



REGULATEURS EUROPA

Member of the
Heinzmann Group



Product Guide

REGULATEURS EUROPA



Governors



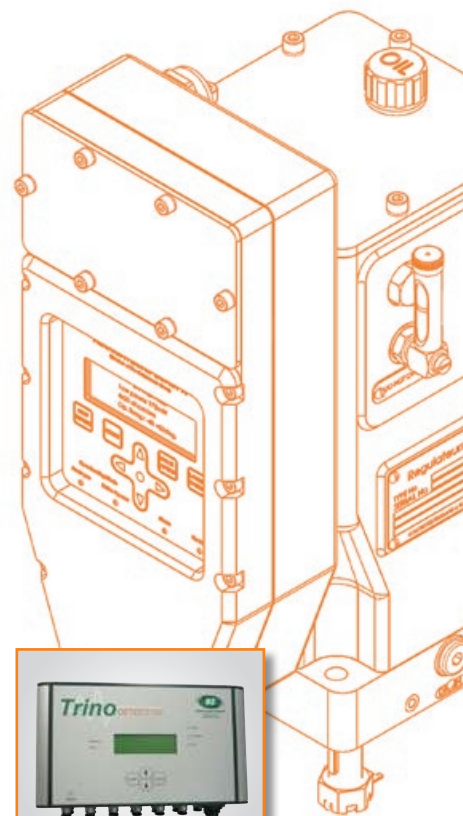
Actuators



Control



Monitoring



SPECIALIST FOR GOVERNING CONTROL AND MONITORING

REGULATEURS EUROPA (RE) is amongst the world leaders when it comes to the supply of control and monitoring solutions. From mechanical and electronic governors to turnkey monitoring and control systems for marine, traction, industrial and offshore applications.

Over 60 years of experience developing control and monitoring philosophies for prime movers is clearly evident in the products and services supplied to engine builders, utility companies and ship operators in addition to many other users around the world. The name REGULATEURS EUROPA has become synonymous with quality and dependability.

REGULATEURS EUROPA is able to supply products that satisfy the most demanding of applications. As a member of the HEINZMANN Group REGULATEURS EUROPA offers a complete portfolio of control and management solutions for all major types of prime mover with products ranging from standard components to highly complex power management systems.

REGULATEURS EUROPA PRODUCTS



Governors

Wide range of hydraulic governors, electro-hydraulic governors and digital governors



Actuators

Hydraulic actuators with and without ballhead backup option



Control

Control systems for marine, industrial and traction applications



Monitoring

Monitoring systems for ships and industry and vibration monitoring for rotating machinery



System Components

Distributed I/O system and more

Governors & Actuators

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Marine



Industrial



Traction

Governors

REGULATEURS EUROPA GOVERNORS

The range of REGULATEURS EUROPA governors includes hydraulic, electro-hydraulic and digital governors and is built on 60 years of experience in governing.

Customers in the industrial, marine and rail traction sectors recognise these governors for their high reliability and durability, along with their excellent performance.

Either as a standard product or as part of a customised engine management system, REGULATEURS EUROPA is seeking to provide the perfectly configured governor for the application's requirements.

Latest development is a microprocessor controlled hydraulic governor for diesel, gas or dual-fuel engines and steam turbines.

HYDRAULIC GOVERNORS

Engine builder around the world trust in REGULATEURS EUROPA hydraulic governors whenever a high reliable, stable and optimal solution is needed for specific applications like marine propulsion, gensets and turbines in diesel, gas or dual-fuel mode.



1102-4G

Popular hydraulic governor, providing mechanical speed control of diesel or steam turbine driven gensets. Option for electrically operated stop and/or start fuel limiter.

Output range: 8, 12, 15, 25, 34 or 40 ft. lbf.



1115-4G

Hydraulic governor with electronic speed setting for marine propulsion engines. Analogue (4-20 mA) and digital speed setting modes (raise/lower speed) available. Electrically operated stop, electric start fuel limiter or boost pressure fuel limiter. 4-20 mA load signal available.

A low build version of the 1115 type governor is available for engines with limited space for the governor.

Pneumatic fuel limit and 4-20 mA load signal available.

Output range: 8, 12, 15, 25, 34 or 40 ft. lbf.



1800-2G

Powerful mechanical-hydraulic governor, providing mechanical speed control and featuring a two-stage, high stiffness, backlash-free hydraulic servo mechanism for best possible control on engines whose fuel control systems require a high work output. Option for start/boost pressure fuel limiter.

Output range: 60-80 ft. lbf.



1500-3G

Largest of the RE hydraulic governors, providing mechanical speed control and featuring a two-stage, high stiffness, backlash-free hydraulic servo mechanism for best possible control on engines whose fuel control systems require a high work output. Option for start/boost pressure fuel limiter.

Output range: 120, 200 or 250 ft. lbf.



2100

Hydraulic governor, providing mechanical speed control of high-speed engines, with options to provide electrical or pneumatic speed control and boost pressure fuel limitation.

Output range: 8 or 11 ft. lbf.



Governors

ELECTRO-HYDRAULIC GOVERNORS

Latest developments are microprocessor controlled hydraulic governors, which combine the well proven REGULATEURS EUROPA hydraulic governors with the widely recognised HEINZMANN digital controls.



DG 2800.14

The DG 2800.14 governor is a microprocessor controlled hydraulic governor for diesel, gas or dual-fuel engines and steam turbines. It consists of the well-proven REGULATEURS EUROPA 2800 series actuator and the HEINZMANN digital DC 14 governor.

The digital governor controls the proportional solenoid of the actuator by means of a current signal.

The DG 2800.14 includes an integrated speed pick-up, however if required an external pick-up can be connected.

The DC 14 digital governor provides state-of-the-art speed control (steady state speed wander < 0.1 % at nominal speed), start fuel limit and functionality typical for generator application, including isochronous load sharing (optional).

The software allows to set the gear ratio between crankshaft and governor drive. In this way all speed related settings in the software refer to "engine rpm".

The DC 14 digital governor is set-up with the user-friendly interface program DcDesk. Also 20 selectable parameters can be edited using the units key pad and display (password protected).

DIGITAL GOVERNORS

REGULATEURS EUROPA digital governors are recognised for their great reliability and durability along with their excellent performance. These governors are configurable in order to meet most application's requirements. Combined with the appropriate actuator, RE digital governors make up high-quality governor systems for diesel engines, gas engines, dual-fuel engines and gas turbines.



Viking35

Advanced ECU with high I/O count supporting a diverse range of complex control and monitoring tasks including multi-engine isochronous load sharing, power management, marine propulsion, traction, etc.

Supporting both 0-1 A and 0-200 mA outputs (driving a range of RE hydraulic and other proprietary actuators), the Viking35 is ideal for complex bespoke applications.

Type approved by marine classification societies.

XIOS UC 1



The modular, universal XIOS controller presents an entirely new generation of ECU. It consists of a high-performance main board with high CPU power, large DRAM and FLASH memory. A FPGA logic chip leaves more computing power to the CPU for PLC functions or processor-intensive control tasks.

Additional I/O boards can be attached to the main board in different number and type. They are configurable by software, jumperless and small in size. XIOS enables customers to develop their own control functions based on CoDeSys (IEC 61131-3) or MATLAB®/Simulink®. It is applicable for alarm and monitoring purposes just as well.

Type approved by marine classification societies.

DC 8

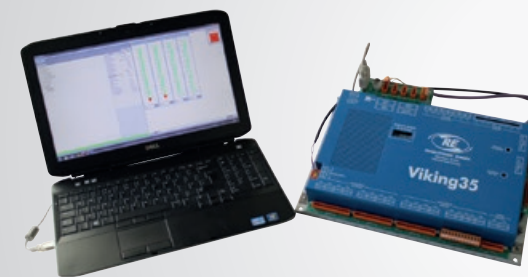


Operating as part of speed governor system together with actuators StG 2010/2040/2080. Positioner capability and power management function, applicable as peripheral module to extend I/O abilities of main control unit and to drive another actuator. Version for marine propulsion engines available with output 0-1 A, driving the range of RE hydraulic actuators.

Software Tool

Viking Vision is a free of charge PC based tool which has been developed to allow easy access to the adjustable parameters and status information in all Viking products.

Viking Vision



Viking Vision offers the following features to the user:

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

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Actuators & Test Equipment

HYDRAULIC ACTUATORS

The range of hydraulic actuators contributed to the HEINZMANN portfolio by REGULATEURS EUROPA is built on 60 years of experience in hydraulic governing. Customers in the industrial, marine and rail traction sector acknowledge these actuators for high reliability and durability along with excellent performance.

RE actuators are designed to be controlled by RE digital governors. Alternatively, they can interface with other controllers as part of a customised engine management system by REGULATEURS EUROPA.



2221-1G

Proportional actuator with output range of 8, 12, 15, 25, 34 or 40 ft. lbf., used on numerous engine types and applications thanks to its wide range of work output.



2231-1G

Proportional actuator with output range of 8, 12, 15, 25, 34 or 40 ft. lbf., featuring a mechanical-hydraulic governor as a ballhead backup in the case of a power failure or controller fault, providing various manual speed setting options. Popular actuator model for marine propulsion engines and other applications where common mode failures must be minimised.



2222/2232-1G

Proportional actuator with output range of 60 or 80 ft. lbf., featuring a two-stage, high stiffness, backlash-free hydraulic servo mechanism for best possible control on larger engines requiring increased work outputs. Option for start/boost pressure fuel limiter and/or a mechanical-hydraulic governor as a ballhead backup.



2223/2233-1G

Proportional actuator with output range of 120, 200 or 250 ft. lbf., featuring a two-stage, high stiffness, backlash-free hydraulic servo mechanism for best possible control on large medium-speed engines. Option for start/boost pressure fuel limiter and/or a mechanical-hydraulic governor as a ballhead backup.



2800

Compact proportional actuator with output of 30 ft. lbf. for use in both new and retrofit applications due to its standard UG-8 compatible base. Option for start/boost pressure fuel limiter.



Series 20

Small proportional actuator with output of 4.7 ft. lbf., using engine oil for its operation but with a self-contained oil pump and accumulator. Can be used with the HEINZMANN DC 6.200 or with a range of proprietary ECUs, making it an ideal solution for upgrade/retrofit installations. Designed to be fully interchangeable with the EG-3P.

TEST EQUIPMENT

REGULATEURS EUROPA provides electrically driven governor test stands for permanent installation. The purpose of the rig is to assist in adjusting, servicing and testing the performance of hydraulic speed governors and hydraulic actuators. Our test stands have been designed to simulate diesel engine operating conditions; the governor and test stand forming a closed loop system.



AK8 Test Stand

The AK8 test stand for the setting-up and testing of hydraulic actuators has an all-electric 5.5 kW drive. It includes oil supply to fill the governor under test and the governor oil may be circulated and re-heated. The test stand is operated from a 15" colour touch screen HMI.

The AK8 can operate in closed or open loop mode. In open loop operation the drive speed is set at, and controlled from, the stand itself.

Control & Monitoring – Marine

MARINE CONTROL & MONITORING SYSTEMS

For more than 60 years the sophisticated propulsion control and ship monitoring systems of REGULATEURS EUROPA have been supplied to merchant, commercial and military marine applications around the world. Building upon a wealth of expertise, RE work hand in hand with customers from initial consultation to project planning and execution, resulting in perfectly tailored control systems for any marine application.

RE is able to supply integrated propulsion control systems for vessels with fixed/controllable pitch propellers and/or water jets, multiple engines into single gearboxes, and diesel power generators. By integrating digital speed governing with engine, generator management and propulsion control, customers are provided with a cost-effective system whose modular form assures easy installation. The systems may incorporate machinery control room consoles, bridge control plates, propulsion logic panels turbocharger condition monitoring and will fully integrate with SeaMACS Marine Automation Systems.

With its longstanding experience in governing and controlling prime movers and its excellent design and production capabilities, REGULATEURS EUROPA fulfils the needs of shipbuilders, equipment manufacturers and fleet operators through customised propulsion control and monitoring solutions.



PROPULSION CONTROL SYSTEMS

The REGULATEURS EUROPA Propulsion Control Panels are a fully integrated governing and propulsion control unit providing a cost effective solution for Fixed Pitch Propeller (FPP), Controllable Pitch Propeller (CPP), and water jet marine applications.



Within the single bulkhead mounted enclosure is the sophisticated Viking35 ECU with its flexible propulsion controls, and REGULATEURS EUROPA essential hardwired safety circuits. This leaves the scope and level of monitoring specifically to suit the customer's requirements. Designed to fully meet the requirements of the various marine classification societies it is already used in applications as diverse as fast military patrol vessels, luxury yachts, fast ferries and commercial shipping.



Additionally the propulsion control panel can provide comprehensive engine/propulsion management. For the engine this may include:

- ▶ Priming, starting and stopping
- ▶ Fuel limitation and slowdowns
- ▶ Control of auxiliaries such as exhaust flaps and JW heaters

And for propulsion control, functions such as:

- ▶ Torque control for fixed pitch propellers
- ▶ Load control for CP propellers
- ▶ Pitch/speed combinatory functions from a single command lever input

This flexibility makes Viking35 based propulsion control panels a cost effective solution.

GENERATOR CONTROLS

REGULATEURS EUROPA can provide controls for marine generators supporting diesel/electric propulsion, main auxiliaries or standby sets.

RE is particularly successful at supplying complex load sharing systems and combined generator/propulsion solutions such as those required by large suction dredgers. At the heart of many generator control systems is the Viking35 ECU which combines engine management functionality together with multi engine electrical and/or mechanical load sharing.

The typical panel shown includes all of the necessary I/O to interface with the engine, generator and ships systems. Viking Vision software provides an easy interface with the generator control panel; allowing performance to be monitored and parameters changed by authorised personnel.

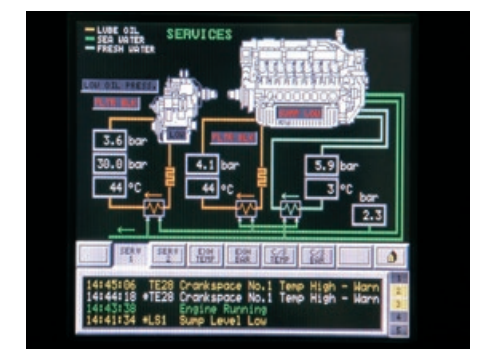
Specialised applications such as front line military vessels require hardware designed to withstand the adverse environment. REGULATEURS EUROPA is experienced in the design and manufacture of integrated control and monitoring panels designed to perform in ships where vibration and shock etc. are a major factor.

MONITORING

REGULATEURS EUROPA monitoring and surveillance systems can be as simple or complex as the application demands. From simple LED and LCD displays to comprehensive touch screen based systems.

It is a plus requirement to keep monitoring and safety as separate functions to avoid common mode failures that could endanger the machinery. Whilst most applications require digital and/or screen based monitoring displays REGULATEURS EUROPA can offer a range of solutions including direct reading local engine panels.

For vibration monitoring of rotating machinery please refer to page 16.



Control & Monitoring – Industrial

INDUSTRIAL CONTROL & MONITORING SYSTEMS

With over 60 years of experience in prime mover control technology, REGULATEURS EUROPA are specialists in providing complex control solutions for medium and low-voltage electrical distribution systems from utility intake and embedded generation to site load. Systems have been successfully supplied to hospitals, airports, water treatment works, nuclear power stations and offshore installations around the world. RE's attention to detail continues through all stages of engineering, manufacturing, testing, installation and commissioning.

RE power management systems are based around the latest PLC and SCADA technology to provide customised solutions that are extremely reliable and retain the flexibility for future expansion.

RE works closely with the customer to develop control solutions that are tailored to meet every aspect of the application requirements to provide reliable electrical power, that is why our customers choose RE power management systems.

ENGINE & GENERATOR

RE specialises in design, engineering, manufacturing, installation and commissioning services to meet customer-specific requirements including consultancy and surveying services to assist in achieving a working solution.

REGULATEURS EUROPA's past projects have included generator and power control solutions for many different applications.



These include banks, hospitals, hotels, telecommunications centres, airports, water treatment works, sewage treatment works, nuclear power stations and process plants. Customers for these systems are located around the world.

RE has the facilities to design, engineer and manufacture control systems to meet the customer specific requirements for diesel driven generator sets.

Supplied Functionalities

- ▶ Local engine control panels
- ▶ Remote engine control panels
- ▶ Control desks
- ▶ Remote start/stop controls
- ▶ Speed/volts control
- ▶ Alternator excitation control
- ▶ Manual/auto synchronising
- ▶ Generator electrical protection
- ▶ Alarm indication
- ▶ Electrical data acquisition
- ▶ Breaker status indication
- ▶ Digital/analogue instrumentation
- ▶ Mimic display

POWER MANAGEMENT

REGULATEURS EUROPA designs power management systems to meet the requirements of the customer. This includes the number of generators, the rating of individual engines, and the engine type including diesel, dual-fuel, gas engines and turbines or the switchboard arrangement (e.g. bus couplers, utility incomers, etc.).

The PMS provides automatic control of generators including the following basic functions:

- ▶ Load dependant call-up & shutdown of generators
- ▶ Priority order selection
- ▶ Minimum numbers of sets
- ▶ Neutral earth control
- ▶ Active load sharing
- ▶ Reactive load sharing
- ▶ Peak lopping operation
- ▶ Base load operation
- ▶ Power factor control
- ▶ Island mode operation
- ▶ Frequency control
- ▶ Voltage control
- ▶ Load shedding
- ▶ Load application



Monitoring of PMS status and password protected setting of PMS parameters is via a human machine interface.

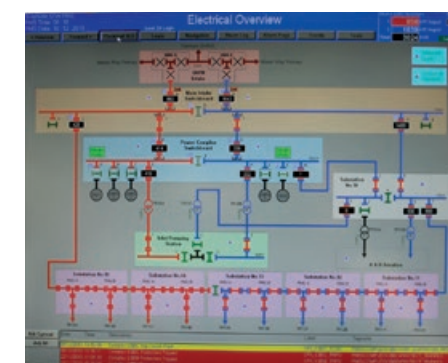
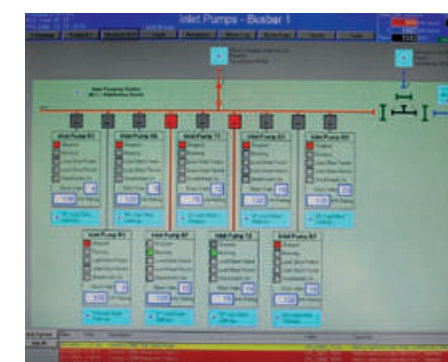
SCADA

REGULATEURS EUROPA can design, configure, install and commission SCADA systems to meet the specific requirements of the customer, providing control and monitoring of generator installations and associated electrical power distribution networks. Systems can be simple stand-alone HMI's through to multiple client server based systems.

REGULATEURS EUROPA SCADA systems are based around the latest technology to provide customised solutions that are extremely reliable and retain the flexibility for future expansion. Typically these systems include functions such as:

- ▶ Graphical & animated displays
- ▶ Alarm monitoring
- ▶ Data logging
- ▶ Event detection
- ▶ Real time & historical trending
- ▶ Project reporting
- ▶ Security protection
- ▶ Remote monitoring via internet access
- ▶ SMS Text messaging

For vibration monitoring systems for rotating machinery please refer to page 16.



Control & Monitoring – Traction

TRACTION CONTROL SYSTEMS

REGULATEURS EUROPA has been producing traction governors and controls for over 60 years. These are operational in many types and manufacture of locomotive worldwide; including Australia, China, Iran, Kenya, Malaysia, Nigeria, Syria, Sri Lanka, Tanzania and the United Kingdom.

REGULATEURS EUROPA offers a range of both mechanical-hydraulic governors and microprocessor based governing systems to suit locomotive applications.

RE has had particular success in supplying Viking Governing Systems to replace mechanical-hydraulic governors of many manufactures. The reduction in maintenance has been proven to finance the procurement of the new equipment. The electronic controls have also meant that speed and load control settings have proven to be more repeatable than its mechanical-hydraulic predecessors.

Viking Traction Systems can be tailored to interface with many locomotive speed setting and load control arrangements.

The latest REGULATEURS EUROPA traction equipment introduced into production provides the platform for a complete solution to traction diesel engine control, protection and monitoring with interface to microprocessor based locomotive controllers.

ENGINE & GENERATOR CONTROLS

The Viking Traction Equipment provides the platform for a complete solution to traction diesel engine control, protection and monitoring with interface to microprocessor based locomotive controllers.

The system is configurable to suit the engine type, locomotive type and application requirements.



Viking Traction Control Systems

Viking traction control systems are designed for the railway environment and houses the following main components:

- ▶ Viking35 ECU
- ▶ Speed switch
- ▶ Protections module
- ▶ Interface circuitry



Engine Protection

The engine protection functionality provided by Viking Traction Solutions supplies a comprehensive load and fuel de-rating package based on a number of measured parameters. This ensures the engine's control and performance is maintained within a safe operating envelope, with maximised power output achieved at all times. As an additional feature, Viking Traction Systems can interface with remote monitoring; thus allowing operational problems to be viewed and diagnosed at the depot.

Traction Software

Viking Traction Software is tailored to meet the needs of the engine and the locomotive. All engine management functions are programmed in and there is the additional safety of hardwired shutdowns.

Traction Control Power Supply

The Viking Traction Control power supply filters the locomotive supply ensuring a clean and stable supply feed to the control panel.



Custom Designed Equipment

REGULATEURS EUROPA can provide custom designed equipment for a wide range of rail and off-road applications; either interfacing with existing cab controls or as a whole control and monitoring package. Whilst most applications are main line diesel electric other design solutions may be for shunting locomotives, off-road mine trucks etc.



Main Line High-Speed Diesel Electric

Train operators of main line high-speed locomotives have experienced the advantages of using the Viking ECU based engine management. The ability to optimise the power output relative to engine performance helps to ensure that the engine is protected whilst maintaining availability; a critical function when operating trains.



Control & Monitoring – Vibration

VIBRATION MONITORING SYSTEMS

Designed to continuously monitor the vibration signatures of rotating machinery, the vibration monitoring system Trino targets applications where vibration analysis experts are not generally on hand to identify and diagnose the advance signs of impending trouble.

Trino presents two-stage alarm information in a simple and clear format to local operators. The system features a simple and informative local alarm screen for the chief engineer. It can provide an initial diagnosis of a developing problem. This enables appropriate preventative action to be taken to avoid the often and very substantial consequential costs of an in-service unexpected machinery failure. REGULATEURS EUROPA also offers a remote analysis and support service to customers who do not have the expertise to interpret the data trend analysis issued from the system.

Applications are turbochargers, gearboxes, discharge pumps, fans and other rotating equipment – marine and land based.

SYSTEM COMPONENTS

TrinoDETECT



The advanced design of the TrinoDETECT unit allows continuous collection and monitoring of vibration frequency data from a number of machinery sensors. Using

frequency analysis, the signature contained within the sensor data is assessed to diagnose common machinery faults. Alarm frequencies and amplitude levels automatically track and adapt themselves to the operating speed of the machinery, helping to ensure that Trino reliably senses any deviation from normal. Tracking is particularly useful for the successful monitoring of turbochargers.

TrinoALERT



TrinoALERT is typically mounted in a machinery control room and provides a centralised presentation of pre and main alarms from one or more TrinoDETECT units. Each alarm entry clearly indicates the machine and sensor reference,

date/time log and a short diagnosis as to the most likely cause of the fault.

TrinoREMOTE



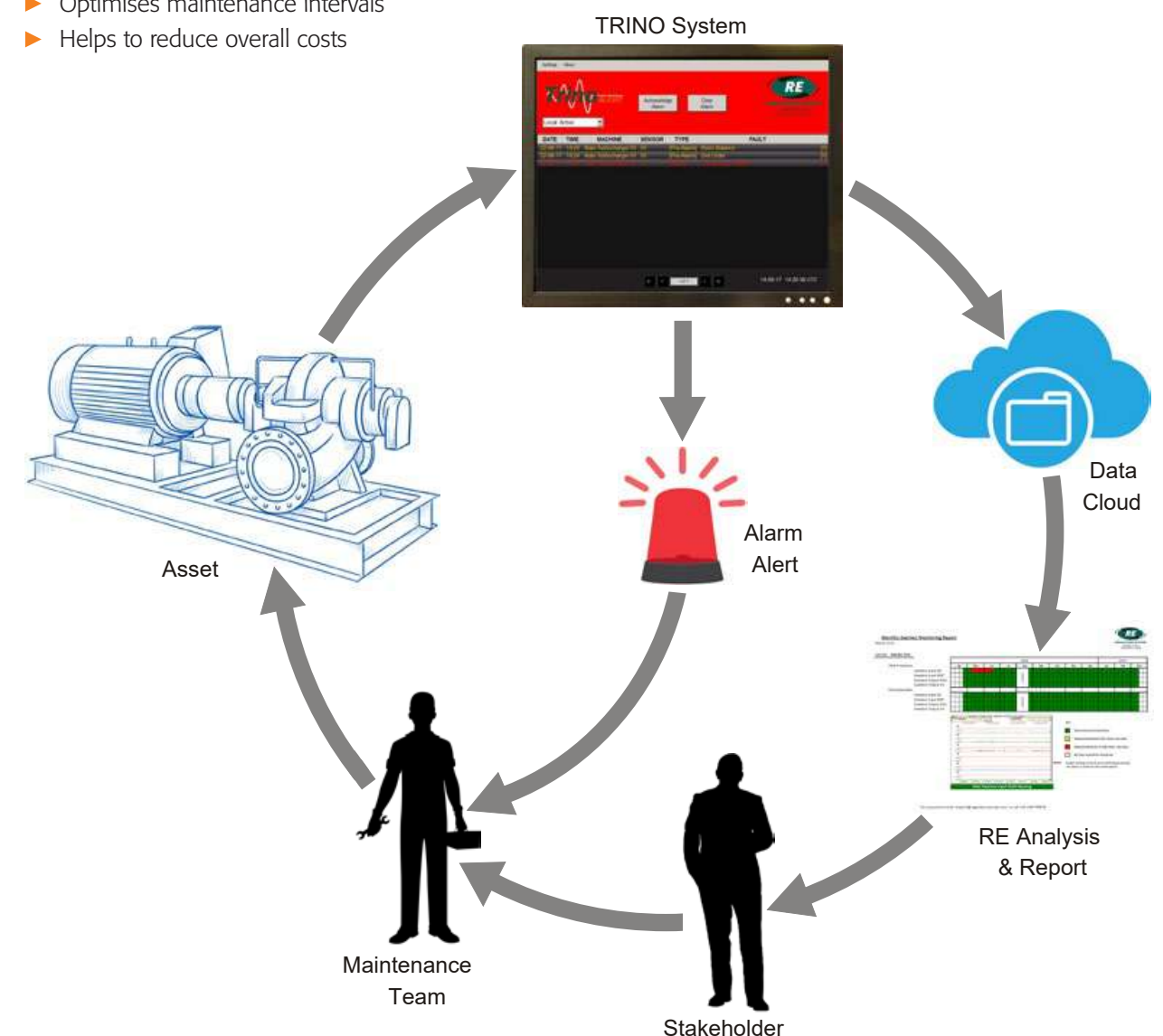
Regular transmission of detailed alarm and performance data via internet connection/ship to shore communications is available for vibration specialists to advise on an appropriate course of action. Alternatively, monthly health status reports can be provided under contract by RE Ltd. using its TrinoREMOTE specialist service.

Trino – VIBRATION MONITORING SYSTEM FOR ROTATING MACHINERY

The Trino system provides the following functionality:

Features

- ▶ Continuous and permanent condition monitoring
- ▶ Simple on-board system initiating two-stage alarms for multiple failure conditions
- ▶ Automatically adapts to varying machinery speed
- ▶ Automatic transmission of alarm and performance data via cloud transfer
- ▶ Low maintenance
- ▶ Optional analysis & reporting service
- ▶ Assists with critical asset management and CBM program integration
- ▶ Industry 4.0 ready
- ▶ Maximises availability of assets
- ▶ Optimises maintenance intervals
- ▶ Helps to reduce overall costs



System Components

DISTRIBUTED I/O SYSTEM

The ICENI range of distributed I/O modules can be used to communicate with PC or PLC equipment or extend the range of the RE Viking35 ECU. The DIN rail mounted modules are designed to be cost effective and easy to configure, via a colour display keypad, without the need for a programmer or laptop. ICENI has been built to a high specification to encompass the extended temperature range of an engine environment but is easily suited to a much wider role; both to enhance RE control and monitoring solutions or as a product for other OEMs.

ICENI is a range of modules that can be plugged together to form a node on a distributed I/O system. Nodes are positioned at strategic points around the plant enabling local field devices to be wired to the modules rather than individually back to the master station, thus simplifying the plant wiring.

The master station can access the input process image to determine the plant status and also write to the output process image area to control plant devices. The network node is controlled by a master module that always occupies the first slot. A combination of input and output modules to suit the field requirements are then plugged into the right hand side of the master module to form the ICENI bus. The node is completed with a power supply module.

ICENI Distributed I/O System



- ▶ Open protocols to PLCs, PCs etc. (Modbus RTU, CANopen, DeviceNet)
- ▶ Extended temperature range (-20 to +70 °C)
- ▶ Inbuilt user interface for commissioning and support
- ▶ Robust construction
- ▶ Independent electrical isolation
- ▶ Redundant power supply capability
- ▶ "Plug & Play" automatic configuration
- ▶ Cost-effective solution for a wide range of applications

AMPLIFIER MODULE

The amplifier module ECM7118 provides an interface between any of the REGULATEURS EUROPA range hydraulic actuators and electronic control units from other manufactures. The module is available in a standard open housing for DIN rail mounting

As a safety feature the module will interrupt the input signal loop if a wire break is detected in the outgoing signal loop to the actuator, or in case of power supply failure. This enables the control system to detect wire break in the entire loop.

The module is fitted with a self-resetting fuse. The LED will indicate power supply available (green) or fuse interrupted (red). The module will detect an open loop in the output signal. In that instance, or in case of power supply failure, the input signal loop will be interrupted. This enables the control system to detect failure of the entire loop.

Actuator Drive Signal Converter Module



- ▶ Size: 75 mm x 110 mm x 50 mm
- ▶ Mounting: Standard DIN rail mounting
- ▶ Power supply: 24 VDC (18-32 V) max. 2 A
- ▶ Input: Selectable 0-200 mA or 4-20 mA. The input signal is isolated from both power supply and output signal.
- ▶ Input resistance: 35 Ω for 0-200 mA input, 235 Ω for 4-20 mA input
- ▶ Output: Pre-set for RE series actuators, or 0-1000 mA nominal
- ▶ Time lag: < 5 mSec. for 100 % step
- ▶ Ambient temperature: -10 °C up to +75 °C
- ▶ EMC requirements: In order to comply with the requirements of IEC61000-4-2, -3, -4 and -5 the module must be mounted in a steel plate enclosure
- ▶ Type approval: German Lloyd

STEPPER MOTOR DRIVE MODULE

REGULATEURS EUROPA series hydraulic governors may be equipped with a speed setting device which can be adjusted from a 4-20 mA signal. In this instance the speed setting mechanism in the governor is adjusted by means of a stepper motor, which is controlled by driver M602901F.

The unit complies with the requirements of IEC61000-4-2, -3, -4 and 5 if mounted in a steel plate enclosure. A potential free change over contact is available for alarm indication. Please refer to the data sheet, which summarises the differences between builds and provides the specification and connection diagram of the latest build M602901F.

Stepper Motor Driver



- ▶ Analogue speed setting mode
- ▶ Ramp rate adjustable for increase or decrease speed
- ▶ Raise speed in digital speed setting mode
- ▶ Lower speed in digital speed setting mode
- ▶ Fast/Slow ramp rate selectable if in digital speed setting mode
- ▶ Minimum speed stop
- ▶ Maximum speed stop
- ▶ Selectable reduced maximum analogue speed setting level
- ▶ Select idle speed setting level
- ▶ Select run-up to rated speed (constant speed)
- ▶ Type approval: German Lloyd

Services

TECHNICAL ASSISTANCE ANYTIME

Our 24 hour response capability ensures a dedicated team of skilled service engineers are available worldwide for planned services or emergency call outs.

We also offer a service exchange scheme and in-house repair service with comprehensive warranty.

The global network of REGULATEURS EUROPA agents and distributors provide a truly worldwide service facility.

REGULATEURS EUROPA offers 24 hr emergency assistance from both the UK and the Netherlands.

Phone Support

UK +44 (0) 1206 875 409

NL +31 (0)50 5019888

Email Support

UK support@regulateurseuropa.com

NL sales@regulateurs-europa.com

OVERHAUL & SERVICE EXCHANGE

Spares

REGULATEURS EUROPA holds a large amount of spares at its factories in the UK and the Netherlands.

A network of independent service facilities holds stocks of genuine spare parts. To ensure that you are using REGULATEURS EUROPA genuine spare parts contact your nearest service facility.

Overhaul

We offer overhaul facilities at both our UK and Netherlands sites for a range of manufacture of governors. RE only use genuine spare parts on any governor overhauls.

Before and after overhaul



Service Exchange Facility

In both the UK and the Netherlands we offer a range of REGULATEURS EUROPA service exchange governors. If you have maintenance problems and cannot return the governor for an overhaul then call the Customer Support Department to discuss the service exchange options that are available or arrange a service engineer. We also provide maintenance contracts for control systems and diesel power stations.

Worldwide Service

REGULATEURS EUROPA has a team of field service engineers to install, commission, repair or maintain RE products. All the engineers are trained in RE products and their applications.

Worldwide Network of Independent Service Facilities

REGULATEURS EUROPA has a network of authorised service facilities that are experts in the fields of governor maintenance and repair. For the maintenance of your current product or an upgrade to the latest products please contact REGULATEURS EUROPA or your nearest service facility.



APPLICATIONS ENGINEERING

REGULATEURS EUROPA can provide a complete application engineering solution from initial concept through to final commissioning in industries such as power generation, building management and process plant. Our experienced team of project engineers will work with the customer to provide a workable control system and provide a high level of technical backup.

REGULATEURS EUROPA's engineers have many years of experienced of control systems including PLC (Allen-Bradley, Siemens, Mitsubishi, GEM80, GE Fanuc), HMI (PanelView, Proface, Mitsubishi E-series), SCADA (Intellution Fix, RSView, Citect, Cegelec P1200, Communications (Ethernet, Modbus, DH+, DH485), Fieldbus (DeviceNet, ControlNet, Profibus, CAN).

They further have a working knowledge of hazardous areas and electrical protection schemes.

Site Services

Services provided by REGULATEURS EUROPA's Field Project Engineers and Technical/Consulting Engineers, with many years of experience of generator installations, include:

- ▶ Surveys of existing generator installations
- ▶ Hazard and risk assessment surveys
- ▶ Modifications of existing control systems
- ▶ Design and replacement of unsupportable control systems
- ▶ Installation and commissioning of new control systems
- ▶ Installation and commissioning of replacement alternators
- ▶ Maintenance contracts of new and existing generator installations
- ▶ Project management including CDM



Installations

INSTALLATION & COMMISSIONING

Manufacturers, packagers and operators trust in REGULATEURS EUROPA governors and control and monitoring systems. RE governors and actuators are proven in many applications and in various types of engine.

Key application areas for REGULATEURS EUROPA are marine, traction and industrial. Below you find a small selection of application examples.



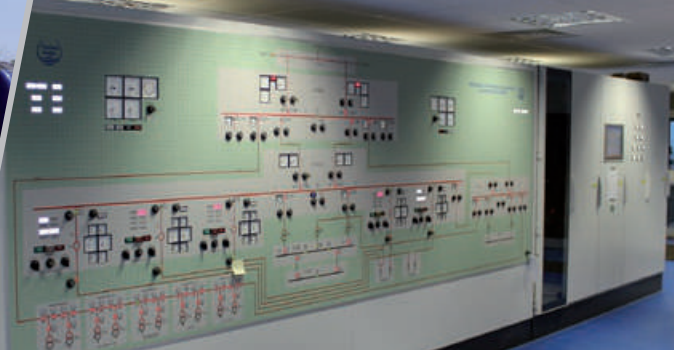
The **ARM22 „Klaas Adriana“** is the first vessel with a Caterpillar 3606 DI-TA engine which is controlled by the 1100 series governor. The 1115L governor is a mechanical governor with electrical speed setting by means of a stepper motor.



The **Putford Achiever** is an example of how Regulateurs Europa Ltd. supports customers with technical upgrades. The Wartsila 6L26A main engines on this ship were originally fitted with Viking22-2G governing systems which became obsolete in 2009. In 2014 RE supplied and installed two of its current Viking35-2G controllers in a fully interchangeable highly cost-effective package.



HSC Condor Rapide is one of Condor Ferries' high-speed catamarans running regular services in the English Channel. REGULATEURS EUROPA designed, installed and commissioned a direct replacement upgrade incorporating their latest Viking35 digital control system.



The proven REGULATEURS EUROPA Viking35 governor and 2223-1G-120 type hydraulic actuators are controlling the Caterpillar/MaK 12VM43C engines of AIDA's latest built cruise vessel **AIDA Prima**. These proportional actuators with a maximum output range of 250 ft. lbf., featuring a two-stage, high stiffness and backlash-free hydraulic servo mechanism for best possible control on large medium-speed engines.



The **CountryLink** locomotives operate on the West Coast of Australia. Following the successful upgrade of British HST (High Speed Trains) the Australian locomotives moved to using Viking Traction Control. This was combined with an Regulateurs Europa Ltd. supplied remote data capture monitoring system to maximise reliability and condition based maintenance.



At **Altagas** production site in Canada Regulateurs Europa Ltd. replaced the UG8 governors on two of its Waukesha gas engines with RE's proven 2104 hydraulic governors with integral pneumatic speed setting. As a result of the superb combination of response and stability of this governor the gas compression engines now operate reliable and consistently much closer to the maximum engine speed and therefore generate greater revenue through increased output quickly recovering the full upgrade costs.



The **Crossness STW** is the UK's second largest sewage treatment works and is operated by Thames Water Utilities serving a large part of London and the Thames Basin. Regulateurs Europa Ltd. supplied the power management system controlling the distribution of low medium voltage power across the whole site. RE is proud to have designed, supplied and commissioned this operationally critical part of a £220 mil. redevelopment.

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REGULATEURS EUROPA – Specialist for Governing, Control & Monitoring

With two production and development sites, REGULATEURS EUROPA has been part of the HEINZMANN Group since 2005. The Netherlands facility Regulateurs Europa B.V. producing a comprehensive range of governors and actuators, and the UK facility Regulateurs Europa Ltd. producing governors and actuators; marine, industrial and traction controls and vibration monitoring systems.

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