

AE-Amp^{mk II}

Acoustic Emission Pre-Amplifier



The AE-Amp amplifier is a universal pre-amplifier for acoustic emission sensors from various manufacturers. The AE-Amp can be used with passive, JFET, IEPE or constant voltage sensors.

The AE-Amp is modular and can be expanded as a 19" system up to 48 channels per system. For smaller applications, the amplifier is available as a 2-channel version in a small box.

Each channel can be set independently. The setting options include gain (0 / 20 / 40 and 60 dB) and sensor supply via constant current (IEPE) or constant voltage. Control is via the USB interface.

For applications where the sensor is also to be used as an actuator, the amplifier can be bypassed and an external signal can be output to the input.

In combination with the HVP500 high-voltage pulse generator and the AE-Amp-BU-xx base unit, regular pulse patterns can be output to the sensor.

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Summary

Key Capabilities

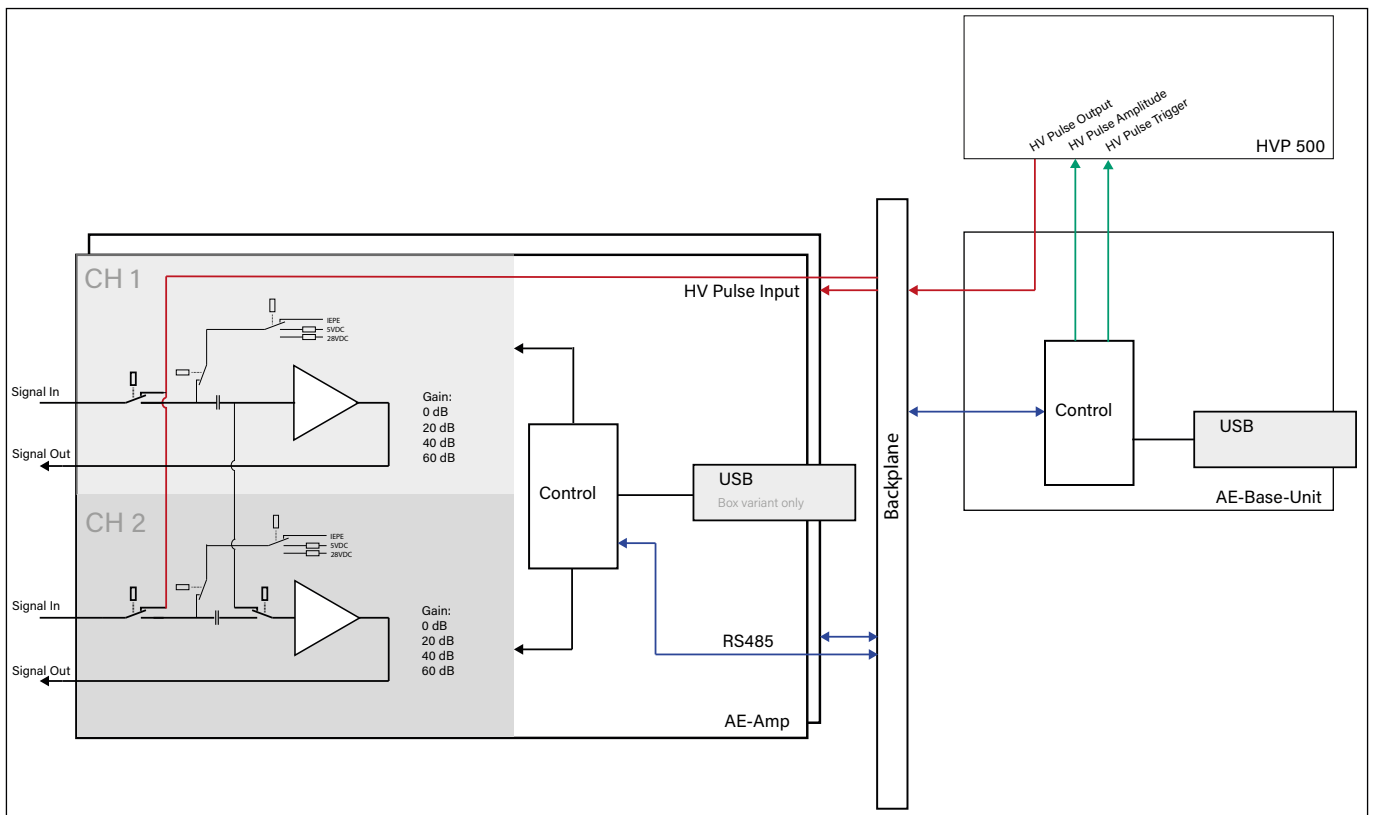
- 2 independent channels per module
- Switchable amplifier levels per channel
- > 1 MHz bandwidth at gain 40 dB
- Low output noise
- High voltage pulse through (500 V)
- Split Mode
- Sensor Power IEPE/ICP, 5V DC, 28V DC
- USB / RS485 software interface for configuration of all settings

Applications

- Detecting and locating defects
- Pressure vessel inspection
- Quality control and monitoring
- Leak detection and localization
- Material research
- Geological and microseismic research
- Structural Health Monitoring

Specification

Parameter	AE-Amp Box	AE-Amp Rack
Number of Channels	2	2 - 48
Gain	0 dB / 20 dB / 40 dB / 60 dB	
Input Stage	AC coupled voltage input, single ended	
Compatible Sensor Types	passiv, JFET, ICP/IEPE, voltage powered	
Sensor Power	ICP/IEPE: 4 - 50 mA Voltage: 28 V, 5 V	
Output Impedance	50 Ω ± 0.5%	
Max. Output Voltage Swing	± 9 V (no Load) ± 4.5 V (Load = 50 Ω)	
Bandwidth -3 dB (low Cut)	5 kHz	
Bandwidth -3 dB (high cut)	00 dB : 5.0 MHz 20 dB : 3.0 MHz 40 dB : 2.0 MHz 60 dB : 700 kHz	
Gain Error @ 100 kHz	max. ±1%	
High Voltage Pulse Through	max. 500 V	
Power Supply	12 V DC, max 8 W	110 - 240 V AC
Interface	USB (emulated COM Port)	
Dimensions	108 x 45 x 170 mm	Amp-BU-24-AE: 19" x 3U x 32.5cm Amp-BU-48-AE: 19" x 6U x 32.5 cm



Block diagram of the AE-Amp in combination with the AE-Base Unit and the HVP 500.