

Piezotron Coupler

Amplifier for accelerometers

Type 5127B...

Rugged coupler for powering Piezotron, or other sensors with constant current supply (two-wire system). Gain, filters and integration time constant of the built-in optional RMS converter are designed as plug-in modules. This allows the best possible adaptation to the particular monitoring function. The Type 5127 is designed for use in industrial applications.

- Built-in optional RMS converter and limit monitor
- Amplifier for Piezotron and PiezoBeam sensors
- Plug-in filter elements
- Rugged case, vibration-proof construction
- IP 65 protection
- Conforming to CE

Description

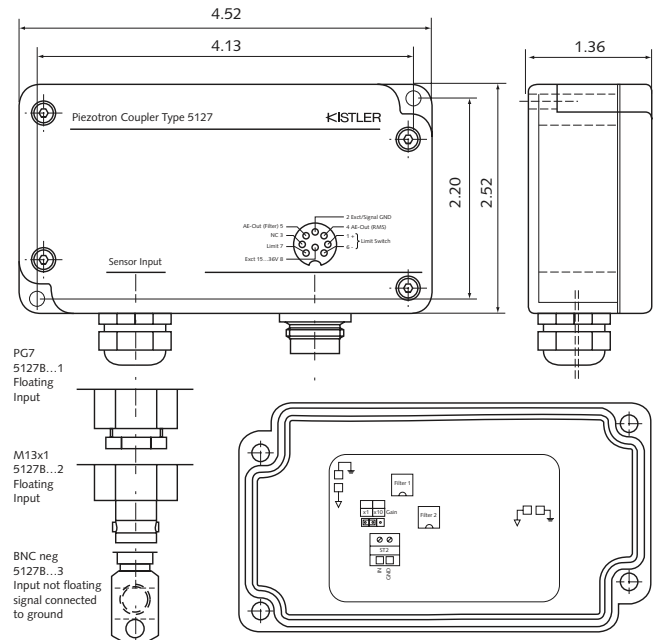
The coupler is suited for low impedance sensors with integrated electronics (Piezotron, PiezoBeam, IEPE compatible) or for high impedance sensors with an external impedance converter. The gain can be set with a jumper to either 1x or 10x. The amplifier has two series connected second order filters, designed 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 time constant of the optional RMS converter can be 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-pole round connector: Two analog output signals Out (Filter), Out (RMS) and a digital output signal (Limit Switch).

Application

The coupler is especially suited for use in industrial environments. The plug-in filters and the adjustable gain allow adaptation to prevailing operating conditions.

Connection

The connecting cable is fixed either via the BNC plug or directly to the terminals inside the Piezotron coupler according to the drawing on the back of the top 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 or a BNC neg. connector. The power input and signal outputs are connected to an 8-pole round connector DIN 45326. Pin assignment is indicated on the case cover.

Technical data

| Type | Units | 5127 |
|--------------------------------------|----------|------------------------|
| Temperature range, operating | °F | 32 ... 140 |
| Vibration (20 ... 2 000Hz) | gpk | 10 |
| Shock (1 ms) | g | 200 |
| Housing/Base | material | Aluminum |
| Sealing – housing/connector | type | IP65 |
| Weight nom. | grams | 270 |
| Connection, input, output (shielded) | type | 8-pin |
| Sensor connection | type | PG7/M13x1/ BNC neg. |

Out (Filter)

| | | |
|--------------------------------------|------|-----------------|
| Frequency range – 5% (no Filter) | Hz | 0.1 ... 30 000 |
| Frequency range – 3 dB (no Filter) | Hz | 0.03 ... 90 000 |
| Frequency range – 3 dB (with filter) | Hz | 0.03 ... 30 000 |
| Accuracy | % | 5 |
| Output Range | V | 0 ... ±10 |
| Current | mA | 0 ... ±5 |
| Impedance | Ω | 10 |
| Offset (0 dB) | mV | <±20 |
| (20 dB) | mV | <±30 |
| Noise | mVpp | <20 |
| Current for Piezotron sensor | mA | 3.8 (±0.6) |
| Input voltage | V | 0 ... 20 |

Filter (plug-in)

| | | |
|----------------------------|--------|--------------------------------|
| Filter characteristic | | Butterworth |
| Slope | dB/dec | 40 |
| Bandpass HP (Type 5324A0) | | Filterbridge – No Filtering |
| Bandpass LP (Type 5327A30) | kHz | 30 |

Out (RMS) (Option: Type 5127B1X)

| | | |
|--|------|-----------------|
| Frequency range – 3 dB (no filter) | Hz | 0.03 ... 90 000 |
| Accuracy crest factor <2 | % | 5 |
| Integration TC (Type 5328A25 standard) | ms | 25 |
| Output Voltage | V | 0 ... 10 |
| Current | mA | 0 ... 5 |
| Impedance | Ω | 10 |
| Offset | mV | <±40 |
| Noise | mVpp | <10 |

1 g = 9.80665 m/s²
 1 inch = 25.4 mm
 1 gram = 0.03527 oz
 1 lbf-in = 0.1129 Nm

Limit switch (Option: Type 5127B1X)

| | | |
|--------------------|-----|-----------|
| OctoCoupler output | | |
| off max. | V | 30 |
| on max. | mA | 7 |
| Delay, nom. | s | 1.3 |
| Hysteresis | mV | 40 |
| Adjustment range | V | 0 ... 12 |
| Supply | | |
| Voltage | VDC | 22 ... 30 |
| Current | mA | <50 |

Included Accessories

- 8-pole cable jack DIN 45326
- Filter bridge (no filtering)
- Low pass filter 30 kHz
- Integration time constant, 25 ms for Type 5127B1...

Type

1500A57
 5324A0
 5327A30
 5328A25

Optional Accessories

- Adapter cable 8-pole cable connector/ 3xBNC pos./AE-Out/RMS & filter) and 3x banana plugs (Ext. supply/GND/Case)
- Vibration sensor

Type

1500A31
 8141A...

Ordering key

Output Options

| | |
|-----------------------|---|
| Without RMS converter | 0 |
| With RMS converter | 1 |

| | |
|----------------------|---|
| With PG7 gland | 1 |
| With coupling M13x1 | 2 |
| With BNC neg. Socket | 3 |

Type 5127B

Ordering key

Filter

| | |
|-------------------------|-----|
| 1 Hz High-pass filter | 1 |
| 10 Hz High-pass filter | 10 |
| 100 Hz High-pass filter | 100 |

Type 5324A

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Ordering key

Filter

| | |
|------------------------|---|
| 1 kHz High-pass filter | 1 |
|------------------------|---|

Type 5325A

Ordering key

Filter

| | |
|------------------------|-----|
| 10 Hz Low-pass filter | 10 |
| 20 Hz Low-pass filter | 20 |
| 30 Hz Low-pass filter | 30 |
| 50 Hz Low-pass filter | 50 |
| 100 Hz Low-pass filter | 100 |
| 150 Hz Low-pass filter | 150 |
| 200 Hz Low-pass filter | 200 |
| 300 Hz Low-pass filter | 300 |
| 500 Hz Low-pass filter | 500 |

Type 5326A

Ordering key

Filter

| | |
|------------------------|----|
| 1 kHz Low-pass filter | 1 |
| 2 kHz Low-pass filter | 2 |
| 3 kHz Low-pass filter | 3 |
| 5 kHz Low-pass filter | 5 |
| 10 kHz Low-pass filter | 10 |
| 20 kHz Low-pass filter | 20 |
| 30 kHz Low-pass filter | 30 |

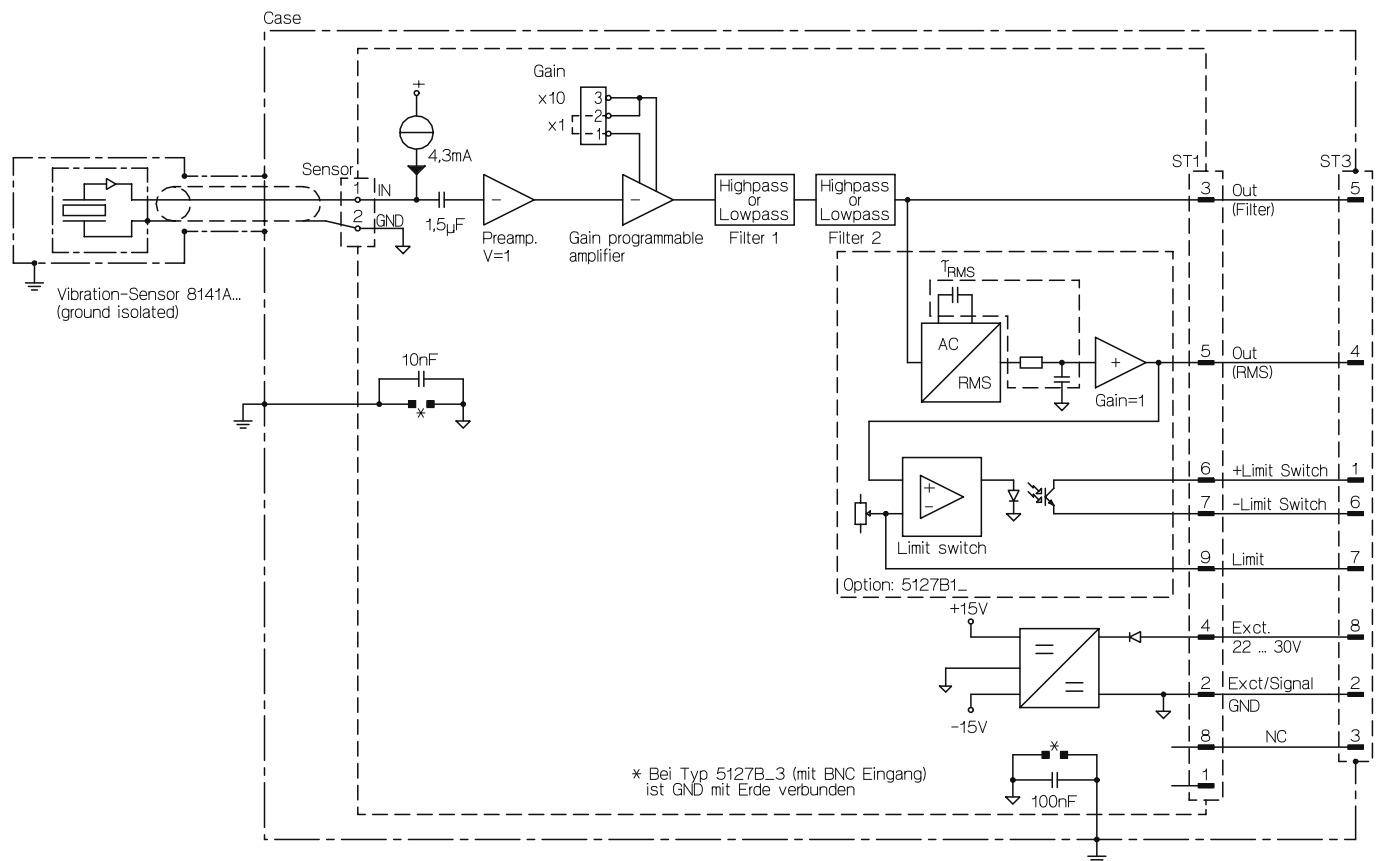
Type 5327A

Ordering key

Filter

| | |
|-----------------------------------|------|
| 0.12 ms integration time constant | 0.12 |
| 1.2 ms integration time constant | 1.2 |
| 12 ms integration time constant | 12 |
| 25 ms integration time constant | 25 |
| 120 ms integration time constant | 120 |

Type 5328A



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