

PRESENTATION

The **MIQ** (Mono Injector Qualifier) is designed to drive an electronic injector in order to measure "stroke-by-stroke" injection volumes.

The measurement is provided by the EMI2 sensor.

MIQ



SYSTEM DESCRIPTION

The complete system is composed of 3 main parts :

- The **electronic part** in a 3U or 6U 19" rack . The lower part reserved for complete MIQ contains the power section and its alimentation. The upper area is dedicated to measurement and control electronic boards.
- The **mechanical part** contains the injector holder and the measurement system.
- The **main machine interface** could be the front panel screen and keyboard or the PC software XMIQ.

Above the injector a high pressure generator system is needed. For example, an electronic bench equipped with an injection pump and a high pressure common rail, controlled by a regulator.

PRINCIPLE

The system measures up to 5 instantaneous injection volumes for each revolution. These values can be displayed by their instant, average or cumulated value on a defined number of configurable strokes.

The measurement results are available on configurable analogue outputs or on an external PC system due to the driver software and serial link.

The maximum instantaneous volume measured is between 100 and 200 mm³ with HR option or between 600 and 1000 mm³ with EMI2 alone at a maximum frequency of 50Hz (3000 camshaft revolution/min).

The system can operate independently of the bench frequency or synchronized with it, due to its Top/rev and 3600/rev inputs.

The system drives the injector with a TTL output (basic MIQ) or directly with a power output (complete MIQ).

MEASUREMENT PRINCIPLES

The measurement principle is based on the movement of a piston under the force of the injected fluid. Through means of an angular encoder, the instrument is synchronized with the rotation of an injection pump camshaft, or it operates independently at a programmable frequency.

TECHNICAL SPECIFICATIONS

Number of injection controlled/measured	Up to 5		
	Standard	HR	HP
Measurement range	0-600mm ³	0-100mm ³	0-100mm ³
Measurement resolution	0,02mm ³	0,004mm ³	0,004mm ³
Measurement precision	±0,6mg	-0,1/+0,8mg	±0,15mg
Measurement repeatability	<0,02 mm ³	<0,01 mm ³	<0,01 mm ³
Injector output control	TTL and power (MIQ complet)		
Injection input control for external driving system	TTL		
Injection duration resolution	0,1µs or 0,2°		
Max injection duration	6500µs or 85° angle		
Max time between 2 injections	6500µs or 85° angle		
Opening delay measurement resolution	1µs		
Opening delay of repeatability	15µs		
Automatic recognition of pre-injection	>1mm ³ /stroke		
Bench synchronisation signals	1/REV cam and 3600/REV cam		
Operating limit speeds	30 to 3000 REV cam/min		
Analogue input sampled 1/REV at selectable angle	0-10V/12bits		
Measurement gate output (window)	TTL logic level		
Lift signal output	Signal ±15V full scale 17,6 mV (standard) or 70,4 mV (HR/HP) for 1mm ³		
Injection rate output	Signal ±15V Approx 6mV (standard) or approx 24mV (HR/HP) for 1mm ³ /ms		
Adjustable BNC 1, 2, 3 4 outputs	Signal 0-10V scale : programmable		
Cursor output	Signal 0-10V		
Serial link for PC connection	RS232C, 9600 to 38400Bds		
Electronic rack working temperature	0 to 50°C		
Mechanical cooling temperature	0 to 70°C		
Injected chamber averaged temperature	-30 to 130°C		
Power supply	230V/50Hz or 110V/60Hz		
Power requirement	60VA or 700VA		
Form of electronics box	Rack 19" 3U or 6U		
Form of mechanical part	180mm x 234mm		



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