For over 50 years REGULATEURS EUROPA has proudly supplied high class Control and Monitoring Systems to the Commercial and Military Marine markets throughout the world.


REGULATEURS EUROPA has provided Systems for many Commercial Vessels from Cruise Liners and Luxury Yachts to Dredgers and Tugs. A number of these systems incorporate the powerful Viking range of governor ECUs.

REGULATEURS EUROPA has always been able to provide the technical expertise and knowledge to supply the right Control and Monitoring System for any application; from simple Engine Governor Control to sophisticated ship-wide control and monitoring systems. Complex load sharing and load control installations have made REGULATEURS EUROPA the supplier of choice for many vessel types.

Where a vessel refit is required REGULATEURS EUROPA is able to offer proposals for a new installation with state-of-the-art equipment for Control, Monitoring and Safety System. A modular or integrated format can be provided to give the most cost effective installation.

REGULATEURS EUROPA can assess and determine new requirements for existing, obsolete and difficult to maintain Control and Monitoring Systems.
Marine Propulsion Control Systems

For Diesel engined vessel there are many advantages in using the well proven "Viking" based systems. The Viking35 governor ECU can combine the speed governing function with other engine management and propulsion control duties. This integrated approach minimises interfaces and allows for cost effective systems that are specific to each propulsion engine and thus less susceptible to common mode failure. The use of REGULATEURS EUROPA ballhead back up actuators, for fuel rack control, provides a further level of control security. Viking systems have gained approval from many of the major Classification Societies and are to be found controlling military and commercial ships.

The fundamental control functions will be programmed with customer specific parameters designed to suit and protect the engine. These parameters are accessible via the operator interface, user friendly display, which allows setting up and tuning while the engine is running. Local manual control is obtainable via front mounted switches and push buttons.

REGULATEURS EUROPA Marine Systems

Marine Systems encompass direct propulsion, diesel electric and a range of power generating applications. REGULATEURS EUROPA specialises in offering a solution for all types of vessels.

High Speed Ferry Propulsion Engine Control for Electronically Fuel Injected Medium Speed Engines

Typical Propulsion Control Panel
Typical Propulsion Control Panel Software and Hardware Capabilities

- Isochronous speed control/droop.
- Speed setting.
- Analogue 4 - 20 mA.
- Local/remote digital speed control.
- Speed measured by Perception Heads. With automatic change over.
- Start fuel limit.
- Boost fuel limit.
- Torque limit with independent RPM range.
- Slowdowns/shutdowns are dependent on engine type and application.
- Pre-start priming.
- Interlocked start sequence.
- Multi-attempt start capabilities.
- Dual dynamics.
- Clutch engage interlocks.
- Acceleration limitation.
- Wire break detection.
- Overspeed test facility.
- Engine RPM analogue outputs.
- Engine load analogue outputs.

Failure Modes

Propulsion Control Panels have been designed to be used with any of REGULATEURS EUROPA’s range of actuator units; specifically in conjunction with the 2231 series ballhead.
servo hydraulic actuator. In normal operation the 2231 actuator output shaft position is proportional to the electric input signal from the Propulsion Control Panel. In the event of failure of the ships power supply to the MVCP, the ships UPS or auxiliary supply will take over. If the auxiliary supply fails or the system develops a controller fault the 2231 actuator will fall to ballhead mode.

With the 2231 actuator set in ballhead mode, this then enables the engine speed to be controlled, by the use of a manual hand lever, integral stepper motor or cable lever as options. This dual redundancy provides emergency means of governing and speed control to safeguard the vessel.

Complete Solutions

REGULATEURS EUROPA produces a complete range of solutions for marine engine control and monitoring tailored for the vessel and its application. Based on the depth of knowledge within the company, these can range from standard systems to specification built systems to suit all applications.

Propulsion Systems

The Propulsion Control Panel is designed to interface with proprietary water jet fixed pitch and controllable pitch propeller systems.

To complete the packaged system REGULATEURS EUROPA also offer various control stations such as bridge, open bridge/bridge wing and/or machinery control consoles.

The engine control stations would normally have instrumentation, start and stop facilities, ships telegraph and monitoring systems or other features built to classification society requirements.

Viking Vision

Viking Vision is a PC based tool which has been developed to allow easy access to adjustable parameters and status information in the Viking product range.

Viking Vision offers the following features to the user:

- All parameters are grouped and presented in a tree structured menu.
- Parameters can be edited and displayed graphically.
- Status information can be displayed graphically.
- Alarms are displayed and logged in chronological order of event with the ability to be reset.
- Parameter and alarm information can be printed in a number of different formats.
- Parameters can be downloaded from one Viking and stored or loaded into another unit.
- Information can be presented graphically on up to 256 user defined canvas pages.
- Five password protection levels of editable parameters.
- Uploading of application software into Viking product.

To support all of these features Viking Vision has been made highly configurable. This allows for customisation of the program’s features for an individual contract or operator’s needs. Each contract or application has it’s own unique Contract Configuration File (CCF) which is loaded into Viking.
Vision. The CCF file contains the settings required to configure the presentation and adjustment of data. (An optional Parameter file (PAR) can be used to store parameter values from the application.)

**Viking HMI**

The Viking HMI has been developed to allow easy access to editable parameters, display information and alarms in the Viking product range. The Viking HMI can be either a panel mounted or hand-held unit.

**The Viking HMI offers the following features to the user:**
- All editable and display parameters are grouped and presented in tree structured menus.
- The menu currently in use is clearly shown on the HMI.
- Alarms are displayed as a list with a flashing alarm indication.
- Ability to reset alarms.
- Password protection of editable parameters.
- Editing and display of various types of parameter.
- Saving of edited data to non-volatile memory.
- Constant display of speed and load (if applicable to Viking).

**Serial Communications Option**

Viking marine systems interface with the vessel via analogue and potential free signals, wired to a numbered terminal rail. An option is available for serial communications through RS485 links using the MODBUS RTU protocol (half duplex). The RS485 link will allow access to the alarm and status information requested by the ship wide control and monitoring system or Platform Management System.

**Surveillance Systems**

**General**

REGULATEURS EUROPA Control and Monitoring Systems can be as simple or as complex as the application requires. From the simple LCD and LED display panels, located near the engine, giving engine operating parameters to Shipwide Systems with Centralised Monitoring and Control Workstations.

**Simple Local Alarm Panel**

The above is a simple local alarm and status panel that is totally independent of any shipwide monitoring system. Engine parameters can be viewed on the 2-line LCD display and fault conditions indicated on the LEDs. In conjunction with a Propulsion Control Panel this provides all the engine control, alarm and shutdown protections required by the classification societies. Communication with remote displays can be via discrete outputs or via RS485 links using the MODBUS RTU protocol (half duplex).

**Remote Monitoring**

REGULATEURS EUROPA can provide remote monitoring display options to suit the application or vessel layout.
**Surveillance Systems**

Touch screen based surveillance systems provide remote display of the engine data and status. Engine parameters can be displayed by way of simple mimics or graphical displays. The touch screen display enables the operator to simply move from screen to screen. Alarms channels can be accepted and the alarm listing displays the alarms in a chronological order.

**Shipwide Control and Monitoring Systems**

REGULATEURS EUROPA supply a range of shipwide monitoring systems to suit the application.

These systems provide multi-station monitoring of the vessels plant. The system can interface with other networks to provide a single user friendly interface.

The graphical display shows alarms status and machine/system status pages. The software allows trending, event recording and alarm listing.

The shipwide systems provide control capabilities for pumps, valves and fluid handling systems.

Power management control for diesel electric vessels is also available.

---

**Type 2231 Ballhead Hydraulic Actuator / Governor**

**FEATURES**

- True proportional actuator.
- Self contained oil supply.
- Based on the popular 1100 series Governor.
- One module with 5 different work outputs all within the same frame size.
- Ballhead back-up with various options for speed setting.
- Booster option.
- Designed for use with the Viking range of Digital electrical controls / engine management systems but can be used with other manufacturer’s governors.
- Electric start fuel limit option.
- Standard adapters available to replace other manufacturer’s governors.
The REGULATEURS EUROPA 2231 actuator is a proportional actuator in which the output shaft position is proportional to the electric input signal.

It has been designed for use with the Viking Digital Electronic Control Unit, to provide a complete governing system.

The essential part of the 2231 actuator is the high response electric servomechanism, which overrides the ballhead pilot valve.

In the event of a power failure or controller fault, the governor system will fail to the ballhead mode. Ballhead actuators have backup speed setting options of:

1. Lever hand operated
2. Lever Morse cable operated
3. Synchronous motor 115 / 230V AC or Stepper motor
4. Handwheel control

A booster unit can be supplied for applications where minimal start air consumption is required.

<table>
<thead>
<tr>
<th>Nominal Stalled Work Capacity</th>
<th>8 ft lbf 11 Nm</th>
<th>15 ft lbf 20 Nm</th>
<th>25 ft lbf 34 Nm</th>
<th>34 ft lbf 48 Nm</th>
<th>40 ft lbf 55 Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Capacity Increase Fuel</td>
<td>10 ft lbf 13.5 Nm</td>
<td>17.8 ft lbf 24.1 Nm</td>
<td>29.7 ft lbf 40.2 Nm</td>
<td>34.5 ft lbf 46.7 Nm</td>
<td>35.25 ft lbf 47.8 Nm</td>
</tr>
<tr>
<td>Work Capacity Decrease Fuel</td>
<td>6.1 ft lbf 8.3 Nm</td>
<td>12.0 ft lbf 16.2 Nm</td>
<td>19.9 ft lbf 27.0 Nm</td>
<td>35.4 ft lbf 48.0 Nm</td>
<td>42.5 ft lbf 57.6 Nm</td>
</tr>
<tr>
<td>Output Shaft torque Increase Fuel</td>
<td>11.4 ft lbf 15.4 Nm</td>
<td>21.3 ft lbf 28.8 Nm</td>
<td>35.6 ft lbf 48.2 Nm</td>
<td>39.8 ft lbf 53.9 Nm</td>
<td>40.75 ft lbf 55.0 Nm</td>
</tr>
<tr>
<td>Output Shaft torque Decrease Fuel</td>
<td>6.9 ft lbf 9.3 Nm</td>
<td>12.9 ft lbf 17.5 Nm</td>
<td>21.5 ft lbf 29.2 Nm</td>
<td>40.94 ft lbf 55.3 Nm</td>
<td>49.13 ft lbf 66.4 Nm</td>
</tr>
<tr>
<td>Servo Oil Pressure</td>
<td>150 lbf/in² 10.3 bar</td>
<td>150 lbf/in² 10.3 bar</td>
<td>250 lbf/in² 17.2 bar</td>
<td>250 lbf/in² 17.2 bar</td>
<td>300 lbf/in² 20.7 bar</td>
</tr>
</tbody>
</table>
Standby Generators

Standby generator panels provide all the control and monitoring for the engine and alternator. The panels include battery backup to enable the generator to be started in a black start condition.

Control and Monitoring

REGULATEURS EUROPA supplies control and monitoring systems for front line naval ships.

The system shown provides governing control and monitoring for generator sets on a frigate. Communication with the platform management system is via a serial link.

Tug/Dredger Controls

REGULATEURS EUROPA design and manufacture control systems from simple speed control systems on tug and work boats to complex controls for dredger applications.

REGULATEURS EUROPA has established itself as the supplier of choice for power plant control solutions for dredging applications for both new build and re-fit projects. Software based systems have been developed to deal with complex load sharing and load control; with features that allow for minimising engine sizes whilst providing sufficient power for a range of operating modes.