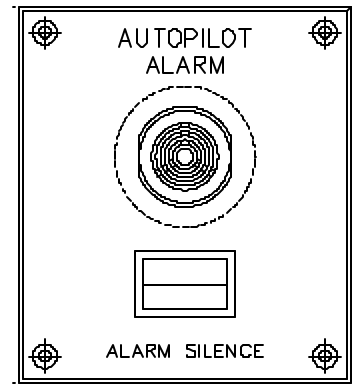


Ride Control System Integrated Autopilot



AUTOPILOT

Maritime Dynamics, Inc. offers an embedded autopilot as an option to their line of ride control systems. The integral system has a feature that an autopilot alone cannot provide. In addition to heading control, the system provides yaw damping. Using the combined ride control and autopilot logic, yaw motions can be detected and corrected before significant heading deviations occur. A vessel's characteristic response to coupled roll and yaw conditions may be dampened considerably since the system responds to both with coupled control. In the process, the system also diminishes the passenger motion sickness incidence caused by such motions.

The MDI autopilot provides all the interface logic and termination points required for installation. The interface logic allows for connection with up to four independent waterjet controllers. A typical waterjet controller interface issues an autopilot mode request signal and takes control by issuing waterjet angle commands when the waterjet controller responds with an autopilot-in-command signal. This interface allows the waterjet controller to revert to manual helm control when necessary. An NMEA 0183 serial format from the ship's gyrocompass and/or magnetic heading sensor is required.

Operation of the autopilot is through the menu-driven ride control system display. When the autopilot is engaged, the vessel's current heading becomes the commanded heading. The commanded heading can then be changed through the system display. An operator-set gain value determines the amount of rudder/waterjet

movement used to correct course deviations. Higher gain values result in more rudder/waterjet movement. The operator may also choose the rate of turn that the autopilot will follow when making course changes. The autopilot provides six alarms: gyrocompass failure, magnetic compass failure, true heading error, off-course alarm, power failure, and waterjet limit alarm.

All the alarm conditions activate one volts-free contact available for connection to the ship's alarm and monitoring system. The alarms are distinguished for the operator on the Alarm Page of the ride control system display unit. The autopilot alarm volts-free contact is normally closed. When any alarm condition occurs, the contact will open. The contact will close again when all the alarm conditions are cleared.

Once an alarm occurs, an ALARM indicator will flash on every ride control system display page. If the autopilot is engaged when the alarm occurs, an audible alarm will sound in addition to the visual alarm. If the autopilot is not in use when the alarm occurs, the operator will not be allowed to engage the autopilot until the alarm is cleared.

The autopilot audible alarm may be silenced by the pushbutton switch. The red alarm indicator is illuminated for an alarm condition. The yellow indicator will illuminate whenever the alarm is in the "silenced" state.

On monohull applications, fins used for ride control may also be used to supplement the directional control of the waterjets.



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Maritime Dynamics, Inc.
21001 Great Mills Road
Lexington Park, Maryland 20653
1 301 863 5499 telephone
1 301 863 0254 fax
sales@maritimedynamics.com