

THE GAS ENGINE CONTROL SPECIALISTS



MIC850 - IGNITION CONTROLLER

LOOK INTO THE FUTURE



MIC850 
MOTORTECH IGNITION CONTROLLER



MOTORTECH GmbH

For almost twenty years now MOTORTECH has been delivering everything that makes industrial gas engines work. Since it was founded in 1988 in Celle, Germany (near Hanover), as a service and distribution company for engine replacement parts and accessories, MOTORTECH has demonstrated continuous growth.

Today we employ more than 150 qualified members of staff who work every day on optimizing the performance you can reliably obtain from your gas engine.

Our compliance with international quality standards with strict quality controls and our in-house R&D department assure you the highest possible level of reliability in each MOTORTECH system component.

Our customer support personnel and global network of sales distributors can show you how you will get the best performance out of your equipment with MOTORTECH system components.

Whatever expectations you have, we aim to exceed them.

Quality "Designed in Germany"

At MOTORTECH special emphasis is put on quality and safety, because neither you nor we can afford defects. That is why our entire company is ISO 9001 certified.

"We live quality!" - This is also reflected in our high standards for work safety. Thanks to our comprehensive Safety Management System, there have been no work-related accidents whatsoever at MOTORTECH over the last 10 years!

All MOTORTECH subsidiaries and distributors are trained on a regular basis by experienced personnel. This enables us to comply without quality promise to even our most distant customers.

MOTORTECH does not simply satisfy industry standards and requirements - We exceed them!



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 PC. Further fine tuning can be made by using the built in keyboard. Firmware updates can easily be made via implementing a SD-Card.

An optional built in graphical display offers the customer an access to approx. 20 screens with online data. This includes the access to specific information as the cylinder individual high voltage (KV) reading and the primary and secondary misfire detection.

SYSTEM FEATURES

Technical data and features

- 24 output channels
- 300V primary voltage
- 180mJ of energy
- 0.1° crankshaft accuracy
- Triggered by 1, 2 or 3 pickups (configurable)
- Will fire accurately as low as 20 RPM (slow start application)
- Multiple timing control vs.
 - Potentiometer
 - Speed curve
 - 4-20mA analog input
 - 0-5V analog input
- Multiple energy control vs.
 - Manual setting
 - Spark plug run time
 - Automatic control of spark duration (ASC)
- 3 Multi Purpose Outputs (GPO)
- 2 Auxiliary Synchronization Outputs (ASO) which can support the DetCon20 detonation control system and fuel injection pump controllers
- Overspeed shutdown function
- Large built in LC-Display with keyboard (optional) in selectable languages
- Access controlled

Diagnostic

- Run time data
- Ignition timing and mapping
- Alarm and error messages
- Data logging
- Pick up voltage
- Input supply voltage
- Timers
- Circuit board temperatures
- Primary and secondary misfiring detection
- Cylinder individual high voltage reading (KV)
- etc.

Interfaces

- CAN Bus interface (CANOpen protocol) supports the PowerView2 which is a 12,1" HMI touch panel PC
- USB port
- SD-Card slot for firmware updates

Hardware

- Ignition Controller can be equipped with one (12 Output) or two (24 Output) coil driver boards
- Standard military style connectors
 - 14 pole (socket) for 12 outputs
 - 35 pole (socket) for 24 outputs
- Optional: graphical display and keyboard built into front cover. No separate wiring required!

MICT - MOTORTECH Ignition Configuration Tool

- Language selectable
- Windows PC based
- Graphical user interface
- Easy engine configuration by library based preprogrammed information
- Programmed parameters are evaluated during input
- 24 configurable alarms
- Programmed timing and energy curves can be monitored
- Print function of a given moment in the operation can be used for external problem analysis via E-Mail or any other data communication
- etc.

DISPLAY & MICT-FEATURES

MIC850 HMI Module - Smart access to the new Series of MOTORTECH IGNITION DEVICES!

The operating data of MIC850 Ignition Control devices will be completely visualised via HMI module (Human-Machine Interface).

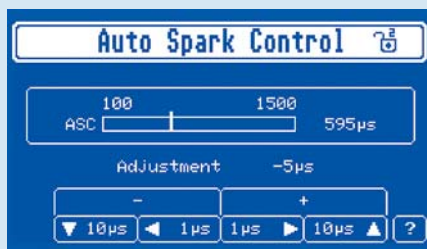
The overview sheet shows the relevant information.

The MIC850 HMI module allows justification of various ignition parameters such as ignition timing and energy.

Functions as the selftest for error diagnostics via HMI module can also be executed.

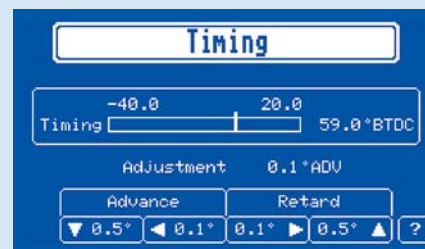
8 control keys guarantee simple navigation through different display pages and menus.

All in all the MIC850 HMI module is also able to provide error diagnostics on-site without requiring a mobile PC!



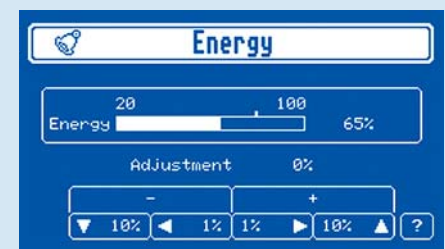
Auto Spark Control

Display and adjustment options of the requested spark plug firing duration directly at the HMI-module.



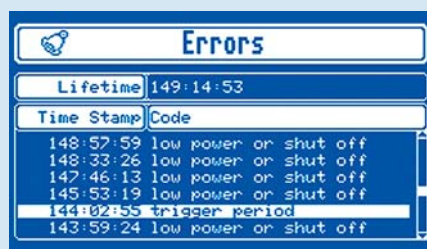
Timing

In this window you can adjust the reset position with the engine running. This is meant to compare the ignition timing of the display with the one measured by timing light.



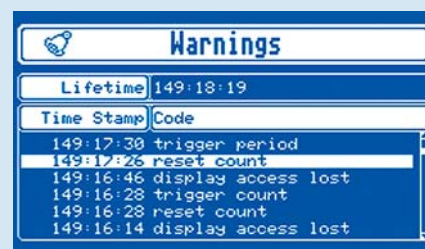
Energy

Adjustment of the MIC850 ignition energy.



Errors

The error list provides an overview of the errors occurred. Each error is listed with its timestamp and code.



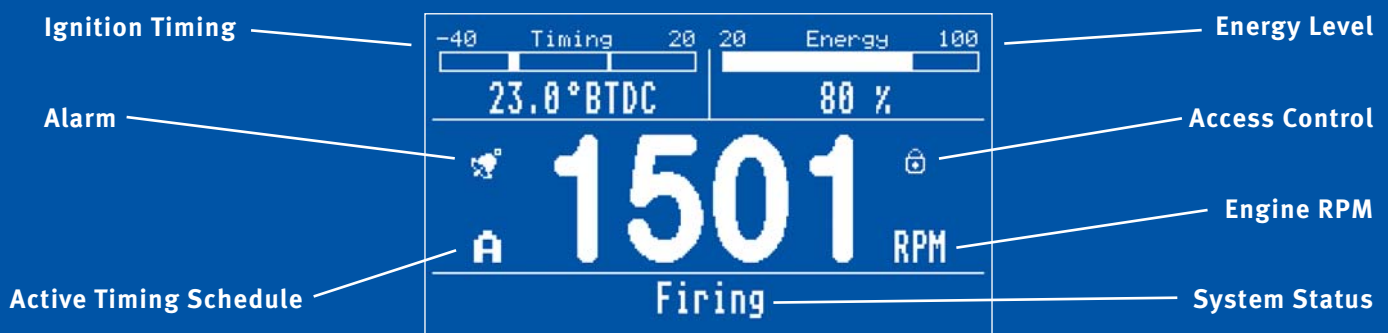
Warnings

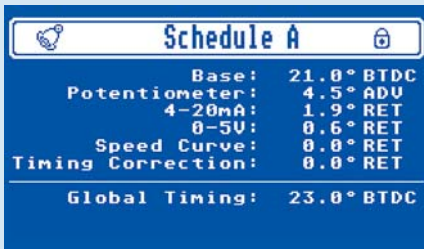
The warnings are listed analog to the errors. Both lists are sorted in reverse chronological order and are scrollable to select a specific entry.



Warning Details

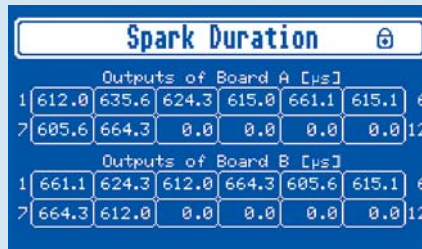
A detailed view of the error and warning entries can be called from the list.





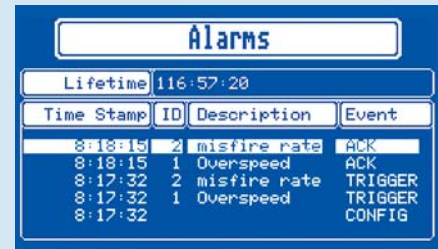
Schedule A

Overview of the ignition timing adjustment of configuration A. Here you can directly see whether ignition timing adjustment takes place via an analog input or via speed curve. The current ignition timing will be displayed under "Global Timing".



Spark Duration

The spark plug duration of each individual spark plug will be displayed.



Alarms

All alarm events are listed with timestamp and description. Pending alarms are indicated by a bell icon on the main screen and can be confirmed via the built-in keyboard.

MOTORTECH Ignition Configuration Tool (MICT) is the PC-based graphical user interface of the new series of MOTORTECH ignition control devices.

Individual parameterization of those devices is explicitly described on various program pages. The parameters will already be evaluated during data input and errors will be optically emphasized.

Complex parameter coherences are graphically displayed in order to avoid

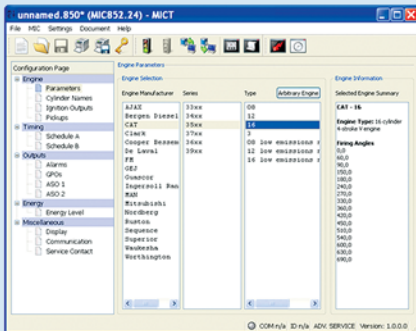
any errors and for easier understanding. A context depending support explains the individual parameters and their correlation.

MICT operating time data display reflects any operating time parameter and is perfectly qualified for diagnostic purposes and error correction. Printing

function for a given moment of time of the running period does support problem analysis.

The backed up connection-oriented communication protocol between MICT and ignition guarantees an accurate data transfer even under difficult conditions on-site.

Sample Screens - Configuration

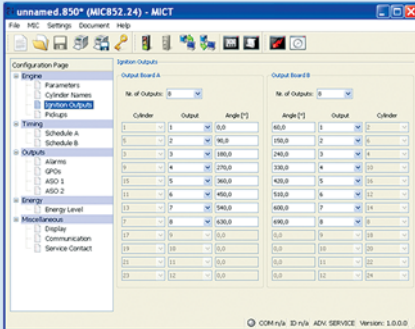


Engine Parameter

The MICT refreshable engine library stores the engine data such as various manufacturers, series and types. It facilitates the system configuration and helps to avoid mistakes. Should you not find a certain engine in the list or the stated parameters do not correspond with your expectation, configuration can be set up as you like.

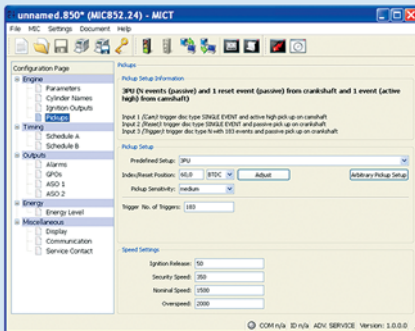
MICT FEATURES

Sample Screens - Configuration



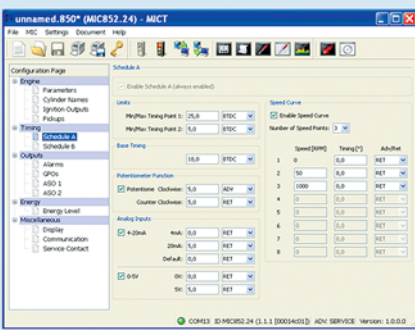
Ignition Outputs

Ignition order and output allocation can be edited in the output description.



Pickups

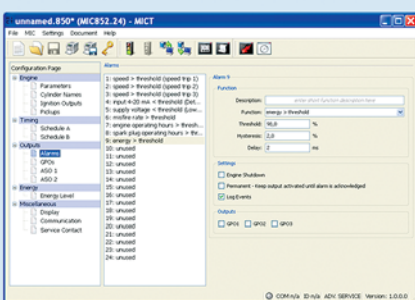
The MIC850 renders support for systems with 1-3 active or passive pickups. Pickup configuration can either be set up by manual input or via selection of preprogrammed data sets.



Parameter Set

The MIC850 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. A basic value is pre-defined and specified for each parameter set, stating whether and how the potentiometer adjustment and the pending analog input signals

(4-20 mA and 0-5V) must be taken into consideration. Additionally a speed curve can be lodged in the system, thus influencing the ignition timing in dependence of the engine speed. Furthermore the parameter sets can be visualized graphically (pls see "Sample Screens – Configuration visualisation").



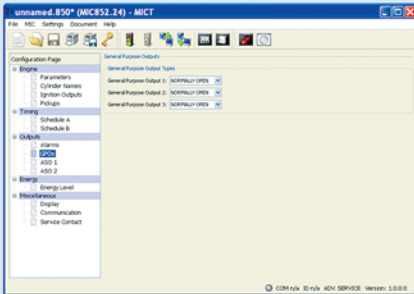
Alarms

With the 24 programmable alarm functions of the MICT the MIC850 can easily be adjusted to the requested application. Each alarm can be named individually and freely be allocated to one of the three General Purpose Outputs (GPO). Furthermore ignition shut off can be a follow-up reaction to an alarm.

A variety of functions with definable thresholds may be responsible for releasing an alarm: misfiring rate, level of power supply, temperature, spark plug operating hours and many other factors or it is a simple reaction to an event, e.g. incidence of warning.

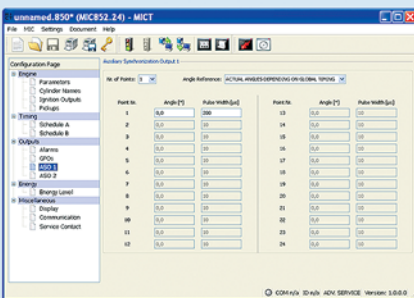


Sample Screens - Configuration



GPO (General Purpose Output)

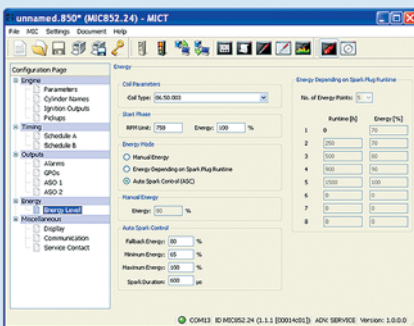
The MIC850 has three configurable outputs, for which the MICT offers the option to define their characteristics such as “normally open” or “normally closed”.



ASO 1&2 (Aux Synchronisation Output)

Via the two supportive synchronisation outputs freely definable impulses depending on the crankshaft angle can be produced, e.g. to trigger a DetConzo. It will be pre-fixed for each output whether the angle is to be absolute or related to a global ignition timing.

Each output can produce 1-24 impulses and must only be used for one system.

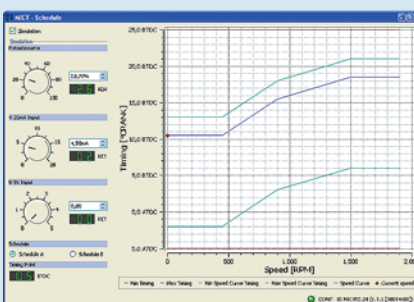


Energy Level

The MIC850 offers various options to ascertain the ignition energy for the regular operation. Via MICT you can choose between a manual presetting, an energy adjustment based on spark plug operating hours or an ASC (Auto Spark Control) mode.

The ASC mode requires a determination of ignition coils; for this the MICT also offers a preprogrammed databank.

Sample Screens - Configuration visualisation

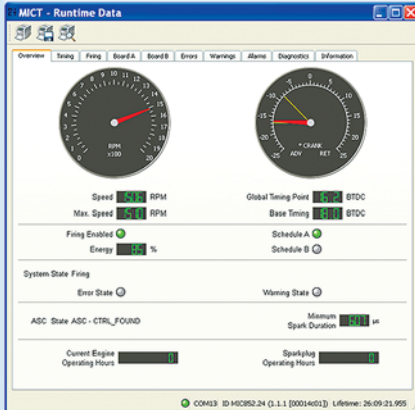


Parameter Set

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

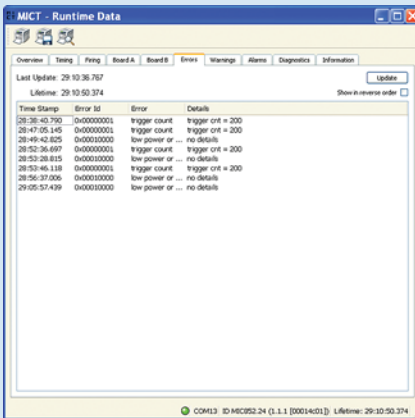
MICT FEATURES

Sample Screens - Runtime Data



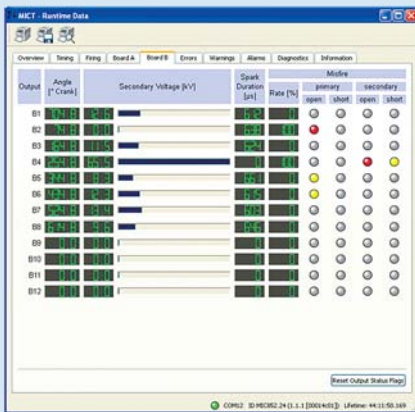
Overview

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



Errors

Error- and warning lists facilitate diagnostics by chronologically listed occurred errors and warnings with name, time and additional information.



A&B Board

The MICT offers a lot of current 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.

PART NUMBERS

MIC850 - Standard Controller - MIL Style Connector

MIC850 Series

P/N	Connector	Outputs	Display	Pickup Voltage
66.00.855-12	14 S	12	-	24 V
66.00.855-12-D	14 S	12	X	24 V
66.00.855-24	35 S	24	-	24 V
66.00.855-24-D	35 S	24	X	24 V

MIC850 - Special Controller - MIL Style Connector

MIC850 Series

P/N	Connector	Outputs	Display	Pickup Voltage
66.00.851-24	14 S / 17 S	24	-	24 V
66.00.851-24-D	14 S / 17 S	24	X	24 V


 CERTIFIED CLASS 1,
 DIVISION 2
 GROUP C AND D



Non-Shielded Output Harness

MIC850 Series - Harness

P/N	Harness for	Pin	Degrees
77.40.414-L	66.00.855-12 / 66.00.851-24	14 P	90°
77.40.214-L	66.00.855-12 / 66.00.851-24	14 P	180°
77.40.417-L	66.00.851-24	17 P	90°
77.40.217-L	66.00.851-24	17 P	180°
77.40.435-L	66.00.855-24	35 P	90°
77.40.235-L	66.00.855-24	35 P	180°

NOTE: Available Wire lengths = "-L" = 5', 15', 25', 50'

Shielded Output Harness

MIC850 Series - Harness

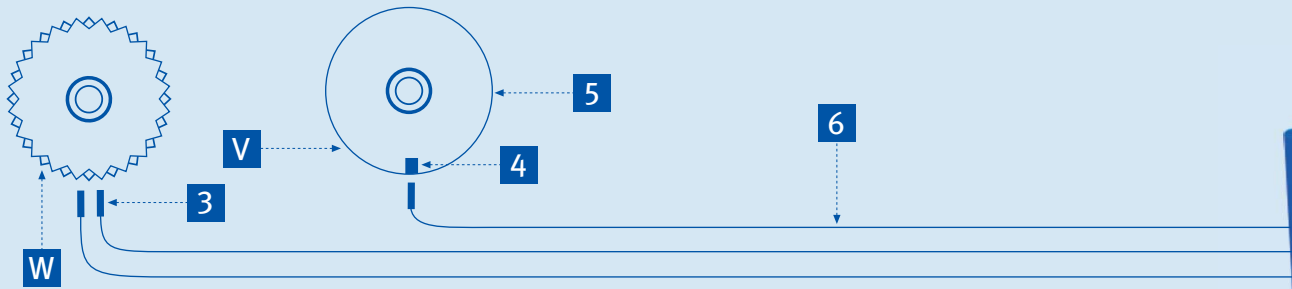

 CERTIFIED CLASS 1,
 DIVISION 2
 GROUP C AND D

P/N	Harness for	Pin	Degrees
95.40.414-L	66.00.855-12 / 66.00.851-24	14 P	90°
95.40.214-L	66.00.855-12 / 66.00.851-24	14 P	180°
95.40.417-L	66.00.851-24	17 P	90°
95.40.217-L	66.00.851-24	17 P	180°
95.40.435-L	66.00.855-24	35 P	90°
95.40.235-L	66.00.855-24	35 P	180°

NOTE: Wire length = "-L" = 5', 15', 25', 50'; Customer to supply shielded flex. conduit



SYSTEM OVERVIEW



3-Pickup Arrangement for 4-Stroke Engines

- 1) Reset
- 1 Magnetic Pickup
Holes, Pins, Teeth, Screws
- 2) Speed
- 1 Magnetic Pickup
Holes, Pins, Teeth, Screws
- 3) Camshaft
- 1 Hall-Effect Pickup
Magnets
alternative
- 3) Camshaft
- 1 Inductive Pickup
Pins, Screws, Slots

1-Pickup Arrangement for 4-Stroke Engines

- 1) Camshaft
- 1 Hall-Effect Pickup
Disc with Magnets
alternative
- 1) Camshaft
- 1 Inductive Pickup
Disc with Pins, Screws, Slots / Trigger Device

2-Pickup Arrangement for 2-Stroke Engines

- 1) Reset
- 1 Magnetic Pickup
Holes, Pins, Teeth, Screws
- 2) Speed
- 1 Magnetic Pickup
Holes, Pins, Teeth, Screws

Required Accessories

- 1 - MIC850 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*
- 8 - 1 Primary Lead/High Tension Lead per Ignition Coil*

Accessories

- A - PowerView2
- B - Junction Box
- C - AlphaRail - Ignition*

System Enhancement

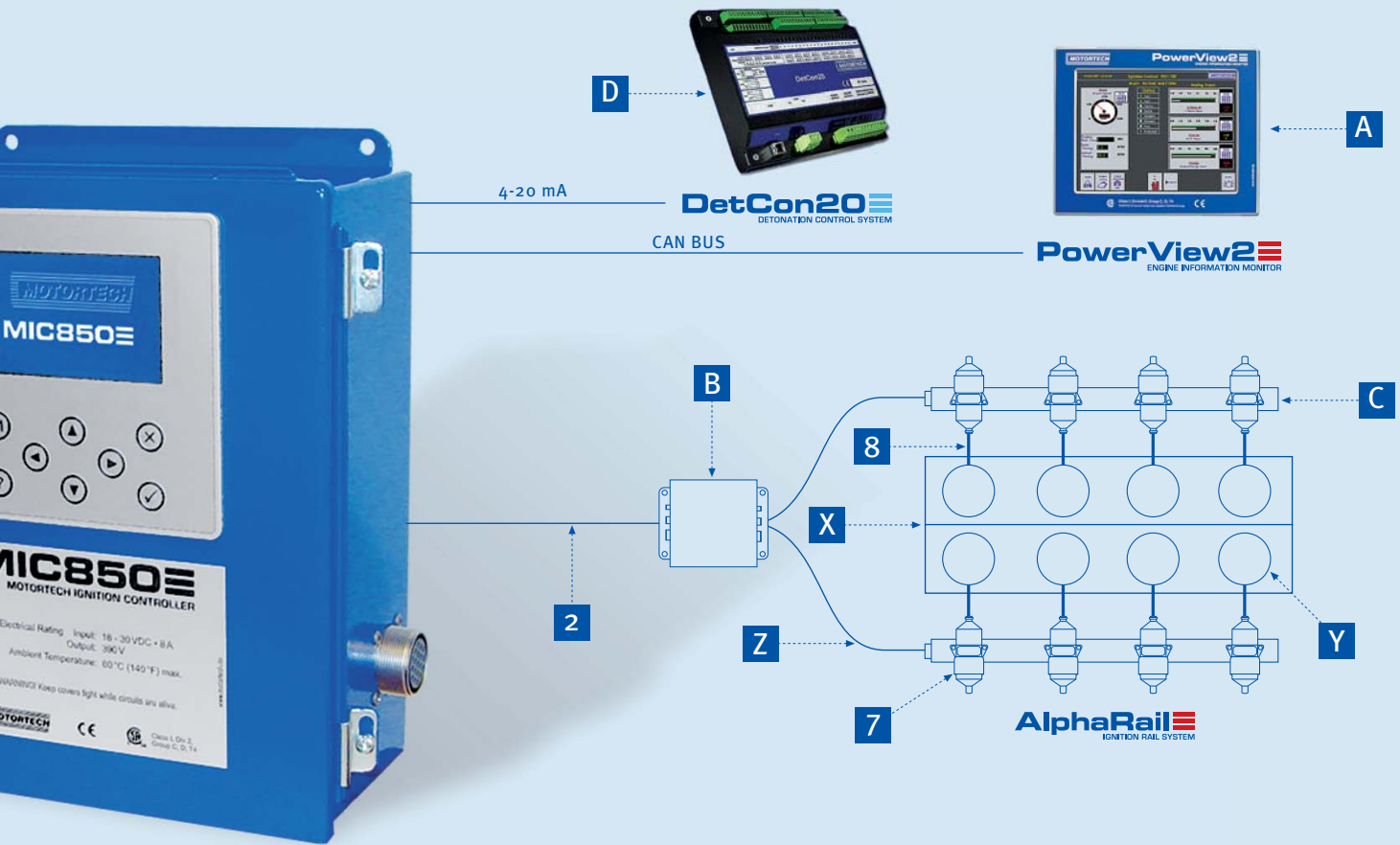
- D - DetCon20
- TempScan8

Description

- V - Camshaft
- W - Crankshaft
- X - Engine
- Y - Cylinder
- Z - Harness to connect Ignition Rail and Junction Box

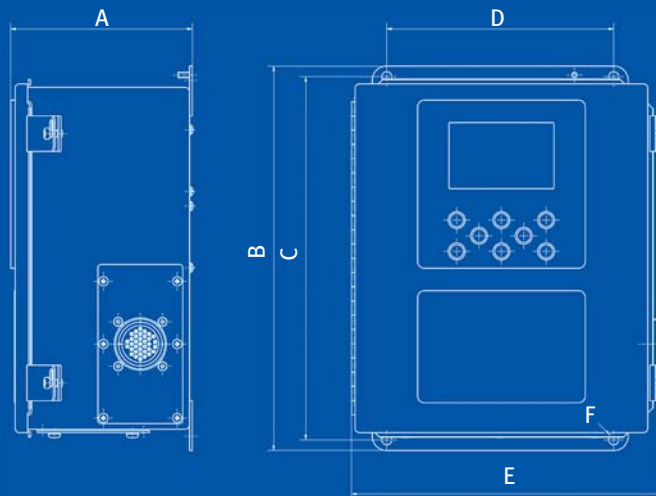
Note: * = Available in CSA- and Non-CSA certified version.

For detailed information about these products please contact your local Distributor.



Dimensions

- A) 163 mm / 5.35"
- B) 343 mm / 13.5"
- C) 324 mm / 12.76"
- D) 203 mm / 7.99"
- E) 279 mm / 10.98"
- F) ϕ 9 mm / ϕ 0.35"





THE GAS ENGINE CONTROL SPECIALISTS



WE UPGRADE GAS ENGINES

Original MOTORTECH Accessories for Stationary Gas Engines

As a supplier, MOTORTECH develops, manufactures and distributes accessories as well as spare and wearing parts for nearly all kind of stationary gas engines worldwide:

Ignition control and monitoring, industrial spark plugs and high tension leads, wiring systems, gas regulation and gas engine management - from detonation to speed control and complete cogeneration management. On-site support and special training courses complete our service.



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