

## PRESENTATION

The **EMI2** flowmeter measures injection stroke-by-stroke instantaneous volumes of an injector/pump system.

This product has been developed for Bosch and is manufactured by EFS. You can order this product directly to EFS under conditions.

## EMI2



## SYSTEM DESCRIPTION

The injection flow measurement bench is composed of a mechanical part and an electronic part (picture).

- The mechanical part includes the injector holder and the measuring sensor.
- The electronic part is in the form of a 19" 3 U box which can be used on a table or fitted in an instrumentation cabinet.

## USE

The adjustment liquid is injected into a closed piston-cylinder unit where a back-pressure from 0 up to 100 bars could be applied.

Once the injection is finished, the piston displacement representing the injected volume is measured. The injected volume may range from 0 to 600 mm<sup>3</sup>; it is measured with an accuracy of 0.6 mm<sup>3</sup>.

The instrument simultaneously measures pre-injection, main injection as well as post-injection (when applicable) and displays them in instantaneous value, averaged or cumulated for a given number of injections. It also has automatic setting of the angle adjustment and angle measurements. Adjustment of measurement points can be carried out in manual or automatic mode.

All measurements carried out one after the other by the instrument are available on analog outputs which can be configured. The "user-friendly" interface, by means of the built-in screen and keyboard, facilitates communication with the instrument and provides flexible parameter-setting.

It is also possible to control the instrument by means of an external computer or an automatic controller via an RS 232 or IEEE 488 link (optional) for integration in an automatic bench.

## TECHNICAL SPECIFICATIONS

Measurement ranges (by injection)	from 0 to 600mm <sup>3</sup>
Resolution	For 0-99,9 mm <sup>3</sup> range : 0,02mm <sup>3</sup> /stroke for range >100mm <sup>3</sup> : 0,1mm <sup>3</sup> /stroke
Accuracy	<±0,1% full scale (approx. 0.6mm <sup>3</sup> ) calibration carried out on an average of 1000 strokes in comparison with a scale
Back-pressure	0-100bars
Maximum temperature of injected fluid	130°C
Automatic recognition of pre-injection	> 1mm <sup>3</sup> /stroke
Operating limit speeds	30 to 3000 camshaft revolution/min
Speed input	Either N pulses/revolution and 1/revolution Signal 0-15V High threshold = 3V Low threshold = 1,5V  Or A, B track encoder and 1/REV From 2x8 to 2x900 lines
Measurement gate input	TTL logic level
Measurement gate output (window)	TTL logic level
Lift signal input	Signal : ±15V full scale 17,6mV for 1mm <sup>3</sup>
Injection principle output	Signal : ±15V approx. 6mV for 1mm <sup>3</sup> /ms
Configurable BNC 1 ,2,3,4 outputs	Signal 0-10V Scale : programmable
Cursor output	Signal 0-10V
Operating temperature	0 to 50°C
Power supply	230V, 50Hz
Current requirement	40VA
Form of instrument	19' 3U box (electronic section)



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**Order reference**

**EMI 2**