
6	VCC, 5 to 40 V

The following table shows the power supply and network connection options available for the BlueRange Wireless Modbus adapter:

	Power Supply	Modbus Connection
Option 1	Micro-USB	DB9 male connector (via pin 1 and 2)
Option 2	DB9 male connector (via pin 5 and 6)	
Option 3	2-wire screw terminal	

Important note: No reverse polarity or overvoltage protection available. Make sure that both the voltage and the Modbus connection are wired correctly before applying power to the device. Incorrect connection of the Modbus line can cause irreversible damage to the device.

The BlueRange Setup App is recommended to enroll the BlueRange Wireless Modbus adapter. It is available for both iOS and Android. Find the download links below.

	
Apple App Store	Google Play

Order Information


The BlueRange Wireless Modbus packaging includes the following components:

- 1 x BlueRange Wireless Modbus
- 1 x RS-485 DB9 male connector
- 1 x USB to Mini-USB cable

Important notes

The BlueRange Wireless Modbus adapter must not be installed in a metal enclosure, placed on or near heating/cooling fins, or operated in a humid and dusty environment to avoid restrictions on the transmission frequency. The legal warranty is one year.

Signs and certificates

	<p>WEEE directive 2012/19/EU Do not dispose of with household waste!</p>
	<p>CE certification – Conformité Européenne Declaration in accordance with EU Regulation 765/2008 that the product complies with the applicable requirements laid down in the Community harmonisation legislation on its affixing.</p>
	<p>FCC certification – Federal Communications Commission The product conforms to the required conditions of the FCC for operation and sale.</p>
	<p>NCC certification – National Communications Commission The product complies with the required type approval and certification qualification for controlled telecommunications radio-frequency equipment.</p>
	<p>TELEC certification – Telecom Engineering Center The product complies to the specified radio equipment conforms to the technical standards under the Radio Act of Japan.</p>

Further information and tools

Please find our documentation on how to set up and enroll a BlueRange Mesh at bluerange.io/developer.

Contact:

Technical question:

info@bluerange.io

Inquiries:

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General information on BlueRange

www.bluerange.io

Disclaimer

Subject to change without notice. All data without guarantee.

The data sheet refers to the current factory setting.

Operation in installations with other equipment should be checked for compatibility.