

Teledyne RD Instruments

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# Workhorse Navigator

Doppler Velocity Log (DVL)



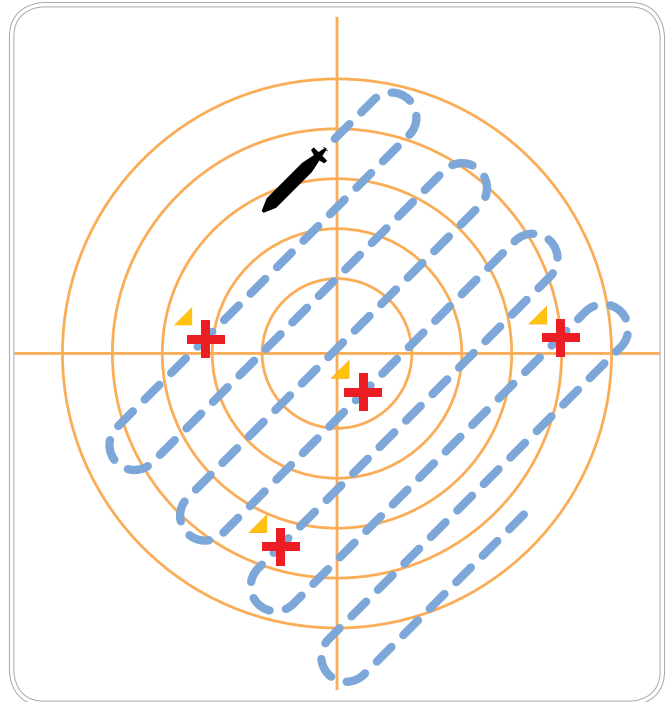
## Precision Navigation for the Marine Environment

The WORKHORSE NAVIGATOR is the industry's first choice for precision navigation applications. Teledyne RDI's highly acclaimed Doppler Velocity Log (DVL) provides precise velocity and altitude updates for a wide variety of underwater tasks.

The highly flexible design allows the unit to be used in a stand-alone configuration or integrated with other navigation systems.

The compact and powerful Workhorse Navigator provides:

- Broadband processing technology, providing users with both short and long-term high-precision velocity data
- Reliable, accurate high-rate navigation and positioning data
- Proven bottom detection algorithms, and single ping bottom location, for robust and reliable bottom tracking over indeterminate terrain
- Superior low-altitude bottom tracking capability
- Real-time current profiling data



### PRODUCT FEATURES

#### Navigator Full Suite of Capabilities:

- Bottom track velocity
- Water track velocity
- Altitude: 4 individual measurements
- Error velocity (data quality indicator)
- Temperature
- Heading/Tilt
- Acoustic echo intensity

- Pressure and depth (optional)
- Current profiling (optional)

#### Navigator Applications:

- Subsea vehicle and surface vessel navigation
- Hydrographic, geophysical, and oceanographic survey positioning data
- LBL and USBL position aiding
- Spool piece metrology
- Inertial navigation correction and integration
- Cable burial operations
- Deep water positioning
- Station keeping and autopilot control
- Pipeline touchdown monitoring
- Dredge spoils, plume, and sediment tracking



# Workhorse Navigator



Doppler Velocity Log (DVL)

## TECHNICAL SPECIFICATIONS

Bottom Velocity		WHN 300	WHN 600	WHN 1200
Single-ping precision				
Std dev at 1m/s <sup>1</sup>		±0.4cm/s	±0.3cm/s	±0.3cm/s
Std dev at 3m/s <sup>1</sup>		±0.7cm/s	±0.5cm/s	±0.5cm/s
Std dev at 5m/s <sup>1</sup>		±0.9cm/s	±0.7cm/s	±0.7cm/s
Long-term accuracy		±0.4%±0.2cm/s	±0.2%±0.1cm/s	±0.2%±0.1cm/s
Minimum altitude <sup>2</sup>		1.0m	0.7m	0.5m (0.25 optional)
Maximum altitude <sup>2</sup>		200m	90m	25m
<b>Parameters</b>	Velocity range <sup>3</sup>	±10m/s	±10m/s	±10m/s
	Velocity resolution	0.1cm/s	0.1cm/s	0.1cm/s
	Ping rate	7Hz max	7Hz max	7Hz max
<b>Water Reference Velocity</b>	Accuracy	±0.4% ±0.2cm/s	±0.3% ±0.2cm/s	±0.2% ±0.1cm/s
	Layer size	selectable	selectable	selectable
	Minimum range	1.9m	1.2m	0.8m
	Maximum range	110m	50m	15m
<b>Environmental</b>	Operating temperature	-5 to 45°C	-5 to 45°C	-5 to 45°C
	Storage temperature	-30 to 60°C	-30 to 60°C	-30 to 60°C
	Depth rating	3000m or 6000m	3000m or 6000m	3000m or 6000m
	Weight in air:			
	3000m	15.8kg	15.8kg	12.4kg
	6000m	20.1kg	20.1kg	18.0kg
	Weight in water:			
	3000m	8.8kg	8.8kg	6.1kg
	6000m	13.6kg	13.6kg	12.1kg
<b>Power</b>	DC input	20–50VDC, external supply (48VDC typical)		
	Current	0.4A minimum power supply capability		
	Transmit <sup>4</sup> Peak power @ 24VDC	66w	21w	8w
	Average power (typical)	8w	3w	3w
<b>Standard Sensors</b>	Compass	±2° @ 60° dip, 0.5g		
	Tilt	±0.5° up to ±15°		
	Temperature	-5° to 45°C		
<b>Hardware</b>	Configuration	4-beam Janus array convex transducer, 30° beam angle		
	Communications	NMEA0183, ASCII, or binary outputs at 1200–115,200 baud user-selectable; serial port is switch-selectable for RS232 or RS422		
	Trigger inputs	1) ASCII; 2) RDS3; 3) low latency		
<b>Options</b>		<ul style="list-style-type: none"> <li>• Current profiling firmware upgrade</li> <li>• Integrated pressure sensor (±0.25% full scale)</li> <li>• 25m serial/DC/computer cable</li> <li>• 5m serial/DC/computer cable</li> <li>• Internal memory cards (2GB max)</li> <li>• Enhanced low altitude bottom tracking for model 1200</li> </ul>		
<b>Dimensions</b>		WHN 300/600: Height 244.5mm, diameter 225.2mm; WHN 1200: Height 242.9mm, diameter 201.9mm (line drawings available upon request)		

1 Standard deviation refers to single-ping horizontal velocity, specified at half the maximum altitude.  
 2 @5°C and 35 ppt, 42VDC.  
 3 Maximum bottom-tracking range may be reduced due to flow noise at high speed and/or cavitation.  
 4 @ 15% duty cycle at peak power (standby 1mW).



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Specifications subject to change without notice.  
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