

# Piezotron® Coupler

Type 5125B...

## Acoustic Emission - Piezotron Coupler

The AE-Piezotron Coupler processes the high frequency output signals from Kistler Piezotron Acoustic Emission Sensors. Gain, filters and integration time constant of the built-in RMS converter are designed as plug-in modules. This allows the best possible adaptation to the particular monitoring function. The 5125B... is designed for use in industrial applications.

- Piezotron acoustic emission sensor high frequency amplifier
- Built-in RMS converter and limit monitor
- Plug-in filter elements
- Rugged case, vibration-proof construction
- IP 65 protection
- Conforming to CE

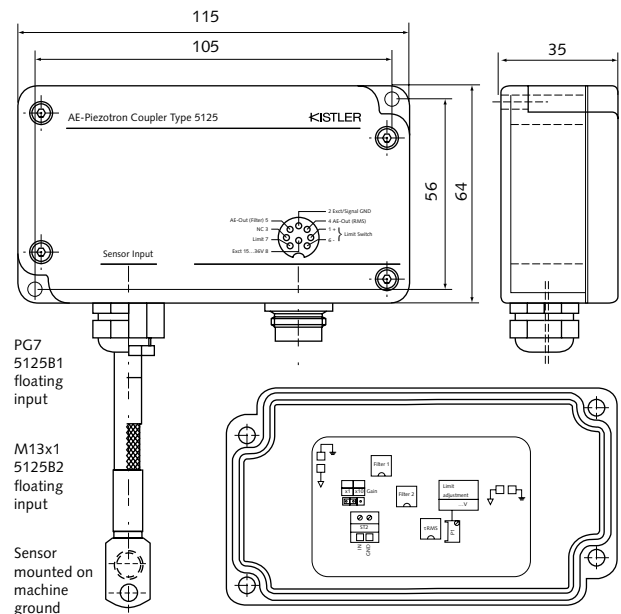
### Description

The AE-Piezotron coupler with built-in RMS converter and Limit Switch has been specially designed for the processing of high-frequency sound emission signals from Kistler Piezotron AE sensors. The gain can be set with a jumper to (x1) (x10) or (x100). The amplifier has two series-connected second order filters, designed as plug-in elements. The type of filter (high-pass or low-pass) as well as the frequency limit are freely selectable. A bandpass filter is obtained by the series connection of one high-pass and one low-pass filter. The integration time constant of the RMS converter can be freely selected. The limit switch is set with a potentiometer. The switching threshold set point can be monitored at the "Limit" output with a DVM or an oscilloscope. The output of the limit switch is electrically isolated by an optocoupler. The following output signals are present at the 8-pin round connector: Two analog output signals AE-Out (Filter), AE-Out (RMS) and a digital output signal (Limit Switch).

### Application

The AE-Piezotron Coupler Type 5125B... in conjunction with Piezotron Acoustic Emission Sensors Type 8152B... from Kistler are particularly suitable for the monitoring of machines and tools in industrial production. The AE-Piezotron Coupler supplies power to the sensor and processes the sound emission signal.

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### Connection

The Piezotron AE-Sensor is connected directly to the terminals inside the AE-Piezotron Coupler in accordance with the wiring diagram on the underside of the cover. The coupler can be supplied with a PG 7 or M13 x 1 connection to provide a leak-tight connection according to the type of protective cable. The supply and signal outputs are connected to an 8-pin round connector DIN 45326. Pin assignment is indicated on the case cover.

**Technical Data**

| Type   | Unit     | 5125B...    |
|--|----------|-------------|
| Temperature Range, Operating                               | °C       | 0 ... 60    |
| Vibration (20Hz ...2000Hz)                                 | gpk      | 10          |
| Shock (1ms)  | g        | 200         |
| Housing/Base   | material | Aluminum    |
| Sealing housing/connector                                  | type     | IP65        |
| Weight   | grams    | 270         |
| Connection, input, output (Shield, connected on both ends) | type     | 8-pin       |
| Sensor Connection  | type     | PG7/M13x1   |
| AE-Out (Filter)  |          |             |
| Frequency Range - 5% (unfiltered)                          | kHz      | 15 ... 1000 |
| Frequency Range - 3dB (unfiltered)                         | kHz      | 5 ... 1700  |
| Accuracy   | %        | 5           |
| Output Range   | V        | 0 ... ±5    |
| Output Impedance   | Ω        | 50          |
| Output Current   | mA       | 0 ... ±5    |
| Offset (voltage)   | mV       | <±20        |
| Noise  | mVpp     | <10         |
| AE-Piezotron Sensor  |          |             |
| Current for Piezotron (±10%)                               | mA       | 4,3         |
| Input Voltage  | V        | 0 ... 8     |
| Input Voltage, max   | Vpp      | 1,6         |
| Filter (plug-in)   |          |             |
| Filter Characteristic                                      |          | Butterworth |
| Slope  | dB       | 40          |
| Bandpass HP  | kHz      | 50          |
| Bandpass LP  | kHz      | 1000        |
| AE-Out (RMS)   |          |             |
| Frequency Range - 3dB                                      | kHz      | 10 ... 1000 |
| Accuracy Crest Factor <2                                   | %        | 3           |
| Integration time constant (standard)                       | ms       | 1,2         |
| Output Voltage   | V        | 0 ... 5     |
| Output Current   | mA       | 0 ... 5     |
| Output Impedance   | Ω        | 10          |
| Offset (max. 30)   | mV       | 10          |
| Noise  | mVpp     | <10         |
| Limit Switch   |          |             |
| OptoCoupler Output   |          |             |
| OptoCoupler off max.                                       | V        | 30          |
| OptoCoupler on max.  | mA       | 7           |
| Delay  | s        | 1,3         |
| Hysteresis   | mV       | 20          |
| Supply   |          |             |
| Supply Voltage   | VDC      | 15 ... 36   |
| Supply Current   | mA       | <70         |

1 g = 9,80665 m/s<sup>2</sup>, 1 Inch = 25.4 mm, 1 gram = 0,03527 oz, 1 lbf-in = 0,113 Nm

**Accessories Included**

- 8-pin cable jack DIN 45326
- Highpass filter 50 kHz
- Lowpass filter 1000 kHz
- Integration time constant

| Type      |
|-----------|
| 1500A57   |
| 5325A50   |
| 5327A1000 |
| 5328A1.2  |

**Optional Accessories**

- Filter module set
- Filter bridge (no filtering)
- AE Sensor
- 50 ... 700 kHz High-pass Filter (see below)
- 100 ... 1000 kHz Low-pass Filter (see below)
- 0,12 ... 120 ms integration time constant (see below)
- Magnet
- Adapter cable 8-Pin cable connector/ 3xBNC pos./AE-Out/RMS & filter) and 3x banana plugs (Ext. supply/GND/Case)
- Set of filter modules, consisting of 1ea of following: 5325A50, 5325A100, 5325A200, 5325A500, 5327A100, 5327A200, 5327A500, 5327A1000, 5328A0.12, 5328A12, 5328A120

| Type     |
|----------|
| 5330A1   |
| 5324A0   |
| 8152B... |
| 5325A... |
| 5327A... |
| 5327A... |
| 8443B    |
| 1500A31  |
| 5330A1   |

**Ordering Key**

| Measuring Range          |   | 5125B <input type="checkbox"/> |
|--------------------------|---|--------------------------------|
| with PG7 gland IP65      | 1 | ↑                              |
| with coupling M13x1 IP65 | 2 |                                |

**Ordering Key for Optional Filters**

| Measuring Range          |     | 5325A <input type="checkbox"/> |
|--------------------------|-----|--------------------------------|
| 50 kHz High-pass filter  | 50  | ↑                              |
| 100 kHz High-pass filter | 100 |                                |
| 200 kHz High-pass filter | 200 |                                |
| 300 kHz High-pass filter | 300 |                                |
| 400 kHz High-pass filter | 400 |                                |
| 500 kHz High-pass filter | 500 |                                |
| 700 kHz High-pass filter | 700 |                                |

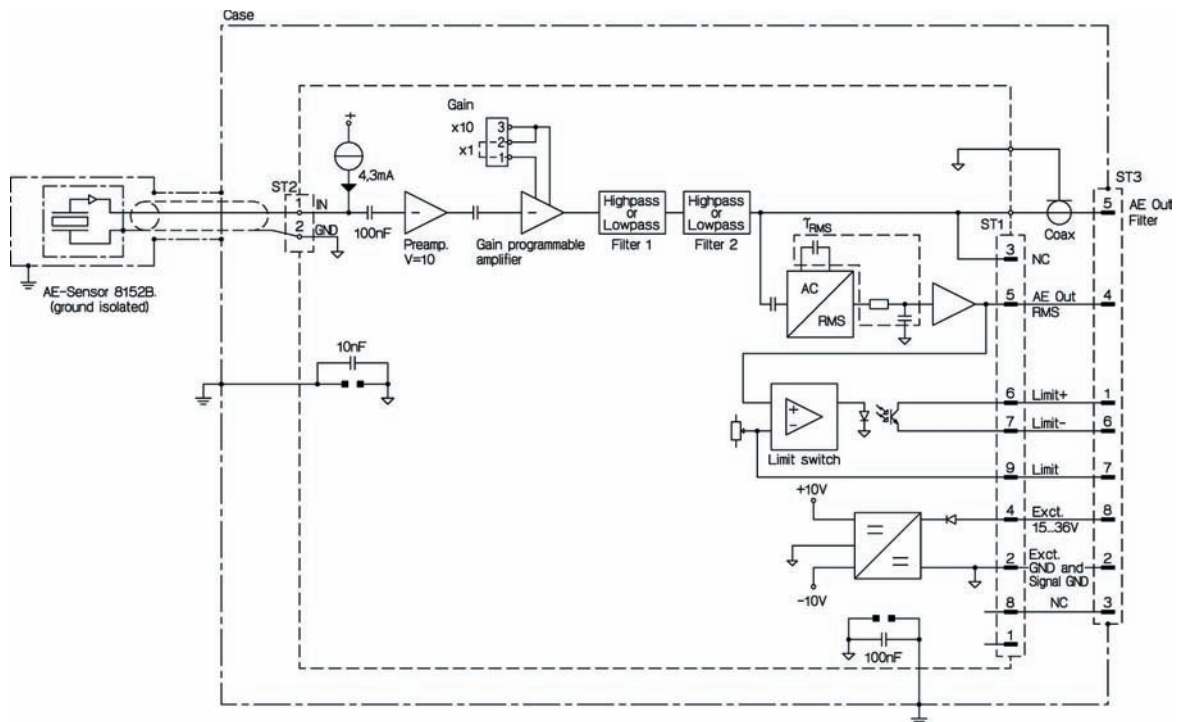
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**Ordering Key for Optional Filters**

| Measuring Range          |      | 5327A <input type="checkbox"/> |
|--------------------------|------|--------------------------------|
| 100 kHz Low-pass filter  | 100  | ↑                              |
| 200 kHz Low-pass filter  | 200  |                                |
| 500 kHz Low-pass filter  | 500  |                                |
| 600 kHz Low-pass filter  | 600  |                                |
| 800 kHz Low-pass filter  | 800  |                                |
| 900 kHz Low-pass filter  | 900  |                                |
| 1000 kHz Low-pass filter | 1000 |                                |

**Ordering Key for Optional Filters**

| Measuring Range                  |      | 5328A <input type="checkbox"/> |
|----------------------------------|------|--------------------------------|
| 0,12ms integration time constant | 0.12 | ↑                              |
| 1,2ms integration time constant  | 1.2  |                                |
| 12ms integration time constant   | 12   |                                |
| 25ms integration time constant   | 25   |                                |
| 120ms integration time constant  | 120  |                                |



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