

DATUM™ Digital Stabilizer Control System

Dynamic Adaptive Technology for Universal Motion Control



Naiaid Dynamics, the World Leaders in Ship Motion Control Solutions®, offers an unsurpassed advance in motion control technology. The DATUM digital control system represents the culmination of decades of stabilization experience combined with cutting-edge technological innovation.

Proven performance in over a thousand luxury yachts, commercial ships and military vessels.

CANbus: The Digital Network

The DATUM is the world's first purely digital three-term (angle, velocity, acceleration) stabilizer control system featuring sophisticated adaptive technology and operating on a distributed network. The DATUM utilizes CAN (Controller Area Network) technology; a proven and highly reliable serial communications protocol that has become an open international standard. CAN provides a continuous stream of data to all monitoring and control devices in the network. This modern control architecture is ideally suited for high-speed mobile control applications and is heavily relied upon in aerospace, automotive and other performance-driven and reliability-critical applications. It is featured in Formula One and NASCAR racing, the United States Military's most advanced fighter aircraft, as well as in safety and medical equipment from elevators to X-Ray machines. The easily expandable distributed controller minimizes cable runs and space consumption while enhancing mounting and configuration flexibility. The result is a neater, more reliable, expandable and higher performing motion control system than any other system available today.

Modern Graphical Displays

The DATUM's *Graphical Displays*, available in a full color Touch Screen, and a full color basic screen, set a new standard in functional elegance. Multi-page graphics are intuitive, user-friendly and easily customized to suit operator preferences. The Displays are daylight readable and easily mounted in any location and orientation. Multiple Displays may be connected to the network. The Touch Screen Display features graphical touch buttons for operator interface, and the standard Graphical Display features five programmable soft keys. While underway, the stabilizer system may operate in the **AtSpeed® (normal underway)** or **Adaptive (self-tuning)** mode using simple Display commands. When the stabilizer system is equipped with the optional **Stabilization at Anchor (S@A®)** feature, the Displays also allow the operator to select the **AtRest® (zero forward speed)** mode of operation.



Robust Control Modules

The flexible, compact and robust *Control Module* is CE approved and specifically designed for the harsh marine environment. It stands up to vibration, temperature extremes, salt spray, and is military shock tested. Identical Modules control fins, tabs, foils, interceptors, power packs and an array of other devices.

The Modules are easily connected to a notebook computer for programming, downloading factory settings and uploading sea-trial results.



Adaptive Technology

All NAIAD® control systems feature fully proportional closed loop performance, resulting in continuously modulated fin position management and smooth, exact operation. The innovative DATUM™ takes performance to a previously unattainable level by continuously sampling and *self-adjusting* the gain (sensitivity) settings of each of its signals to precisely match varying sea conditions and vessel headings. The DATUM's ability to self-learn and automatically adapt to its operating environment results in *continuously optimized* fin commands and astonishingly superior roll reduction performance.



New Motion Sensor Package

Highly advanced MEMS (Micro Electro-Mechanical System) motion sensors detect angle, rate and acceleration in multiple degrees of freedom, and unlike older technology they are less susceptible to electrical and mechanical noise. The result is cleaner, more accurate signals with no increase in enclosure size - even for Total Ride Control® systems. Working in concert with the balance of the control system, the new Motion Sensor package allows extraordinary motion control performance.



The DATUM is a genuine Deterministic (real-time) control system combining high-speed closed loop control techniques with programming methods derived from advanced aerospace applications. In fact, the DATUM's software processing rates are the same degree of accuracy and determinism as military aircraft flight and gas turbine engine controls!

Unrivalled Versatility: Stabilization AtRest®, Ride Control

Naiad's innovative and versatile DATUM can be configured for underway *AtSpeed® Roll Stabilization* using fins, or tabs, for *AtRest (Stabilization at Anchor)* or, when equipped with appropriate control surfaces, for pitch + roll stabilization, *Total Ride Control®*. The DATUM can also be easily *retrofitted* to extract the highest possible performance from pre-existing stabilizer equipment. Contact us today to learn why the DATUM is clearly the best choice in advanced stabilization controls.

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NAIAD DYNAMICS: The Science of Stabilization®