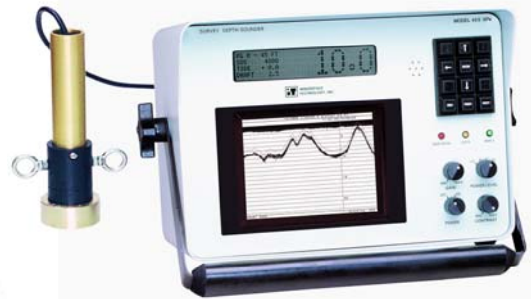


Personal Watercraft Surveying System (PWSS)



Innerspace presents the next generation of integrated Personal Watercraft Surveying System (PWSS) which addresses all of the unique operating requirements expected of such a surveying solution.

PWSS allows surveys in shallow and difficult to access locations with minimal personnel. PWSS is provided with a fully equipped survey vessel, trailer, telemetry, & base station. Innerspace have built many PWSS units in the past and have designed several major enhancements into the new model to address suggestions made by current users. The major components for the new integrated system are detailed in the attached data sheets and are summarised below.

The new PWSS has a completely enclosed survey unit with the onboard Celeron 2.0 G XP Pro computer mounted inside the hull. A major enhancement is a field proven waterproof LCD monitor which incorporates an integrated easy to use micro joystick control. The joystick is located in the lower right hand corner of the LCD monitor and is operated with the thumb. We have found that touch screen displays are not optimal in a marine environment.

The depth sounder used is the new Innerspace single frequency 455XPe model. Innerspace has a well deserved reputation for providing the finest and most rugged sounders in the industry and the new sounder builds upon this while incorporating the latest in computer storage and communication advances. The sounder is also located inside the craft with easy pop-up access. The 455XPe unit operates automatically out of sight and is protected from the adverse marine environment. The navigation software is the Hypack Navpac, an industry standard in use World wide. The motion compensator is a TSS DMS-25 heave, pitch and roll sensor. The DMS-25 outputs its data directly to the Hypack software. To ensure simple and accurate navigation capabilities for a one man operation, The system incorporates a Trimble MS750 GPS unit for both the PWSS and the unmanned Base Station. The Base Station is a portable self contained unit that is housed in an easily transported, waterproof Pelican case. This case includes the Trimble MS750, the TI 453A RF Modem (VHF) and 35 watt RF amplifier. The recommended Jet Ski model for this application is a Yamaha High Output FX Cruiser. This unit has a solid reputation for reliability and has sufficient interior volume to allow for product customization.

Substantial effort has been made with the integration so that the system will provide long term performance and reliability. In addition to fully enclosing all electronics, onboard systems are fitted with quick disconnects so that the depth sounder and other instruments can be easily repaired or transferred to alternative vessels.

PWSS is an extremely flexible system, and can normally accommodate other GPS, motion compensation, or telemetry solutions if required.