

Technical Data

Doppler Velocity Log

Specifications:

The Doppler Velocity Log (DVL) specified will be used to provide navigation and attitude data for the operation of a Remotely Operated Vehicle (ROV) used for security inspections of Navy ships.

The DVL transmits multiple acoustic beams that detect distances from the sensor device. In addition, the device measures Doppler shift of the acoustic signals. These combined measurements are used to detect range, actual speed over a surface, and attitude relative to a surface. This information can be combined to allow dead-reckoning navigation underwater. In addition, other onboard sensors can measure vehicle heading, temperature, depth, and vehicle tilt.

Due to the nature of the work to be performed by the hull security inspection ROV, the following specifications must be met for performance levels including maximal hull coverage during inspection surveys:

Data Update Rate – The frequency at which acoustic signals are sent and velocities and altitudes are measured by the DVL. This rate must be a minimum of 5 Hz. At the speeds the ROV must operate, rates slower than 5 Hz will not permit accurate integration of data and navigation.

Physical Dimensions – The unit will be installed on a relatively small ROV for transportability and storage considerations. DVL units are generally packaged in a cylindrical manner. Maximum dimensions allowable are 9” diameter and 10” in length, with allowances for connectors brackets.

Weight – May be no more than 15 pounds when measured in water.

Communication – Must utilize a single twisted pair for data communication.

Range – Must operate within a window of 1 meter to 10 meters from the hull, inclusive.

Interested vendors shall provide a detailed list of how well their product will meet each design specification.