

Remote Process Monitoring & Alerts



User's Manual







The SENSERT Mobile App is designed for Apple and Android phones but is not optimized for tablets (use Web Portal on tablets). This user's manual illustrates the SENSERT Mobile App on an iPhone.

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If you do not have an existing SENSERT account (username and password), please follow this quick setup procedure:

- 1. Download SENSERT Mobile App
- 2. Create account (username and password)
- 3. Add devices [see Mobile App Tutorial]
- 4. Update firmware [see Mobile App Tutorial]







Google Play Store





SENSERT Base Unit Specifications			
Power Supply	5-30 V DC		
Analog Inputs	4 - 0-20 mA, 4-20 mA, 0-5 V, 0-10 V		
Digital Inputs	2 - Dry Contact or NPN Type		
Digital Output	1 - Relay (240 VAC, 5A)		
Internal Measurements	Temperature and Humidity		
Analog Channel Impedance	mA: 200 ohm V: 1M ohm		
Digital Inputs	Туре	Dry Contact or NPN Type	
	Logic Levels	Logical Level "0": From 0 to 0.5 V DC Logical Level "1": From 3 to 30 V DC	
	Maximum Voltage	12 VDC	
	Input Impedance	500k ohm	
	Input Current @ 12 VDC (Typical)	24uA	
	Maximum Frequency (Square Wave)	Dry Contact: 500 Hz NPN: 500 Hz	
	Minimum Pulse Duration	Dry Contact: 2 ms NPN: 2 ms	
Resolution	4096 (12 bit ADC)		
Report Interval	Configurable		
Alerts	Configurable through the SENSERT Mobile App or Web Portal. Each channel can be configured for a high and low threshold value as well as custom alerts.		
Operation Temp	-4 to 131°F (-20 to 55°C)		
Accuracy	1% for all inputs, 2% for internal measurements		
Communication	RS485 [FUTURE DEVELOPMENT]		

SENSERT Remote I/O Specifications			
Power Supply	9-30 V DC		
Analog Inputs	1 - 0-20 mA, 4-20 mA, 0-5 V, 0-10 V		
Digital Inputs	1 - Dry Contact or NPN Type		
Internal Measurements	Temperature, Humidity, and Vibration Sensor		
Analog Channel Impedance	mA: 200 ohm V: 1M ohm		
Digital Inputs	Туре	Dry Contact	
	Maximum Voltage	12 VDC	
	Input Impedance	500k ohm	
	Input Current @ 12 VDC (Typical)	24uA	
Resolution	4096 (12 bit ADC)		
Report Interval	Configurable		
Alerts	Configurable through the SENSERT Mobile App or Web Portal. Each channel can be configured for a high and low threshold value as well as custom alerts.		
Operation Temp	-4 to 131°F (-20 to 55°C)		
Accuracy	1% for all inputs, 2% for internal measurements		











Product Description - Remote I/O



REMOTE I/O





SENSERT is able to be powered 5-30 V DC. See diagram below.

The 4-20 mA input from the sensor cannot be floating with the power supply that is used for the SENSERT Base Unit. The max common mode voltage of the AI +/- to the GND of DC power must be 0- 24 V.

The floating 4-20 mA Al input might damage the SENSERT Base Unit.





The sensor's 4-20 mA 3/4 wire supply need to share the same negative net with SENSERT power negative net.







Connecting to Bluetooth

Download the SENSERT Mobile App available in the Google Play or Apple App Store and log in using the credentials you used to register your account. After logging into your new SENSERT account, navigate to: Configuration \rightarrow Device to add a new SENSERT device.

Input the serial number of the SENSERT Base Unit, located on the underside of the SENSERT device. Please make sure that your Bluetooth connections are enabled on your phone at this time. If the device has not previously been added to an account, it will automatically connect. If the unit does not automatically connect, please see the troubleshooting section to reset the Bluetooth Mesh.

Connecting to WiFi

Using the SENSERT Mobile App, navigate to Configuration \rightarrow Device and select the target device to connect to WiFi. Inside the Detail page, click "Reconnect Network," and follow the on-screen instructions to connect to the WiFi network.

Analog Input Channel Setup

Each analog channel can be enabled or disabled in the configuration screen. If enabled, enter the following information:

- Name: User-defined name of the analog channel
- Input Sensor Type: Select from 0-10 V, 0-5 V, 4-20 mA, and NTC.
- Analog: Select the type of sensor from the drop-down menu.
- Unit: Define the unit for the sensor output data.
- Zero & Span: Define the zero and span for the channel data for the display.
- Report Intervals: The interval of the data updated on the cloud, but if the channel data has no changes larger than 0.05%, the data will not be reported to the cloud.
- Alert: Choose the boundaries for the lower and upper limits for the notification alarm. 7 SENSERT Setup (cont.)

Digital Input Channel Setup

- Name: User-defined name of the digital channel
- Report Intervals: The interval of the data updated on the cloud, but if the channel data has no changes of the status of the DI input, the data will not be re-reported to the cloud.
- Sensor Type: PNP, NPN, Dry Contact.
- Input Mode: DI input will be treated as digital input normally. The data will be 0 or 1. Counting input will count the times of pulse on the DI input pin during the report interval.
- Debounce: If the sensor type configured is Dry Contact, it is necessary to set a debounce time for edge detection. The debounce time is the sensor stabilization time the minimum amount of time at which the sensor must remain at the logical level so that the detected edge is considered valid. The minimum configurable debounce time is 50 milliseconds and the maximum is 6 seconds.

If device setup fails the first time, reset the device to factory settings, delete the devices from the account, and try again.



There are only two (2) differences in functionality and one (1) difference visually between the SENSERT Mobile App and Web Portals:

Mobile App

- Initial setup of all devices (Base Unit or Remote I/O) must be initiated via the Mobile App
- Visually, the Mobile App uses icons while the Web Portal uses text descriptors



Web Portal

• Subscription payments must be made via the Web Portal and cannot be done using the Mobile App



Subscription Payment Setup

Subscription payments must be made via the Web Portal (sensert.io).

• [SENSERT Web Portal -> DEVICES -> DEVICE ID -> Device general -> PAY]

Payments are processed via PayPal, but you do not need a PayPal account.

Subscription expiration will prevent alerts and result in the loss data.

Admin users will receive email notifications 30 days, 7 days, and 1 day prior to subscription expiration.

If already expired, you will see a payment icon under device status on the Web Portal.

Firmware Update

To check for a firmware update, navigate to Configuration \rightarrow Update. If there is a newer version of firmware available, the update button will be shown. To begin the update process, click the update button.

NOTE: During the device update process, the unit must remain powered on. During updating, the power and status LED will alternatively flash, and the device will restart automatically after upgrading.



REMOTE I/O

PWR: Power

Green: normal power status Red: startup or in process of firmware update

BASE UNIT

STAT: Status

Green: connected to network

Red: not connected to network

Green (FLASHING): connected to network, but not connected to cloud

Al-1 / Al-2 / Al-3 / Al-4 : Analog Inputs

Green: channel active and in normal status Red: channel active and in alert status Off: channel inactive

DI-1 / DI-2: Digital Inputs

Green: channel active and in normal status Red: channel active and in alert status Off: channel inactive

DO: Digital Output

Green: channel active and in normal status Red: channel active and in alert status Off: channel inactive

Red

- 5 flashes every 16 seconds
- No Bluetooth mesh network configured

Orange -> Red

- Single orange quickly followed by single red flash; red flash once every 3 seconds
- Power up...Bluetooth mesh network configured but Base Unit or Remote I/O Repeater out of range

Orange -> Red -> Green:

- Single orange quickly followed by single red flash; 2 green flashes (after 6 seconds)
- Power up...Bluetooth mesh network configured and Base Unit or Remote I/O Repeater in range

Red

- Long flash every 16 seconds
- Bluetooth mesh network configured but Base Unit or Remote I/O
 Repeater out of range

Red

- Short flash every 16 seconds
- Bluetooth mesh network configured but no cloud connectivity

Green

- Short flash every 16 seconds
- Bluetooth mesh network configured and active cloud connectivity

Off

• No power or "sleep mode"

Occasionally, it may be necessary to reset the SENSERT Base Unit to re-enable connectivity.

BASE UNIT

REMOTE I/O

Use a paperclip to press the reset button...

Reboot

Hold for 3 seconds until the Power LED flashes, then release (while flashing).

Reset Bluetooth Mesh

Hold for 6 seconds until the Status LED flashes, then release (while flashing). Additionally, in the Mobile App, go to Configuration -> SYSTEM AND EQUIPMENT CONFIGURATION -> DEVICES, select the device you wish to reset, then click RESET.

Reset Factory Settings

Hold for 9 seconds until both Power and Status LEDs flash, then release (while flashing). Additionally, in the Mobile App, go to Configuration -> SYSTEM AND EQUIPMENT CONFIGURATION -> DEVICES, select the device you wish to reset, then click RESET. Use a paperclip to press the reset button...

Wake Up

Quick press and release.

Reboot

Hold for 5 seconds until the LED flashes, then release (while flashing).

Reset Bluetooth Mesh

Hold for 10 seconds until the LED flashes, then release (while flashing).

Reset Factory Settings

Hold for 15 seconds until the LED flashes, then release (while flashing).



<u>User Types</u>

ADMIN [Administrator]

Full account privileges (the user that initially creates a SENSERT account will automatically be assigned as an admin and can invite other admins)

DEVICE MANAGER

Same privileges as Admin except for subscription payment activities

INSTALLER

Only permission to add/edit devices (cannot disable/delete devices)

VIEWER

Only permission to view dashboard assigned to him/her

Alert Types

Threshold Alert

The system alert is configured through AI and DI channels, the Admin account can also setup threshold alerts inside Admin Level \rightarrow Threshold. The admin level alerts can be assigned to different users to allow them access to see the alerts.

Custom Alerts

A Custom Alert can be sent to any contact's phone number and/or email address.

Notifications

Notifications consist of non-alert messages such as offline/online status, subscription expiration, etc.

<u>Contact</u>

Marsh Bellofram, Inc. 8019 Ohio River Blvd Newell, West Virginia 26050

customerrfq@marshbellofram.com

304-387-1200

Warranty Information

Automatic Timing and Controls products are warranted to the first direct purchaser its products against defective material and workmanship for a period of three (3) years from the date of purchase. The Company will either repair, replace or refund the purchase price, at its option, if the product proves to be defective provided the purchaser notified The Company of the alleged defect within a reasonable time of its discovery and returns the products to The Company for evaluation, free of any liens and encumbrances. The purchaser shall return the alleged defective products and address notification of alleged defects to either of the addresses shown below.