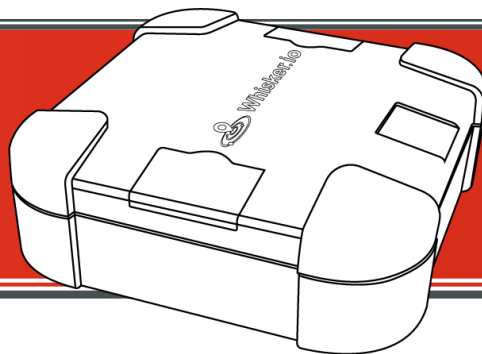# D6 Labs™
Engineered IoT Solutions

WB1–9–xx–MBNNNNNN–0000–xx

Whisker.Block®, Modbus RTU – RS485

General Description

This Whisker.Block® is a long-range, wireless Modbus RTU sensor that can read sixteen (16) words from any group of Modbus devices on an RS-485 network. It uses our proprietary long range wireless communication technology to ensure reliable and robust operation.

Two power options are available: 10+ year internal battery or external 12-24V DC power. The sensor can transmit as often as every 5 minutes on battery power, and every 30 seconds on external DC power.

Each sensor is housed in a durable, IP67 enclosure that supports a variety of mounting methods.

The long range, exceptional battery life, and flexible I/O configurations of the Whisker.Block® make it the perfect choice for nearly any IoT application.

Power

This Whisker.Block® can be powered internally using a 3.7V, 5.2A-H LiThCl battery pack (10+ years of service life) or 8-24V DC through Connector 1 pin 1. Select variants are equipped with an internal 5V/18V sensor power supply that can provide up to 30mA to external sensors; this is available on pin 1 on both connectors when battery power is used and pin 1 of connector 2 when external DC power is used.

Range

In an unobstructed, outdoor line-of-site environment, the sensor should be able to communicate for more than 0.5 miles assuming a receiving antenna elevation of 10 feet. If the receiving antenna is raised to 20 feet or more, the range should increase to more than 1.0 miles. Range performance will degrade if the internal antenna is used; maximum range is achieved with the external antenna.

Internal Channels

This Whisker.Block® is configured with two (2) internal channels:
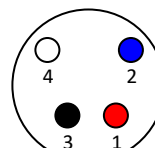
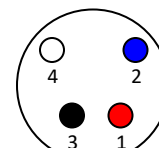**V**DC **Battery Voltage**

Ambient Temperature

External Connections

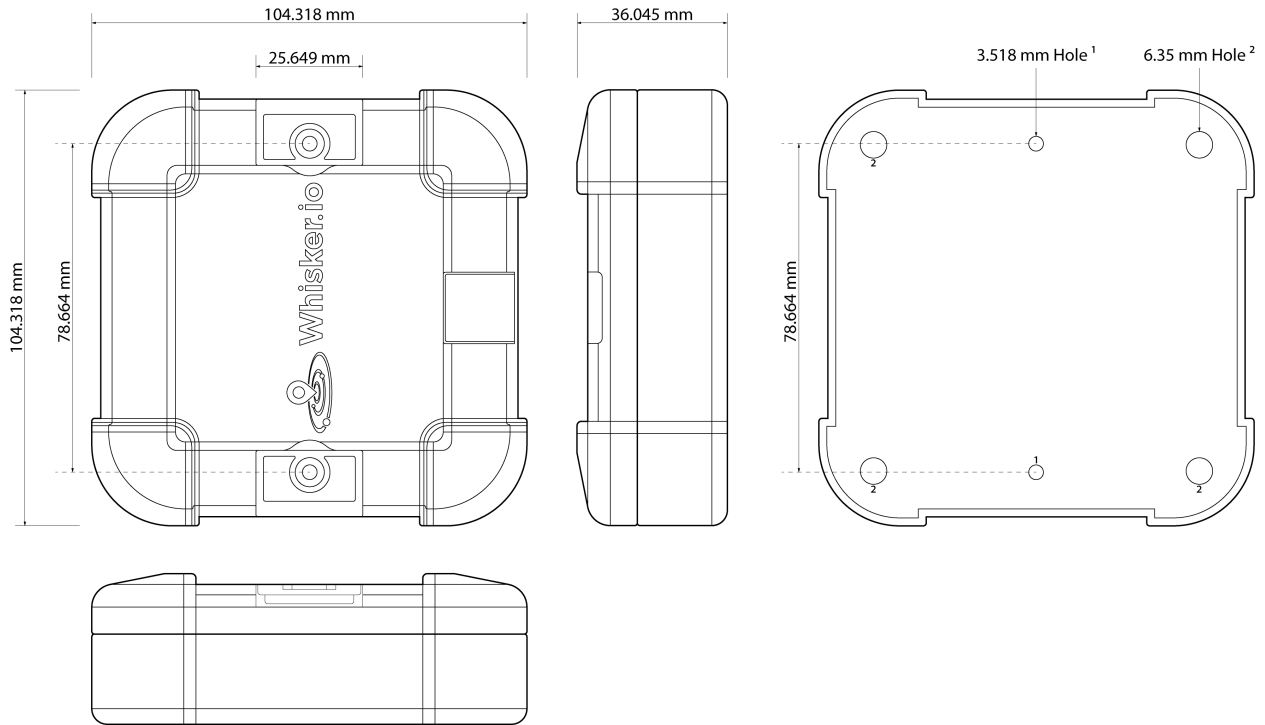This Whisker.Block® is configured with two (2) external channels:

Con 2 (Left)   Con 1 (Right)

Connector	Pin	Function	Description
1	1	Vin	8-24V Input (select models)
1	2	Channel 1	Not used
1	3	Channel 2	Not used
1	4	Ground	Circuit ground
2	1	Not used	Not used
2	2	Channel 1	RS485-
2	3	Channel 1	RS485+
2	4	Ground	Circuit ground

Ordering Information

Part Number	Description
WB1–9–0D–MBNNNNNN–0000–LR	Modbus RTU, 900 MHz, 8-24V Ext DC, Internal Antenna
WB1–9–00–MBNNNNNN–0000–LR	Modbus RTU, 900 MHz, battery powered, Internal Antenna
WB1–9–0D–MBNNNNNN–0000–XR	Modbus RTU, 900 MHz, 8-24V Ext DC, External Antenna
WB1–9–00–MBNNNNNN–0000–XR	Modbus RTU, 900 MHz, battery powered, External Antenna

Whisker.io™

Mechanical Drawing – Whisker.Block®, Modbus RTU – RS485

Product Attributes

Type	Description
Series	Whisker.io®
Features	Modbus RTU (RS-485), M8 Cable Assembly & Internal (Onboard) Temp
Sensor Type	Modbus RTU
Battery	3.7V, 5.2A-H LiThCl
Battery Life Standard Pack	10–20 Years
DC Power	8-24V DC, 100mA max
Operating Temperature Range	-40 – 185 Degrees Fahrenheit
Antenna	Internal (LR) / External RPSMA (XR)
Transmission Range1	1.0 miles (typical)
Frequency Range	902–928 MHz
Internal Temperature Measurement Range	-40 – 185 Degrees Fahrenheit
Internal Temperature Measurement Accuracy	±1.8 Degrees Fahrenheit
Sensor Sample Rate	5 Minutes(battery power) /10 Seconds(DC power)(typical)
Enclosure	Module - IP67 Case
Packaging	Box

1) Typical range: Outdoors, line of sight, unobstructed, antenna elevation 40 feet