

## Automation, Test & Measure

### Real Time Control and Instrumentation

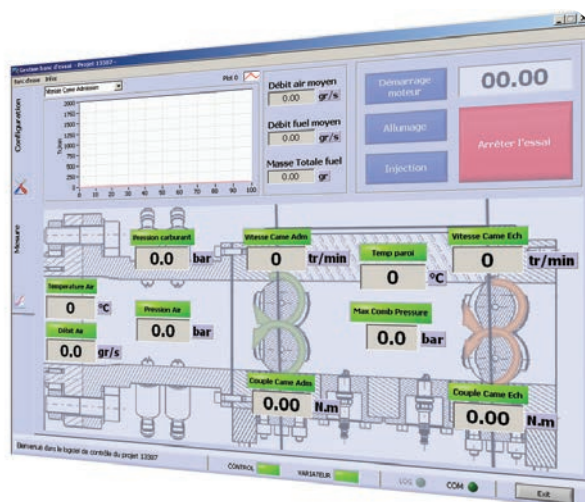
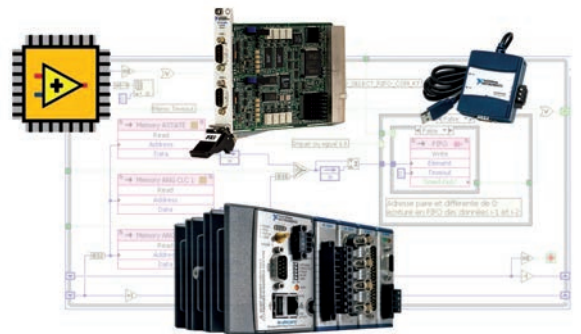
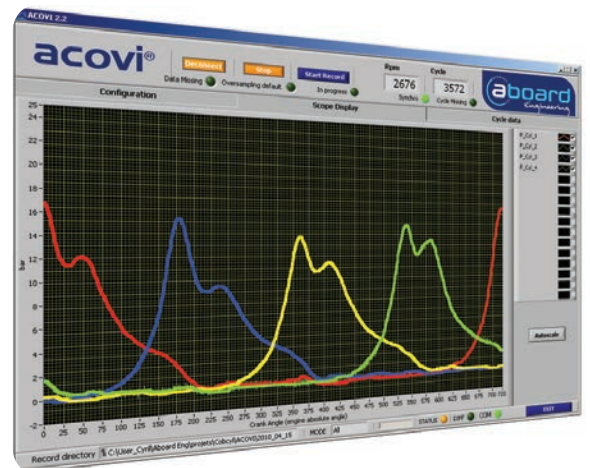
#### A Know-How Available to Customers

Expert in embedded system development, **aboard engineering** conduct result oriented projects and provide skilled resources to customer teams:

- Specification phase
- Hardware selection
- Software development (Labview, Labview RT & FPGA)
- Test and validation

#### Aboard Engineering Skills:

- A qualified team
- Development of user interface developments based on Labview
- Numerous Labview RT & FPGA real time system development achieved
- Experience on Compact Rio, Compact Daq
- Expertise on communication buses : CAN, RS232, Ethernet...



#### Application Examples

- Control automat of an internal combustion engine test bench
- Fuel quality sensor signal acquisition & processing with user interface
- Control of a thermo-reactor prototype
- Control automat of an armored vehicle
- Test bench for injectors
- Automobile wiring harness test bench
- Display & tuning user interface for ECUs based on CAN communication

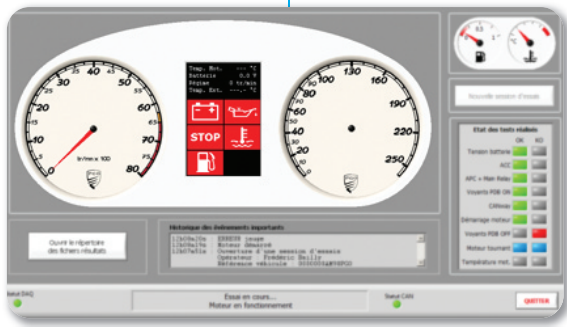
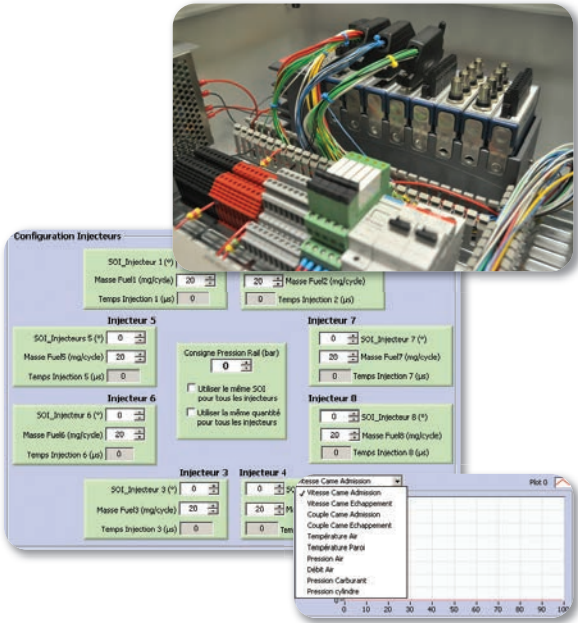


# Zoom on 2 Labview Applications

## Control of a Thermo-Reactor

Design and development of a prototype based on a Compact Rio:

- Selection of sensors & actuators
- Software development for real-time control system (Labview FPGA & RT):
  - Internal combustion reactor
  - 3 KW brushless motor & its driver
- Development of test configuration and supervision user interface
- Mechanical integration on test bench



## Car Wiring Harness Test Bench

Electric and Electronic Development:

- Embedded electronic devices : NI DAQ and NI CAN + 2 logic input/output modules
- 200 logic, analog, PWM inputs/outputs, 1 CAN bus
- 10 harnesses clustered in 2 sub-assemblies (interior and body)

Software Development:

- Test of wiring harness:
  - Wire by wire : open and short-circuits
  - Sensor and actuator functional test
- Test of engine start, including warm-up and safety parameter check

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