

# MIC4 – IGNITION CONTROLLER



**MIC4**  
MOTORTECH IGNITION CONTROLLER

# MIC4 – IGNITION CONTROLLER

The economically attractive MOTORTECH development convinces with a future oriented electronical concept for more power and a significantly higher degree of efficiency.

High ignition energy, accurate spark timing and diversified online diagnostics help to improve engine efficiency, spark plug life and availability of the equipment under the strictest emission regulations. The controller is fully customer configurable via Laptop.

- Adjustable spark duration and intensity
- Constant spark intensity via adjusted duration
- 300mJ primary energy
- Ignition diagnostics (primary and secondary)
- Fault memory with trend data
- Integrated CANopen and Modbus RTU interface
- Easy access per USB port



## Technical Data & Features

- 10 to 32 VDC supply voltage
- 8 / 16 ignition outputs
- 250 VDC primary voltage
- 300 mJ primary energy
- 0.1° crankshaft accuracy
- Triggered by 1, 2 or 3 pickups (magnetic, hall effect or inductive / configurable)
- Multiple timing control vs.
  - Potentiometer
  - Speed curve
  - 0-20 mA analog input
  - 0-10 V analog input
- Multiple energy control vs. MOST (MOTORTECH Output Stage Technology)
- Programmable firing order
- 1 multipurpose output (GPO)
- 1 Auxiliary Synchronization Output (ASO) which can support a detonation control system (e.g. DetCon) or fuel injection pump controllers
- Ignition release input
- Go / NoGo output
- Overspeed shutdown function
- Access controlled

## Ignition Diagnostic

- Run time data
- Alarm and error messages
- Data logging
- Primary and secondary misfire detection
- Cylinder individual high voltage calculation (kV)
- 6 LEDs provide a quick system state overview

## Interfaces

- CAN Bus 2.0b interface (CANopen protocol)
- RS485 interface (Modbus RTU)
- USB 1.1 interface

## Configuration

- Fully configurable via Laptop with MICT software (see page 4)

## Hardware

- Different housing styles available
- Coil driver board equipped with 8 or 16 outputs

# HOUSING STYLES



## Housing Style "LD" (Light Duty)

Standard configuration for applications in direct vicinity of gas engines in protected environment. The electronic system is integrated in a solid aluminum housing.

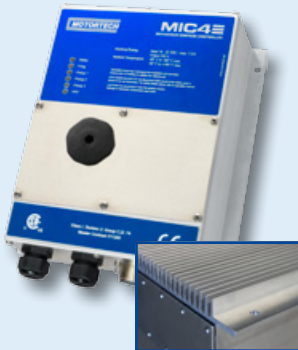
- 17 pole military style connector (socket) for 8 and 16 outputs
- Plug connectors for input wiring
- For ambient temperatures from -40° C to +60° C (-40° F to +140° F)
- Protection rating IP54
- CSA Class I, Division 2, Group C, D; T4
- 10.43 x 9.45 x 3.74 in. / 265 x 240 x 95 mm (L x W x H)



## Housing Style "PM" (Panel Mount)

Device configuration for assembly in control panels. Equipped with plug connectors for simple integration into the wiring system.

- Plug connectors for input and output wiring (8 and 16 outputs)
- For ambient temperatures from -20° C to +50° C (-4° F to +122° F)
- Protection rating IP20
- CSA Class I, Division 2, Group C, D; T4 (within a control panel)
- 11.10 x 7.87 x 2.64 in. / 282 x 200 x 67 mm (L x W x H)



## Housing Style "HD" (Heavy Duty)

When it's time to really get down to business. The Heavy Duty housing is 100 % reliable whether in hot desert sand or perpetual ice!

- 17 pole military style connector (socket) for 8 and 16 outputs
- Plug connectors for input wiring
- For ambient temperatures from -40° C to +70° C (-40° F to +158° F)
- Integrated cooling element for optimal heat dissipation
- Protection rating IP65
- CSA Class I, Division 2, Group C, D; T4
- 10.43 x 10.39 x 4.84 in. / 265 x 264 x 123 mm (L x W x H)

Reverse

# MOST

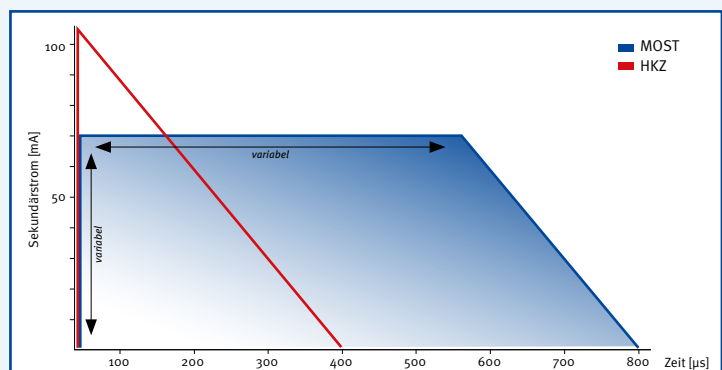
MOTORTECH OUTPUT STAGE TECHNOLOGY

## MIC4 / MIC5 with MOST \* –

### MOTORTECH Output Stage Technology

- Adjustable spark duration and intensity
- Constant spark intensity via adjusted duration

\* Patented technology



# MICT – Motortech Integrated Configuration Tool

The MICT is the graphical user interface for all controllers of the MIC4 series. With a laptop all configurations can be done and run time data of the engine can be checked and adjusted.

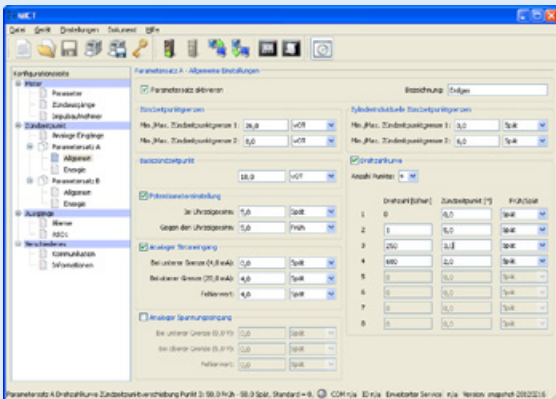


MOTORTECH INTEGRATED CONFIGURATION TOOL

- Language selectable
- Microsoft Windows XP / Vista / 7 compatible
- Included data base offers engine information such as firing order, firing sequence, number of ignition coils per cylinder and typical number of teeth on flywheel for easy engine configuration

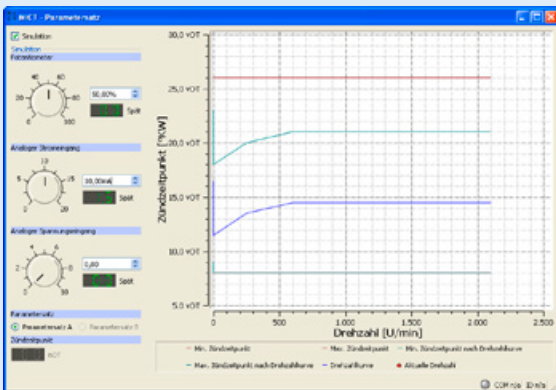
- Print function of a given moment in the operation can be used for external problem analysis, etc.
- Context sensitive online help
- Different access levels to avoid accidental misconfigurations

## Sample Screens – Configuration



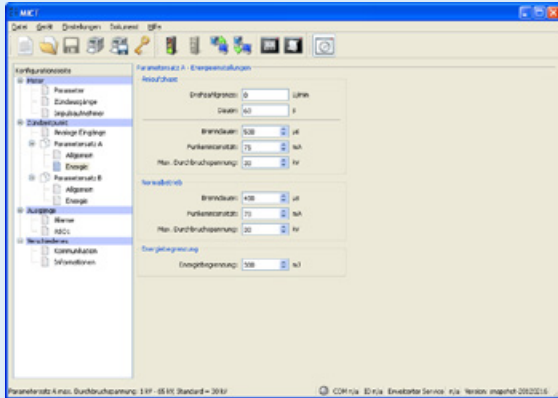
### Parameter Set

The MIC4 offers two sets of parameters for the necessary inputs in order to calculate the engine ignition timing, which e.g. can be used for a two gas quality operation. Furthermore the parameter sets can be visualized graphically.



### Parameter Set – Configuration visualization

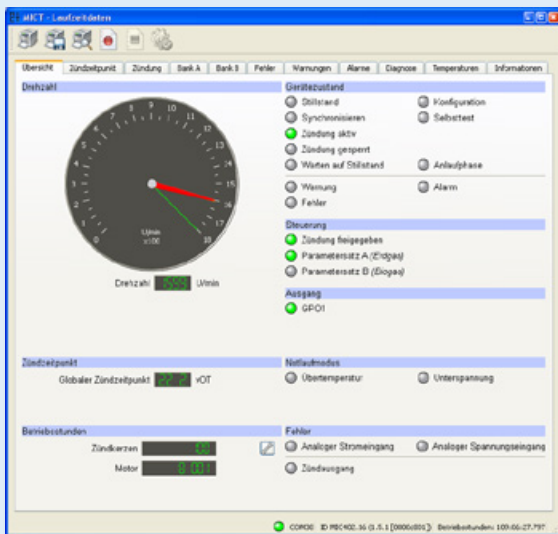
The graphic display of the parameter set A and B offers a fast visual control of the configured values.



### Parameter Set – Energy Settings

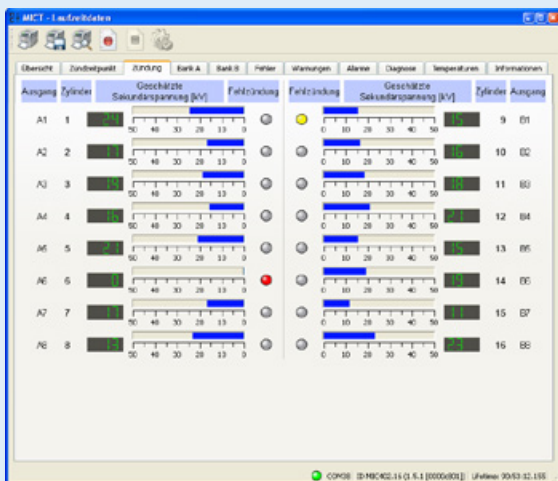
For start phase and normal operation of the engine, durations at different high voltage levels and ignition spark intensity can be adjusted with the advanced energy settings.

## Sample Screens – Runtime Data



### Overview

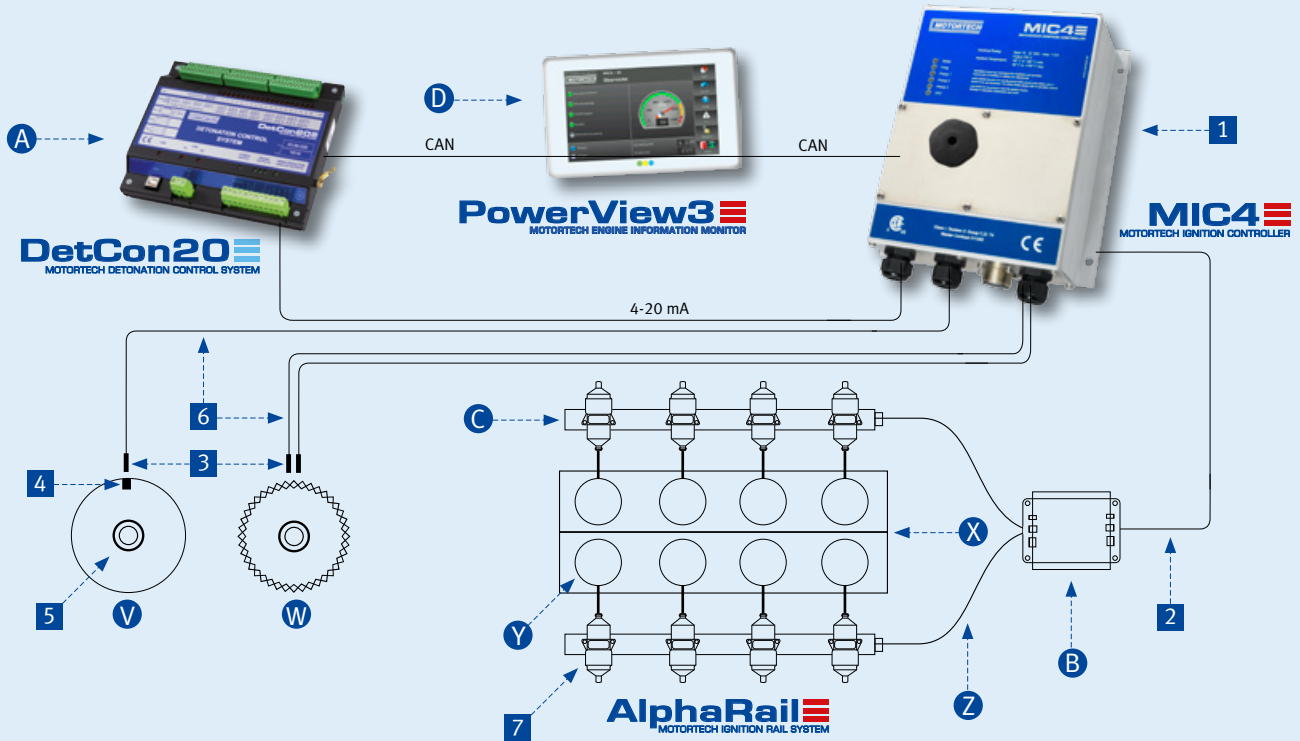
In the overview schedule the most important current runtime data such as rpm, ignition timing or system status can be registered at a glance.



### Breakdown Voltage

The MICT offers a lot of real time and detailed information about the status of each individual ignition output. Important data will be visually prepared, so that any irregularities will stand out easily. For example, secondary voltage will be displayed as bar graph, and the type of misfiring carries a warning light as symbol.

# System Overview



## Required Accessories

- 1 MIC4 ignition controller
- 2 Output harness\*
- 3 Pickups\*
- 4 Trigger pins & magnets  
*alternative*
- 5 Trigger discs  
*alternative*
- Trigger device
- 6 Pickup leads\*
- 7 1 Ignition coil per cylinder\*

## Accessories

- B Junction box
- C AlphaRail – Ignition wiring rail

## System Enhancement

- A DetCon20 – Detonation controller
- D PowerView3 – HMI module

## Description

- V Camshaft
- W Crankshaft

X Engine

Y Cylinder

Z Harness to connect ignition wiring rail and junction box

\* For detailed information about these products please contact your local distributor.

## Pickup Arrangements

### 3-pickup arrangement for 4-stroke engines

- 1) Reset  
Magnetic pickup (holes, pins, teeth, screws)
- 2) Speed  
Magnetic pickup (holes, pins, teeth, screws)
- 3) Camshaft  
Hall-Effect pickup (magnets)

*alternative*

- 3) Camshaft  
Inductive pickup (pins, screws, slots)

### 1-pickup arrangement for 4-stroke engines

- 1) Camshaft  
Hall-Effect pickup (disc with magnets)

*alternative*

- 1) Camshaft  
Inductive pickup (disc with pins, screws, slots)

### 2-pickup arrangement for 2-stroke engines

- 1) Reset  
Magnetic pickup (holes, pins, teeth, screws)
- 2) Speed  
Magnetic pickup (holes, pins, teeth, screws)

## PowerView3 – HMI MODULE



The operating data of MIC4 and MIC5 series ignition controllers will be completely visualized via HMI module (Human Machine Interface). The overview sheet shows the relevant information as engine speed, ignition timing and status of pickups, ignition outputs or active parameter set.

The PowerView3 also allows justification of various ignition parameters such as ignition timing and energy. Functions as the selftest for error diagnostics can also be executed via HMI module. The control keys guarantee simple navigation through different display pages and menus.

All in all the PowerView3 HMI module is also able to provide error diagnostics on-site without requiring a laptop!

## “High Performance” System Ignition Coil for Biogas Ignition

Ignition coils become more and more important in modern ignition systems for stationary gas engines.

Therefore MOTORTECH developed a series of new high tech ignition coils, manufactured in the German production facility.

The “Blue” coil was specially developed for the new MOTORTECH ignition controller generation with MOST technology and guarantees the ideal performance support, especially when it comes to alternative combustibles with alternating or relatively low fuel value, e.g. biogas, mine gas, woodgas, sewage gas, landfill gas etc.

- New, modern design
- Use of high quality material
- Automated production with reproducible manufacturing process
- Terminals made of stainless steel
- High voltage output with long spark duration
- Ideally suited for ignition of alternative fuels such as biogas
- Available with various terminals
- Supports MOST (**M**OTORTECH **O**utput **S**tage **T**echnology)



## When Things get hot our Service Team is at your Site quickly.



Regardless of which part of the globe we need to travel to. We know that the stakes are high, and therefore we out-perform the others. That is because we want every-thing 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!



*Distribution partner for DENSO spark plugs*



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