

IAV Cross – Injection Analyzer for Gaseous-Fuel Engine Applications

Shot-to-shot measuring system suitable for gaseous-fuel injectors

IAV has now enhanced its tried and proven Injection Analyzer for measuring gaseous fuel injectors. Shot-to-shot measurement – already indispensable in the field of diesel and gasoline injectors – has so far not been possible for gaseous-fuel injectors. From now on, the Injection Analyzer provides exactly this capability.

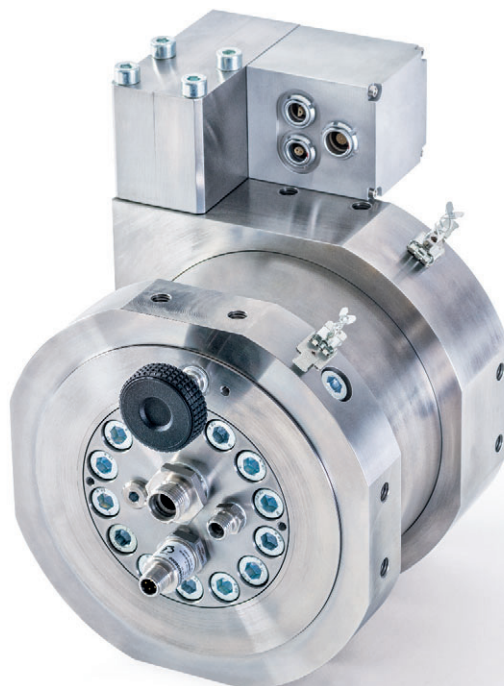
As the Injection Analyzer is based on the same measurement principle and the same electrical unit as the other models from the IAV Cross – Injection Analyzer family, it also comes with the same benefits. As such, it provides a highly accurate indication of the injected fuel quantity and injection rate.

The system is capable of recording a total of five measurement channels (three of them user-adjustable) in high resolution while also permitting transient measurement without any disruption. Its unique multi-device capability can also be used for operating several devices side by side from one computer. The device takes into consideration the specific characteristics of the gaseous fuel, such as pressure ratio, which have a direct influence on the injector and the injection event itself.

The measurement range of the Injection Analyzer extends from high pressure injectors (rail pressure of several 100 bar) for commercial vehicles to MPI injectors with an injection pressure of just a few bar and hardly any system pressure.* This makes the Injection Analyzer for gaseous fuel an effective tool for speeding up the process of developing and advancing gaseous-fuel engine.

Benefits

- *Highly detailed rate signal for optimum analysis*
- *Highly reproducible and repeatable injection mass*
- *Extended measurements of additional signals for fast differential analysis*
- *Capability of measuring transient and real-world driving cycles without stops*
- *Measurement range extends from small MPI to large HPDI injectors*
- *Very low maintenance as there are no moving parts*
- *High-performance electrical unit for acquiring all data*
- *Simple, comprehensive software for simultaneous measurement and analysis*



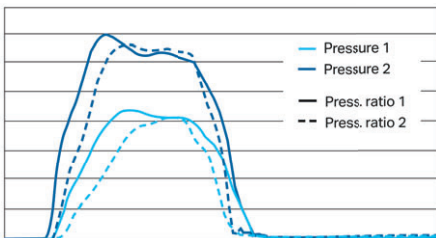
Technical Details



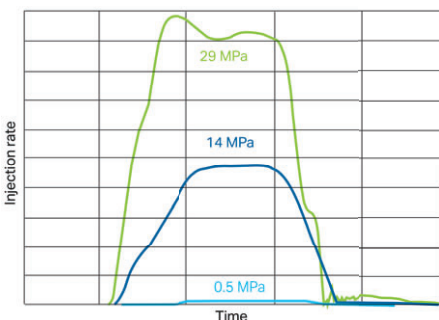
The complete IAV Cross – Injection Analyzer family for all kinds of applications



High-performance electrical unit for acquiring and processing all data



Detailed analysis of influences, such as pressure ratio



Suitable for various applications (HPDI/MPI)

Category	Value
Measurement range (mg/stroke)	5–500*
Injection frequency (Hz)	0,5–25**
Sampling rate (kHz)	200
Number of cycles recorded	1 – 10,000
Adjustable backpressure (bar)	5 – 160
Temperature range (°C)	+10 to +60*
Usable fluids	Nitrogen, compressed air, inert gases
Analog input channels	3 analog input channels (+/- 10V) at a sampling rate of 200kHz per channel
Injection timings	Measurement of the injection timings and delays according to customers preferences
Remote use	.dll Interface for using the software externally
First shot measurement	By conditioning the device

Multi-device capability

IAV has developed a new and unique system for conducting measurements on a complete injection system. The Injection Analyzer software provides the capability of using of up to eight (!) devices with only one control computer. This allows our customers to analyze a complete injection system within the boundary conditions of all real-world in-car influences by overlaying and comparing all injectors in real time.

Transient measurements

The Injection Analyzer can be used for measuring highly transient cycles without stopping the system or adjusting any properties. Stable system pressure provided by nitrogen makes it possible to record the injection cycle while it is being manipulated. In addition to real-world driving cycles, this means it is also easily possible to obtain gain curves for minimum and maximum masses.

* Values based on measurements with one specific injector. Wider range is likely.

** Other frequency ranges possible