

# INSTRUCTIONS MANUAL



## kiro solo and sensor installation manual

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### 1. kiro solo WiFi cloud monitoring system

The kiro solo WiFi cloud monitoring system receives and logs all data received from the Wi-Fi node assigned to it. The computer being used must be able to access the following cloud URL\*:

<https://cloud.bb-sensors.com/>

For more detail please read the Wi-Fi cloud monitoring system user manual.

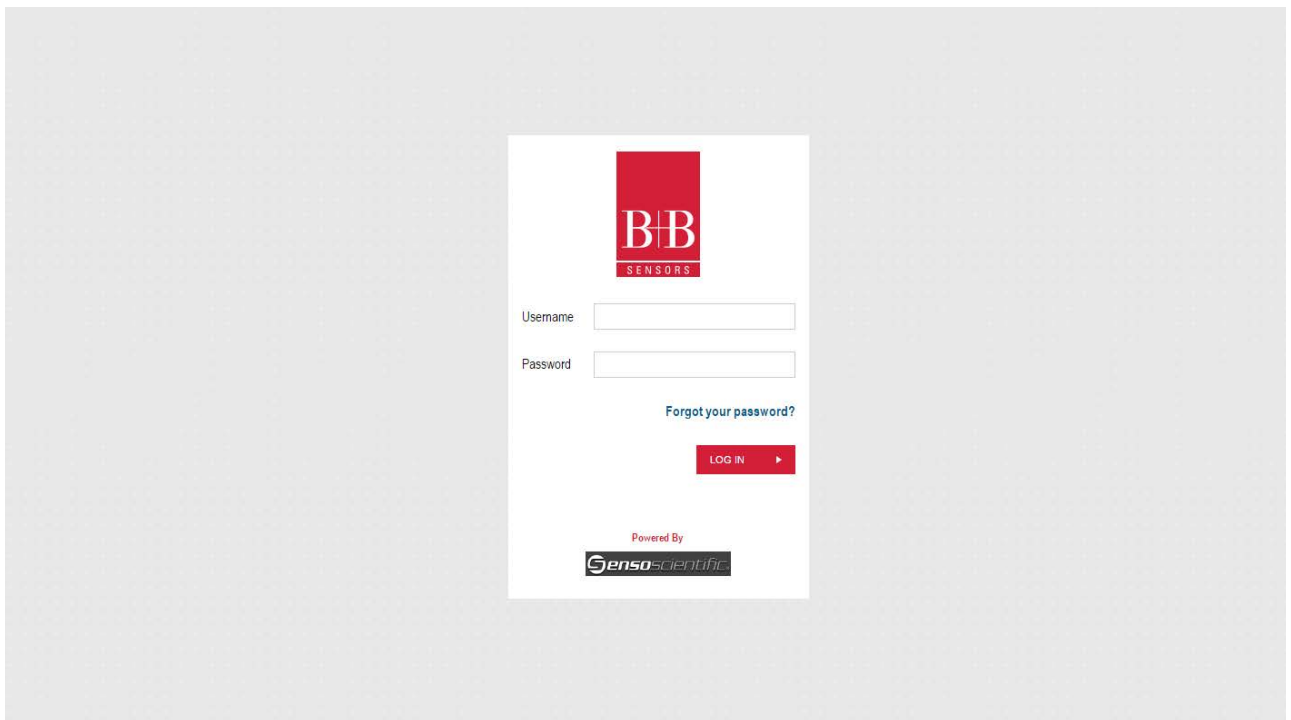


Figure 1: SensoScientific Wi-Fi cloud monitoring system login page

\*Please confirm with your IT department that the computer has access to the URL if accessing from a private network or a network behind a firewall.

### 2. kiro solo WiFi node description

The Wi-Fi node is a standalone, embedded wireless 802.11 b/g (Wi-Fi – RF Frequency 2.4 to 2.497 GHz) networking module capable of collecting, storing and transmitting data wirelessly.

Because of its small form factor and extremely low power consumption, the Wi-Fi node has a long battery life of about up to 4 years based on standard 20 minutes sample rate. The battery type is used for Wi-Fi node is 3.6 V AA lithium thionyl. The Wi-Fi node

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incorporates a 2.4 GHz

radio, processor, TCP/IP stack, real time clock, crypto accelerator, power management and analog node interfaces.

The transmitter passes information to a standard access point which can be accessed by any Wi-Fi-enabled network. Each transmitter monitors against preset conditions that are defined by the user and can provide audio and visual alerts.

Additional alerts can be provided through a variety of methods such as SMS, text message, voice, pager, cell phone, fax and e-mail.

Information recorded to the database is time-stamped and cannot be altered through the user interface.

WiFi node specifications include:

### Data buffer

Single probe node (PN B10-100) – 400 readings

Dual probe node (PN B11-100) – 100 readings

Humidity/Temperature (PN B13-100) – 100 readings

### Wireless

IEEE 802.11 b/g

Up to 54 Mbps

Optional external antenna for extended range

### 802.11 Security

WPA2-PSK (AES)

WPA1-PSK (TKIP)

WPA1+2 PSK (AES+TKIP)

WEP (40 bit, 128 bit)

PEAP MS-CHAP

### Secure communication protocol

TCP/IP is used (unlike UDP protocol, TCP/IP guarantees data is delivered to the receiver and acknowledgement is sent back to node)

### Network

IP based

DHCP or static support

Very small bandwidth footprint (less than 500 bites per package)

### User interface

Four different color LEDs for multiple status indication

Five input control buttons

Micro USB connector for easy configuration

### Physical dimensions

Height: 4<sup>3</sup>/<sub>4</sub> (120 mm)

Width: 3" (76 mm) - 4" (100 mm) with vial

Thickness:

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- 1"1/4 top (32 mm)
- 2"1/8 bottom (54 mm)

### 3. WiFi Signal verification

Prior to physically mounting the kiro solo on the unit, signal needs to be verified.

Power on the kiro solo. All LEDs will begin to flash. The red LED will remain on until it communicates through the Wi-Fi and reaches the cloud system. If the green LED is flashing, the kiro solo has successfully connected and received acknowledgement back from the system assuring correct time synchronization.

Once LED stops flashing, place kiro solo inside the unit, press the OK button on the kiro solo, and close the unit door. Wait approximately 10-15 seconds, open the unit door and take kiro solo of the flashing LED, if Green LED continues flashing, you can go ahead and install the kiro solo. Signal is OK.

If the **green** LED is not flashing, take the kiro solo out, power it off for 3 seconds, & power on again. Repeat steps 1 & 2. If the kiro solo does not acknowledge a **green** LED at any time, **DO NOT INSTALL THE NODE**. For further technical assistance, please contact our technical support team.

**Take note if any other LEDs flash when the kiro solo is inside or out of the unit and the action that may need to be required:**

**BLUE** – No acknowledge, re-start the kiro solo by powering OFF and ON the kiro solo. If issue persists, contact SensoScientific technical support.

**YELLOW** - Low signal/no IP obtained. Move kiro solo as close as possible to the Wi-Fi access point. If issue persists, contact your facility information solution, additional access point may be required.

**BLUE + GREEN** - No acknowledge, re-start kiro solo by powering OFF and ON, if issue persists, contact your facility information solution, as the unit may need to be re-registered to the centralizer due to its connection request not being accepted by the server.

**YELLOW + BLUE** - No Wi-Fi network available, access point will be required. Once the troubleshooting has been completed, this includes adding any additional access points; verify kiro solo has proper communication to the server by repeating steps 1-3, if connection was successful at first, this additional step is not required, verify kiro solo is powered ON when ready to install.

### 4. kiro solo installation guideline

Prior to mounting the kiro solo, note the MAC address printed on the label in the back of the kiro solo. This MAC address along with a customer provided asset tag number, unit name, and room location will help identify the kiro solo when configuring the settings in the cloud system. It is important that the MAC address along with a location is noted for tracing purposes. This will help identify where they have been placed, keep track and count of the kiro solos already installed and avoid any discrepancies.

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Figure 2: Barcode label with MAC address

## 5. Battery

Insert four AA 3.6 V Lithium Thionyl Chloride batteries (provided) correctly by removing cover and inserting the negative side down. Once batteries are inserted, close compartment.



Figure 3: Insertion of batteries

**\*\*CAUTION-** Pay attention to the battery orientation, placing incorrectly can cause undesirable operation of the device. **\*\***

**\*CAUTION-USE PROVIDED BATTERIES ONLY!**

This device only works with 3.6 V Lithium Thionyl Chloride batteries. Using any other type of battery chemistry may cause permanent damage to the device.

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### 6. Optional external power supply

The kiro solo have the option to use an external 120 V AC/DC power supply. The DC jack connector is on the right side of the kiro solo.



Figure 4: External power supply connector

### 7. Red glycol vial

Kiro solos come with a red glycol vial even though there is an optional use for it. The vial needs to be filled with a solution, such as Propylene Glycol. The red glycol vial is used to maintain the temperature on the kiro solo. Diluting portions of the solution are strictly based on the customer procedures. B+B does NOT provide any type of solution. The diluted or non-diluted solution must be provided by the customer.



Figure 5: Glycol vial

### 8. Wall mount

All types of kiro solo can be installed using an optional wall mount as well.

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Figure 6: Wall mount

The installation procedure is as follow:

- Choose designated area.
- Mount to wall using drywall screws provided.
- Clip on the kiro solo.
- If you wish not to mount on the wall, the kiro solo can be mounted through the back using a zip tie.



Figure 7: Wall mount kiro solo



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Figure 8: Zip-Tie mount

## 9. Mount at refrigerators and freezers

The installation procedure is as follow:

Attach the wall mount lateral or at the top of the device with velcro and put the kiro solo in it.



Figure 9: Sideward at the refrigerator mounted kiro solo

To receive the WiFi signal ideally good, place the kiro solo at the top off he device. You can lay the wire of the probe through the door. Place the glycol vial with velcro or cable tie central, under the second rack field.

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Figure 10: Under the rack field mounted probe with glycol vial

Also you can place the glycol vial with velcro at the side or back wall. Make sure, the vial is not blown on by the blower. Respect, the walls are warmer than the middle of the rack.



Figure 11: At side wall mounted probe with glycol vial

Lay the wires of the probe inwards through the door. If the device have a accessory connection, the wire should routed there.

## 10. References to different kiro solo

All kiro solo transmit the measured values every 5, 10, 15 or 20 minutes to the monitoring system. Each sensor monitors against preset conditions (minimum and maximum alarm limits) that are defined by the user and can provide audio and visual alerts.

### kiro solo with probes for temperature and humidity

Probes for temperature/humidity kiro solos shall be installed in a location where movement and airflow are minimized in order to keep the highest accuracy and consistency of the readings. The ambient environment needs to be stable. Examples of non-convenient locations are proximity to a door, to a window, to an AC conditioner etc. Please refer to installation guideline for installing the kiro solo.

### kiro solo Universal

Wi-Fi universal transmitter supports one external instrument via terminal block and works in conjunction with 4-20 mA, 0-5 V, and 0-10 V output device.

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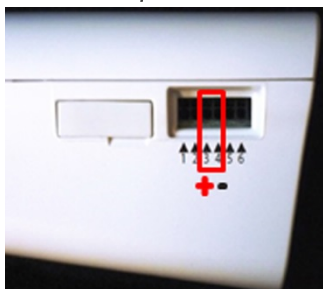


Figure 12: Input pins on the universal nod

### Installation:

The universal kiro solo can be connected to a 2, 3 or 4 wire transmitter.

**NOTE:** Please pay careful attention to the polarity of the connection to avoid undesirable operation or damage of the transmitter or universal node.

The input pins on the universal node are pin 3 [+] and pin 4 [-] (figure 12).

\* If the node transmitter has internal power supply, the 2 signal outputs are connected as shown:



**Figure 13:** Connect positive signal output of the kiro solo transmitter to pin 3 [+] of the universal kiro solo and connect negative signal of transmitter to pin 4 [-] of the universal kiro solo

### Example of kiro solo Universal 4-20mA

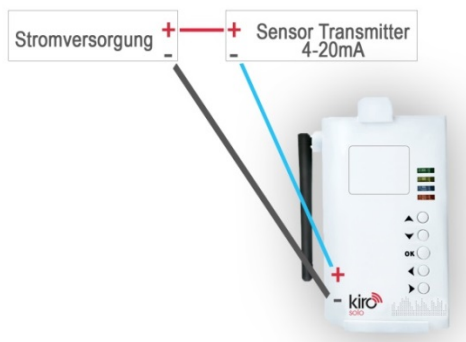
For a 4-20 mA transmitter with external power supply and 2 signal outputs, the connection is established as shown:

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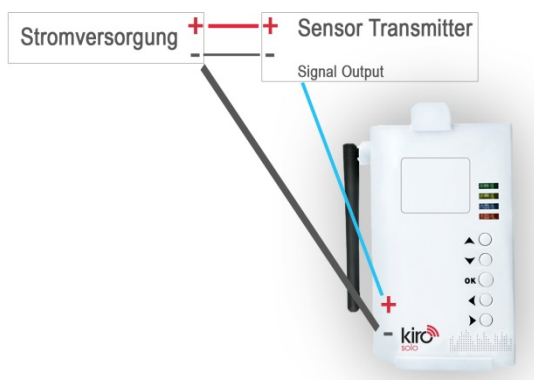
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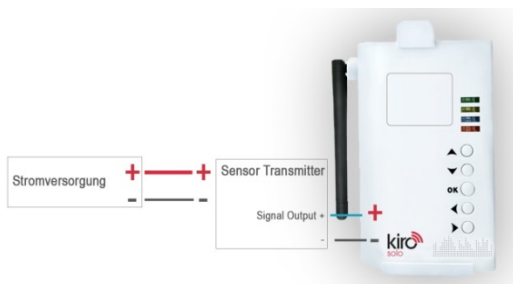
**Figure 14:** Connect negative signal output of 4-20 mA kiro solo transmitter to pin 3 [+] of universal kiro solo and connect pin 4 [-] of universal kiro solo to negative pin of the external power supply.

Some transmitters have 3 wire connections; 2 pins are to be connected to the power supply and the 3rd pin is the signal output:



**Figure 15:** Connect signal output pin of the transmitter to pin 3 [+] of universal kiro solo and connect pin 4[-] of the universal kiro solo to the negative output of the external power supply

Transmitters with 4 wire connection:



**Figure 16:** Positive signal output of the transmitter connects to pin 3 [+] of universal kiro solo and negative signal output of transmitter connects to pin 4 [-] of universal kiro solo

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Wire connection to universal kiro solo (4-20mA)

The universal kiro solo has a spring cage connector for easy wire connection or removal. To connect a wire a small flat screwdriver or any fine tip tool can be used.

The steps are explained below:

**Step 1** – Use the fine tip tool to press down into the top rectangular opening, this will open the spring cage mechanism.

**Step 2** – Insert the wire on the circular opening while pressing down the tool.

**Step 3** – Once the wire has been inserted, remove the tool and the spring cage will secure the wire. Tug the wire slightly to check that the wire is properly secured.



Figure 17: Pressing down into the top rectangular opening, inserting the wire, removing the tool.

## 17. FCC ID: U30-G2M5477

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. If not installed and used in accordance with the instructions, it 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 following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and Transceiver.
- Connect the equipment into an outlet on a circuit different from that to which the transceiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment has been certified to comply with the limits for a class B computing device, pursuant to FCC Rules. In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

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### 18. Questions?

Please contact our sales team.

Our technical support team is available from Monday to Friday from 8:00 am to 4:00 pm .

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