PZAmp II

Power Stage for Controlling Piezo Injectors

- Supports Piezo Injectors from Bosch, Continental, Delphi and Denso
- Extends Prototyping Systems
- Designed for Laboratory and In-Vehicle use
- Optimized for Automotive Applications

Product Description

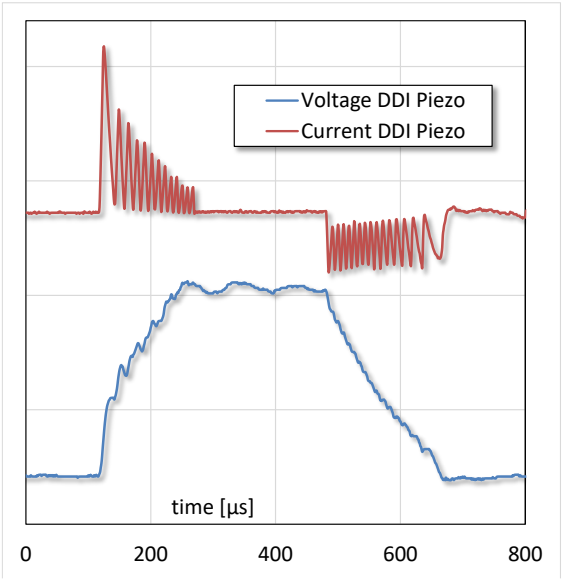
VEMACs **PZAmp II** is the improved power stage for driving up to six modern piezo injectors for test-rig and in-vehicle use. It can be used as a stand-alone solution or is connected to any kind of prototyping system like dSPACE's MicroAutoBox II and RapidPro or others. Common piezo injector systems from the manufacturers Bosch, Continental, Delphi and Denso are supported. **PZAmp II** features a CAN/XCP interface and hence any calibration system like dSPACE ControlDesk NG or ETAS INCA can be used for calibration and configuration.

FPGA based Closed-Loop control

To compensate variations of the piezo actuator the electrical parameters (voltage, charge, energy) are controlled by an FPGA based close-loop controller. With this technology, it is possible to emulate the different control strategies of various suppliers and investigate the different behavior. Closed-loop control is also beneficial for injector types with a reduced piezo volume, where parasitic effects like the temperature dependency have a higher influence on the injection mass.

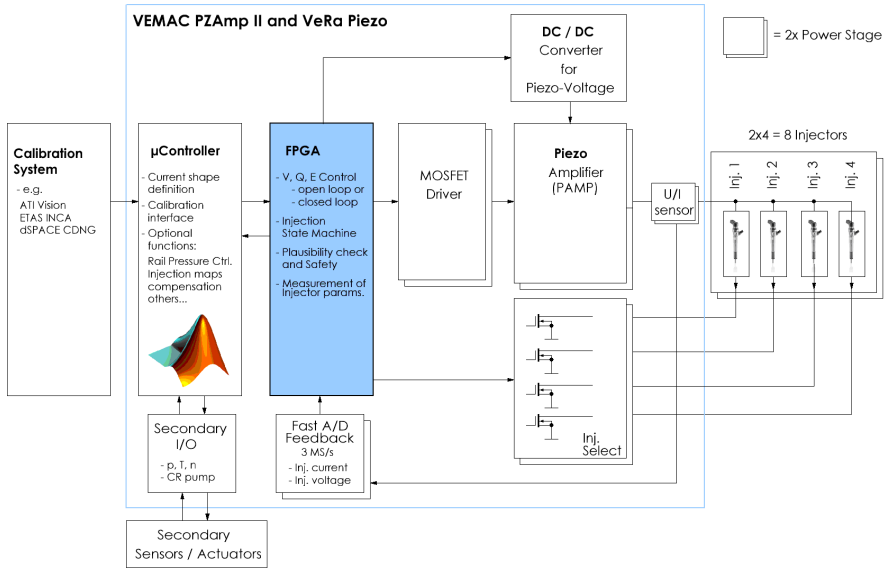
Various Options

The charge characteristic is defined by various parameters like the switching pattern, the internal DC/DC voltage and the control strategy (voltage, charge, energy). The user is free to define his own characteristic or to use predefined curves from VEMAC. The parameters can be used as fixed values or can be adjusted to different operating points by parametrization maps.



Typical charge and discharge curve of a piezo diesel injector

VEMAC GmbH & Co. KG ● Krantzstraße 7 ● 52070 Aachen - Germany
Tel. +49 (241) 18 29 29 0 ● Fax +49 (241) 18 29 29 9 ● E-Mail: contact@vemac.de www.vemac.de



PGA based control structure of PZAmp II

Possible applications:

- Stand-Alone with internal RPM and injection controller
- Triggered by external rapid prototyping system
- Online variation of injection parameters by CAN/DBC interface
- Online measurement of piezo parameters

Data	Specification
Dimensions (w x l x h in mm)	238 x 260 x 48
Weight	2 kg
Supply Voltage	9 … 40 V
Ambient Temperature	-40 °C ... 85 °C
Inputs	**Specification**
Trigger Inputs	8x injection, TTL, 0 ... 5V
Other Inputs	1x RPM input, digital 1x Load input, analog
Outputs	**Specification**
Channels	8
Power Stages	2 (Power Stage A: Ch. 1 - 4) (Power Stage B: Ch. 5 - 8)
Output Current	max. 25 A
Output Voltage	max. 230 V
Mean Power	55 W (at full-load)
Interfaces	**Specification**
Calibration	CAN 2.0B, 1 Mbit/s XCP Protocol
Control	CAN 2.0B, 500 kBit/s DBC Definition
Control Options	**Specification**
Piezo Controller	Open-Loop, Closed-Loop (U, Q or E)

Delivery and Service

VEMAC **PZAmp II** comes within a ruggedized aluminum housing with an integrated automotive connector. An individual cable harness can be ordered separately with respect to the customers' demands. The base calibration is delivered in close communication with the customer.

The great flexibility of the **PZAmp II** basic structure allows us to quickly implement and integrate customer-specific additional functions. Please talk to us about your special application and do not hesitate to contact us for any additional information.

Your contact at VEMAC

Dipl.-Ing. Lars Posdena

Tel. +49 (241) 18 29 29 85
E-Mail: sales@vemac.de

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