Control, Monitoring & Complete Solutions
Engine & Turbine Management
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

up to 100 kW
up to 2000 kW
over 2000 kW
New Product Generation

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

Electronic Fuel Injection Systems

DARDANOS
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

- Control Units
- High-Pressure Pumps
- Injectors
New Product Generation

- 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

For Diesel, Gas & Dual-Fuel Engines, Generators & Turbines

Digital Control Systems

Gas Engines
Diesel Engines
Dual-Fuel
Turbines

- Speed Controls
- Gas Engine & Dual-Fuel Controls
- Ignition & Knock Controls
- Generator Controls
Universal Control

XIOS UC 1

New Product Generation

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

Analogue Control Systems

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

- 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
REGULATEURS EUROPA

Electro-hydraulic Governors

- 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

- 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
Integrated Gas Engine Management

PANTHEON

- 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

Gas Engines
Diesel Engines
Dual-Fuel
Turbines

- Gas Injection
- Speed Load Control
- Ignition System
- Generator Control
Gas Engine Control Systems

**KRONOS**

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

- Gas Metering Controls
- Gas Injection Valves
- Gas Mixers
- Adjusting Screws
Gas Admission Valves for Gas & Dual-Fuel Engines

MEGASOL

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

Gas Engines
Diesel Engines
Dual-Fuel
Turbines

- MEGASOL 200 II / 400 II / 425 II
- MEGASOL Marine
- MEGASOL 1000
- MEGASOL PCV
Throttle Valves with integrated Actuators

- 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

- 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

- Maintenance-free
- Homogeneous mixture
Electronic Fuel Metering & AFR Controls

ELEKTRA

**New Product Generation**

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

**Gas Engines**
- GMCU 30
- GMCU 50
- GMCU 85
- GMCU 110
- GMCU 160

**Diesel Engines**

**Dual-Fuel**

**Turbines**
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

Ignition Control Systems

PHLOX II

PHLOX III (Flex Spark)

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 Admission Valve
- Gas Mixer
- Knock Control
- Gas Train
Digital Genset Management

**THESEUS**

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

**HEINZMANN®**

**ENGINE & TURBINE MANAGEMENT 2016**

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

**Gas Engines**

**Diesel Engines**

**Dual-Fuel**

**Turbines**
Diesel Engine

- Conventional or Electronic Fuel Injection Control
- 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)
- \( \text{NO}_x \) reduction by Exhaust Gas Recirculation (EGR) and/or Selective Catalytic Reduction (SCR)
- For engines from 50 kW up to 5,000 kW

Control Unit
Throttle Valves
Poppet Valves
Injection Valves
Oil Mist Detection System
TRITON OMD

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

Gas Engines
Diesel Engines
Dual-Fuel
Turbines

Control Unit
Range of Sensors
Cylinder Pressure Control & Monitoring
TRITON CPM 500/250

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

New Product Generation

- Pressure Sensors for Combustion Control
- Visualisation
- Marine Portable Case
New Product Generation

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

Bearing Oil Temperature Monitoring
TRITON BOTM

Gas Engines
Diesel Engines
Dual-Fuel
Turbines

- Control Unit
- Oil Tray
- Temperature Sensors
ENGINE & TURBINE MANAGEMENT © 2016

For digital HEINZMANN Systems

Configuration & Visualisation Tools

- Parameterisation
- Visualisation
- Diagnosis

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
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
Complete Marine Solutions

- Integrated Marine Automation Systems
- Marine Engine Control & Monitoring
Marine Automation Systems

SeaMACS

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

- Reports
- Alarms
- Controls
- Trends
Fuel Performance Systems

**FuelIMACS**

- Vessel performance indicators
- Improved fuel efficiency
- Energy management
- Fuel savings
- Emission reduction
- Shore based analysis
- Applicable for dual-fuel solutions
Control & Monitoring

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

Marine
Control & Monitoring

Traction

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

**Industrial**

- Engine & generator control solutions
- Power management
- Scada
- Design, engineering, manufacturing, installation & commissioning services
- Consultancy & surveying services
**Vibration Monitoring System**

**Trino**

- Continuous vibration based condition monitoring
- Simple on-board system initiating 2-stage alarms for multiple failure conditions
- Automatically adapts to varying machinery speed
- Ship to shore transmission of alarm & performance data

- 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

<table>
<thead>
<tr>
<th>Anglo Belgian Corporation N.V.</th>
<th>CSR Qishuyan Co., Ltd. (南车戚墅堰)</th>
<th>Guascor Power S. A. U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTAI Power (安泰动力机械)</td>
<td>Daihatsu Diesel MFG. Co. Ltd.</td>
<td>H. Cegielksi - Poznań S.A.</td>
</tr>
<tr>
<td>BEML Bharat Earth Movers Ltd.</td>
<td>Daimler AG</td>
<td>Henan Diesel Engine Industry Co., Ltd. (河南)</td>
</tr>
<tr>
<td>Bergen Engines AS</td>
<td>Dalian Alien Locomootive and Rolling Stock CO., LTD.</td>
<td>HUDONG Heavy Machinery Co., Ltd. (沪东重机)</td>
</tr>
<tr>
<td>Caterpillar Inc.</td>
<td>Deutz AG</td>
<td>Hyundai Heavy Industries Co., Ltd.</td>
</tr>
<tr>
<td>Caterpillar Energy Solutions GmbH</td>
<td>Doosan Engine Co., Ltd.</td>
<td>IE Universal Ltd.</td>
</tr>
<tr>
<td>CNPC Jichai Power Equipment Company (济南动力总厂)</td>
<td>GE Jenbacher GmbH &amp; Co. OHG</td>
<td>Ilmen Diesel Engine Co., Ltd.</td>
</tr>
<tr>
<td>Compression Systems - AJAX Engine</td>
<td>Farymann Diesel Systems GmbH</td>
<td>JSC &quot;Elektroagregat&quot;</td>
</tr>
<tr>
<td>Compression Systems - Cooper-Bessemer</td>
<td>GE’s Energy - Waukesha</td>
<td>PISC Kolomensky Zavod</td>
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</tbody>
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HEINZMANN®
Our Engine Management Customers

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<thead>
<tr>
<th>JSC Kolomna Plant, Russia</th>
<th>MTU Friedrichshafen GmbH</th>
<th>Shanghai Marine Diesel Engine Research Institute</th>
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<tbody>
<tr>
<td>JSC Noginsk Fuel Equipment Plant</td>
<td>NIIKATA Engineering Co. Ltd.</td>
<td>Shengli Oil Field Shengli Power Machinery Group Co., Ltd.</td>
</tr>
<tr>
<td>JSC Pervonnaisk-dieselmasch</td>
<td>Ningbo C.S.I. Power &amp; Machinery Group Co., Ltd. (宁波中策)</td>
<td>Siemens Industrial Turbomachinery Ltd.</td>
</tr>
<tr>
<td>JSC RUMO</td>
<td>OJSC &quot;MINSK MOTOR PLANT&quot; Holding Managing Company</td>
<td>STX Engine Co., Ltd.</td>
</tr>
<tr>
<td>JSC Zvezda</td>
<td>OJSC Volgo Diesel-MAMINS</td>
<td>Superior Technology, Inc.</td>
</tr>
<tr>
<td>Liebherr Machs Bulle AG</td>
<td>Perkins Engines Ltd.</td>
<td>TEDOM a.s.</td>
</tr>
<tr>
<td>MAN Diesel SE</td>
<td>Rolls-Royce Power Engineering PLC</td>
<td>Wärtsilä Finland OY</td>
</tr>
<tr>
<td>Mitsubishi Heavy Industries Ltd.</td>
<td>Scania AB</td>
<td>Yanmar Co., Ltd.</td>
</tr>
<tr>
<td>Motorrenfabrik Hatz GmbH &amp; Co. KG</td>
<td>Shaanxi Diesel Engine Heavy Industry Co., Ltd. (陝柴)</td>
<td>ZGPT Diesel (中柴)</td>
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</table>
### Our Turbine Management Customers

<table>
<thead>
<tr>
<th>Aero-Gate, Singapore</th>
<th>Emerson</th>
<th>Qassim Power Station, Saudi Arabia</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI Fad Gas Turbines</td>
<td>Gasprom, Ukraine</td>
<td>Repsol Oil Operations, Sahara Libya</td>
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<tr>
<td>Batelco, Bahrain</td>
<td>Greenray Turbines</td>
<td>Schlumberger</td>
</tr>
<tr>
<td>British Gas</td>
<td>Harbin Marine Boiler and Turbine Research Institute</td>
<td>Singapore Technologies Marine</td>
</tr>
<tr>
<td>Caterpillar Inc.</td>
<td>Kali &amp; Salz, Germany</td>
<td>Turbo-Power-Maintenance Ltd.</td>
</tr>
<tr>
<td>Centrax</td>
<td>Kawasaki, Japan</td>
<td>Wood Group Light Industrial Turbines</td>
</tr>
<tr>
<td>Dale Power Solutions</td>
<td>Natwest Bank</td>
<td>Wood Group Aberdeen</td>
</tr>
<tr>
<td>EDF, Martinique</td>
<td>Petrokaz</td>
<td>Wood Group Venezuela</td>
</tr>
</tbody>
</table>
Certificates, Classifications

- **Quality**
  - TÜV / KBA Certificate
  - ATEX Certificate

- **Explosion**
  - CSA Group Certificate
  - ATEX Certificate

- **Marine**
  - CSA Group Certificate
  - China Classification Society