

# Charge and IEPE Signal Conditioner



## Application

- Signal conditioning for dynamic measurement with piezoelectric sensors for acceleration, force and pressure or sound
- Front-end with anti-aliasing filter for PC data acquisition systems
- Mobile measuring systems
- Test benches in laboratory and production facilities

## Properties

- Component of instrument family M72
- Very compact design
- 3 independent channels, e.g. for triaxial sensors
- 5 charge and 4 IEPE/AC voltage ranges with low noise provide a total dynamic range of 140 and 120 dB, respectively
- Output without integration or with single or double integration for the measurement of acceleration, velocity or displacement
- Low-pass filter with 0.1 / 1 / 10 / 50 kHz, high-pass with 0.1 and 3 Hz
- Input of transducer sensitivity with LED display for output scaling
- TEDS support, reads automatically the sensitivity of a connected transducer
- Operation via front panel push buttons

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## Technical Data

### Measurement functions

|                                    |                                                                |                  |
|------------------------------------|----------------------------------------------------------------|------------------|
| Measurands                         | Vibration acceleration                                         |                  |
|                                    | Vibration velocity/severity                                    |                  |
|                                    | Vibration displacement                                         |                  |
| Measuring range acceleration       | 0.0001 to 1000 (sensitivity 100 pC/ms-2 )                      | m/s <sup>2</sup> |
|                                    | 0.1 to 1000000 (sensitivity 0.1 pC/ms-2 )                      | m/s <sup>2</sup> |
|                                    | 0.00001 to 5 (sensitivity 1000 mV/ms-2 )                       | m/s <sup>2</sup> |
|                                    | 0.1 to 50000 (sensitivity 0.1 mV/ms-2 )                        | m/s <sup>2</sup> |
| Voltage gain                       | 1; 10; 100; 1000                                               |                  |
| Charge gain                        | 0.1; 1; 10; 100; 1000                                          | mV/pC            |
| Gain selection                     | Push button; Interface                                         |                  |
| Input of transducer sensitivity    | 4 digits; 0.001 to 9999; push buttons and display or interface |                  |
| Accuracy                           | ±0.5 (Gain = 0.1/1/10/100; > 10 % full scale; mid-band )       | %                |
|                                    | ±1 (Gain = 1000; > 10 % of full scale; mid-band )              | %                |
| Output noise                       | <6 (charge input; 1 to 50000 Hz; G = 1000 )                    | mVRMS            |
|                                    | <3 (charge input; 1 to 30000 Hz; G = 1000 )                    | mVRMS            |
|                                    | <7 (IEPE input; 1 to 50000 Hz; G = 1000 )                      | mVRMS            |
|                                    | <3 (IEPE input; 1 to 50000 Hz; G = 1000 )                      | mVRMS            |
| Lower frequency limit acceleration | 0.1; 3                                                         | Hz               |
| Lower frequency limit velocity     | 3                                                              | Hz               |
| Lower frequency limit displacement | 3                                                              | Hz               |
| Upper frequency limit acceleration | 100; 1000; 10000; 50000                                        | Hz               |
| Upper frequency limit velocity     | 100; 1000                                                      | Hz               |
| Upper frequency limit displacement | 200                                                            | Hz               |
| Indication                         | LED seven-segment display for sensitivity and output level (%) |                  |
|                                    | LEDs for input type                                            |                  |
|                                    | LEDs for filters and integration                               |                  |
|                                    | LED for overload                                               |                  |

### Connectors

|                       |                                  |    |
|-----------------------|----------------------------------|----|
| Input channels        | 3                                |    |
| Input signals         | IEPE                             |    |
|                       | Charge                           |    |
|                       | AC voltage                       |    |
| Input connector       | 3 x BNC rear                     |    |
| IEPE constant current | 3.5 to 4.5                       | mA |
| TEDS support          | IEEE 1451.4; templates 25 and 27 |    |
| Output connector      | 3 x BNC rear                     |    |

### Power Supply

|                         |                         |     |
|-------------------------|-------------------------|-----|
| External supply voltage | 8 to 28                 | VDC |
| External supply current | 180 to 750              | mA  |
| Supply connection       | DIN 45323; 1.9 mm; rear |     |

### Case Data

|                               |                                                     |    |
|-------------------------------|-----------------------------------------------------|----|
| Dimensions without connectors | 105 x 104 x 95 (W x H x D)                          | mm |
| Case material                 | Aluminum, hard anodized                             |    |
| Operating temperature range   | -10 to 55 (95 % rel. humidity without condensation) | °C |

**Scope of delivery** PS1600 Mains plug adapter 115/230 VAC; 12 VDD; <1600 mA

**Optional accessories** MQ20 Charge attenuator 1:10  
MQ40 Charge attenuator 1:100

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