



AVL AMPLIFIERS AND COMBUSTION MEASUREMENT SYSTEMS

AMPLIFIER CALIBRATION UNIT

ACCURATE SIGNAL GENERATOR FOR AUTOMATIC AMPLIFIER CALIBRATION

The AVL Amplifier Calibration Unit is a complete solution for accuracy verification and adjustment of piezoelectric amplifiers, and has been specifically designed for the AVL MicroFEM family. It consists of a PC-based operating software and of the AVL CAL UNIT hardware. It is ideally complementing the AVL SDM™ Sensor Data Management system for highest accuracy, reliability and traceability of the combustion measurement.

FUNCTION SUMMARY

- Complete calibration solution with calibration hardware and PC operating software
- Calibration hardware generating precise reference signals, measuring amplifier output and evaluating amplification accuracy
- Automatic scan of standard gain range of amplifier in less than 1 minute per channel
- Gain correction factor can be applied with most AVL MicroFEM amplifiers
- Detailed reporting and documentation of amplifier calibration



FUNCTIONAL DESCRIPTION

The built-in signal generator creates a highly accurate voltage signal, which is converted to a charge signal via an integrated reference capacitor. The generated charge is transported to the input channel of the amplifier to be calibrated, and the corresponding amplifier output is fed back to the CAL UNIT.

A built-in processing unit compares the measured signal - converted via a high-end ADC – to the expected one, calculates errors, and stores all results in a detailed protocol. It furthermore proposes a gain correction factor, which can be used to optimize the accuracy of current AVL charge amplifiers at a desired gain setting.

COMPATIBILITY

AMPLIFIER TYPE		ACCURACY CHECK	RE-CALIBRATE
MicroFEM piezo & pMAX	2P5x	•	•
MicroFEM piezo	4P3x, 4P4x	•	•
	4FP4, 4FP5	•	Requires rev. 02 or higher
	4FP2, 4FP3	•	Requires rev. 20 or higher
	4FP1	•	-
MicroFEM combi (only piezo channels)	4C3x, 4C4x	•	•
	4FC4, 4FC5	•	Requires rev. 06 or higher
	4FC2, 4FC3	•	Requires rev. 20 or higher
	4FC1	•	-
IFEM piezo	3FP	•	-

• Supported
 - Not supported

YOUR BENEFITS AT A GLANCE

- In-house calibration of piezo amplifier reduces measurement uncertainty
- Cost and time savings in comparison to external calibration
- Amplifier calibration can be included in internal quality assurance standards
- Calibration of amplifier possible even in the test cell
- Very fast, semi-automated calibration process, covering the complete operating range
- Gain correction factor can be applied to latest AVL amplifiers
- Verification of the calibration unit possible without return to the factory