

**Control, Monitoring & Complete Solutions
Engine & Turbine Management**



Control



Actuators



Injection



Monitoring



ENGINE & TURBINE MANAGEMENT

Selection of Products

Control, Monitoring and Complete Solutions



**On- and
Off-road
Vehicles**



Generators



Traction

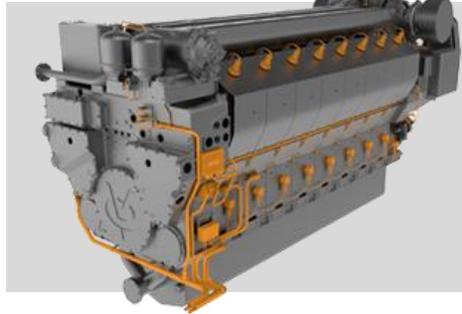


Marine

System Solutions for Combustion Engines & Turbines



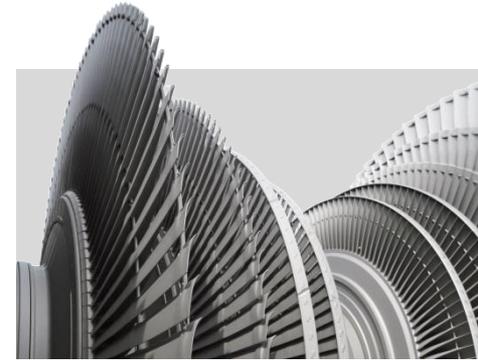
**Diesel
Engines**



**Gas
Engines**



**Dual-Fuel
Engines**



**Gas, Steam &
Water Turbines**

HEINZMANN Systems & Components for **Diesel Engines** in all Output Ranges

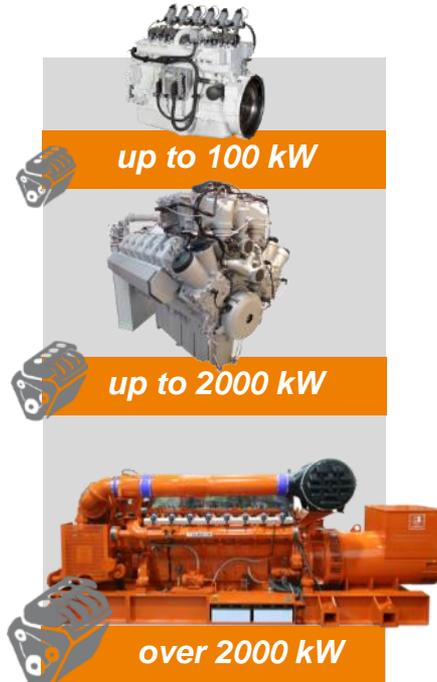
- EFI Controllers
- Common Rail Systems
- Digital Control Systems
- Analogue Control Systems
- Hydraulic Speed Governors
- Actuators



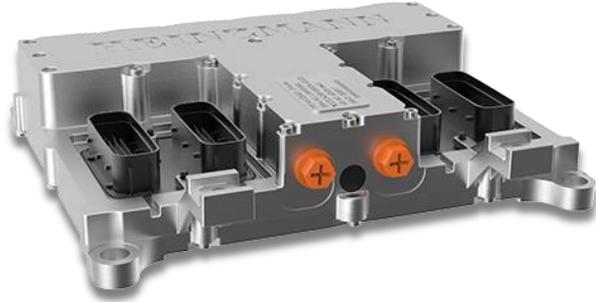
- Cylinder Pressure Monitoring
- Oil Mist Detection Systems
- Bearing Oil Temperature Monitoring
- Emission Control

HEINZMANN Systems & Components for **Gas Engines** in all Output Ranges

- Integrated Gas Engine Management
- Air Fuel Ratio Control
- Speed Control
- Engine Monitoring Systems



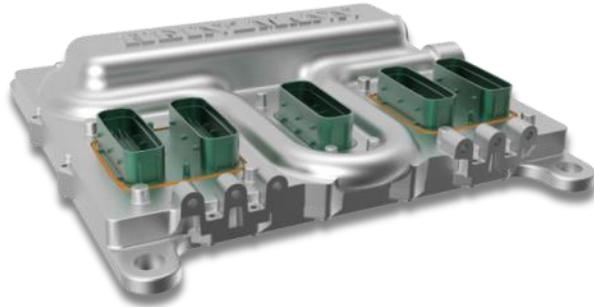
- Ignition Control
- Misfiring Detection
- Knock Control
- Exhaust Aftertreatment
- Wastegate

New Product Generation**Electronic Fuel Injection Systems**
DARDANOS

- ✓ Precise injection control
- ✓ Application-tailored configurability
- ✓ For diesel, gas & dual-fuel engines
- ✓ Compatible with various fuel injection systems
- ✓ Full functional redundancy capability

**Gas Engines****Diesel Engines****Dual-Fuel****Turbines**

- **Control Units**
- **Sensors**
- **Solenoids**

New Product Generation

- ✓ System pressure up to 2,200 bar
- ✓ Various sizes of injectors and pumps
- ✓ All components from one supplier
- ✓ Applicable for diesel fuels and heavy fuel oil

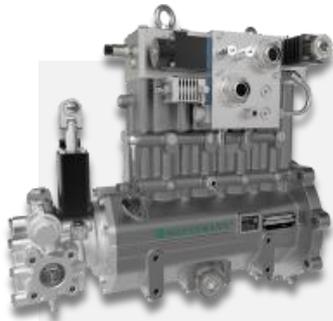
**Complete Common Rail Systems
ODYSSEUS**

Gas Engines

Diesel Engines

Dual-Fuel

Turbines



- Control Units
- High-Pressure Pumps
- Injectors



New Product Generation

- ✓ Reduced fuel consumption
- ✓ Lower emissions
- ✓ Cost-effective solution
- ✓ Robust design
- ✓ Long lifetime
- ✓ Turnkey retrofit solution

Electronic Pump-Pipe-Nozzle Control
LAVINIA E-PPN

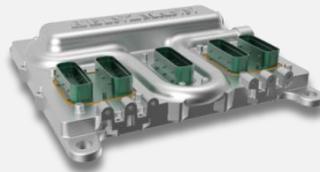


Gas Engines

Diesel Engines

Dual-Fuel

Turbines



- Control valve
- Control unit
- Speed sensors

New Product Generation



**For Diesel, Gas & Dual-Fuel
Engines, Generators & Turbines**
Digital Control Systems

- ✓ All engine & turbine types and power ranges
- ✓ Electronic fuel injection controls
- ✓ Controls for conventional injection
- ✓ Wide range of system components
- ✓ All components from one supplier
- ✓ Marine, locomotive, vehicle and stationary applications



- Gas Engines**
- Diesel Engines**
- Dual-Fuel**
- Turbines**



- **Speed Controls**
- **Gas Engine & Dual-Fuel Controls**
- **Ignition & Knock Controls**
- **Generator Controls**

New Product Generation**Universal Control**
XIOS UC

- ✓ Modular
- ✓ Advanced control technology
- ✓ Multifunctional
- ✓ Variety and high number of I/Os
- ✓ Customised configuration
- ✓ Scalable system
- ✓ Flexible & cost-effective
- ✓ PLC functions

**Gas Engines****Diesel Engines****Dual-Fuel****Turbines**

- Control
- Alarm & Monitoring
- I/O Extension



- ✓ Enhanced options of engine control
- ✓ Fuel limitation
- ✓ Easy to adapt
- ✓ Dual-fuel options

Electronic Control Systems for Fuel Injection Pumps **Assembly Kits**



Gas Engines

Diesel Engines

Dual-Fuel

Turbines



- Digital Control Units
- Integrated Digital Governors
- Actuators



- ✓ For elementary governing tasks
- ✓ Easy to install
- ✓ Cost efficient
- ✓ Very short response times
- ✓ High accuracy of speed control
- ✓ Accessories for genset related tasks

**Diesel & Gas Engines, Gensets,
Combined Heat & Power, Pump Drives**

Analogue Control Systems



Gas Engines

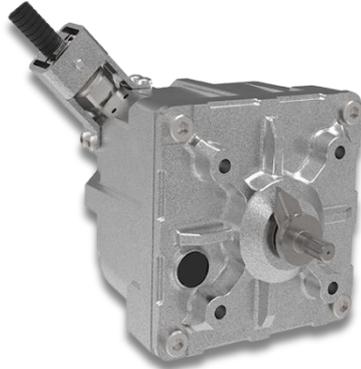
Diesel Engines

Dual-Fuel

Turbines



- **Electric Governors**
- **Actuators**
- **Accessory Units**



Conventional Fuel Injection Control Systems Electric Actuators

- ✓ Easily fitted to any engine
- ✓ Proven reliability and long-life cycle
- ✓ Covering any field of application
- ✓ Directly acting actuators with rotary or linear output
- ✓ Actuators with gears
- ✓ Actuators with integrated positioning electronics
- ✓ EC versions with brushless drive



Gas Engines

Diesel Engines

Dual-Fuel

Turbines



- Linear Actuators
- Rotary Actuators
Direct Acting or
Motor Driven



REGULATEURS EUROPA Hydraulic Governors

New Product Generation

- ✓ Work output from 8 – 250 ft. lbf. (11 - 340 Nm)
- ✓ Manual, pneumatic, motorised or 4 – 20 mA speed control
- ✓ Adaptors to replace other manufacturers' governors
- ✓ Spares, service and overhaul



Gas Engines

Diesel Engines

Dual-Fuel

Turbines



- Marine
- Generator
- Rail Traction
- Turbine Applications

**REGULATEURS EUROPA****Electro-hydraulic Governors****New Product Generation**

- ✓ Great reliability and durability
- ✓ Excellent performance
- ✓ High-quality governors for diesel or dual-fuel engines and steam turbines
- ✓ Choice of appropriate RE actuators
- ✓ Integrated microprocessor controlled versions

**Gas Engines****Diesel Engines****Dual-Fuel****Turbines**

- **Microprocessor controlled Governors**
- **Digital Governors**



REGULATEURS EUROPA Hydraulic Actuators

- ✓ Work output from 8 – 250 ft. lbf. (11 – 340 Nm)
- ✓ Ballhead back-up capability
- ✓ Compatible with RE Viking35 digital electronic governor & with other manufacturers' control units
- ✓ Adaptors available to replace other manufacturers' actuators
- ✓ Spares, service and overhaul



Gas Engines

Diesel Engines

Dual-Fuel

Turbines



- Marine
- Generator
- Rail Traction
- Turbine Applications

**New Product Generation**

- ✓ Engine management
- ✓ Generator management
- ✓ Heat management
- ✓ HMIs

CHP System Control
XIOS^{CHP}**Gas Engines****Diesel Engines****Dual-Fuel****Turbines****VERSIONS:**

- Basic
- Medium
- Extended



- ✓ All functions in one integrated control unit
- ✓ Modular system from one supplier
- ✓ Tailored for your needs
- ✓ All gas qualities from natural gas to wood gas

Integrated Gas Engine Management **PANTHEON**



Gas Engines

Diesel Engines

Dual-Fuel

Turbines



- **Gas Injection**
- **Speed Load Control**
- **Ignition System**
- **Generator Control**



- ✓ Air-fuel ratio control
- ✓ Speed and load control
- ✓ Lower emissions
- ✓ Savings on fuel

Gas Engine Control Systems

KRONOS



Gas Engines

Diesel Engines

Dual-Fuel

Turbines



- Gas Metering Controls
- Gas Injection Valves
- Gas Mixers
- Adjusting Screws

New Product Generation

- ✓ Excellent load response
- ✓ Exact gas metering for each cylinder
- ✓ Cylinder individual adjustment of the gas quantity
- ✓ No risk of backfire
- ✓ Long life cycle

**Gas Admission Valves for
Gas & Dual-Fuel Engines**

MEGASOL



Gas Engines

Diesel Engines

Dual-Fuel

Turbines



- MEGASOL 200 II / 400 II / 425 II
- MEGASOL Marine
- MEGASOL 1000
- MEGASOL PCV

New Product Generation



- ✓ Suitable for naturally aspirated and turbo charged engines
- ✓ Sealed valve shaft for draw-through or blow-through configuration
- ✓ Standard flange sizes for easy adaptation, also corresponding to HEINZMANN gas mixer

Throttle Valves with integrated Actuators



Gas Engines

Diesel Engines

Dual-Fuel

Turbines



- Maintenance-free
- Any mounting position permissible



Electronically Controlled Gas Positioners

E-LES

- ✓ For V-engines up to 2,000 kW
- ✓ Suitable for various gas types & qualities
- ✓ Stepper Motor Control (SMC) allows usage of different engine control units
- ✓ Manual adjustment possible
- ✓ Analogue position set point input (0-5 V, 0-10 V, 4-20 mA, PWM)



Gas Engines

Diesel Engines

Dual-Fuel

Turbines



- **Maintenance-free**
- **Easy design integration with 3D-Model (Step-file)**



Annular Gap Gas Mixer

- ✓ Engine output range 50 - 600 kW
- ✓ For Lambda 1 and lean-burn engines
- ✓ Integrated gap position control
- ✓ Analogue position set point input
- ✓ CAN bus with additional diagnostic functions
- ✓ Homogenous gas mixture



Gas Engines

Diesel Engines

Dual-Fuel

Turbines



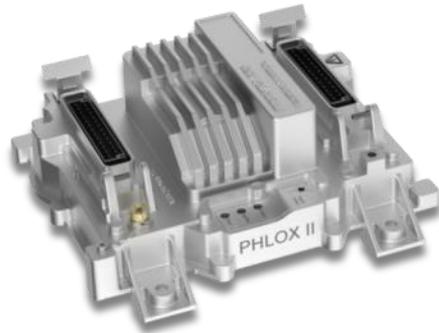
- **Maintenance-free**
- **Homogeneous mixture**

New Product Generation

- ✓ Integrated electronic
- ✓ Fast response
- ✓ Outstanding accuracy
- ✓ Easy to integrate
- ✓ Proven reliability

Electronic Fuel Metering & AFR Controls
ELEKTRA**Gas Engines****Diesel Engines****Dual-Fuel****Turbines**

- GMCU 30/42
- GMCU 50
- GMCU 85
- GMCU 110
- GMCU 160



Ignition Control Systems

PHLOX II

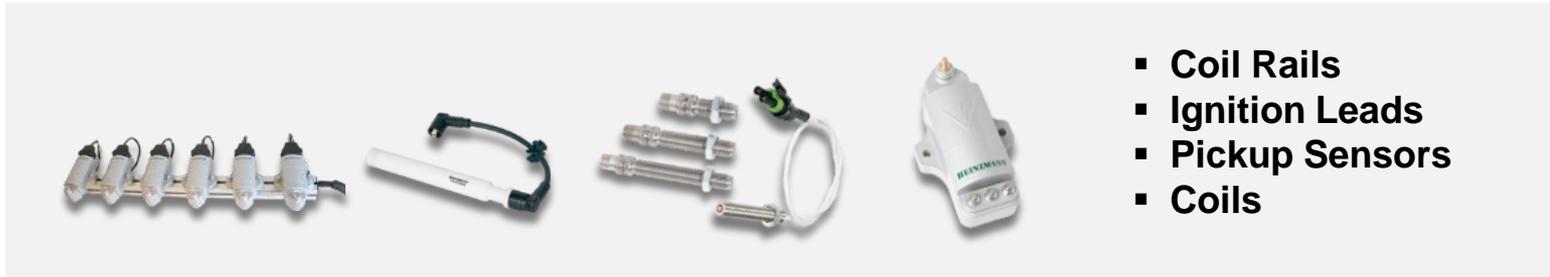
PHLOX III (Flex Spark)

New Product Generation

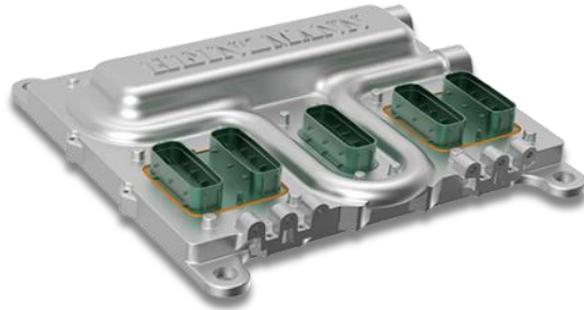
- ✓ Complete ignition system
- ✓ Precise ignition timing
- ✓ Adjustable ignition energy reduces spark plug wear
- ✓ Easy integration via CAN
- ✓ On-board diagnostics
- ✓ Up to 16 cylinders
- ✓ Master-Slave Operation possible for up to 24 cylinders



- Gas Engines
- Diesel Engines
- Dual-Fuel
- Turbines



- Coil Rails
- Ignition Leads
- Pickup Sensors
- Coils



Dual Fuel Control System **ARTEMIS**

- ✓ Reduced costs by use of gas
- ✓ Fast return of invest
- ✓ Advanced technology for high conversion rates
- ✓ Reliable components ensure high availability
- ✓ For different sized high or low-speed engines
- ✓ Precise control in diesel mode as well as in gas mode



Gas Engines

Diesel Engines

Dual-Fuel

Turbines



- Gas Admission Valve
- Gas Mixer
- Knock Control
- Gas Train

New Product Generation



- ✓ For island and mains-parallel, single genset or group application
- ✓ Customised engine & generator control
- ✓ Scalable & flexible configuration
- ✓ Multifunctional & cost-effective
- ✓ Different HMIs available

Multifunctional GenSet Control & Monitoring

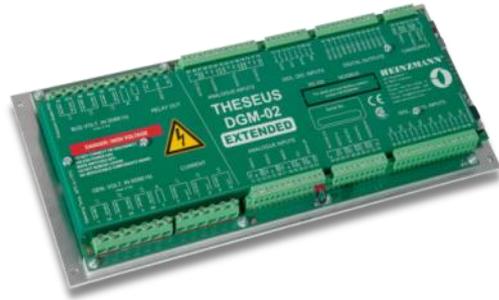
XIOS^{GenSet}



- Gas Engines
- Diesel Engines
- Dual-Fuel
- Turbines



- Genset Management
- Speed Governor Functions
- HMI



- ✓ Suits all engine sizes
- ✓ For island and mains-parallel operation
- ✓ Compatible with engines and governors from all manufacturers
- ✓ Marine-classified

Digital Genset Management **THESEUS**



Gas Engines

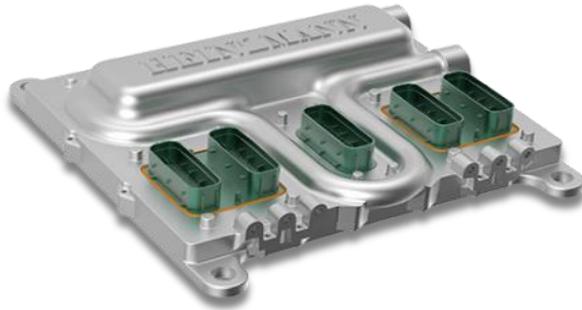
Diesel Engines

Dual-Fuel

Turbines



- PANOPTES HMI
- ARGOS HMI
- Control Cabinet
- Load Sharing Interface



- ✓ For all engine types & sizes
- ✓ Supply of all system components like interface panels & sensors
- ✓ Excitation control for diesel electric drives
- ✓ Retrofit & modernisation
- ✓ High flexibility & proven reliability

Traction Control Systems PEGASOS



Gas Engines

Diesel Engines

Dual-Fuel

Turbines



- Conventional or Electronic Fuel Injection Control



Engine Emission Management **APOLLON**

- ✓ Exhaust Gas Recirculation (EGR)
- ✓ Turbocharger Wastegate (WG)
- ✓ Active Diesel Particulate Filter Regeneration (DPF/HC Dosing)
- ✓ NO_x reduction by Exhaust Gas Recirculation (EGR) and/or Selective Catalytic Reduction (SCR)
- ✓ For engines from 50 kW up to 5,000 kW



Gas Engines

Diesel Engines

Dual-Fuel

Turbines



- **Control Unit**
- **Throttle Valves**
- **Poppet Valves**
- **Injection Valves**



- ✓ Protection against damage and explosion
- ✓ Pipeless and suction free: in-situ detection
- ✓ ATEX version available
- ✓ Marine-classified through GL, LR, CCS and RMRS

Oil Mist Detection System TRITON OMD



Gas Engines

Diesel Engines

Dual-Fuel

Turbines



- Control Unit
- Range of Sensors

New Product Generation

- ✓ Replaces mechanical indicators on diesel engines
- ✓ Helps to improve combustion
- ✓ Supports to reduce fuel consumption and emissions



Cylinder Pressure Control & Monitoring

TRITON CPM 500/250



- Gas Engines
- Diesel Engines
- Dual-Fuel
- Turbines



- Pressure Sensors for Combustion Control
- Visualisation
- Marine Portable Case

New Product Generation



Bearing Oil Temperature Monitoring
TRITON BOTM

- ✓ Engine protection
- ✓ Easy to install
- ✓ Simple principle
- ✓ Fast reaction time
- ✓ High measuring accuracy
- ✓ Very low false alarm probability
- ✓ No maintenance required
- ✓ Applicable for retrofit



Gas Engines

Diesel Engines

Dual-Fuel

Turbines



- Control Unit
- Oil Tray
- Temperature Sensors



- ✓ Parameterisation
- ✓ Visualisation
- ✓ Diagnosis

For digital HEINZMANN Systems

Configuration & Visualisation Tools



Gas Engines

Diesel Engines

Dual-Fuel

Turbines



- DcDesk Software
- HMIs
- Touch Screen Units
- Hand Programmer



Gas & Steam Turbine Controls **OLYMPUS**

- ✓ Applicable to any size type or make of gas or steam turbine
- ✓ User expandable, configurable and programmable
- ✓ Wide environmental specification for power supply, temperature and vibration
- ✓ Includes speciality speed measurement and servo loop interfaces



- Available in ATEX or CSA certified explosion-proof (flameproof) housings



Gas Turbine Fuel Controls **OLYMPUS**

- ✓ Building of complete custom designed fuel systems
- ✓ Single or serial production quantities
- ✓ Accurate multi-stream DLE systems supplied
- ✓ Design and spares commonality for fleet operators
- ✓ Assured compatibility with original or new control systems



- Gas & Liquid Fuel Throttle Valves
- Liquid Fuel Metering Pump
- Gas & Liquid Fuel Throttle Assemblies



Gas Turbine Air Controls **OLYMPUS**



- ✓ Essential parts for part load dry low emissions operating strategies
- ✓ Part load efficiency and exhaust heat improvement
- ✓ Load rejection improvement
- ✓ Reduce start time and starter power, increase start reliability
- ✓ Competitive solutions for all small-medium sized turbines
- ✓ Fast acting and accurate

- **Linear Guide Vane Actuators**
- **Rotary Bleed Valves**



Steam Turbine Controls Si-TEC

- ✓ Smart automatic turbine start sequence
- ✓ Wide range of PID's for precise governor and generator control
- ✓ Basic to complex power generation applications
- ✓ Wide range of applications
- ✓ User-friendly tuning and diagnostic software
- ✓ Optimum and reliable electro-hydraulic actuators/amplifiers



- Controls
- Actuators
- Displays
- Accessories
- Software

Complete Marine Solutions

- Integrated Marine Automation Systems
- Marine Engine Control & Monitoring



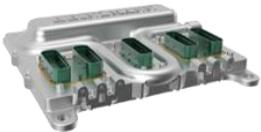
Automation Systems



Power Management



Propulsion Control Systems



Propulsion Engine Controls



Governors & Actuators



Common Rail Systems

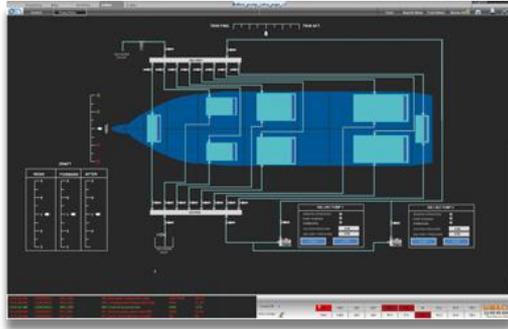


Gas & Dual-Fuel Management



Monitoring Systems

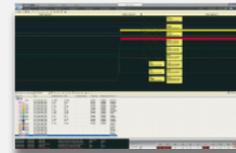
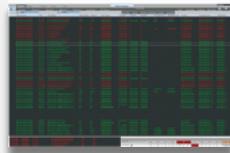




- ✓ Integrated vessel control
- ✓ Distributed processing
- ✓ Systems for merchant marine, offshore and navy
- ✓ Advanced trending and analysis
- ✓ Full redundancy

Marine Automation Systems

SeaMACS



- Reports
- Alarms
- Controls
- Trends



- ✓ Vessel performance indicators
- ✓ Improved fuel efficiency
- ✓ Energy management
- ✓ Emission reduction
- ✓ Shore based analysis
- ✓ Applicable for dual-fuel solutions

Fuel & Energy Performance Management

FuelIMACS

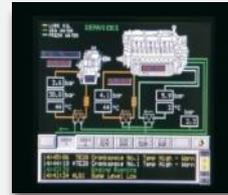


- Fuel Savings
- Reduced Emissions



- ✓ Propulsion control systems
- ✓ Generator controls
- ✓ Machinery control room desks
- ✓ Bridge control plates
- ✓ Monitoring displays
- ✓ Propulsion control panels

Control & Monitoring Marine





- ✓ Engine protection
- ✓ Traction software
- ✓ Traction control power supply
- ✓ Custom designed equipment
- ✓ Main line high-speed diesel electric

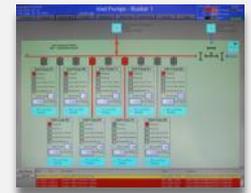
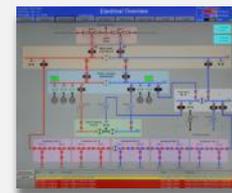
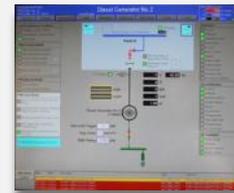
Control & Monitoring Traction





Control & Monitoring Industrial

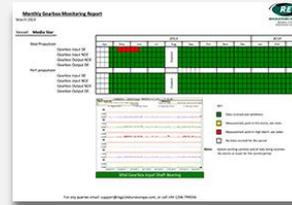
- ✓ Engine & generator control solutions
- ✓ Power management
- ✓ Scada
- ✓ Design, engineering, manufacturing, installation & commissioning services
- ✓ Consultancy & surveying services





Vibration Monitoring System Trino

- ✓ Continuous and permanent vibration condition monitoring
- ✓ Simple on-board system initiating 2-stage alarms for multiple failure conditions
- ✓ Automatically adapts to varying machinery speed
- ✓ Automatic transmission of alarm and performance data via cloud transfer
- ✓ Industry 4.0 ready

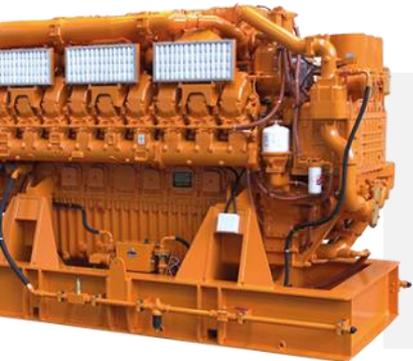


- Turbochargers
- Discharge pumps and fans
- Further rotating machinery



Genset & Power Management

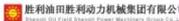
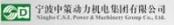
- ✓ Monitoring & protection of engine and generator
- ✓ Active & reactive load control
- ✓ Start/stop sequence control
- ✓ Synchronising
- ✓ Fuel selection
- ✓ Power metering
- ✓ Engine speed & voltage control



Our Engine Management Customers

Anglo Belgian Corporation N.V. 	ANGLIO BELGIAN CORPORATION We power your future	CSR Qishuyan Co.,Ltd (南车威墅堰) 	Guascor Power S. A. U. 
ANTAI Power (安泰动力机械) 	ANTAI POWER	Daihatsu Diesel MFG. Co. Ltd. 	H. Cegielski - Poznań S.A. 
BEML Bharat Earth Movers Ltd. 	BEML	Daimler AG 	Henan Diesel Engine Industry Co., Ltd. (河柴) 
Bergen Engines AS 	BERGEN ENGINES AS	Dalian Alian Locomotive and Rolling Stock CO., LTD. 	HUDONG Heavy Machinery Co., Ltd. (沪东重机) 
Caterpillar Inc. 	CATERPILLAR®	Deutz AG 	Hyundai Heavy Industries Co., Ltd. 
Caterpillar Energy Solutions GmbH 	MWM	Doosan Engine Co., Ltd. 	IE Universal Ltd. 
Caterpillar Marine Power Systems (MaK) 	CATERPILLAR®	Ganz Motory Kft. 	Isotta Fraschini Motori S.p.A. 
CNPC Jichai Power Equipment Company (济柴动力总厂) 	CNPC JICHAI POWER EQUIPMENT COMPANY	INNIO Jenbacher GmbH & Co OG 	Jinan Diesel Engine Co., Ltd. 
Compression Systems - AJAX Engine 	CAMERON	Farymann Diesel Systems GmbH 	JSC "Elektroagregat" 
Compression Systems - Cooper-Bessemer 	COOPER-BESSEMER	INNIO Waukesha Gas Engines Inc. 	PJSC Kolomensky Zavod 

Our Engine Management Customers

JSC Kolomna Plant, Russia 	MTU Friedrichshafen GmbH 	Shanghai Marine Diesel Engine Research Institute (七一一研) 
JSC Noginsk Fuel Equipment Plant 	NIIGATA Engineering Co. Ltd. 	Shengli Oil Field Sheng- gli Power Machinery Group Co., Ltd. (东营) 
JSC Pervomaisk- dieselmash 	Ningbo C.S.I. Power & Machinery Group Co., Ltd. (宁波中策) 	Siemens Industrial Turbomachinery Ltd. 
JSC RUMO 	OJSC "MINSK MOTOR PLANT" Holding Managing Company 	STX Engine Co., Ltd. 
JSC Zvezda 	OJSC Volgo Diesel-MAMINS 	Superior Technology, Inc. 
Liebherr Machines Bulle AG 	Perkins Engines Ltd. 	TEDOM a.s. 
LTD "Nikolaevskiy Teplovozoremontniy Zavod" 	R.D.S.O. Research Designs & Standards Organisation 	Ural Diesel Motor Works, LLC 
MAN Energy Solutions SE 	Rolls-Royce Power Engineering PLC 	Wärtsilä Finland OY 
Mitsubishi Heavy Industries Ltd. 	Scania AB 	Yanmar Co., Ltd. 
Motorenfabrik Hatz GmbH & Co. KG 	Shaanxi Diesel Engine Heavy Industry Co., Ltd. (陕柴) 	ZGPT Diesel (中高) 

Our Turbine Management Customers

Aero-Gate, Singapore		Emerson		Qassim Power Station, Saudi Arabia	
Al Fiad Gas Turbines		Gasprom, Ukraine		Repsol Oil Operations, Sahara Libya	
Batelco, Bahrain		Greenray Turbines		Schlumberger	
British Gas		Harbin Marine Boiler and Turbine Research Institute		Singapore Technologies Marine	
Caterpillar Inc.		Kali & Salz, Germany		Turbo-Power- Maintenance Ltd.	
Centrax		Kawasaki, Japan		Wood Group Light Industrial Turbines	
Dale Power Solutions		Natwest Bank		Wood Group Aberdeen	
EDF, Martinique		Petrokaz		Wood Group Venezuela	

Certificates, Classifications

Quality



TÜV / KBA Certificate

Quality



ATEX Certificate

Explosion



CSA Group

Explosion



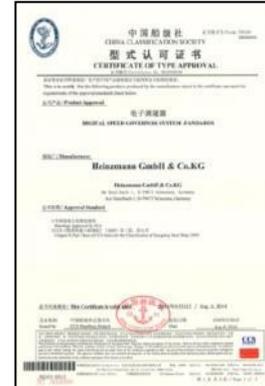
ATEX

Marine



CSA Group

Marine



China Classification Society



Diesel Engines



Gas Engines



Dual-Fuel Engines



Turbines



Gensets



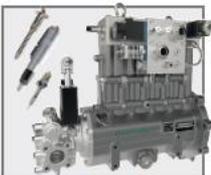
Traction



Marine



Electronic Fuel Injection Controls



Common Rail Solutions



Modular ICUs



Electric Actuators



Gas Turbine Controls



Steam Turbine Controls



Hydraulic Pressure Converters



Engine Emission Control



Engine Monitoring Systems



Dual-Fuel Controls



Generator Controls



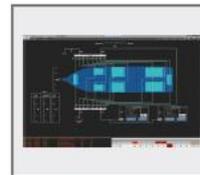
Hydraulic Governors & Actuators



Gas Engine Management



Ignition Controls



Marine Automation Systems



Propulsion Control