

## CEE HydroSystems Add SBG Systems Ellipse2-E and WiFi to latest CEESCOPE™ Echo Sounder with HYPACK

Designed for Personal Watercraft (“Jet Ski” – PWC) hydrographic surveying using HYPACK®, CEE HydroSystems’ latest CEESCOPE™ echo sounder adds a direct interface to the SBG Systems Ellipse2-E GNSS aided Inertial Navigation System (INS) and high-power WiFi telemetry to create an even more flexible single beam “all in one” survey package. The latest CEESCOPE-R™ variant represents a particularly appropriate and unique solution for surf zone hydrographic surveying. Adrian McDonald of CEE HydroSystems explains; “The CEESCOPE was already a great choice for PWC surveys; its closely coupled RTK GNSS and 200 kHz echo sounder offers great data in very shallow water with a simple configuration and a minimum of components. With the new SBG Ellipse2-E option, users wishing to obtain heave and attitude measurements simply plug the INS into the CEESCOPE; no other cables or connections are needed. High rate RTK position data are passed out to the INS from the CEESCOPE’s internal GNSS receiver along with 12V power; precise “GNSS aided” motion data are then output back from the Ellipse-2 to the CEESCOPE and incorporated into the unique CEE data format for acquisition and subsequent processing in HYPACK® acquisition software.” The SBG INS offers 5cm heave and 0.1deg roll and pitch in a very small IP68 form factor, ideal for use on a PWC with single beam sonar.

In addition to its simple physical connectivity, the data handling approach of the CEESCOPE further advances the usefulness of the system for challenging and space-constrained applications. “The CEESCOPE applies a precise millisecond time tag to all data messages, keeping timing exceptionally consistent. HYPACK software is uniquely able to use this time tag in data acquisition – even for the INS data. The benefit for these types of application is that WiFi may be used to acquire the data with no concerns about latency or lag errors, so we added a high power WiFi Access Point to the CEESCOPE”. While the WiFi option may be a useful convenience on a manned boat, on a PWC it is a crucial advantage. McDonald continues “The use of the CEE format time tag means we do not have to worry about any timing problems when telemetering the data. A super-rugged waterproof tablet with a WiFi connection to the CEESCOPE may simply be attached to the handlebars of the PWC with no cables or headaches”. The surveyor has two choices in data acquisition, either HYPACK may be run on the tablet for a conventional acquisition process or the tablet may be used in a more basic approach, merely to control recording of the HYPACK data inside the CEESCOPE. While the surveyor on the PWC will likely need to see the survey track in real time, it is possible for

the entire dataset to be separately acquired by a second surveyor over 1km away on the shore, using the CEE-LINK™ WiFi base station.

Alongside the existing built-in UHF radio for RTK corrections, the latest CEESCOPE further enhances the available options for accurate positioning with post processed (PPK) and Network RTK. The new CEESCOPE adds high-rate 20Hz raw GNSS data recording on its internal memory for a PPK solution using third party software. For network RTK, the CEESCOPE's WiFi interface allows users to simply pass NTRIP corrections from the acquisition tablet PC to the CEESCOPE with no cables, serial ports, or additional connections.



**CEESCOPE-R™ Echo Sounder with Trimble RTK GNSS, UHF, and Ellipse2-E INS**

With built-in RTK GNSS options from Trimble and NovAtel, the CEESCOPE may be used within any existing base station RTK GNSS infrastructure. New HYPACK 2018 drivers are already available to fully leverage the benefits of the unique ultra-compact survey system, with the first CEESCOPE-R™ PWC surveys being undertaken in the USA, Africa, and Europe in 2018.

To learn more, visit: [www.ceehydrosystems.com](http://www.ceehydrosystems.com)