

senseware

Product Catalog

2018

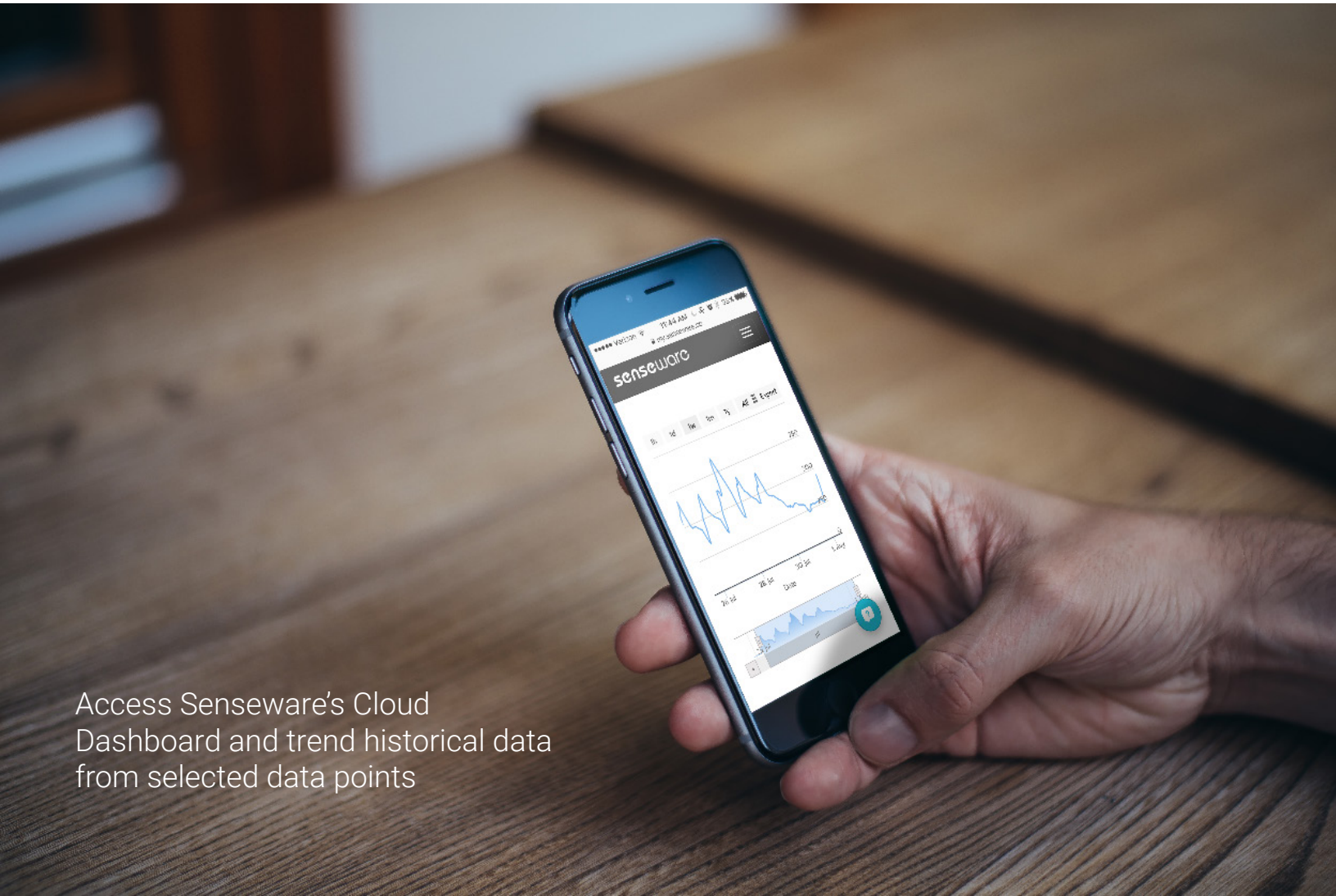
senseware

senseware.co | 571.766.6443

1775 Tysons Boulevard | Floor 5 | Tysons VA, 22102

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Access Senseware's Cloud Dashboard and trend historical data from selected data points



GATEWAY

Gateways aggregate sensor data from wireless Nodes that collect sensor data. Installing the Gateway simply requires plugging it into a standard 120v wall outlet, connecting to an Internet connection, and the Gateway automatically connects to Senseware's cloud dashboard.



NODES

Wireless Nodes are installed at data collection points to collect environmental data, connect to existing sensors using a sensor bridge, or connect to the existing BMS to collect data. Nodes automatically find the Gateway as soon as they are powered on without any network configuration. Nodes also act as relays/repeaters automatically as long as they are not battery powered.

Senseware offers AAA battery powered Nodes in addition to its regular powered Node. AAA nodes have internal temperature and relative humidity (T/RH) sensors that can be used instead of an external T/RH environmental sensor. Most sensors can be connected to AAA Nodes, with the exception of BACnet, Modbus, and IAQ.

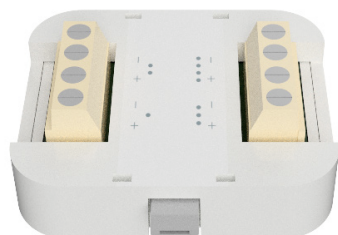
Node power options include: wall outlet plug (default), 3 x AAA batteries, 5VDC, 12-24VDC, 24VAC, 100-240VAC.



SENSORS

Accurate environmental sensors plug directly into the wireless Nodes to collect the following data:

- | | |
|------------------------|------------------|
| Light | CO |
| Motion/Occupancy | H ₂ S |
| Sound | NO ₂ |
| Temperature + Humidity | Ozone |
| CO ₂ | SO ₂ |
| VOC/eCO ₂ | Vibration |
| Particulate Matter | Pressure |



SENSOR BRIDGES

Sensor bridges collect data from existing or 3rd party sensors that have the following signal outputs:

- | | |
|-----------------|---------------|
| 0-5V sensors | Modbus |
| 0-10V sensors | Pulse |
| 4-20mA sensors | Thermistor |
| BACnet | Timer Control |
| Contact Closure | Water Encoder |



IAQ PACKAGE

Senseware's Indoor Air Quality (IAQ) Sensor Package makes it easy to monitor a variety of environmental conditions. The sensor can provide the following sensor data depending on your ordered configuration: Temperature, Relative Humidity, Total Volatile Organic Compounds (TVOC), Particulate Matter (PM1.0, PM2.5, PM10, and total number of counted particle sizes), CO₂ and other environmental conditions.

Power	3.3V DC from Node via micro-USB connector
Inputs	None
Output	Temperature (°F/°C) Relative Humidity (%) CO ₂ , eCO ₂ , CO, NO ₂ , H ₂ S, SO ₂ , Ozone (ppm) VOC (ppb) PM1.0, PM2.5, PM10 (µg/m ³) # particles z > x µm in 0.1L of Air (x = 0.3, 0.5, 1.0, 2.5, 5.0, 10)
Accuracy	
T/RH	± 2% RH, ± 0.3°C
CO ₂	400-5000 ppm +/- 25 ppm ± 3% of reading
CO	0-1000ppm, ± 3%
Ozone	0-20ppm, ± 3%
NO ₂	0-10ppm, ± 3%
H ₂ S	0-10ppm, ± 3%
SO ₂	0-20ppm, ± 3%
Sound Level	65dBa - 100dBa, ± 4%
Pressure	0-1psi; ± 0.25%
Size (inches)	4.2x 4.2 x 1.5
Weight (ounces)	4.9



LIGHT/LUX

Lux sensors are inserted directly into wireless Nodes to collect real time luminosity data in exterior and interior applications.

Power	3.3V DC from Node or Gateway via micro-USB connector
Inputs	None
Bridge Output	Light: 0 to 80,000 Lx
Size (inches)	1.6 x 1.4 x 0.4
Weight (ounces)	0.3

MOTION/OCCUPANCY

Occupancy sensors are inserted directly into wireless Nodes to collect real time data in exterior and interior applications:

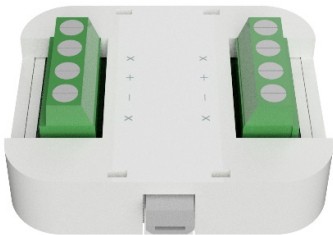
Power	3.3V DC from Node or Gateway via micro-USB connector
Inputs	None
Bridge Output	Calibrated motion
Size (inches)	1.6 x 1.4 x 0.4
Weight (ounces)	0.3



4-20mA

4-20mA sensor bridges connect devices with the same output signals. Once the sensor bridge is connected to a sensor with that output, the user can insert the conversion values for 4mA, and maximum values at 20mA in the cloud dashboard. The 4-20mA sensor bridge allows you collect data from existing sensors, or install new sensors for common applications like CFM, 0-100 LB pressure, static pressure, flow meters, and others.

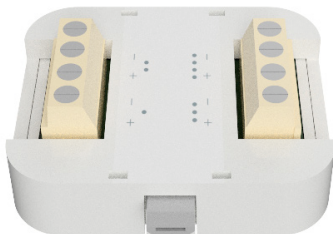
Power	3.3V DC from Node via micro-USB connector
Inputs	4 x 4-20mA signals
Bridge Output	4 x 4-20mA values (averaged over the sampling period)
Size (inches)	2.1 x 2.1 x 0.4
Weight (ounces)	0.8



BACNET

BACnet sensor bridges provide a simple connection between any device or controller that uses the BACnet MS/TP protocol. Once the sensor bridge is connected to a BACnet device, users can perform a network discovery to automatically identify all of the available data points in the cloud dashboard. Users can also collect and trend any type of data from environmental, lighting, HVAC, and energy systems connected to the BACnet network. BACnet IP supported via third party router.

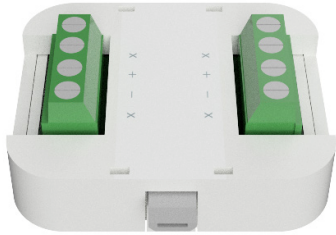
Power	3.3V DC from Node via micro-USB connector
Inputs	2 x 3 Wire RS-485
Bridge Output	Up to 400 operations
Size (inches)	2.1 x 2.1 x 0.4
Weight (ounces)	0.8



CONTACT CLOSURE

Contact Closure sensor bridges can be used to indicate the status of any piece of equipment or sensor that provides a dry contact connection. For example, connecting a sump pump with a dry contact output to a contact closure sensor bridge will indicate when a sump pump is running to allow for the detection of flooding or pump failure before damage occurs. Examples of dry contact sensors include water leak detection sensors which indicate the presence of water, and magnetic door contact sensors which indicate whether a door is open or closed. Senseware offers third party sensors for both water leak detection and door detection applications.

Power	3.3V DC from Node via micro-USB connector
Inputs	4 Dry Contact Signals
Bridge Output	On/Off, Open/Closed
Size (inches)	2.1 x 2.1 x 0.4
Weight (ounces)	0.8



MODBUS

Modbus RTU sensor bridges provide a simple connection between any device that provides a modbus output signal. Once the sensor bridge is connected to a modbus device, Senseware's cloud dashboard allows users to select the registers from the device to monitor and trend them. Collect any type of data from energy meters such as power factor or true power, and any other device or sensor that provides a modbus signal. Modbus TCP supported via third party router.

Power	3.3V DC from Node via micro-USB connector
Inputs	2 x 3 Wire RS-485
Bridge Output	Up to 2500 Modbus Registers (16/32 bits)
Size (inches)	2.1 x 2.1 x 0.4
Weight (ounces)	0.8



PULSE

Pulse sensor bridges connect any device or sensor that provides a pulse output signal. Once the sensor bridge is attached to a pulse device, Senseware's cloud dashboard allows the user to turn simple pulse signals into actionable data such as kWh for electric meters, gallons per minute for water meters, and BTU for gas utility meters.

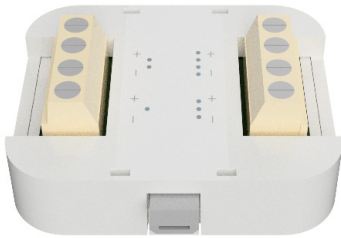
Power	3.3V DC from Node via micro-USB connector
Inputs	4 Pulse signals (provides 3.3V DC to meter)
Bridge Output	4 x 32 bits registers representing the number of pulses
Size (inches)	2.1 x 2.1 x 0.4
Weight (ounces)	0.8



0-5 VOLT

0-5V sensor bridges provide a simple connection between any device that provides a 0-5V output signal. Once the sensor bridge is connected to a sensor that outputs a 0-5V signal, Senseware's cloud dashboard will allow the user to easily insert the conversion values for 0V, and maximum values at 5V. Senseware's 0-5V sensor bridge allows users to collect data from existing sensors, or install new sensors for common applications like flow meters, or variable pressure sensors.

Power	3.3V DC from Node via micro-USB connector
Inputs	4 x 0-5V signals
Bridge Output	4 x 0-5V values (average over the sampling period)
Size (inches)	2.1 x 2.1 x 0.4
Weight (ounces)	0.8



0-10 VOLT

0-10V sensor bridges provide a simple connection between any device that provides a 0-10V output signal. Once the sensor bridge is connected to a sensor that outputs a 0-10V signal, Senseware's cloud dashboard will allow the user to easily insert the conversion values for 0V, and maximum values at 10V. Senseware's 0-10V sensor bridge allows users to collect data from existing sensors, or install new sensors for common applications like flow meters, or variable pressure sensors.

Power	3.3V DC from Node via micro-USB connector
Inputs	4 x 0-10V signals
Bridge Output	4 x 0-10V values (average over the sampling period)
Size (inches)	2.1 x 2.1 x 0.4
Weight (ounces)	0.8

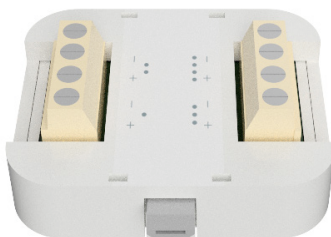


THERMISTOR

Thermistor sensor bridges provide ways to get real time data for air and liquid temperatures. Up to 4 thermistor temperature probes can connect to Senseware's thermistor sensor bridge. Each probe has a minimum of 6ft of cord to be placed in an air return, or attached to a chiller plant for liquid temperatures. Thermistors can be placed anywhere in the HVAC system to identify temperatures and mitigate potential issues.

We can also provide a moisture-resistant thermistor probe.

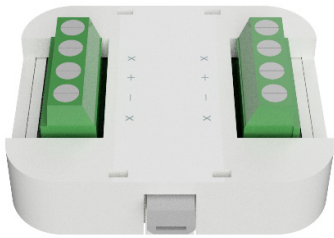
Power	3.3V DC from Node via micro-USB connector
Inputs	4 Thermistors
Bridge Output	4 Thermistor values (average over the sampling period)
Size (inches)	2.1 x 2.1 x 0.4
Weight (ounces)	0.8



TIMER CONTROL

The Timer Control bridge allows you to connect to lighting circuits, relays for RTUs, fans, etc. when combined with a Solid State Relay. You can set schedules or perform manual on/off operations; you'll even be able to perform controls based on other sensors in your Senseware network.

Power	3.3V DC from Node via micro-USB connector
Inputs	4 x 0-5V signals
Bridge Output	4 x 0-3.3V digital outputs (up to 20 mA)
Size (inches)	2.1 x 2.1 x 0.4
Weight (ounces)	0.8



WATER ENCODER

Senseware's Water Encoder sensor bridge has two sets of pulse inputs and two sets of Water Encoder inputs. The Water Encoder inputs work with the 3 wire UI-1203 protocol, also known as the Sensus protocol. This allows the bridge to communicate with Sensus, Badger, and Hersey water meters, as well as any other water meter that uses this 3 wire protocol..

Power	3.3V DC from Node via micro-USB connector
Inputs	2 x Pulse signals (provides 3.3V DC to meter), 2 x UI-1203
Bridge Output	2 x 32 bits registers representing the number of pulses, 2 x Water Encoder response
Size (inches)	2.1 x 2.1 x 0.4
Weight (ounces)	0.8

FEATURES

Senseware's platform can be easily installed in the built environment to manage properties or diagnose energy consumption.

REAL TIME

Get immediate insights into building operations, energy consumption, and configure alerts for real time actionable insights.

WIRELESS

Installing Senseware is as easy as plugging in the hardware and does not require any network configuration at all. Simply connect the appropriate sensor, or sensor bridge, and configure your cloud dashboard and data views from Senseware's cloud.

CUSTOMIZABLE

Senseware connects to any existing sensor, meter, or device in the built environment with patented sensor bridge technology. Or, install Senseware's environmental sensors and any other 3rd party sensors that meet your objectives.

COMPATABLE THIRD PARTY EQUIPMENT

Examples of third party equipment include:

Chemical Stations
Energy Meters
Flow Meter

Static Pressure
Sump Pump
Chillers

Water pH
BACnet Controllers
Utility Meters

THIRD PARTY ACCESSORIES

CELLULAR ROUTER + VERIZON DATA SERVICE

Connect your Gateway to the Cloud without the need for IT setup and local network configuration. With this option, there is no need to interact with the on-site network, providing another layer of security. Through our partnership with Verizon, we are able to offer very competitive data rates.

Recommended

BACNET IP ROUTER

Connect to any BMS or equipment that communicates using a BACnet IP network using this router along with our BACnet sensor bridge.

CURRENT TRANSFORMERS

Current Transformers, or CT's, allow you to monitor the current consumption of a circuit in order to determine runtime, performance, and approximate power & energy consumption without the need for installing a full submeter. These CT's can be used with our Volt bridge (0-5V output). CT sizes include 5, 10, 25, 50, 100, 250, and 500 amps.

SUBMETERS & CT'S

Senseware can connect to a variety of submeters and CT's where complete and accurate electrical information is needed. These submeters provide all the electrical data relevant for a given circuit and various models allow for a wide variety of configurations and CT inputs for monitoring as few or as many circuits as needed. Revenue grade CT's are also available. The Modbus bridge is used to communicate with these meters.

DOOR STATE DETECTION SENSOR

This sensor, to be used with our Contact Closure bridge, allows you to detect when door, windows, etc. are open or closed. You can even have instantaneous alerting via email or text if this occurs.

LEAK DETECTION SENSOR

Detecting water or refrigerant leaks has never been easier. Simply connect this sensor to the Contact Closure bridge to receive immediate alerts indicating if a leak has been detected.

MODBUS TCP ROUTER

This router, used in tandem with our Modbus bridge, allows you to connect to Modbus TCP networks via Ethernet.

POWER TRANSFORMERS

These allow you to power your Nodes with a variety of power sources and line voltage options. Options include 100-200VAC, 24VAC, 24VDC, and 12VDC.

SOLID STATE RELAY

Solid State Relays, or SSR's, allow you to use Senseware's Timer Control bridges to remotely control any circuit or piece of equipment. You can perform these controls either based on schedules or manual overrides. Default current rating is 50 amps, but additional options are available upon request.