**PHLOX II**

**Ignition Control Systems**

- 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
**PHLOX II**

**Ignition control systems**

As it triggers the combustion process of the air-fuel mixture, the ignition system has major influences on performances and emissions of gas fuelled engines. Thus, it plays an important role in modern gas engine management systems.

Based on HEINZMANN’s many years of experience in the field of gas engine control and monitoring systems, HEINZMANN offers complete solutions tailored for all types of gas engines. All needed components, such as ignition control units, coils, cable harnesses, trigger discs, sensors and spark plugs, are available in an integrated solution. Choosing from a variety of system components HEINZMANN ignition kits meet all customer requirements.

The core of the system is a flexible high-energy capacitive spark ignition control unit designed for up to 16-cylinder engines. In master-slave operation engines with up to 24 cylinders can be controlled. It provides precise ignition timing and high ignition capabilities. Its variable energy levels and on-board diagnostics help increase the spark plugs durability by reducing wear.

PHLOX II Ignition Systems guarantee best performance as part of the HEINZMANN gas engine management solution PANTHEON.

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**PHLOX II Benefits**

- Complete system from one source
- Configurable solution
- Precise ignition timing
- High ignition capabilities
- Hall or inductive pick-ups to cover all engine configurations
- Variable energy level to reduce spark plug wear
- On-board diagnostics for safe operation
- Sparking process diagnostics
- Wide temperature range
- Direct engine mounting
- I/Os and CAN bus available for simple integration
- Customised cable trees
- Variety of coils suitable for all applications and fuels

**SYSTEM INTEGRATION**

PHLOX II control units come with a range of I/Os for an easy integration into engine management systems. An analogue input for spark angle offset can be connected to knock control systems such as HEINZMANN ARIADNE.

A CAN bus connection is provided for extended monitoring and control features, allowing for example cylinder individual spark angle control. All common CAN protocols are supported (CANopen, SAE J1939). PHLOX II can be perfectly combined with the different KRONOS systems for gas engine control.

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**Applications**

HEINZMANN’s ignition systems are mainly used

- on stationary industrial gas engines and generators
- on combined heat and power stations
- in maritime applications
PHLOX II ignition coils

An optimum accessory for HEINZMANN Ignition Control System PHLOX II are the high-performance ignition coils with enhanced power output and separate grounding point.

They offer output voltage up to 50 kV in continuous operation and a temperature range up to 125 °C. Thus, they can be used in all applications and with all gas types. They are compatible with other widely-used similar products.

PHLOX II ignition rails

With HEINZMANN completely wired ignition rails, coils are directly mounted on the rail. Cables are protected inside the rail profile. This ensures a long lifetime and reliable operation. HEINZMANN wiring rails are delivered with all required mounting material for fast and easy installation.

PHLOX II pick-up sensors

HEINZMANN offers inductive sensors and Hall effect sensors with different lengths and threads.

Inductive pick-up sensors

The low-cost inductive shaft position sensors are designed for standard engine applications, available in several screw and length dimensions:

- M12x1x76
  For use as camshaft position sensor by trigger disc or by index-mark (50 or more).
- M16x1.5 or 5/8”-18UNF
  For use as crankshaft or camshaft position sensor by wheel-profile with many marks (50 or more).

Hall effect pick-up sensors

The universal differential Hall effect shaft position sensors are designed for standard and/or build-in applications, available in several lengths.

- M12x1x76
  For use as camshaft position sensor at trigger disc or with index-mark (50 or more).
- M18x1
  For use as crankshaft or camshaft position sensor (50 or more).

PHLOX II control units IC series

PHLOX II control units are highly flexible high-energy capacity spark ignition control devices. They are available in 3 versions up to 8, 12 or 16 cylinders.

At the top of the family range and for bigger engines with up to 24 cylinders, HEINZMANN offers the IC24 ignition system, based on 2 PHLOX II IC12 in Master-Slave operation.

For accurate timing control, the units can process up to 2 Hall or inductive pick-ups. They support all usual engine pick-up configurations like single pick-up on camshaft trigger disk or double pick-up on crankshaft (position) and camshaft (reference). 3 LEDs are provided to visualise the actual status of the ignition unit and to allow quick diagnostics. A separate plug is available to connect HEINZMANN DcDesk software or a hand programmer to perform detailed configuration, monitoring or diagnostics.

To reduce spark plug wear, PHLOX II control units offer 32 levels of ignition energy in a range of 25 to 280 mJ. Depending on application, the energy level can be fixed or adjusted as a function of speed, load or on-board spark diagnostics. Optionally and depending on pick-up configuration, the detected misfiring level can automatically adapt the energy level to the engine needs and help extend usable spark plug life while assuring best engine performance.

Its flexibility and I/O possibilities allow easy integration into every gas engine management system and guarantee economical and individual solutions for OEMs, packagers and retrofit customers.

Technical information control units

<table>
<thead>
<tr>
<th>Parameter</th>
<th>IC8</th>
<th>IC12</th>
<th>IC16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cylinders</td>
<td>Up to 8 (IC-08)</td>
<td>Up to 12 (IC-12 or IC-12A or IC-12B)*</td>
<td>Up to 16 (IC-16 or IC-16A or IC-16B)*</td>
</tr>
<tr>
<td>Power supply</td>
<td>24 V (12 – 32 V) DC</td>
<td>24 V (12 – 32 V) DC</td>
<td>24 V (12 – 32 V) DC</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-40 to +95 °C</td>
<td>-40 to +95 °C</td>
<td>-40 to +95 °C</td>
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<tr>
<td>Engine speed</td>
<td>30 – 3000 rpm</td>
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<tr>
<td>Spark duration</td>
<td>300 – 600 μs</td>
<td>300 – 600 μs</td>
<td>300 – 600 μs</td>
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<tr>
<td>Energy level</td>
<td>25 – 280 mJ (32 levels)</td>
<td>25 – 280 mJ (32 levels)</td>
<td>25 – 280 mJ (32 levels)</td>
</tr>
<tr>
<td>Pick-ups</td>
<td>2 (Hall or inductive)</td>
<td>2 (Hall or inductive)</td>
<td>2 (Hall or inductive)</td>
</tr>
<tr>
<td>Analogue input</td>
<td>1 (0 – 5 V/4 - 20 mA)</td>
<td>1 (0 – 5 V/4 - 20 mA)</td>
<td>1 (0 – 5 V/4 - 20 mA)</td>
</tr>
<tr>
<td>Digital input/output</td>
<td>2 (low/high side)</td>
<td>2 (low/high side)</td>
<td>2 (low/high side)</td>
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<tr>
<td>Configuration tool</td>
<td>HEINZMANN DcDesk, hand programmer</td>
<td>HEINZMANN DcDesk, hand programmer</td>
<td>HEINZMANN DcDesk, hand programmer</td>
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<tr>
<td>Certificates</td>
<td>CE, CSA, DNVGL, BV</td>
<td>CE, CSA, DNVGL, BV</td>
<td>CE, CSA, DNVGL, BV</td>
</tr>
</tbody>
</table>

* A: optional with additional CAN interface, B: optional with additional Modbus interface
**Cable harnesses**

HEINZMANN can provide standard ready-to-use input and output cable harnesses. On demand, these can be tailor-made to fulfil all engine and customer needs.

**PHLOX II trigger discs**

Trigger discs are available in different designs for any application.

**PHLOX II ignition leads**

High-quality Teflon made spark plug boots are high-temperature resistant and ensure high-voltage resistance and best insulation against spark flashover. They are particularly suitable for lean burn applications.

**DCDesk configuration and visualisation tools**

Thanks to its design as a Windows® program, the HEINZMANN DCDesk software offers a lot of graphical features, printouts and records of data for documentation purposes. Using DCDesk software, the parameters of any connected device may be adjusted while the system is running and the response can be observed directly. It is also possible to prepare a data set whilst not connected with the device and to download it later on.

**PHLOX II: CONFIGURATION FOR 6-CYLINDER ENGINE**

**PHLOX II Ignition leads**

- Trigger disc for camshaft *

*Other methods please see below

**Input cable**

- (power supply & I/Os)

**Output cable**

- (ignition coils primary side)

**Power supply**

- 12 - 32 VDC

**Digital input**

**Digital output**

**Analogue input**

- CAN bus

**Diagnostic & configuration plug**

(DCDesk / hand programmer)

**Measuring Method 1**

- Crankshaft: measuring pin
- Crankshaft: measuring wheel with tooth gap
- 1 or 2 sensors

**Measuring Method 2**

- Crankshaft: trigger disc n+1

**Measuring Method 3**

- Crankshaft: measuring wheel with tooth gap

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HEINZMANN

Group

Quality & Precision since 1897

The Group started in 1897 with Heinzmann GmbH & Co. KG, and now includes HEINZMANN UK, HEINZMANN China, HEINZMANN Korea, HEINZMANN India, HEINZMANN Australia, HEINZMANN AUTOMATION, REGULATEURS EUROPA, and CPK Automotive as member companies.

The HEINZMANN Group operates numerous global subsidiaries, including eight production sites and an international distributor network.

Our product portfolio comprises engine management system solutions, as well as exhaust gas aftertreatment solutions, for industrial combustion engines and turbines. It also encompasses automation systems, primarily for the shipping industry.

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