HiBLUE HART Modem

HART Modem for Bluetooth

Description

The HiBLUE HART Modem is a wireless design for HART networks. It will enable personal computers to read and configure data in HART devices. The wireless Bluetooth antenna provides connection for the HART network and the wireless computer, the battery charger is also electrically isolated from the HART terminals. These are key features for process control network. The HIBLUE is able to work with most communicators in the market, being a reliable and cost effective option.

Features

- Ideal for configurations, data acquisition and digital control.
- Factory tested to work with all HART field devices.
- Extremely low leakage current (< 1 uAdc) will not interfere with current loop.
- Compatible with Bluetooth 2.0 connector, RF Antenna FCC id T9JRN41-3
- Full isolation between HART network and computer chassis and battery charger.
- Small size and light weight enclosure, long battery life.

The purpose of this document is to assist with the setup, installation, operation maintenance of the HIBLUE as well as providing technical specifications and basic data, for further information about this product can be found at www.springres.com

Table of Contents

1. General Information

Process control applications impose strong concerns over any access into the signal line. Quite common to have the field device far from the control room, raising serious concerns about ground loops and static electricity, while the signal wires are transmitting the analog current representing the process variable anything connected to it must not disturb such signal. The computer interface must consider these necessities therefore must be built with best quality components and also observing all guidelines for ground loop isolation, energy injection, and current leakages.

At the computer side these interfaces must satisfy applicable standard computer communication such as RS232, Bluetooth, USB, Ethernet, and many others. At the process control network these interfaces must satisfy the requirements of HART protocol.

The HIBLUE interface combine requirements of HART and Bluetooth protocols, and also consider general guidelines of intrinsic safety for hazardous areas. The HART connector is electrically isolated from the computer connections and the battery charger making it safe for process control application.

2. Mounting & Electrical

The HIBLUE require no special need for mounting it can be left hanging on the instrument terminals, inside control panels or within an environment fitted for control instruments. Figures 7.1.1 suggest electrical connection to computer and HART network.

The HART and Bluetooth antenna are galvanically isolated from each other this way the computer and process control equipment can be grounded according to their own requirements. The HIBLUE will tap into signals from these 2 ground systems without concerns.

3. Electric Wiring

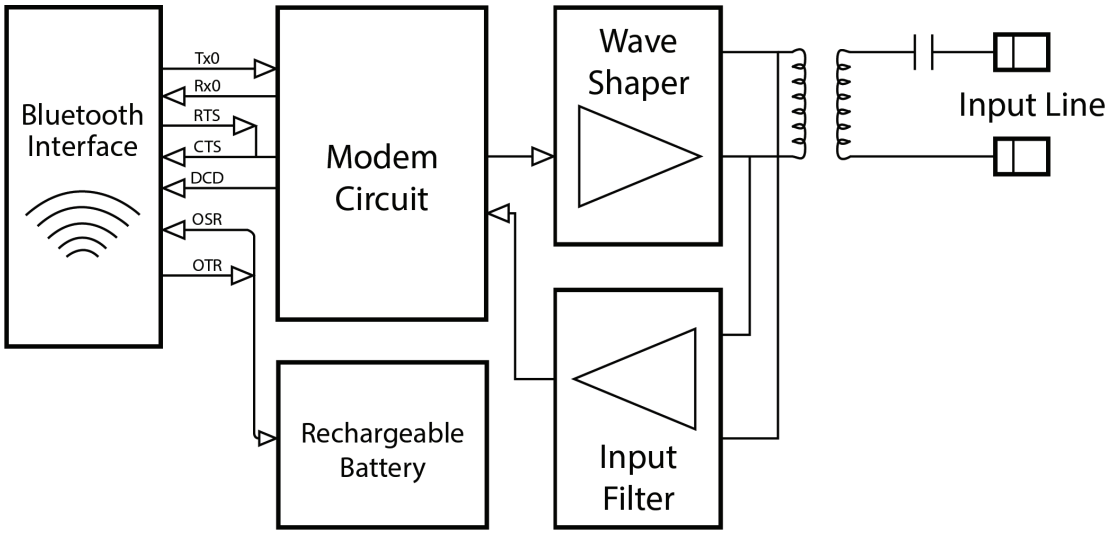

Figure 3.1 and the table below describe the electrical designators of the HIBLUE terminals.

4. Functional Specifications

- Power supply: **less than 20mA from rechargeable battery**
- Operating temp.: **-20 to 70C**
- Storage temp.: -**20 to 70C**
- Humidity: **10 to 90%**

5. Performance Specifications

- Computer port: **Bluetooth 2.0 compliant**
- Computer o.s.: **Windows, MacOS, Android**
- HART protocol: **HART 1 through 7**
- HART modulator output: **400mVpp through 250 Ohm (see figure 5.1)**
- HART modulator input: **120mVp to 1500mVpp**
- HART Network isolation: **500Vac @ 60HZ**

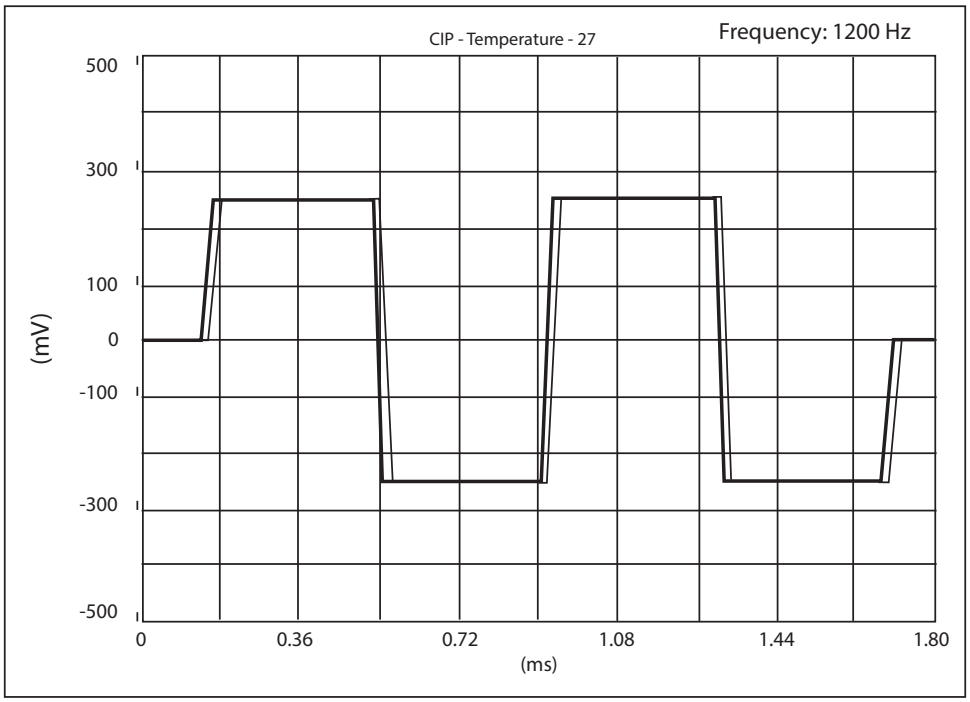

Figure 3.1 and the table below describe the electrical designators of the HIBLUE terminals.

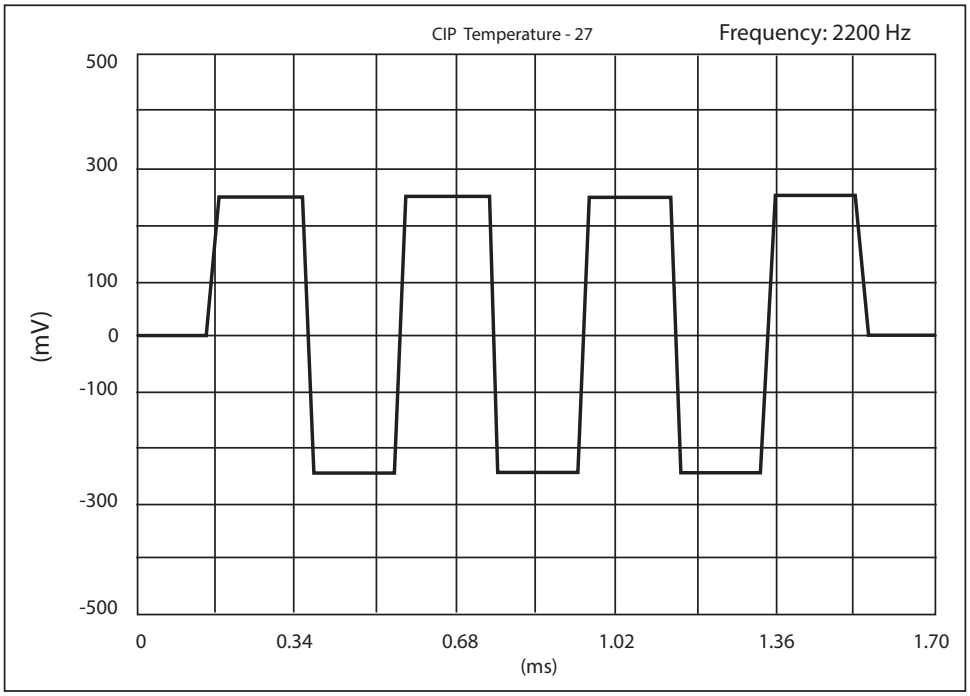

Figure 5.1: modulation wave shape

Vibration Effect:	**Meets SAMA PMC 31.1**
Electro-Magnetic Interference:	**Designed to comply with IEC 801**

6. Physical Specifications

Electrical Connection:	**Bluetooth wireless min 20 meters.**
	HART cable expandable to 1 meter.
Mounting:	**No special requirement**

7. Hardware Configuration

The HIBLUE is composed of 4 sections, the Bluetooth electronic interface, the HART modem, the galvanic isolation module, and the a/c current section. These sections are designed to satisfy the respective protocols to provide serial communication without interference to the process control current signal and also keeping the 2 networks electrically isolated to prevent damaging ground faults.

7.1 **Bluetooth to computer wireless.**

The HIBLUE wireless will connect directly into any PC with Bluetooth port, it will transfer serial data through Bluetooth protocol and take power from its internal battery. Bluetooth antenna FCC id. T9JRN41-3.

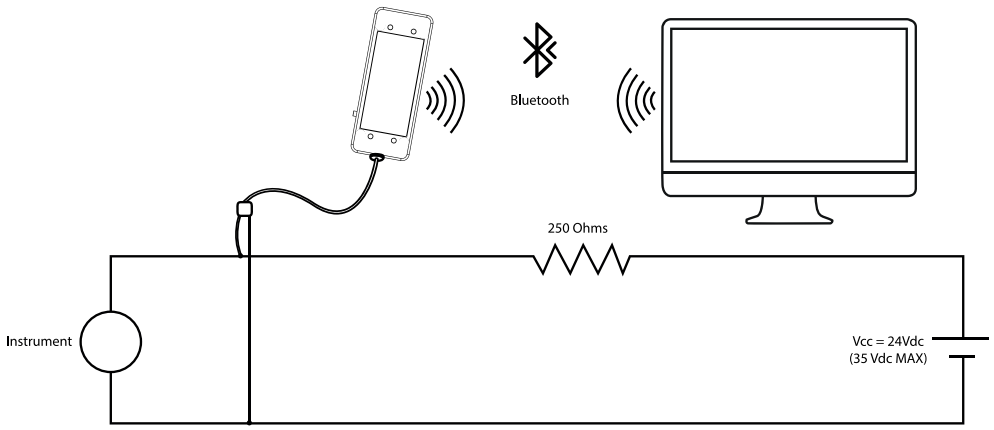

Figure 7.1.1: connection practice.

7.2 **HART network cable**

The HIBLUE computer cable will connect directly into any PC with Bluetooth port, it will transfer serial data through Bluetooth protocol and take power from the same PC connector.

8. Software Configuration

The HIBLUE will work with any Bluetooth compliant PC software with emulation package for protocol RS-232.

9. Mechanical Dimensions

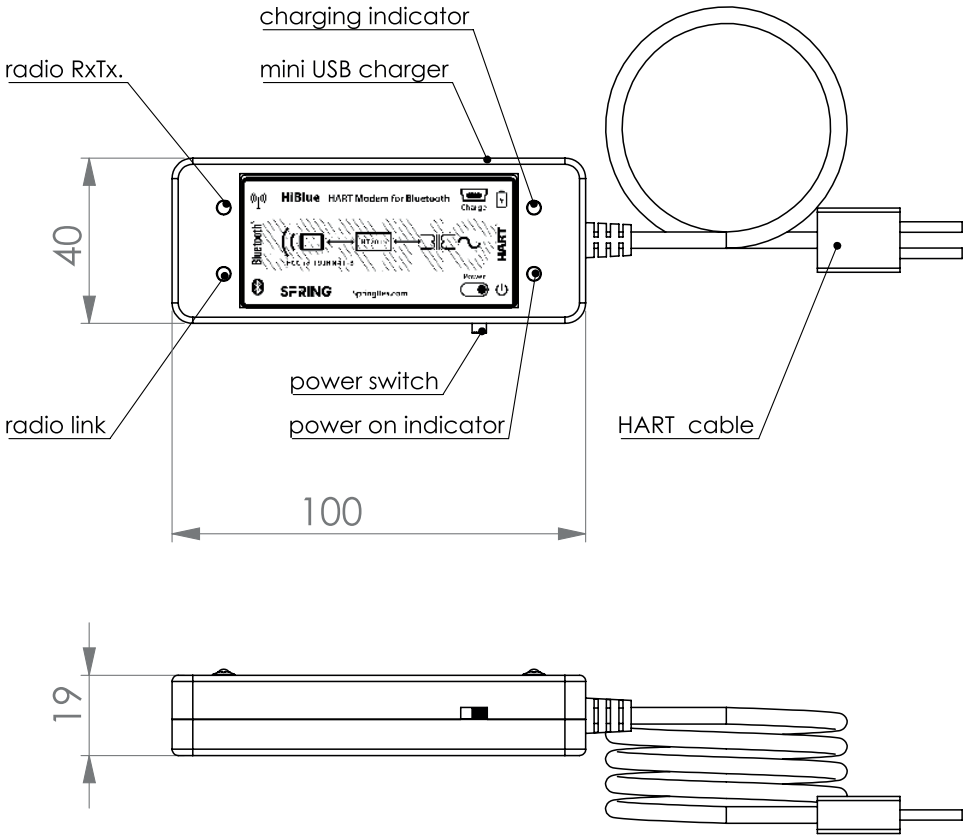

Fig. 9.1 – Mechanical Dimension

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 follow- ing 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 con- nected.
- Consult the dealer or an experienced radio/TV technician for help.

SPRING TECHNOLOGY

Springfield Research Corporation
3350 NW 22nd Terrace Suite 500 • Pompano Beach, FL USA 33069
Tel: +1 (954) 657.8849 • Fax: +1 (954) 657.8895 • sales@springres.com •
www.springres.com

HART COMMUNICATION PROTOCOL