

# INVICTA 3

## PPU HARDWARE



### 3rd Generation PPU Hardware

The Invicta 3 device is a combined GPS/GNSS receiver and AIS transceiver. It is used in pairs as an integral part of a portable pilot unit. Pairs of Invicta 3's are swappable, allowing one to charge inside the wheelhouse while the other provides a position on the bridge wing. The Invicta 3 connects by Wi-Fi, Bluetooth, or USB. It is compatible with all standard PPU software and computers. The Invicta 3 works with Windows computers or iPad tablets.

The standard model, in GPS/GNSS mode, uses signals from GPS (USA), GLONASS (Russia), BeiDou (China), and Galileo (Europe) satellites to provide a submeter position. In pilot plug mode, the standard model provides AIS data and rate-of-turn. For Wi-Fi connections, the Invicta 3 connected to the pilot plug is the access point.

The professional model uses dual-frequency satellite data (two signals) to provide more precise positioning and faster acquisition.

The standard and professional Invicta 3 models connect to the pilot plug using a rugged pilot plug adapter and commercial off-the-shelf USB-C cables. The Invicta 3 also charges using the standard USB-C cables. The same cable and power adapter may be used for Windows computers or iPad tablets in many cases.



### FEATURES

- Compatible with all PPU software and tablets/laptops
- Swappable
- Does not require proprietary cables or chargers
- Built-in magnetic mount
- Battery status lights
- Waterproof



Revised 10/25/2023. Photo Credit: Lou Vest

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### PHYSICAL CHARACTERISTICS

#### SENSOR

Size:	117 mm x 79 mm x 25 mm	4.6 in x 3.1 in x 0.98 in
Weight	255 g	9 oz
Connectors	Two USB-C (interchangeable for data or charging)	



#### ENVIRONMENTAL

Operating Temperature:	-20°C to 60°C	-4°F to 140°F
Storage Temperature	-20°C to 25°C	-4°F to 77°F
Water Ingress	IP-68 (freshwater immersion)	

### PERFORMANCE

#### GENERAL

Model	Standard	Professional
Position Accuracy	1 m CEP	60 cm 2dRMS
Battery Life	8-12 hours	12-18 hours

#### RATE OF TURN SENSOR

- Multiple gyros and internal ship model factors out roll and pitch for accurate rate-of-turn (ROT)
- Proprietary internal self-calibration process removes static bias (U.S. Patent #9,638,543)
- Accuracy complies with IMO Resolution A.526 (13) and ISO 20672:2007
- Interpolates heading to decimal degrees using high-accuracy ROT data

### SUPPORT

- 24/7 Text, Phone, and Internet support from Texas.
- On-site support available either full-time or upon request.
- Designed, assembled, and stocked in the United States.

### COMPANY BACKGROUND

Bowditch Navigation is a leader in providing reliable, high-performance marine navigation aid systems, historically and today. We are focused on solutions for ship pilots. In 2001, Raven acquired Starlink, Inc., a company that pioneered many GPS technologies, including developing the industry's first MSK Beacon/DGPS receiver. Along with Raytheon Service Company and Capt. Joseph Bradley of The Pilot's Association for the Bay and River Delaware, Starlink developed the first GPS-based portable pilot unit in 1991. In 2017, Bowditch Navigation acquired the assets of the Raven Marine Navigation business. Today, Bowditch Navigation continues to foster Starlink's rich tradition of developing innovative GPS solutions for marine applications worldwide.



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