



WaterDOG: Water Diagnostics Operations Gear

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG

Background: Water Diagnostic Operations Gear (WaterDOG) is a portable, geo-enabled water sensing toolkit designed to rapidly collect, monitor, and map water quality data from any water source. Current Army water quality analysis systems require transport of chemicals, hands on testing, and manual recording of data. WaterDOG greatly improves that process with a fully integrated in-line system that automates the collection of physical water quality parameters and reduces processing time, reduces errors in interpreting analog measurements, and improves overall analysis of water quality in an operational environment. The Sustainment Center of Excellence (SCoE) has highlighted in their Prioritized Capability Needs (2015) that man-portable water purification and monitoring technologies are needed to meet demand at the point-of-need for expeditionary forces. This technology will allow smaller units to quickly evaluate water sources for potability, facilitate pre- and post-treatment water quality monitoring for large scale purification and distribution operations, and also provide enhanced command and control of multiple water operations from a single location.



Capabilities: WaterDOG is an advanced diagnostic toolkit that provides instant and accurate evaluation and reporting of water quality data in military and civil applications. Benefits include more comprehensive data for better management of water treatment efforts, rapid screening of water sources from different locations, and faster analysis of data to identify the cleanest water source for purification operations.

WaterDOG is currently configured to dynamically measure four water quality parameters in near real time: turbidity, pH, conductivity, and temperature. Designed to be adaptable for different requirements, other sensors can also be added to the system to measure Oxidation Reduction Potential (ORP), Dissolved Oxygen (DO), and chlorine levels.

The collection of digital water data is graphically displayed on a familiar touch screen interface for ease of use and data can be remotely disseminated across various network channels. The on-board UNIX computer has internal storage and sensor feeds are easily exported off-line through a USB port or remotely transmitted through wireless networks using WiFi, Bluetooth, or Digimesh protocols. WaterDOG is powered using a 2590-Mil-Spec battery and alternatively, the toolkit can be connected to vehicle power or solar power using a 12V external port.

Success Stories: WaterDOG was transitioned to DEVCOM Ground Vehicle Systems Center (GVSC) Detroit Arsenal water program in 2015. The system was successfully tested and demonstrated at multiple venues: Quartermaster Liquid Logistics Exercise (QLLEX), Effective Energy for Expeditionary Operations - Limited Objective Experiment (EX2-LOE), Networked Integration Exercise (NIE) 16.1, & the Army Expeditionary Warrior Experiments (AEWE) Ft. Benning, GA.

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