

AVL AMPLIFIERS AND COMBUSTION MEASUREMENT SYSTEMS

FLEXIFEM NOISE

PIEZO AMPLIFIER, PEAK PRESSURE MONITOR AND NOISE METER



The FlexIFEM Noise is a compact and robust system combining a state-of-the-art charge amplifier and a digital processing unit for analysis of cylinder pressure signals, allowing stand-alone calculation of combustion characteristics without crank angle information.

In the FlexIFEM Noise package, the FlexIFEM dynamically delivers for each input channel the combustion noise of the corresponding cylinder in A-weighted decibels or dB(A).

With an optional firmware upgrade the FlexIFEM Noise furthermore features a reliable peak cylinder pressure monitoring function for use on R&D or endurance test beds, or for in-vehicle calibration. The FlexIFEM Noise device is operated in a stand-alone mode providing real-time processed results values on the integrated CAN bus interface or to the analog outputs.

FUNCTION SUMMARY

- State-of-the-art piezoelectric amplifier
- Peak cylinder pressure measurement and monitoring
- Dynamic combustion noise calculation and output
- Upgradeability to FlexIFEM Indi
- Output channels for customized events and alarms
- CAN and DAC outputs for cyclic results (combustion noise, engine speed, p_{max})



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Technical Data / Product Name		FLEXIFEM NOISE
GENERAL		
Weight		1.6 kg
Dimensions WxHxD		86 x 112 x 270 mm
Power supply		9.5 V ... 36 V DC or 100 ... 240 V AC via included AC adapter
Power consumption		Operation: 10 W; Startup: 20 W
Temperature range		-10 °C...+50 °C (+15 °F.....+120 °F)
SID (Sensor IDentification)		Yes (optional for 1-channel version)
DISPLAY		
Resolution		120 x 80
Dimensions WxHxD		60 x 40 mm
INPUTS		
Analog channels (piezo/voltage)*		1 or 2
Charge input range**		0 ... 14,400 pC
Voltage input range		-10 ... +10 V
Sampling Rate per channel		1 MHz
ADC resolution		16 Bit
LVDS for crank angle signal		Optional (TI0601ADUP.01)
Digital inputs for injection/ignition timings		Optional (TI0601ADUP.01)
INTERFACES		
DAC outputs		2
DAC output range		-10 ... +10 V
Digital outputs		4
Relays		1
OHI (for Etas Inca)		Optional (TI0601ADUP.01)
Gigabit Ethernet to PC (IndiCom)		Optional (TI0601ADUP.01)
Test bed connection (RS232 or TCP/IP)		Optional (TI0601ADUP.01)
Real-time CAN		Yes

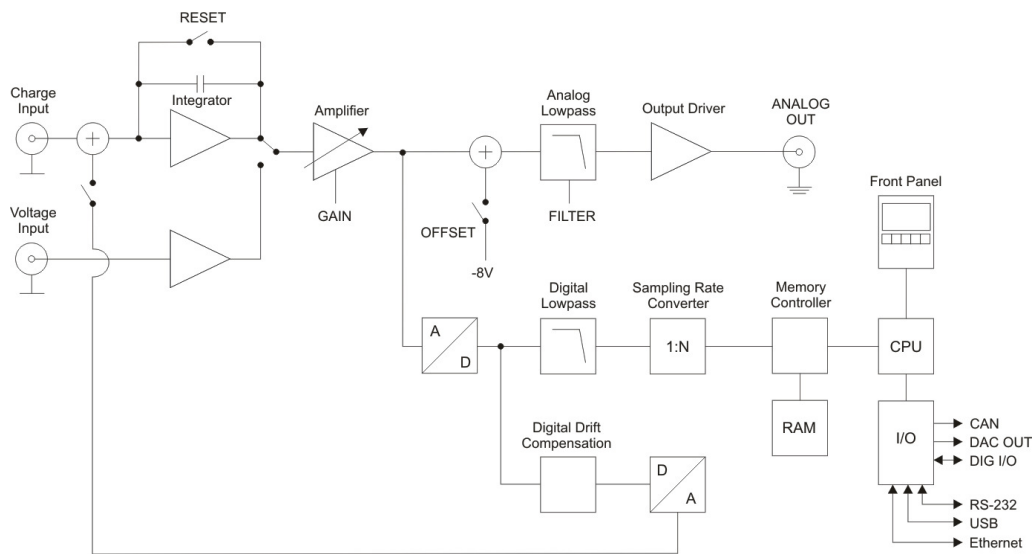
*: each input channel has an integrated charge amplifier, which can be by-passed

** : higher input range available on demand



FUNCTIONAL DESCRIPTION

The built-in analog-digital converter converts the analog signal at the integrated charge amplifier outlet into a digital data flow. A digital low pass filters high-frequency interferences from the signal whereby the signal-noise ratio is improved and anti-aliasing effects of the secondary sampling rate converter are avoided. The converter provides the data rate required for the several evaluation algorithms. The data are stored by a memory controller into a Random-access memory so that they can be accessed by the processor in any required order.



APPLICATION RANGE

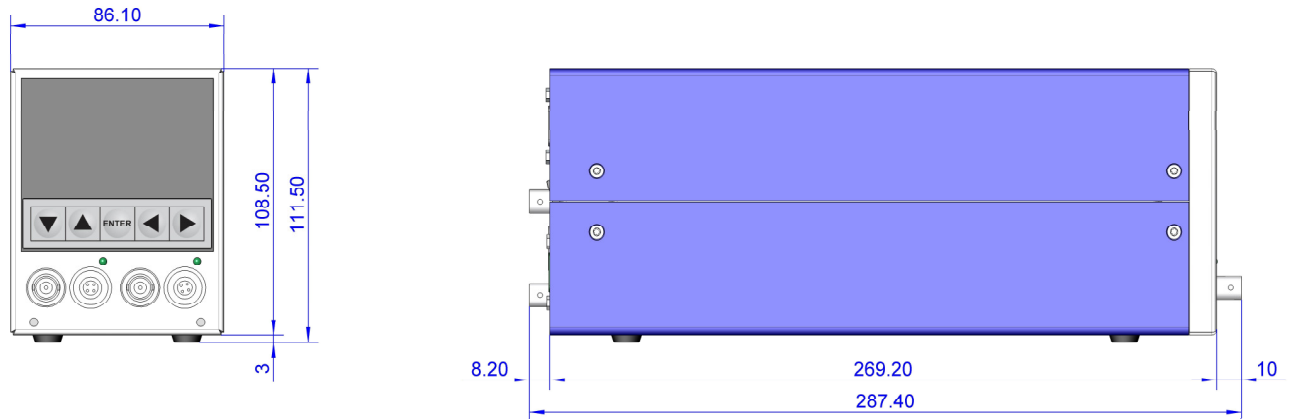
The flexibility and robustness of the FlexIFEM Noise allow its usage through the entire engine development process. This stand-alone device can thus be used as a simple charge amplifier on test bed or in vehicle, as a peak pressure monitoring device for endurance, development or calibration purpose, and as a unique noise meter delivering an accurate and repeatable value on all test systems.

YOUR BENEFITS AT A GLANCE

- Easy handling and installation thanks to integrated piezoelectric amplifiers and to stand-alone, time-based mode
- Flexible integration in any test environment thanks to real-time CAN, digital and analog outputs
- Quick combustion understanding and trouble-shooting thanks to integrated display
- Customizable software package and easy upgradeability



DIMENSIONS



COMPATIBILITY AND UPGRADE

- 2 different combustion noise algorithms ensuring compatibility with both IndiCom CalcGraf and with the AVL 4050 Noise Meter
- Full upgrade path to FlexIFEM Indi and operation with IndiCom

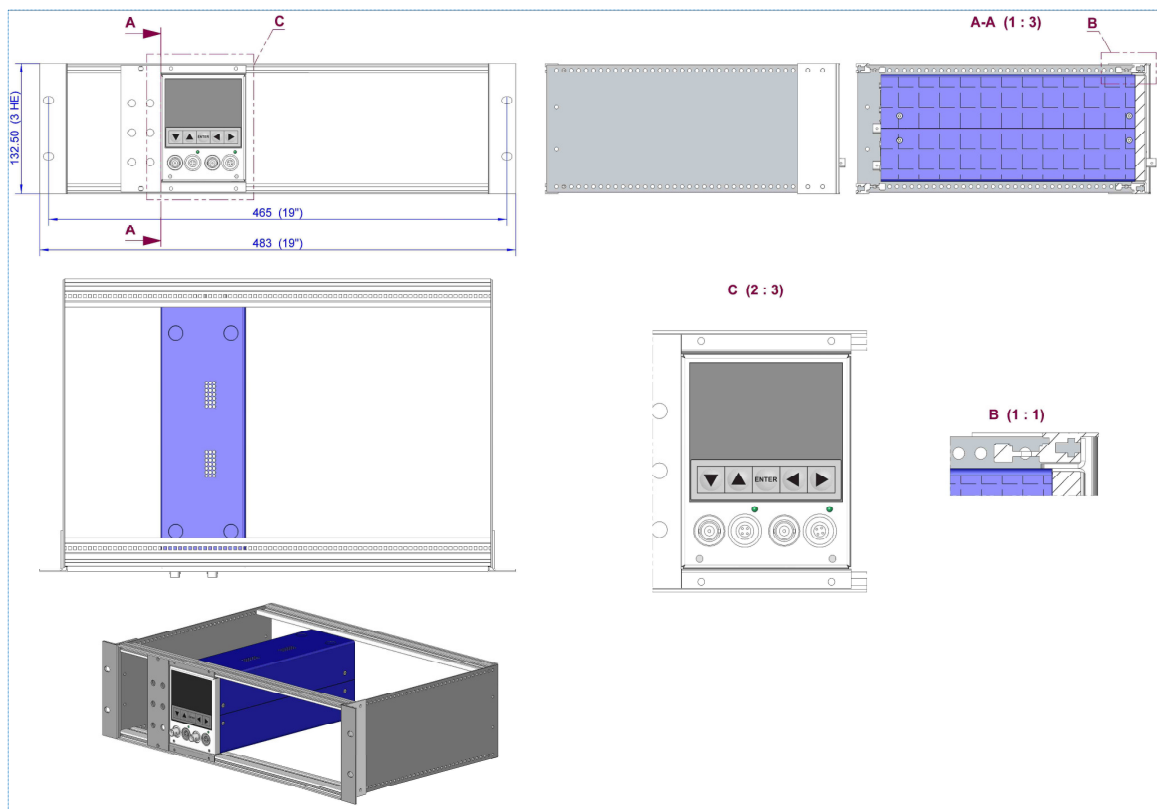
SCOPE OF SUPPLY

- 1x FlexIFEM Noise 601
- 1x patch cable, length 3 m
- 1x external power supply
- 1x connecting cable for power supply
- 1x or 2x analog-in adaptor cable(s) (4-pin Fischer to BNC)
- 1x or 2x ferrite clamp(s)
- 1x set user manuals, English
- 1x set data carrier

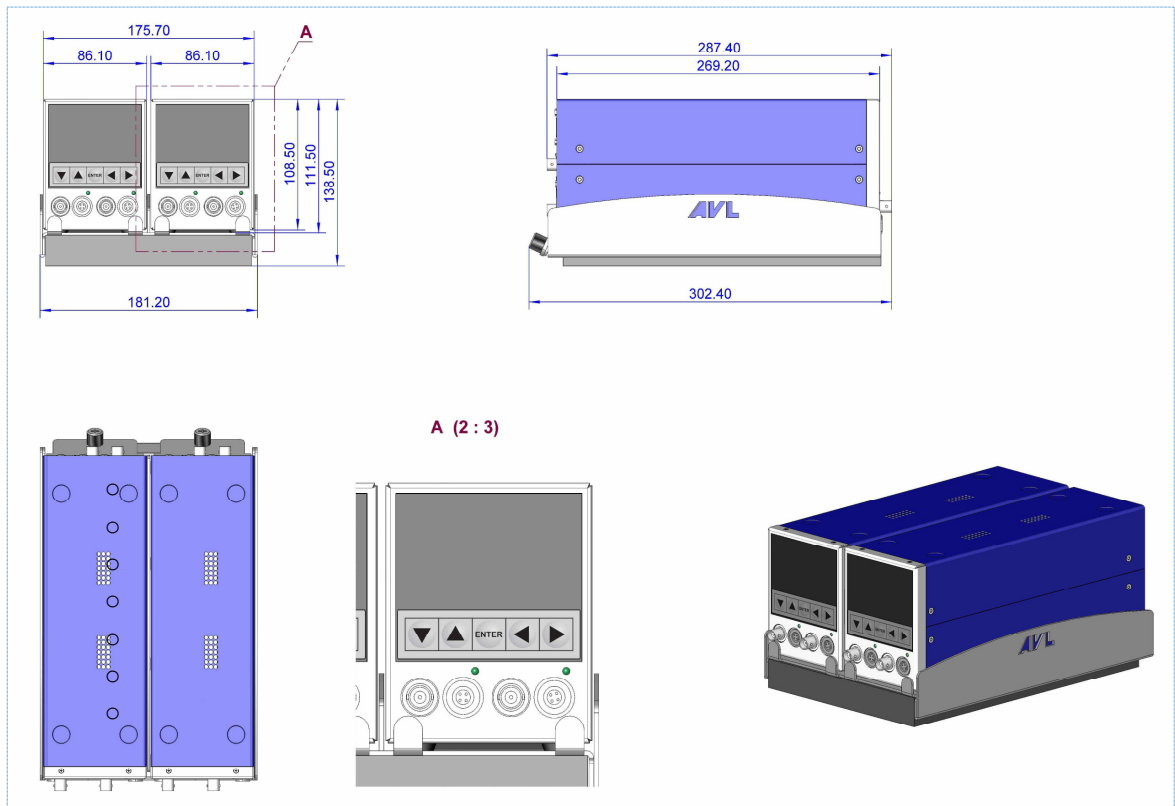
OPTIONS / EXTENSIONS

- SOFTWARE EXTENSIONS
 - **TI01PMAx.01**: p_{\max} Upgrade
 - **TI0601ADUP.01**: Upgrade to FlexIFEM Indi

- ACCESSORIES
 - **TI02RACKA.01**: Mounting rack for up to 4 FlexIFEM (requires mounting kit TI02RMAB.01 – 1 kit per device)



- **TI02MT2A.02:** Mounting tray for 2 FlexIFEM



- **TI02MT4A.02:** Mounting tray for 4 FlexIFEM

