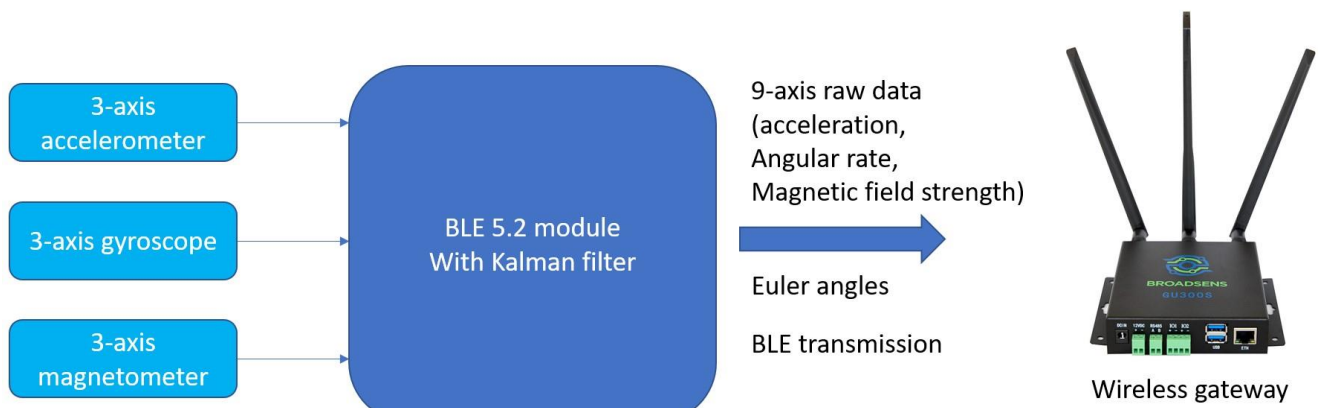SAG200 wireless IMU (inertial measurement unit) is an industrial 9-axis sensor that consists of 3-axis accelerometer, 3-axis gyroscope, and 3-axis magnetometer. The sensor calculates Euler angle (pitch, yaw and roll) on the fly. The sensor battery can last up to 10 years before replacement. SAG200 can measure both dynamic and static angles. Multiple SAG200s can take data in parallel, and multiple groups of SAG200 can be used to take measurements in sequence.

SAG200 wireless IMU

PRESENTATION

PRODUCT

Parameters	Description
Acceleration range	±2g, ±4g, ±8g and ±16g adjustable
Gyroscope range	±250dps, ±500dps, ±1,000dps, ±2,000dps adjustable
Magnetometer range	Up to ±4900 µT
Euler angle range	Pitch, yaw, roll: $-180^0 – 180^0$
Euler angle accuracy*	Pitch, roll: $±0.2^0$; yaw: $±1^0$
Resolution	16-bit ADC
Output data rate (ODR)	50Hz
Measurement & transmit mode	Continuous real-time sampling and transmission
Power consumption	<2uA idle; < 5mA with data transmission, data collection and AHRS (attitude and heading reference system) computation
Power supply	ER18505 battery, 4,000 mAh
Wireless protocol	2.4GHz ultra-low power proprietary
FCC ID/IC ID	X8WBC833M / 4100A-BC833M
Transmission distance	Up to 300m (900 ft) line of sight, open space
Size	37x71 mm Diameter x Height (1.46x2.80 inch)
Weight	117 g (4.1 oz) including battery
Mounting method	M6 mounting stud, mounting pad, magnet mount, epoxy mount
Environment	Working temperature: -40 - 85 ^{0}C; storage temperature: -55 - 85 ^{0}C; IP68 waterproof (IP69K optional)

*: After calibration, at 2g acceleration & 250dps angular rate range

SAG200 wireless IMU

SAG200 wireless IMU is designed for industrial applications that include heavy machines, mining, transportation, bolt loosening, etc. The wireless IMU has the lowest power consumption in the industry and its battery can last up to 10 years before replacement (take measurements up to 10 minutes a day).

Multiple SAG200 can be grouped together to measure the machines dynamic behavior in parallel. In each group, up to six SAG200 IMUs can be used.

At each gateway, there are up to ten groups of SAG200 can be used. Each group can take data in sequence by using the timer function in the gateway.

Data are saved in the time series database inside the gateway. History data can be exported to CSV file.

SAG200 can be used for both dynamic angle and static angle measurements. SAG200 is rated IP68, which can work in tough environments.

Note: SAG200 wireless IMU sensor require to be used with Broadsens's wireless gateways

Monitoring Software

Software at wireless gateway is based on open-source software node-RED. No software installation is required. It can be accessed with all major web browsers.

Software advantages

. Real-time monitoring
. Live data visualization
. Multiple sensor parallel DAQ
. Multiple group capability
. Timer function
. Time-series database
. OTA firmware upgrade
. Easy expansion
. Secure data transmission
. History data review and playback

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