



MWM® TBG620 Conversion with MOTORTECH Visualization

In order to improve the performance, reliability as well as operation of the MWM® TBG620 gas engine series, we recommend retrofitting the existing system with a MOTORTECH ignition system with MIC4 ignition controller and the TEM control system with the MOTORTECH visualization with a 17" color screen.



Benefits of the Conversion at a Glance

Before

Ignition: High Voltage Capacitor Ignition

- Primary energy 130 mJ
- Set spark duration
- Connection to controller

Mixture Control: RMG Mixer

- Higher maintenance and wear costs due to larger number of mechanical components
- No feedback signal

Controller: TEM/Kuhse/Klaschka

- 3 screens
- No remote access
- No free access

Original Wiring Rail

- If ignition/temperature components are defective, entire rails must be changed, leading to high material costs

After

Ignition: Digital Ignition Controller MIC4

- Primary energy 300 mJ
- Spark duration can be customized
- Connection to controller and mixture control

Mixture Control: VariFuel2 – Air/Gas Mixer

- Low maintenance costs
- Available feedback signal

Controller: ALL-IN-ONE Generator & CHP Control System

- 1 touch screen with MOTORTECH visualization
- Low service costs through remote access
- Free access

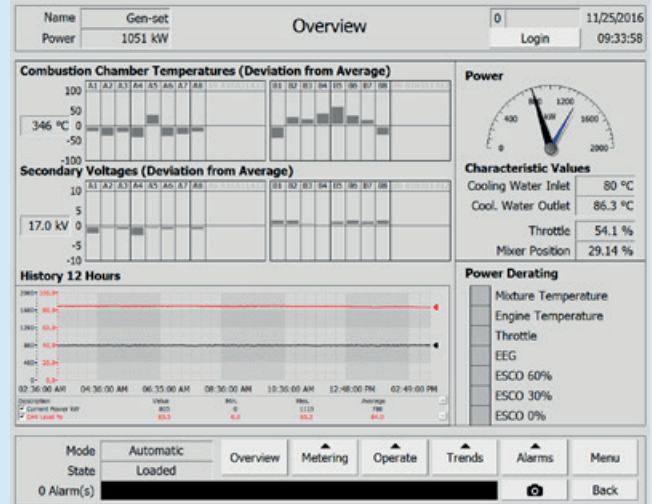
Wiring rail: AlphaRail

- It is possible to swap individual ignition/knock control/temperature components, resulting in material cost savings.

1 Visualization – Example screens

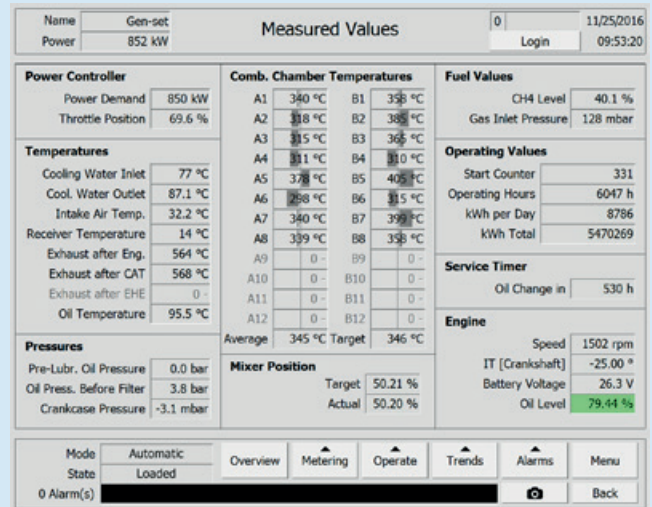
Overview

In the view *Overview* you will obtain information about the combustion chamber temperature at a glance (deviating from mean value), the secondary voltages (deviating from mean value) as well as the history of the last 12 hours. The runtime diagram, under *Power* shows the current gen-set power as well as the methane level of the supplied gases for the last 12 hours under CH4 level. Through the meter's *Power* indicator, you will also obtain information about the current gen-set power in comparison with the power demand as well as an overview of cooling water temperature and the position of the throttle and the mixer.



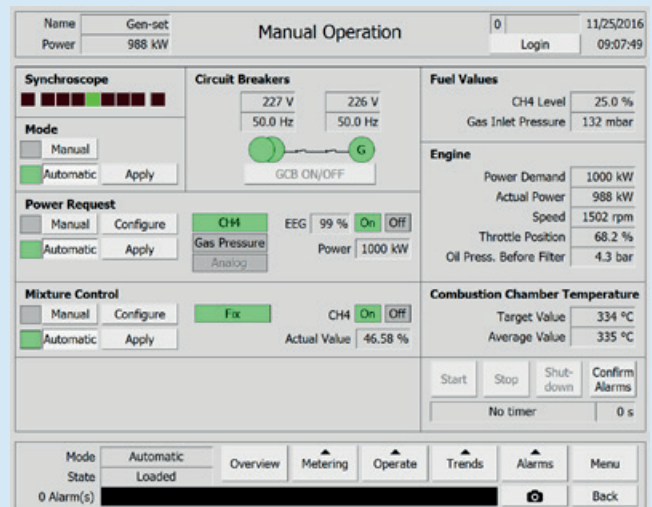
Metering – Measured value

In the view *Measured Values* you will obtain an overview of all current actual and set values that are relevant for the control and monitoring of the gen-set. The section *Operating Values* shows the current system values. The parameters starting value, operating hours and kWh refer to the latest time point at which the parameters concerned were reset in the gen-set controller. The service timer shows when the relevant activities are to be carried out in accordance with the set service timer. You can adjust the service timer *Oil Change* only after an oil change.



Manual Operation

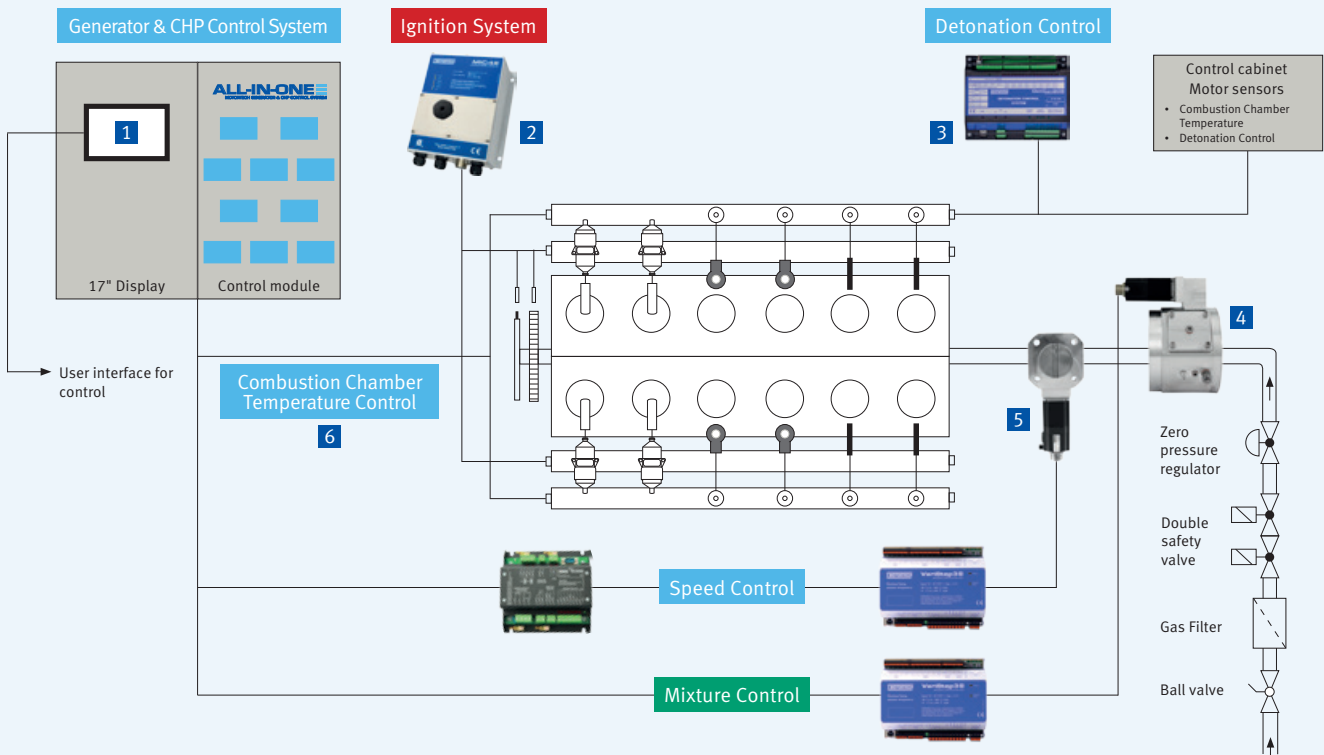
In the view *Manual Operation* you can manually control the gen-set as well as set the gen-set controller into automatic operation. All relevant parameters for manual operation are displayed. The green status box displays the current operation mode of the gen-set controller.



Sample model – Fig. identical!



System Overview



2 Ignition Systems

Complete ignition system for simple installation on several engines. The ignition systems are available complete with wiring rails, prefabricated primary wiring, ignition coils, ignition controllers, pickups and corresponding engine mounts.

Plug and Play!

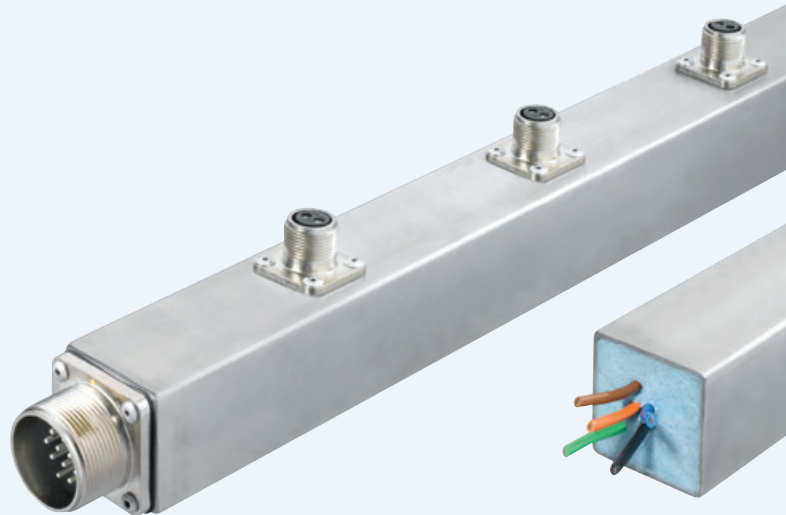
DDI (DENSO DOUBLE IRIDIUM)

The newest generation of tougher spark plugs from DENSO. The lifespan of the spark plugs is increased through DDI technology and they are significantly more stable than comparable spark plugs. DDI spark plugs are especially effective in biogas engines. Test the DENSO DDI spark plugs today.



3 Detonation Control

The DetCon20 detonation control system offers complete protection for gas, diesel, and dual fuel engines with 2 to 20 cylinders. It is microprocessor-controlled, recognizes any knocking in the early phase and sends an analog signal (4-20 mA/0-5 V) to the ignition system to shift the ignition timing to "retard" in a linear function. A signal for load reduction or, ultimately, a stop signal is sent to the engine controller if the knocking cannot be eliminated. CAN Bus interface included.



4 Mixture Control

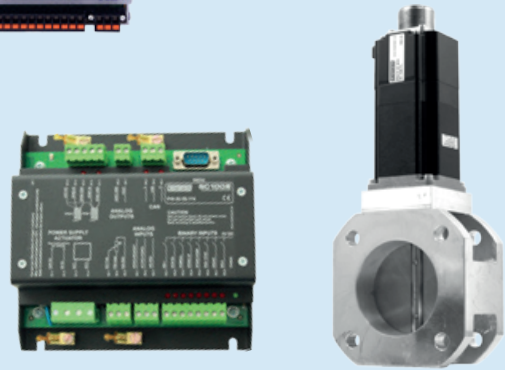
VariFuel2 is a variable hightech venturi gas mixer which continuously adapts to fuel changes and allows the engine to work with maximum effectiveness. Coupled with a lambda regulator (lean burn or stoichiometric), it regulates the mixture with precision. Highly suitable for biogas applications where the calorific value of the fuel can change constantly.

MOTORTECH's in-house developed stepper motor driver allows optimal control of different MOTORTECH VariFuel2 air/gas mixer types and throttles with integrated stepper motors.



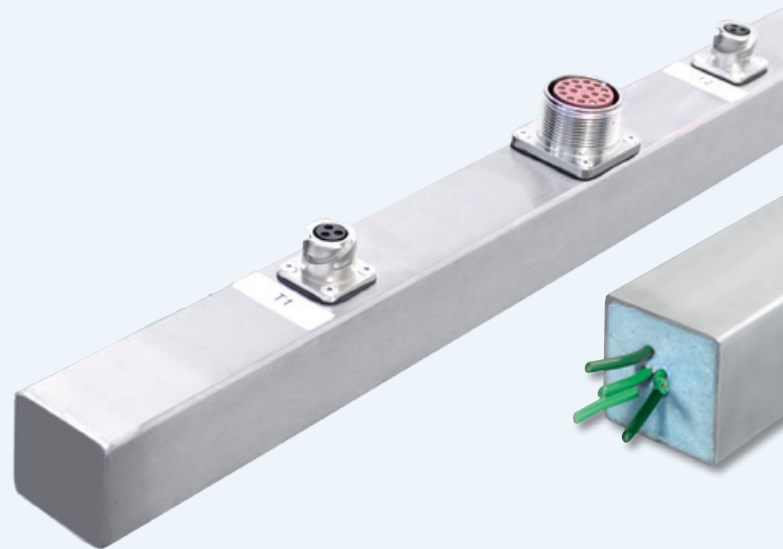
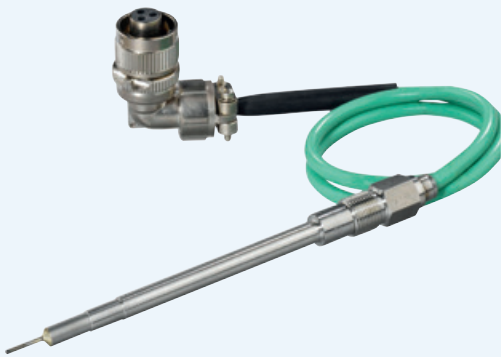
5 Speed Control (optional)

The throttles are fitted with an integrated stepper motor which ensures exact regulation of mixture quantities. All movable parts are made of stainless steel that can withstand extreme conditions (incl. H₂S). The digital regulator SC100 guarantees a precise and quick regulation of gas engines speed in parallel or island operation.



6 Combustion Chamber Temperature Control

By using thermocouples in conjunction with MOTORTECH visualization, it is possible to precisely determine by how many degrees celsius the combustion chamber temperature of an individual cylinder differs at a maximum from the average combustion chamber temperature of all cylinders.



We aim at your problems!



Regardless of which part of the globe we need to travel to.

We know that the stakes are high, and therefore we outperform the others. That is because we want everything to run smoothly at your site, everywhere and at any time.

This is entirely in keeping up with our motto:
Let us drop everything and work on your problem!

MOTORTECH can provide you with qualified service engineers for the above-mentioned tasks related to conversion, such as installation, final wiring and installation of cables as well as start-up and inspection.



Distribution partner for DENSO spark plugs



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