THE WORLD IS ALREADY COMPLEX ENOUGH

The development of highly efficient engine components with the aim of increasing the service life, overall performance, and availability of gas engines is our daily business. For the benefit of our customers, we reduce maintenance costs and improve the efficiency of all types of gas engines. By optimizing existing technologies and developing new concepts, we optimize operation with minimal emissions.

AVAT – OUR ENGINEERING PARTNER FOR ENGINE CONTROL SYSTEMS

- EDI is based on the open and flexible engine control system referred to by AVAT as “open ECS.”
- The company has more than 25 years of experience and expertise in more than 14,500 management systems for gas, diesel, and CHP engines. Among other things, it is the developer and supplier of the TEM Evo control system for MWM® engines, which has been built more than 1,000 times.

AVAT - OFFERS A WIDE RANGE OF ENERGY AUTOMATION SOLUTIONS

- Leading provider of control solutions and technological modules for gas engines and CHP plants with extensive project experience.
- AVAT develops intelligent systems for the automation and control of decentralized plants.
- Energy systems for public and private utilities and manufacturers of CHP plants.
- AVAT's solutions include multi-purpose control technology for heat, gas, water, and electricity.

EDI & EVE-A PERFECT PAIR

- The EVE^3 efficiency upgrade package, combined with our EDI control system, results in a future-proof system and a significant increase in efficiency.
- Cylinder head PowerUP-EVE^3 Efficiency increase of up to 2.5% electrically, up to 6% less gas consumption (@ 1 MW, biogas calorific value 5 kWh/m^3)
- Gas engines of the 3 series
- PowerUP piston and piston ring
- PowerUP EVE^3 prechamber spark plug
- NOx <250 mg/m^3 at 5% O2

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CONTROL SYSTEM (EDI)
JENBACHER® GAS ENGINES

EDI — our customized control system for Jenbacher® gas engines — was developed with the needs and wishes of our customers in mind. Our EDI system provides unrestricted access to all parameters and can be retrofitted to all Jenbacher® gas engines in series 3, 4, and 6.

Driven by efficiency

PowerUP
Your Engine

EDI-Engine Control System

Description

Our engine management system helps you maximize the uptime of your Jenbacher® gas engine by offering remote control, predictive maintenance, real-time monitoring of all desired parameters, and a host of other benefits.

THE EDI-PRINCIPLE

- Our EDI system has been extensively tested and installed in a wide range of Jenbacher® gas engines in series 3, 4, and 6 with different applications. It offers expert data analysis tools that are simplified for an optimal user experience and based on our comprehensive knowledge of gas engines.
- Gain new insights into your engine with custom trends, real-time engine performance and power parameters, component-specific test mode, and details for parts such as turbo bypass and throttle valve. EDI also features a huge internal memory that provides a daily, weekly, and monthly overview of historical operating data.
- Experience a simple and intuitive user interface on a generous touch display and feel secure with customer-specific updates and helpdesk service on demand.
- A wide range of interfaces makes it the ideal control center for integrating a variety of different components. Optimizing gas engines in CHP plants requires sensors and actuators that cannot be integrated into a classic PLC-based system — this is where AVAT technology's software and hardware modules come into play, e.g., for our cylinder-selective knock control and misfire detection.
- Your EDI engine control system is delivered with all circuit diagrams, user manual, and description of functional features, and is installed, commissioned, and adapted to your specific needs and requirements by our experienced experts.
- The EDI retrofit is available for all stationary CHP plants and container systems, as well as for island and grid-parallel operating modes and customer-specific applications.

Complete Control System for Cogneration Plants:
Flexible & always expandable

Advantages

- A more flexible control system as part of plant modernization
- Reliable knock and misfire detection included
- Grid and generator protection
- Powerful diagnostics and service tools
- One system for the engine and auxiliary systems
- Flexibly expandable and adaptable at any time
- Independent and fast service
- Professional support and advice for plant optimization
- Proven technologies from the field of gas engines
- Technicians with many years of experience in gas engines

Plants

- Stationary CHP plants
- Container system or installation in permanent structures
- Synchronous AC generator, low or medium voltage
- Island mode and grid parallel operation
- Compliance with grid connection requirements

E²PILOT
Userterminal with 15" capacitive touchscreen, adapted to the plant operator's needs. Rapid overview of engine and peripherals. Interactive operationg log and configurable trending function.

GRID PROTECTION
Grid and generator monitoring, synchronizing and generator protection. Measurement of U,I, f, P and phase angle. Integral grid protection functions fulfill active and reactive power demands and synchronization criteria.

E²KNOCKCON-c20
Reliably detects combustion knock of any individual cylinder from the signals of established piezo knock sensors.

CPU
Robust industrial controller as the control system's basis. Ethernet interface for visualization, SCADA system and virtual power plants technology.

REMOTE SERVICES
AVAT VPN ROUTER guaranties fast and secure remote access via internet. PowerUP offers remote assistance, reporting and smartphone based alarm management on request.

SERVICE TOOL
The softwaref or ambitious service technicians. Task orientated graphical user interface for commissioning, controller adjustment, troubleshooting and maintenance, etc.

CONTROL CABINET
All control system modules will be integrated in the existing control cabinet in short time. In most cases, 1/0 modules and engine cabling can be reused.

Functions

- Full access, no password restrictions
- Cylinder-specific knock control with performance optimization
- Cylinder-specific misfire detection with automatic power reduction until the engine is shut down
- Monitoring and trend recording of all sensors and measured values
- Control and monitoring of all cooling and heating circuits
- Integration of CHP system controls (peripheral devices)
- Start/stop sequences for island and grid parallel operation
- Compatibility with TecJet applications
- Control of engine speed, power, and air/gas mixture
- Turbo bypass control and ignition management
- CAN connection to the ignition system
- Fan control for dry and hybrid coolers
- Control of flow-side temperature, even in partial load operation

AVAT
THE ENERGY ENGINEERING COMPANY