Charge and IEPE Signal Conditioner

M72A3

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

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/s²
	0.1 to 1000000 (sensitivity 0.1 pC/ms-2)	m/s²
	0.00001 to 5 (sensitivity 1000 mV/ms-2)	m/s²
	0.1 to 50000 (sensitivity 0.1 mV/ms-2)	m/s²
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	
IEPEconstant 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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