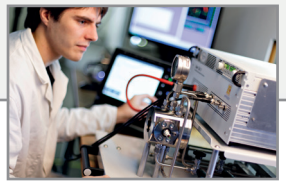
APOJEE

SmartCoil

Ignition & Combustion Test Bench



DESCRIPTION

- SmartCoil is an ignition coil emulator designed to support the improvement of spark ignition engines (GDI, Turbocharged, Gas engines...).
- For engine development teams, gasoline engine designers, ignition system and spark plug designers, test bench managers, racing teams

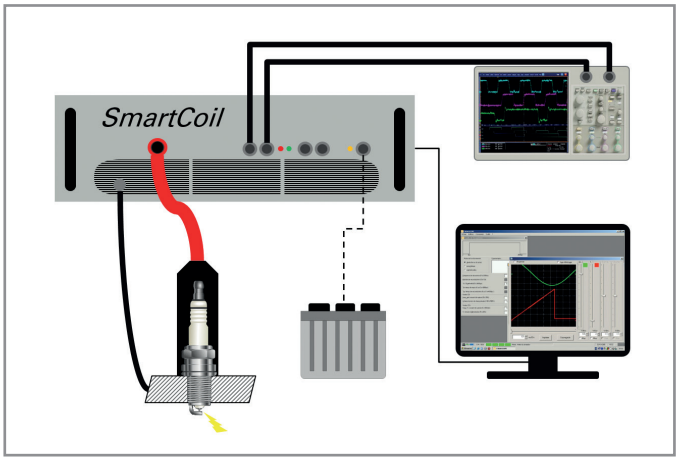
FUNCTIONALITIES AND ADVANTAGES

- Replacement of any ignition coil, existing or not, without manufacturing prototypes and delays
- Emulating of any spark form, generated or not with a conventional coil
- Measurement of ignition parameters without any additional sensor
- Measurements of ionization current to quantify combustion efficiency
- Significant reduction of development time
- Improved power and fuel consumption (better combustion velocity and engine stability)
- Fast investigation of ignition requirements for new engines
- Determination of ignition strategies
- Match the ignition coil to a given engine

For more information, please contact us: info@apojee.eu

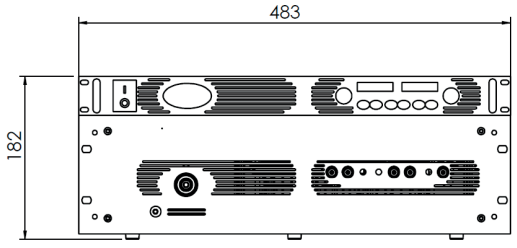
PRINCIPLE

SmartCoil is set up in place of any ignition coil, between the engine management (ECU) and the spark plug.
SmartCoil generates up to several kV, detects the breakdown and controls the secondary current to fulfil the required spark duration and energy.
The spark generation is triggered on the ECU.
It is thus compatible with engine control strategies. The software enables the spark definition and visualization of live spark measurements.



TECHNICAL SPECIFICATIONS

Spark creation and control	Secondary voltage	5 to 40 kV	
	Time of maximum voltage	10 to 250 µs@30 kV	
	Secondary current at the time of spark	0 to 1000 mA	
	Spark duration	5 µs to 1 ms @ 250 mA	
	Spark energy	1 to 1000 mJ	
	Form of the discharge curve	Linear or sinusoidal or other	
	Number of elementary sparks	0 to 20	
Measure of secondary voltage and current	Synchronisation	With spark generation (and with an external synchronisation signal if needed)	
	Frequency acquisition	Adjustable up to 3 MHz	
	Range	12 ms	
	Voltage spread	-60 kV to 60 kV	
	Current spread	-1 A to 1 A	
Ionization measure (optional)	Ionization voltage	1000 V with 1MOhm in serial	
	Ionization current	0 to 600 µA	
Other measurements and indicators	Indication of incomplete spark		
	Misfire detection		
	Number of reprimed sparks		
Mapping form	Inputs	Primary current, engine speed, numeric value controlled, by computer, input analogic value	
Analogic inputs and outputs	Inputs number	2	Cartography input, measure trigger, crankshaft signal, speed
	Outputs number	2	Secondary voltage and/ or current, spark duration, ionization signal
Miscellaneous	Power supply	240 V AC	
Dimensions	W483 x D482 x H182 (mm)		



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