KVH Industries, Inc., Middletown, RI

U.S. Army Armaments Research, Development and Engineering Center

Vehicle Digital Compass (TACNAV)

Phase III IMPACTS

- TACNAV is extensively used by the U.S. Army in Afghanistan and Iraq.
- KVH produced in excess of 8,000 military digital compass systems currently in use and is the most widely fielded tactical navigation system in the world. They have been selected for the military vehicles of the U.S., Canada, U.K., France, Germany, Italy, Sweden, Australia, New Zealand, Saudi Arabia, Malaysia, and Taiwan.
- Current revenues exceed $42M from products resulting from this SBIR technology.

Fast-paced, modern warfare requires precise situational awareness. To be effective, vehicles, weapon systems, individual soldiers, and commanders must always know exactly where they are in time and space. This task is extremely difficult because of longer lines of movement and communication, metal in vehicles disturbs the magnetic field that navigation tools use for compass readings, and effective GPS jamming technology.

The solution created by KVH uses a tri-axial magnetometer to identify and correct for distortions attributed to the magnetic signature of the vehicle. The KVH digital compass senses the earth's magnetic field and measures the vehicle's unique magnetic distortion. This data is used to adjust the heading information as necessary to compensate for the vehicle's distortion, providing an extremely precise compass system that provides navigation data free from electronic jamming or blocking.

KVH made further important developments, including the use of fiber optic gyros, to greatly improve the accuracy of tactical navigation and targeting systems. The tactical navigation systems offer a range of capabilities, including GPS backup and enhancement, vehicle position, hull and turret azimuth, steer-to/cross-track error displays, and far target location, providing continuous, jam-proof position data.