

Tersus GNSS TheDuck™

Overview

TheDuck™ represents a smart, efficient, and productive unmanned surface vessel equipped with a single-beam echo sounder. It provides a fast, dependable, and portable solution to perform bathymetric surveys in various environments, such as rivers, lakes, reservoirs, and coastal areas.

TheDuck™ is equipped with MR72-UAV millimeter-wave radar, which emits dual-beam fan-shaped microwaves to the front to determine whether there are obstacles ahead, and feedback the relative distance between the obstacle and the radar, which can guide the unmanned boat to accurately avoid obstacles during driving.

With its advanced capabilities and user-friendly design, TheDuck™ is a powerful tool for professionals in bathymetry, offering unparalleled accuracy and precision in the collection of positioning and depth data. TheDuck™ is sure to meet your needs and exceed your expectations.

Key Features

- ✓ High-precision bathymetric surveys (lakes, rivers, coasts)
- ✓ PPP positioning – no base station or network required
- ✓ Obstacle avoidance for safer navigation
- ✓ Built-in echo sounder: 100 m / 300 m options
- ✓ Stable M-shaped polymer hull
- ✓ Dual ducted propellers – anti-entanglement design
- ✓ Up to 2 km control range, auto-return on signal loss
- ✓ Real-time data & Android software support



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TheDuck™

Technical Specifications

Physical

Hull Dimension:	1000*530*340mm
Weight:	7KG (w/o instrument and battery) 18KG(Maximum Load) 22KG(Normal Weight)
Material:	High Strength PP Alloy
Hull Design:	M-Shaped
Anti-Wave & Wind:	3rd Wind Level and 2nd Wave Level
Water Proof:	IP67

Power

Rechargeable Lithium Battery:	8S 29.6V 31.5Ah x2
Battery Weight:	4.5kg X2
Battery Endurance:	6 Hours x2 (run at 2m/s)
Maximum Speed:	6m/s
Propeller type:	2 x plug-in mental ducted propeller
Type:	Electric
Direction Control:	Differential veering and reverse without steering engine

Positioning

Satellite System:	GPS, BDS, GLONASS, GALILEO, QZSS
RTK Positioning Accuracy(RMS)	
- Horizontal & Vertical:	±(8mm+1ppm) & ±(15mm+1ppm)
PPP Positioning Accuracy(RMS)	
- Horizontal & Vertical:	±15mm & ±30mm
PPP Convergence Time & Coverage:	3 minutes & Global
PPP Signal Stability:	99.99%

Remote Control

Communication Method:	Real time RF peer-to-peer transmission
Range:	2KM
Screen Size:	7" high-definition display screen
Waterproof:	IP54

Website: www.tersus-gnss.com
Sales Inquiry: sales@tersus-gnss.com
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Function:	Real-time displays USV control data, water depth, positioning status, video data, and power
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Camera Parameters:	White light night vision 30m, FOV120° resolution 1080P, video format H264
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ES200 Single Beam Echo Sounder

Sounding Range:	0.15m to 100m, 0.15m to 300m (Optional)
Frequency:	455KHz, 200KHz(Optional)
Beam Angle:	5°(455KHz/200KHz)
Sound velocity Setting:	Automatic or Manual 1350 – 1750m/s
Draft:	0~10m
Sounding Accuracy:	1cm±0.1%*D (D is the depth of water)
Resolution:	1cm
Data Storage:	Automatic Storage, 16GB Memory
Data Format:	tsl3, csv, txt
Operating Temperature:	-5°C – 50°C

Millimeter Wave Obstacle Avoidance Radar

Modulation:	FMCW
Distance measurement range:	0.20-40m
Distance measurement accuracy:	±0.10m
Angle measurement range:	±56°@6dB
Angle measurement accuracy:	±2°
Speed resolution:	2.06km/h
Speed accuracy:	1.03km/h
Radar transmission frequency:	77GHz
Transmit Power (EIRP):	29.8 dBm (average/peak)
Power consumption:	2.5W
Operating Temperature:	-40°C ~ +85°C
Storage Temperature:	-55°C ~ +95°C
Protection level:	IP66