

STT-IWS

WI-FI, 400HZ INERTIAL SENSOR WITH ON-BOARD DATA STORAGE



Wireless

The system operates on a standard Wi-Fi protocol (2.4GHz and 5GHz). This feature turns STT-IWS inertial sensors into open and versatile devices.



400Hz

The sample rate is selectable by the user and can range from just a few Hertz up to 400Hz: that's an exceptionally high capture speed, challenging even most of the optical systems in the market.



Multi-sensor

The STT-IWS features several on-board sensors: triple-axis gyroscope, triple-axis accelerometer, triple-axis magnetometer, barometric pressure sensor, humidity sensor and internal temperature sensor.



Data logging

Although STT-IWS sensors typically work within Wi-Fi range, they can also operate autonomously. This is particularly interesting during on-field motion analysis. Once the capture has been triggered, the sensor can leave the Wi-Fi network coverage area and the data can be downloaded later on.



On-board processing

All sensors in STT-IWS are calibrated, and a sophisticated AHRS fusion algorithm provides real-time measurements of orientation, linear acceleration and altitude.



Integratable

STT-IWS features an analogue input for up to 8 ch. @ 1 kHz / 10-bit data (0-3.3 V). Also, an auxiliary serial port can be used for devices such as GPS receivers.



Synchronized data

All measurements are time-stamped automatically in order to guarantee an actual synchronization.



Accurate

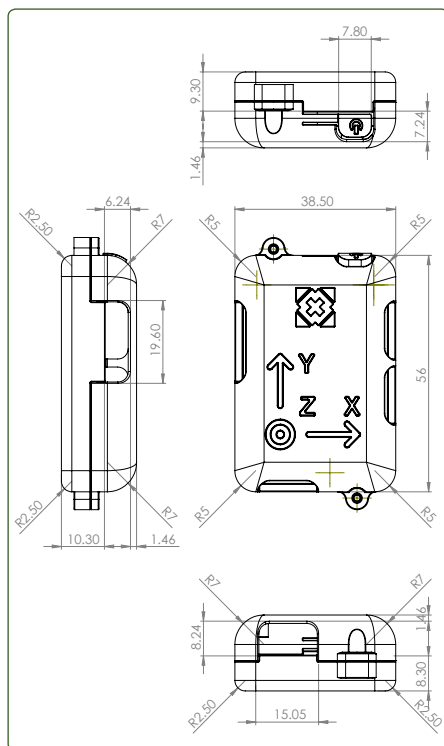
The accuracy of STT-IWS units is among the best of its kind: Pitch/roll < 0.5 degrees (RMS) and Heading < 2.0 degrees (RMS).



Ready for developers

Open-source GUI and API (C#) for Windows. Easily configure device settings plot real-time data. Log real-time data to file (CSV file format for use with Excel, MATLAB, etc.)

Technical specifications



SENSOR MEASUREMENTS

3-axis Gyroscope range	±2000 deg/s
3-axis Accelerometer range	±16g
3-axis Magnetometer range	±1300 μT
Barometric pressure sensor rate	300 to 1100 hPa
Sensors calibrated in temperature	Yes
Humidity sensor	Yes

ACCURACY

Static Pitch accuracy (RMS)	<0.5°
Static Roll accuracy (RMS)	<2°
Static Heading accuracy (RMS)	<2°

SAMPLE RATE

User-defined sample rate	Yes
Maximum sample rate	400Hz
Maximum number of STT-IWS units @ 400Hz	17

PHISICAL DIMENSIONS

L x W x H	56 (64) x 38 x 18 mm
Weight	46gr.

ANALOG INPUT

Usable channels	1 to 8
Sample rate	8kHz / 10-bit
Voltage	0-3.3V

DATA TRANSMISSION CHANNELS

USB port (Micro B)	1
Serial port	1
Wi-Fi (802.11n @ 5 GHz)	Yes
Bluetooth compatibility	Upcoming
Micro-SD Card for data logging	Yes

POWER MODES

Internal battery	Yes
USB connector	Yes
External power supply	Yes

BATTERY

Charging time	1.5h
Battery life (continuous data transmission)	3.5h
Battery level indicator	Yes
Battery health indicator	Yes