



# AVL MICROIFEM™ PIEZO 4P4

## Piezo Electric Amplifier

The AVL MicroIFEM 4P4 is the 4-channel piezoelectric amplifier for high-precision combustion pressure analysis on engine testbeds or in vehicle. Benefiting from the long experience of previous MicroIFEM generations and of close partnerships with our customers, the 4<sup>th</sup> generation offers new solutions to manage real-life constraints, and great flexibility in terms of test environment and application.

Its small dimensions (9.5", 1HU) and robustness allow ideal mounting close to the sensors e.g. in a cable boom-box, meaning short signal cables and lowest impact of electromagnetic interferences on the signal quality. A differential amplifier stage at the input also eliminates unwanted ground loops, thus protecting the charge signal from noise and interferences.

### Function Summary

- High-end piezoelectric amplifier with cyclic drift compensation
- Automatic sensor recognition and monitoring via AVL SDM™ (Sensor Data Management)

### Application Range

- Combustion pressure analysis on testbeds or in vehicle
- Any kind of pressure or vibration measurement with piezoelectric sensors



AVL ICE Testbed

## ADDED VALUE

- Remote parameterization from PC via user-friendly GUI
- Automatic gain calculation from sensor sensitivity, pressure range, desired output voltage
- Robust mechanical design for use on testbeds and in vehicle (mobile application)
- Wide temperature range down to  $-40^{\circ}\text{C}$  for use in climatic testbeds
- Full support of ground-isolated sensors
- Ground-loop suppression by full galvanic isolation between power supply and signal output
- Selectable zero level for the output voltage: 0V or  $-8\text{V}$  offset for increased output range
- Cyclic drift compensation allowing fine adjustments of the required compensation current

## NEW FEATURES

- Larger choice of low-pass filters
- Latest Sensor ID generation with fast response time
- Easy device grounding via new external grounding screw on the back panel

## TECHNICAL DATA

### GENERAL

<b>Input channels</b>	4
<b>Dimensions WxHxD</b>	220 x 40 x 230 mm
<b>Power supply</b>	9.5 V ... 36 V DC or 100 ... 240 V AC via optional AC adapter
<b>Power consumption</b>	Operation: 15 W; Startup: 22 W
<b>Temperature range</b>	$-40^{\circ}\text{C}$ ... $+60^{\circ}\text{C}$ ( $-40^{\circ}\text{F}$ ... $+140^{\circ}\text{F}$ )
<b>Sensor Data Management (SDM)</b>	Supports both SID sensors and Sensor Data Connectors (SDC)
<b>Parameterization</b>	Remote-controlled via PC interface

### CHARGE AMPLIFIER

<b>Input range</b>	Standard range: up to 14,400 pC Double range: up to 28,800 pC
<b>Hum and noise (typical)</b>	$< 1 \text{ mV}_{\text{RMS}}$ or $10 \text{ mV}_{\text{pp}}$ (0 to 50 MHz)
<b>Linearity error</b>	$< 0.01\%$ FSO
<b>Low-pass filter</b>	12, 20, 30, 50 or 100 kHz upper cut-off frequency
<b>Drift compensation</b>	Cyclic or continuous
<b>Output signal</b>	$-10 \text{ V} \dots 10 \text{ V}$ on BNC sockets; Offset: 0 V or $-8 \text{ V}$

