



## AVL AMPLIFIERS AND SIGNAL CONDITIONING

# MICROIFEM 4C4 COMBI

## COMBINED PIEZO AND MULTIPURPOSE AMPLIFIER

The AVL MicroIFEM 4C4 Combi is a 4-channel amplifier for high-precision combustion analysis on engine testbeds. It features 2 piezoelectric channels for cylinder pressure signals, and 2 multipurpose channels for additional high-speed signals delivered by piezo-resistive sensors or strain-gages. These 2 additional channels can be used e.g. for intake/exhaust manifold pressure, fuel rail pressure, rocker arm force or injection needle lift.

The MicroIFEM 2P5 is fully compatible with AVL Sensor Data Management, and supports sensors with built-in SID element, as well as TEDS or SDC (Sensor Data Connectors). Its small dimensions (9.5", 1HU) and its 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 undesired ground loops, thus protecting the charge signal from noise and interferences.

### YOUR BENEFITS AT A GLANCE

- Optimization of test equipment pool thanks to versatility and multiple sensor types covered
- Compatible with the AVL CAL UNIT for easy on-site accuracy check and adjustment
- Full integration in IndiCom: Parameterization, traceability, advanced sensor data logging



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Technical Data / Product Name

### MICROIFEM 4C4 COMBI

GENERAL	
Input channels	4
Dimensions WxHxD / Weight	220 x 40 x 230 mm / 1.5 kg
Power supply	9.5 V ... 36 V DC
Power consumption	Operation: 15 W; Startup: 22 W
Temperature range	-40 °C...+60 °C (-40 °F.....+140 °F)
Sensor Data Management (AVL SDM™)	Supports both sensors with SID elements and TEDS/SDC (Sensor Data Connectors)
Parameterization	Remote-controlled via PC interface (IndiSignal / IndiCom)
CHARGE AMPLIFIER	
Input range	Standard range (4C4G): up to 14,400 pC. Double range (4C4H): up to 28,800 pC
Hum and noise (typical)	< 1 mV <sub>RMS</sub> or 10 mV <sub>PP</sub> (0 to 50 MHz)
Linearity error	< 0.01% FSO
Low-pass filter	12 kHz, 20 kHz, 30 kHz, 50 kHz or 100 kHz upper cut-off frequency
Drift compensation	Cyclic or continuous
Output signal	-10 V ... 10 V on BNC sockets; Offset: 0 V or -8 V
BRIDGE – VOLTAGE OUTPUT	
Input voltage range	+/-10 V; +/-50 V
Bridge output supply	0 V ... 10 V
Maximum output current	25 mA
BRIDGE – CURRENT OUTPUT	
Bridge output supply	0 mA ... 10 mA
Maximum voltage drop at sensor	17 V

### OPTIONS / EXTENSIONS

- **TI060077A.01** AVL Oscillator Box 3077 for high-speed needle lift sensors
- **TI04CALUA.01** CAL UNIT: Calibration unit for accuracy check and adjustment

### NEW!

- ✓ New low-pass filters
- ✓ Now also compatible with the AVL 3077 Oscillator Box for needle lift measurement
- ✓ Now supports IEEE 1451 TEDS for piezo-resistive sensors