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Product Brief

WS300 SERIES WIND

WS310 WIND SENSOR

WS320 WIRELESS WIND SENSOR

WS300 | INSTRUMENTS | SENSOR - WIND

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WS300 Series Wind Sensors

New range of high precision wind sensors. Wired and Wireless variants.
Designed to provide exceptionally high-performance and reliability.

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Key Selling Points: WS320 Wireless Wind Sensor

The WS320 wind sensor is designed to be wireless, for ease of installation and low weight, but with no compromise in accuracy vs. a wired unit.

- Easy installation. No cables in the mast
- No compromise wireless. Higher performance than most wired sensors
- Wind data always available. Low power, extremely efficient design and smart power management

Note: for mast heights up to 25m (80’), subject to individual installation and local variables.

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Key Selling Points: WS310 Wired Wind Sensor

The WS310 wind sensor has been designed to provide a highly accurate cabled sensor, suitable for a wide range of yachts.

- High accuracy* for the best instrument and autopilot performance. High performance aerodynamic design is the result of over 500 individual wind tunnel tests
- Wide compatibility – connect via interface to a NMEA 2000® network, or direct to a NMEA 0183 input
- Straight-forward installation. Single cable, cable runs of up to 80m

* +/- 0.5 degree angle accuracy, +/- 0.2kt wind speed accuracy across working range.

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WS300 Series wind sensors

PRODUCT OVERVIEW

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WS300 Series Wind Sensors

A new range of high precision B&G wind sensors, designed for cruising and club racing sailors. An evolution of B&G's existing sensors, developed through thousands of hours of testing to provide the best possible wind solution for sailing.

After selection of the cup and vane sensor design as the most suitable for sailing, and with B&G already having the industry's leading design, we were able to take each existing wind sensor component and iteratively improve its performance, making the best even better.

The WS300 series meets the following design objectives:

High Performance

Designed to provide highly accurate wind data in all conditions at all points of sail and heel. WS300 has been benchmarked against multiple reference sensors in over 500 individual wind tunnel tests.

- Angle accuracy +/- 0.5 degrees*
- Speed accuracy +/- 0.2 kt*

No Compromise Wireless

Wireless version – for ease of installation and lower weight on smaller boats – with the same performance as the wired sensor. Users selecting wireless should not have to trade off for a less accurate sensor.

WS320 has the same accuracy (wind angle and speed) as the wired version, while outputting wind at a super smooth 5 times every second.

Reliability

As the most exposed sensor on a yacht, the wind sensor – critical for instruments and autopilot steering – must meet an exceptionally high standard.

In addition to B&G's standard testing WS310 and WS320 sensors have been subject to combined field tests of over 200,000 hours.

* Accuracy data valid from 2-80 knots wind speed, validated in wind tunnel tests May 2018

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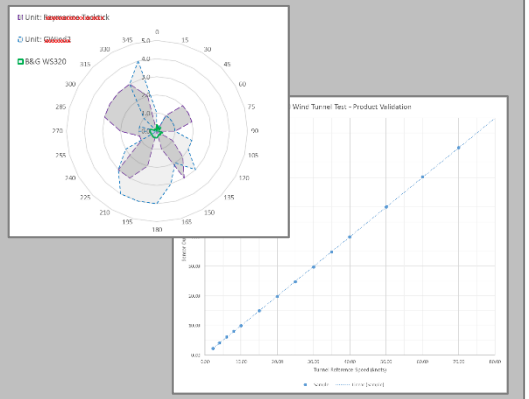
WS300 Series Wind Sensors

High Performance

10x more accurate than competitor's unit. Angle error <0.5º



Linear wind speed (<0.2 knots error)up to 80 kn

Performance proven in over 500 individual wind tunnel and benchmarking tests.

No Compromise Wireless

Wireless without compromise.

Dual panels, smart power management, long range, high accuracy

Reliability

Over 200,000 combined hours of real-life operational testing, alongside hundreds of individual wind tunnel tests.

Design proven in over 200,000 hours of operational testing.

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Product Overview

B&G Wind Sensor Product Evolution

Modified body profile and recessed mounting provides reduced turbulence around vane when heeled.

Higher aspect wind vane, with aerofoil section, provides best balance of reactiveness and stability

New electronics for high performance wind angle measurement, wireless comms (WS320) and wind speed correction

One piece vane and top moulding provides balanced design. New balance weight reduces airflow disturbance

Increased wall thickness to provide smoother aerodynamic design while strengthening structure

Enhanced profile in anemometer arm design, for more consistent windspeed and more rigid design

Wind speed bearings from 608/213 are the only common part with the previous sensor designs

All comments in comparison to B&G 608/213 sensors

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Product Overview

WS320 Wireless

Dual solar panels (green highlight in image), provide fast charging, even in overcast conditions.

- Wireless sensor. Bluetooth communication
- Connects to NMEA 2000® network via remote interface
- High-efficiency solar panels and rechargeable battery with smart power management
- Battery is user replaceable for low cost of ownership.
- Same physical mounting as previous models (508, 608)

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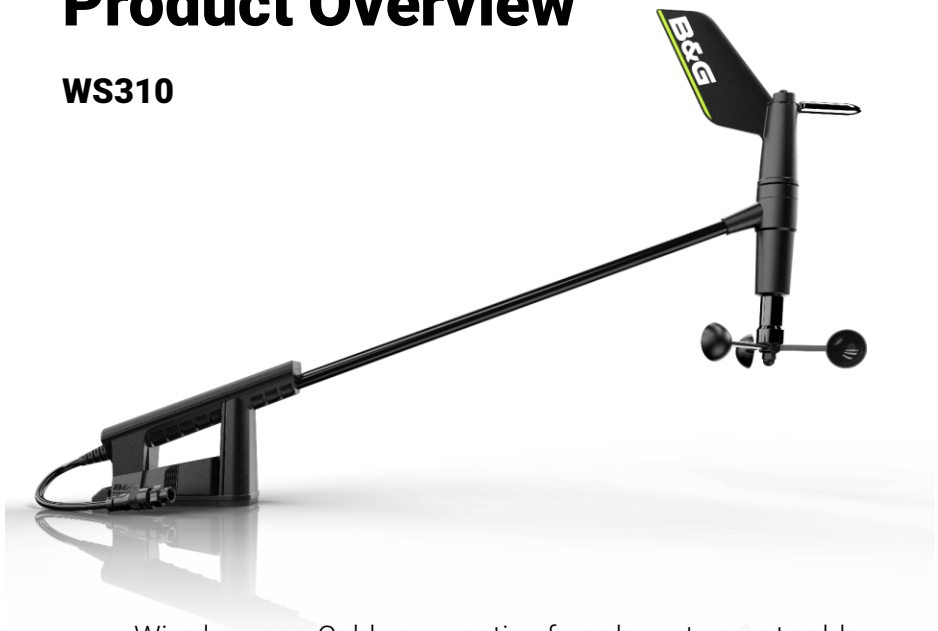
Product Overview

WS310



Straight-forward cable connection to interface at mast base. WS310 wired model.

- Wired sensor. Cable connection from base to mast cable
- 4 cable options from 20 to 80m
- NMEA 0183. Connects to NMEA 2000 network via interface at base of mast
- Same physical mounting as previous models (508, 608)

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Target Consumer Overview

Cruising and club-racing sailors looking for the best performance for their money.

Club Racer

Looking for the best performance for the budget, the club racer will appreciate the high accuracy sensor design at reasonable cost.

In addition the small boat sailor will appreciate the reduced weight of the wireless system, without compromising performance.

Cruising Sailor

Considers that the systems on the boat are there to “just work”, doesn’t necessarily need all the “bells and whistles” but appreciates that technology can assist in many ways.

Reliable wind data, high performing and safe autopilot. “Install and forget” to some degree

Self Installer

The DIY / Self-installer wants value for money, but hates thinking that they have to compromise the end result because of it.

Will appreciate the extreme ease of wireless installation combines with the lack of compromise in performance.

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External Launch Schedule

WS310 and WS320 Wind sensors will launch on the following timetable:

• Dealer communications	June 5, 2018
• Open order book	June 5, 2018
• Public Launch (website live)	June 13, 2018
• Commercial Ship Date	July 6, 2018

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Main Product Pricing

Item	Desc	AMER - USD	ROW - USD	EMEA - EUR	ANZ - AUD
000-14382-001	**WS310 SENSOR PACK**	599 (MRP)	649	503	771.82
000-14383-001	**WS320 SENSOR PACK**	699 (MRP)	799	609	908.18

NOTES

- For WS310 systems with cable lengths greater than 20m order sensor, cable and interface separately (see Spares & Accessories Pricing)
- All pricing ex. VAT/GST and other local taxes.

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Part Numbers: Main Products & Bundles

WS310 WIND PACK,20M CBL,INTERFACE
000-14382-001

WS310 (wired) wind sensor with 20m mast cable and interface for connection to NMEA 2000® networks.

WS320 WIRELESS WIND PACK, WITH INTERFACE
000-14383-001

WS320 (wireless) wind sensor with wireless interface for connection to NMEA 2000® networks.

WS310 SENSOR ONLY
000-14391-001

WS310 sensor only. Requires cable and interface.

WS320 SENSOR ONLY
000-14390-001

WS320 sensor only. Requires interface.

WS300 Cables

20m / 65’	000-14396-001
35m / 115’	000-14397-001
50m / 164’	000-14398-001
80m / 262’	000-14399-001

WS300 Interfaces

WS310 (wired) Interface
000-14389-001

WS320 (wireless) Interface
000-14388-001

For WS310 systems requiring cable over 20m order: WS310 Sensor Only, relevant cable and interface (not required for 0183 interfacing).

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Technical Specifications

	WS310 Wired		WS320 Wireless	
	Sensor	**Interface**	**Sensor**	**Wireless Interface**
Wind range	0.5-90 knots	N/A	0.5-90 knots	N/A
Wind Speed accuracy	+/- 0.2 knots (from 2-80 knots) 0.1 knot resolution	N/A	+/- 0.2 knots (from 2-80 knots) 0.1 knot resolution	N/A
Wind Angle accuracy	+/- 0.5 degrees 0.1 degree resolution	N/A	+/- 0.5 degrees 0.1 degree resolution	N/A
Mounting options	Manual release, mast mounting bracket (Supplied)	N/A. In-line cable interface	Manual release, mast mounting bracket (Supplied)	Deck or pole mount (supplied) options.
Cable options	20, 35, 50 or 80m (66, 115, 164, 262')	Integrated cable (0.5m/1.6')	N/A – Wireless	NMEA 2000® drop (1.8m/6' supplied)
Supply voltage	12V nominal (via interface)	12V nominal (via network)	Internal battery	12V nominal (via network)
Power consumption	15mA @ 12V / <0.2W	15mA @ 12V / <0.2W	Self-contained solar/battery	100mA @ 12V / 1.2W
Dimensions (sensor)	500* x 330 x 50** mm 20 x 13 x 2"	90 x 20 x 10mm 3.5 x 0.8 x 0.4'	500* x 330 x 50** mm 20 x 13 x 2"	90mm (diameter) x 35mm 3.5" (diameter) x 1.4"
Weight	0.3 kg / 0.66 lbs (sensor only, no cable)	0.1 kg / 0.22 lbs (inc. integrated cable)	0.3 kg / 0.66 lbs (sensor, inc. battery)	0.1 kg / 0.22 lbs (interface only, no drop cable)
Operating temperature range	-15°C to +55°C (5° F to 131° F)	-15°C to +55°C (5° F to 131° F)	-15°C to +55°C (5° F to 131° F)	-15°C to +55°C (5° F to 131° F)
Storage temperature range	-20°C to +60°C (4°F to 140°F)	-20°C to +60°C (4°F to 140°F)	-20°C to +60°C (4°F to 140°F)	-20°C to +60°C (4°F to 140°F)
Water resistance	IPX6 (spray), IPx7 (immersion)	IPx7	IPX6 (spray), IPx7 (immersion)	IPx7
Bluetooth connectivity	N/A - Service access only	N/A	Bluetooth 4.0	Bluetooth 4.0
Wireless range	N/A	N/A	25m / 80' nominal maximum	25m / 80' nominal maximum
NMEA2000 connectivity	N/A (via interface)	1 x Micro-C port, 1 LEN	N/A (via interface)	1 x Micro-C port, 2 LEN
NMEA 0183 connectivity	Sensor output to interface: MWV,R @ 10Hz (For direct 0183 connection interface can be excluded in some cases).	NMEA 0183 input: MWV,R (for use with WS310 Wind sensor only)	N/A	N/A

* excludes cable, allow >60mm; ** excludes wind cups/vane. Technical specifications subject to change.

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Dimensions: WS310/320

Dimensions approximate - for product scale only. WS310 has cable exit at base (left side as pictured)

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Dimensions: WS310 Interface

- 90 x 20 x 10mm*
- In line cable interface, no mounting required (restrain with cable ties if appropriate).

*Dimensions are approximate - for product scale only.

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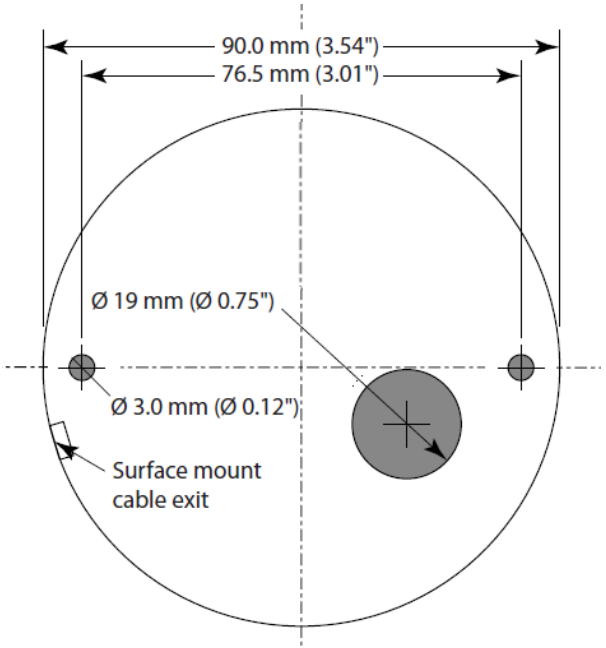
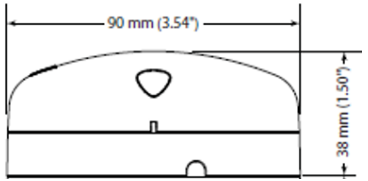
Dimensions: WS320 Interface





Images are not to scale.

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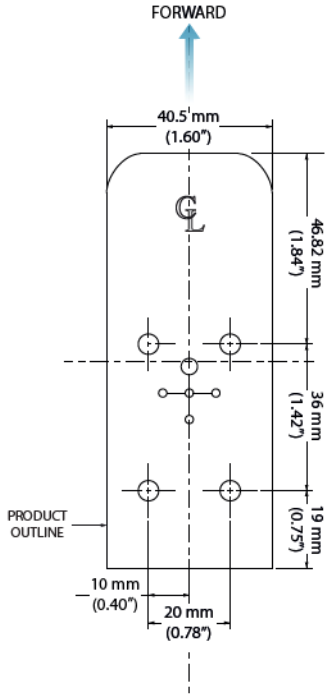
Installation and mounting: Mast bracket (WS310/WS320)

- Mast top bracket is almost identical to the previous 608 model bracket
  - The bracket has an identical fixing pattern and footprint to existing 608 model
  - Due to the larger base of the WS300 series vs. 608 the sensor requires approximately 20mm mounting space in front of the bracket
  - Customers are recommended to use the supplied WS300 bracket – while the unit is compatible with the previous (IS20/508/608) bracket the WS300 bracket has minor modifications to improve stability



Note: WS320 (wireless) requires pairing with the Bluetooth base-station prior to installation at the top of the mast!

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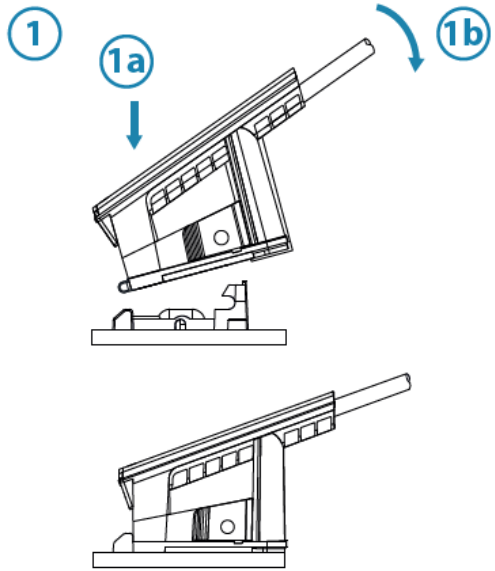
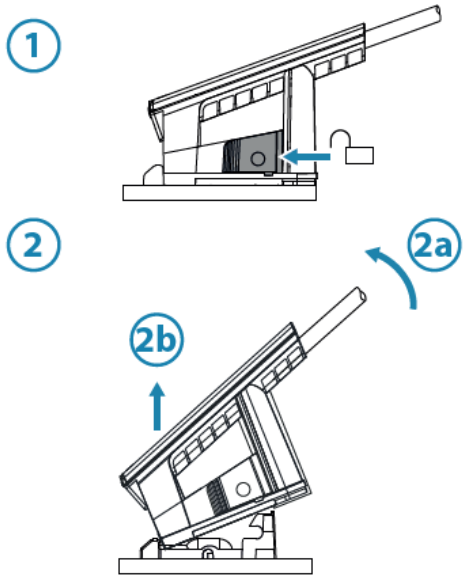
Installation and mounting: Mast bracket (WS310/WS320)

Attaching the wind sensor



Removing the wind sensor



Note: WS320 (wireless) requires pairing with the Bluetooth base-station prior to installation at the top of the mast!

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Installation and mounting: Cable (WS310 only)

- WS310 mast cables are available in 20, 35, 50 and 80m length (50 and 80m availability late 2018).
- In-mast communications are serial data (NMEA 0183) and the cable connects to an in-line cable interface, to be located near the base of the mast (within 0.5m of the instrument network)
- Systems with integrated NMEA 0183 (e.g. H5000) may exclude the interface and connect directly to a NMEA 0183 port.

Mast connector

Mast base interface (integrated with cable)

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Installation and mounting: Wireless Interface (WS320)

WS320 communicates with the instrument system via a wireless base-station.

- The WS320 Wireless Interface is mechanically identical to the existing ZG100 GPS Antenna and BT-1 interface (used by the WR10 Autopilot Remote), it connects directly to a NMEA 2000® network, ensuring that the wind data is available at all times when instrument and autopilot systems are powered on

- WS320 base-station is to be installed externally in an unobstructed location. Typically towards the rear of the boat, on the pushpit or deck area. Avoid areas where people may sit and obstruct the wireless signal.

WS320 Wireless Interface

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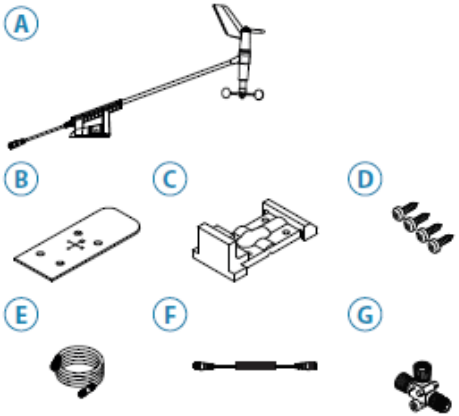
Box Contents

WS310

Parts Included

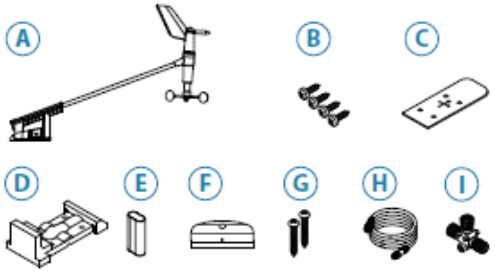
	Wind pack	Sensor only
A. WS310 wind sensor	x	x
B. Gasket	x	x
C. Masthead bracket	x	x
D. Screws 4x No.10 x 5/8	x	x
E. Mast cable	x	
F. Network interface	x	
G. Micro-C T-Joiner	x	



WS320

Parts Included

	Wind pack	Sensor only
A. WS320 wind sensor	x	x
B. Screws 4x No.10 x 5/8	x	x
C. Gasket	x	x
D. Masthead bracket	x	x
E. Battery	x	x
F. Bluetooth base station	x	
G. Screw 2x M4 30 mm SS316	x	
H. NMEA 2000 drop cable	x	
I. Micro-C T-Joiner	x	



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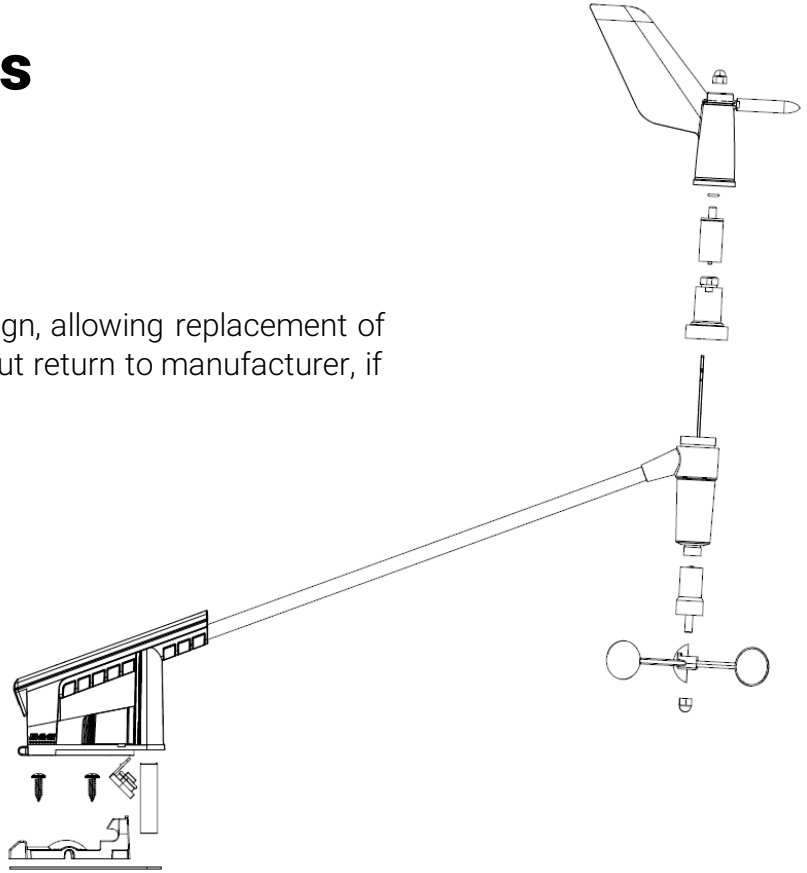
Spares and Accessories

WS320 and WS310 have a field serviceable design, allowing replacement of bearings, cups, vane and battery (WS320) without return to manufacturer, if required.



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Spares and Accessories (1/2)

WS310 SENSOR ONLY
000-14391-001

WS310 sensor only.

WS320 SENSOR ONLY
000-14390-001

WS320 sensor only.

WS310 WIRED INTERFACE
000-14389-001

WS310 (wired) Interface

WS320 WIRELESS INTERFACE
000-14388-001

WS320 (wireless) Interface.

WS300 20M (65') CABLE
000-14396-001

20 metre (65') mast cable with pre-installed connectors

WS300 35M (115') CABLE
000-14397-001

35 metre (115') mast cable with pre-installed connectors

WS300 50M (164') CABLE
000-14398-001

50 metre (164') mast cable with pre-installed connectors

WS300 80M (262') CABLE
000-14399-001

80 metre (262') mast cable with pre-installed connectors

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Spares and Accessories (2/2)

WS300 WIND CUPS SPARE
000-14391-001

Wind speed cup spare for WS300 series wind sensors. Includes mounting nut.

WS300 WIND VANE SPARE
000-14390-001

Wind vane assembly spare for WS300 series wind sensors. Inc. mounting nut.

WS320 BATTERY
TBC

Replacement battery for WS320 wireless wind sensor.

WS300 BRACKET
TBC

Replacement mast bracket.

WS300 SPEED BEARING
TBC

Replacement wind speed bearing for WS300 series wind sensors

WS300 ANGLE BEARING
TBC

Replacement wind angle bearing for WS300 series wind sensors.

WS300 MOUNTING NUTS
TBC

Replacement mounting nuts for vane and cup retention

Other Spares
TBC

Other spare parts will be introduced where required.

The intention is for the WS300 series of wind sensors to be field serviceable in most cases.

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Spare & Accessory Pricing (1/2)

Item	Desc	AMER - USD	ROW - USD	EMEA - EUR	ANZ - AUD
000-14391-001	**WS310 SENSOR ONLY**	499 MRP	549	419	635.45
000-14390-001	**WS320 SENSOR ONLY**	599 MRP	649	499	753.64
000-14389-001	**WS310 INTERFACE (WIRED)**	99	119	89	126.36
000-14388-001	**WS320 WIRELESS INTERFACE**	199	225	165	271.82
000-14396-001	**WS300 20M (65') CABLE**	89	99	76	117.27
000-14397-001	**WS300 35M (115') CABLE**	119	149	116	159.09
000-14398-001	**WS300 50M (164') CABLE**	TBC	TBC	TBC	TBC
000-14399-001	**WS300 80M (262') CABLE**	TBC	TBC	TBC	TBC

NOTE: All pricing ex. VAT/GST and other local taxes.

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Spare & Accessory Pricing (2/2)

Item	Desc	AMER - USD	ROW - USD	EMEA - EUR	ANZ - AUD
000-14401-001	**WS300 WIND CUPS SPARE**	29	35	29	40.90
000-14400-001	**WS300 WIND VANE SPARE**	49	55	44	68.17
TBC	**WS320 BATTERY**	TBC	TBC	TBC	TBC
TBC	**WS300 SPEED BEARING**	TBC	TBC	TBC	TBC
TBC	**WS300 ANGLE BEARING**	TBC	TBC	TBC	TBC
TBC	**WS300 MOUNTING NUTS**	TBC	TBC	TBC	TBC
TBC	**WS300 MOUNTING BRACKET**	TBC	TBC	TBC	TBC

NOTE: All pricing ex. VAT/GST and other local taxes.

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Wind tunnel test summary

PERFORMANCE

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Wind Tunnel Validation & Benchmarking

Each sensor was subject to multiple wind tunnel tests:

- Accuracy tests referenced to wind tunnel data, including:
  - Wind Speed output accuracy - profile through wind speed range
  - Wind Angle output accuracy
  - Wind Speed output accuracy at all Wind Angles
  - Wind Speed output at various Heel Angles
  - Wind Angle output at various Heel Angles

- A series of observational tests, including:
  - Vane oscillation at all speeds (where relevant)
  - Structural vibration or resonance at all speeds
  - Mounting sturdiness

Photo from final sensor validation tests. Southampton University, May 2018

- A maximum tunnel speed test to test the robustness of each sensor in extreme conditions
  - note that durability / reliability life tests are carried out during bump/shock validation, not wind tunnel testing, this test is used only to identify any obvious weak points (e.g. vane falling off at 70 knots).

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Wind Tunnel Validation & Benchmarking

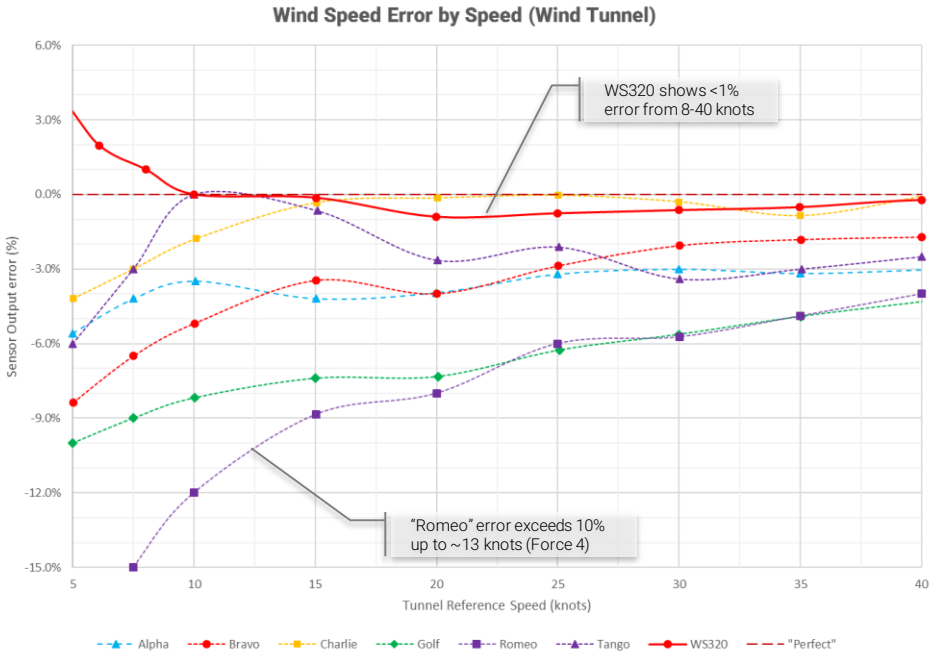
Wind Speed test

This compares Wind Tunnel speed with the error in sensor speed output. A perfect result is a straight line along 0%, however is normal to see a larger % error at low wind speeds because (e.g.) a 0.1 knot error is a 5% error at 2 knots, but only 1% at 10 knots.

Several competitor products showed significant errors, with two in particular standing out as very poor [Golf and Romeo]. Charlie is an ultrasonic sensor and - as expected - performed very will in this upright, controlled test. **WS320 shows a very consistent and accurate speed reading.**

Notes

- Units were calibrated per user instructions if required.
- For the purposes of clarity the chart covers a wind range of 5-40 knots, while tests were carried out from 0-80 knots in some cases, competitor products were not profiled below 5 knots, so this data point is excluded
- No post test calibration as this option is not available to most users.



For fairness, all benchmarking tests were carried out on a randomly selected sensor from all suppliers: Competitor products were purchased through a consumer channel, existing B&G sensors were ordered from normal sales stock, new WS320 sensor was a random sample of prototype build 2. Brand names are withheld.

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Wind Tunnel Validation & Benchmarking

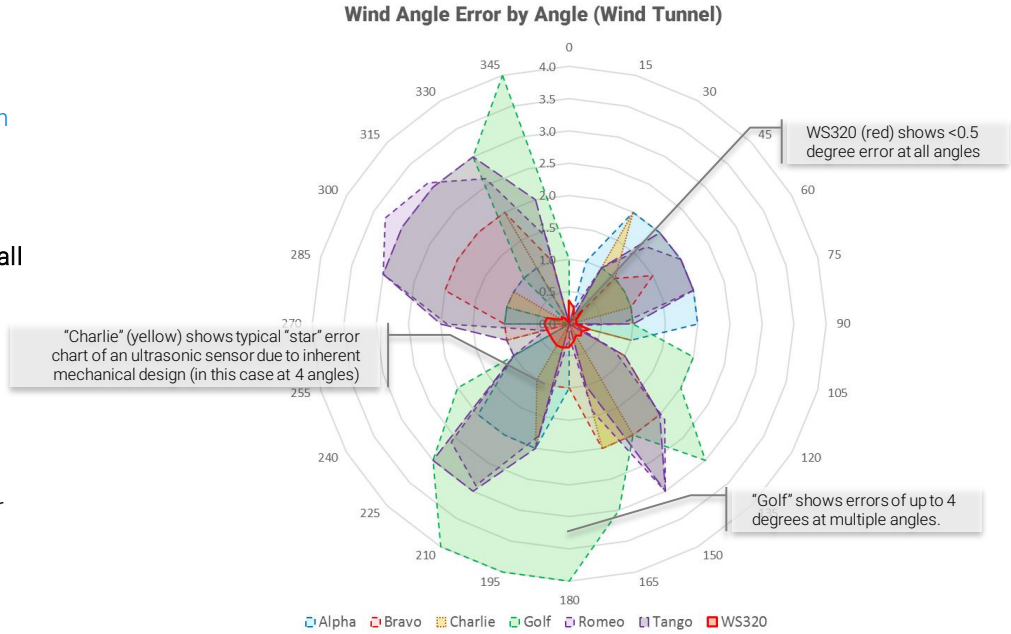
Wind Angle test

This test compares the sensor wind angle output with a known wind tunnel air-flow angle, using a fixture to mount the sensors in a repeatable manner. A good result is a small error at each angle, shown as a smaller area on the chart (closer to the centre), with a consistent error being preferred to an erratic one.

WS320 exhibits a significantly more accurate wind angle output than all other sensors, up to 10x more accurate than some sensors.

Notes

- Units were calibrated per user instructions if required.
- The displayed data was taken at a tunnel speed of 15 knots, chosen as a fairly typical operating wind speed
- All data was re-aligned post-test to give the smallest maximum error (e.g. if errors were in the range 0-6 degrees we post-calibrated the offset to give +/-3 degrees)



For fairness, all benchmarking tests were carried out on a randomly selected sensor from all suppliers: Competitor products were purchased through a consumer channel, existing B&G sensors were ordered from normal sales stock, new WS320 sensor was a random sample of prototype build 2. All sensors were calibrated according to manufacturers instructions and data was re-aligned post-test to give the smallest maximum error, despite the fact that this might not be achievable in reality (where calibrations are usually average of port and starboard upwind values rather than full 360 degree measurement). Brand names are withheld.

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Wind Tunnel Validation & Benchmarking

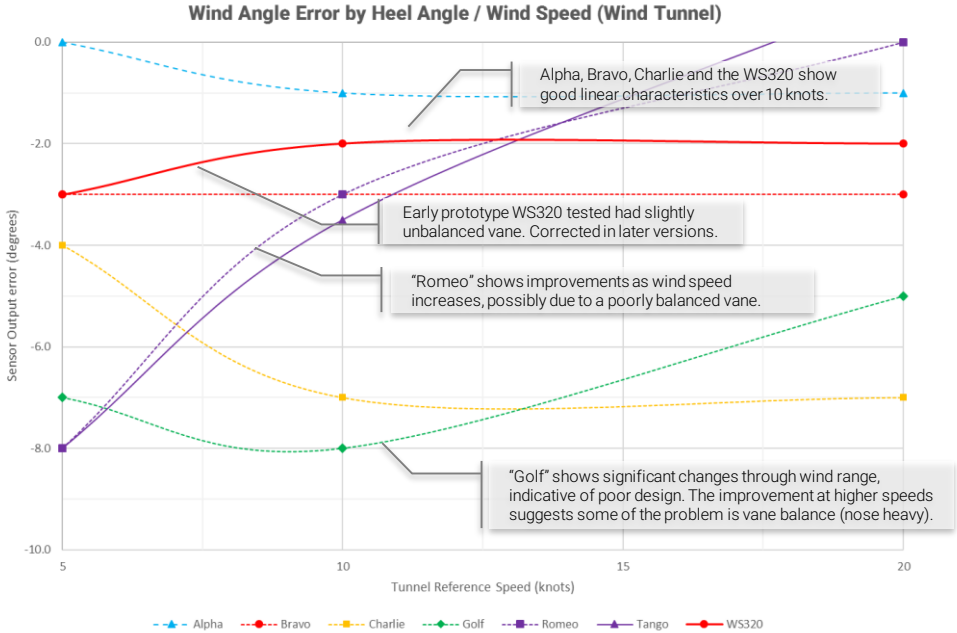
Heel Angle test

A great test of a "sailing" wind sensor, this test compares the sensor wind angle output with a known wind tunnel air-flow angle while heeled, it is a test used to simulate normal sailing conditions. Errors here are caused by physically changing the angle when rotating the sensor in the air flow, so a good result is a small and consistent error across the wind speed range (at the same tunnel angle and heel angle), shown by a reasonably horizontal line on the chart. A bad result is a line with a steep gradient on the chart.

This test highlights general weaknesses in mechanical design. The unusual design of one sensor [Golf] provided very poor performance in this test with high errors. **WS320 shows good response to heel, with a consistent offset** that may be corrected in software (see: Technical / Advanced Settings).

Notes

- The displayed data was taken at 30 degrees (rig angle) to the air-flow, to best simulate upwind sailing. Heel angle was varied, selected chart shows 35 degree heel angle
- 30 degree heel at 5 knots wind speed is not a realistic use-case – used to highlight issues only. Viewing the 10-20 knot range gives a better view of good [Alpha, Bravo, Charlie, WS320] vs. bad [Golf, Romeo, Tango]



For fairness, all benchmarkng tests were carried out on a randomly selected sensor from all suppliers: Competitor products were purchased through a consumer channel, existing B&G sensors were ordered from normal sales stock, new WS320 sensor was a random sample of prototype build 1 (will retest with production version). All sensors were calibrated according to manufacturers instructions. Brand names are withheld.

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Mounting, cables, interfaces

TECHNICAL

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Compatibility

WS300 sensors are compatible with a variety of instrument systems

System	WS310 compatible?	Notes	WS320 compatible?	Notes
Triton	Yes	Via network	Yes	No visibility of charge or battery status or wireless signal strength available
Triton2	Yes	Via network	Yes	Via network
H3000	Yes (NMEA 0183)	Recommendation is to use 213 or VMHU wind sensors	No	Could be achieved using a NMEA 2000 –> 0183 converter
H5000	Yes	Via network, or via NMEA 0183 to CPU or Expansion Module	Yes	Via network (signal strength not available on Graphic display– use MFD if present)
NMEA 0183 systems	Yes	Does not require interface. Outputs “MWV,R” sentence @ 10Hz	No	Could be achieved using a NMEA 2000 –> 0183 converter
NMEA 2000® systems	Yes	Display must have calibration facility. Certification pending	Yes	Certification pending

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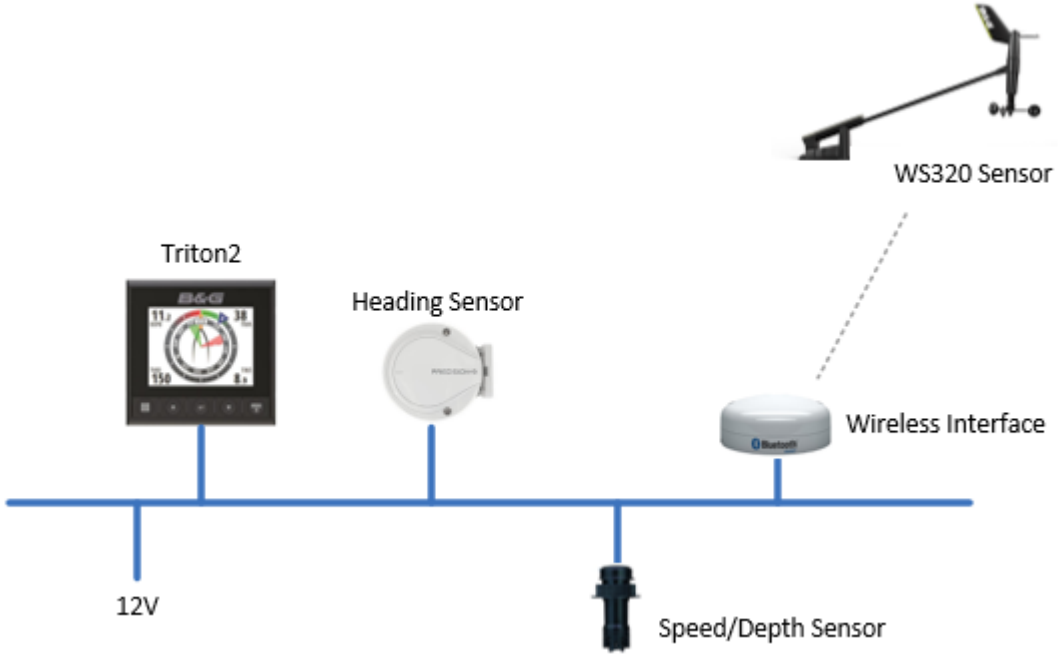
System Integration: Triton² / WS320 system example

WS320 Integration with a NMEA 2000® type system



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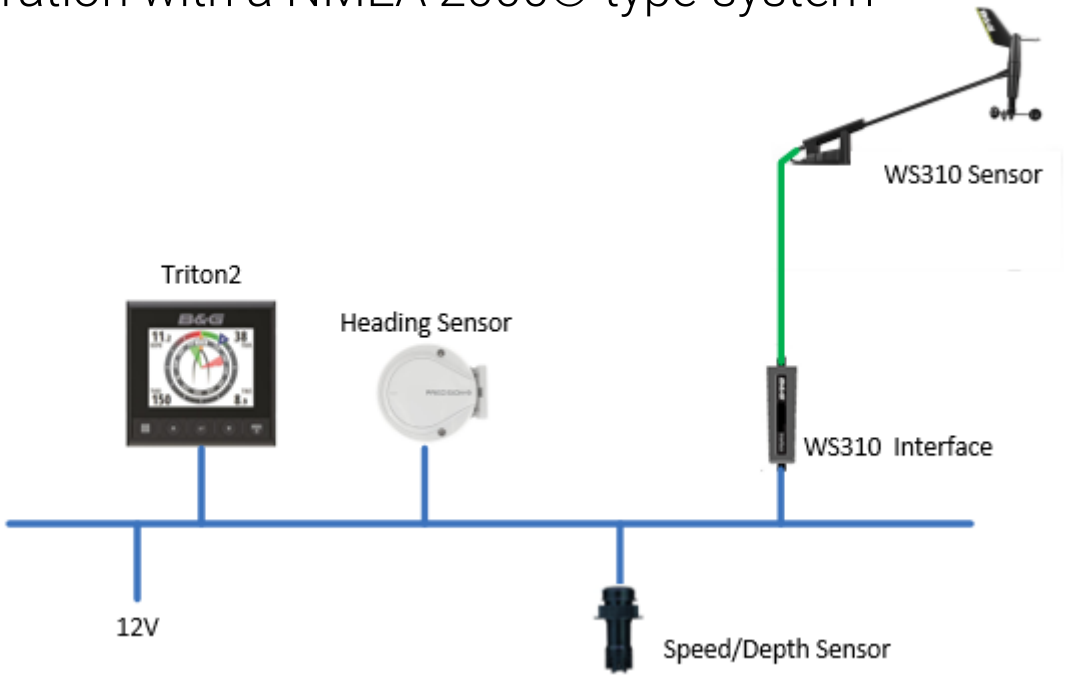
System Integration: Triton² / WS310 system example

WS310 Integration with a NMEA 2000® type system



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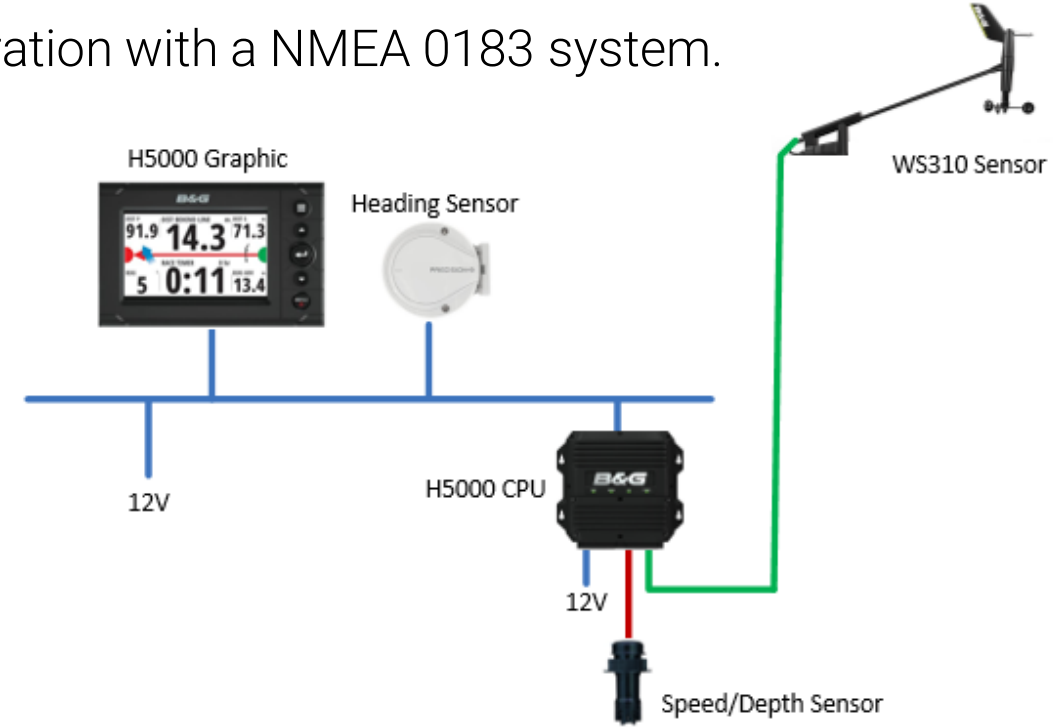
System Integration: H5000 / WS310 system example

WS310 Integration with a NMEA 0183 system.



Note that WS310/WS320 may also be installed on H5000 systems via the network, using the relevant wired or wireless interface

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Pairing (WS320)

The WS320 sensor requires pairing with its wireless interface prior to installation on the mast, the procedure for this is as follows:

Prior to pairing

1. Connect the bluetooth base station to the NMEA 2000 network
2. Have the battery for the wireless wind sensor on-hand for later installation
3. The wind sensor must be less than 2 metres from the Bluetooth base station for pairing to succeed

Ready to pair

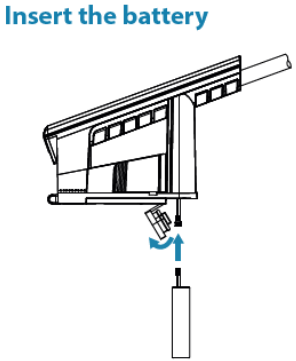
4. Power on the NMEA 2000 network
5. Insert and connect the battery to the wind sensor (image)
6. The bluetooth base station and wind sensor will now attempt to pair. This can take up to 30 seconds to complete

Successful pairing

7. On an MFD or instrument display go to the Device List in the Network Settings dialog
8. Select the WS320 device to display the device information dialog
9. Select the Data Option to display information
10. Check that the apparent wind angle and speed are correctly updating

The wind sensor is now ready to be installed at the top of
the mast. Wind angle calibration can be done later from the Calibration option in the Network Settings dialog.

Note
If the battery is disconnected, the sensor will lose its pairing with the base station



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Advanced settings

The WS310 and WS320 interfaces have two advanced features controlled via Device List on a compatible display product

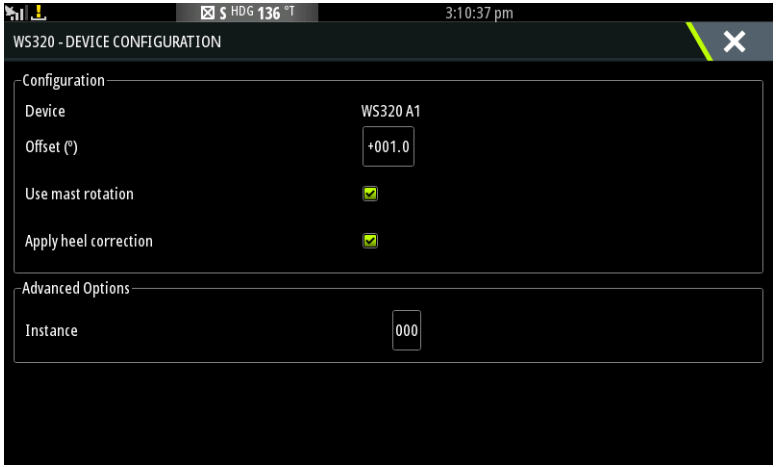
Use mast rotation

Setting to allow the interface to correct wind for mast angle at source. Requires a mast rotation output in B&G format on the network

Apply heel correction

Setting to allow the interface to correct wind speed and angle for the heel angle of the boat. Requires heel sensor (e.g. Precision-9 compass sensor). Enabling this feature allows Triton2 system users to receive heel-corrected wind data, increasing True Wind accuracy significantly over the standard setup.

<u>These settings default to OFF</u> to ensure that if used on an H5000 system the data is not erroneously corrected twice (both these features are available to H5000 users in existing systems).



Example of configuration settings available via Device List (MFD display)

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WS300 Series

FAQ

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FAQs (1)

How accurate is the sensor vs. the typical wind sensor?
There is no “typical” sensor, however we have tested the WS300 series against many other sensors and, through design iteration, have produced a sensor that is significantly more accurate than other sensors – up to 10x more accurate in some cases (see “Performance”)

What is the maximum range of the wireless (WS320) sensor?
Wireless range is a difficult specification to quantify in a real-life condition, as such we have been quite conservative with the range and advise use in applications requiring range up to 30m (100’). To make user selection easier we quote this as a mast height of up to 25m, based on a fairly typical system layout.

How do I know the wireless connection is good on my installation?
Within 30 seconds of power on you will see smoothly updating wind data with no gaps, but as a secondary check you can view Signal Strength % in the WS320 unit data in the Device List of a MFD – anything over 25% should provide reliable connection in a typical installation.

How much sun is needed to charge the WS320?
The unit is designed to charge on an overcast day, users will see positive charge during all normal daylight conditions.

How long will the WS320 battery last without charge?
If the unit is in constant use (with main system switched on) and in the unlikely event of no charging at all, it will continue to operate for over 2 weeks.

How long is the overall lifetime of the WS320 battery?
We expect the battery to require replacement after 3-5 years, depending on environment and use level.

What should I do with my WS320 if a remove my mast over winter?
It is recommended to unmount the unit and store it in a location where it will receive a few hours of daylight each day. If you decide to store the unit out of daylight it is recommended to disconnect the battery – you will need to reconnect the battery and place in daylight to ensure some charge before refitting the unit, you will also need to re-pair the unit with the base station before re-installation if the battery has been disconnected

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FAQs (2)

Will my unit discharge overnight?
Only slightly if you are sailing, and barely at all if you are in the marina with the main instrument system turned off – the wind sensor runs in a low power mode until the wireless interface on the system is powered on. The typical overnight power use is topped back up with an hour or two of daylight.

Can I see the battery charge status of the WS320 sensor?
Yes. By viewing the incoming data of the WS320 in the Device List of a display unit the user can see Battery Charge Status (% of maximum charge rate provided by solar) and Battery Status (% charged status [100% = full])

If the WS320 is so good, why would I use the wired version (WS310)?
Installations with mast heights of 25m+, installations on larger boat that may have significant 2.4GHz communications on board (Bluetooth, Wi-Fi) which may reduce operational range of the WS320, boats of carbon or metal construction where base station location may be obscured or a more straight-forward desire for a traditional wire!

The unit is clearly very accurate, will B&G be replacing the Vertical MHU units with this sensor?
Yes. Later in 2018 the Vertical Masthead Units (VMHU) will get replaced with units based on the WS310 (wired) mechanics and sensor hardware, test units are already in the field.

Why did B&G select a cup and vane design rather than an ultrasonic design?
Ultrasonic sensors have many advantages however in real-life sailing conditions they suffer from some disadvantages that make them unacceptable for our application (which includes steering the boat under autopilot safely) with several sailing angles (both wind angles and heel angles) where the physical design restrictions associated with ultrasonic sensors affect wind angle and wind speed measurement. Performance in certain weather conditions (heavy precipitation, fog or icing) is also uncertain without complicated and heavy design counter-measures.

Does this replace the existing 608 and 213 sensors?
Yes – for new sales. The current sensors will remain available for service requirements. Upgrades from 608 to WS310 or WS320 in the 5 Year Upgrade program will be available as an option for warranty or service cases.

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