

For Measurement of Acceleration, Velocity, Displacement

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General-PurposeVibration Meter

Measure and Evaluate Vibrations Detected with Piezoelectric Accelerometer



General-Purpose Vibration Meter

Four types of inputs and support for acceleration, velocity, and displacement measurements



Features

- Connectivity for various kinds of accelerometers enables a wide range of vibration measurements
- Comparator function with level evaluation output
- Versatile display characteristics including rms, equivalent peak, equivalent peak-to-peak, maximum value hold, and peak hold
- AC and DC output connectors
- Serial interface for enhanced connectivity
- Data printout capability via serial interface

Application Examples

Product testing

Vibration meter allows detection of problems related to vibration phenomena.

When vibrations above a certain threshold level continue for more than a preset time, an alarm signal is output by the built-in comparator.

This allows automatic evaluation.



Equipment diagnosis

Detect various problem conditions of manufacturing equipment, ranging from low-frequency vibrations caused by unbalance or misalignment to highfrequency problems caused by bearing vibrations.

The comparator function can be used for pass/fail evaluation based on vibration values.



VM-83 Connection Examples



Specifications

- Op	beemeations	
Inpu	it Section	
A	Accelerometer input	For piezoelectric accelerometers
		Maximum input charge 30 000 pC
P	Preamplifier input 1	For connection of piezoelectric accelerometers via preamplifier VP-26/
P	Preamplifier input 2	For connection of piezoelectric accelerometers with integrated
		preamplifier; voltage and current supply: 18 V, 2 mA
Mea	surement modes	here here a second second here here here here here here here her
	Acceleration (ACC)	m/s ²
	/elocity (VEL)	mm/s
	Displacement (DISP)	mm
_	surement range	
	Piezoelectric	Accelerometer constituity 1 00 to 0 00 $pC/(m/c^2)$
		Accelerometer sensitivity 1.00 to 9.99 pC/ (m/s ²)
	Acceleration	0.3, 1, 3, 10, 30, 100, 300, 1 000
	Velocity	3, 10, 30, 100, 300, 1 000
	Displacement	1, 3, 10, 30, 100, 300, 1 000 (HPF 1 Hz)
	Displacement	0.3, 1, 3, 10, 30, 100, 300, 1 000 (HPF 3 Hz)
	Displacement	0.03, 0.1, 0.3, 1, 3, 10, 30, 100 (HPF 10 Hz or higher)
		For accelerometer sensitivity 0.030 to 0.999 pC/ (m/s ²),
		multiply above figures by 10
		For accelerometer sensitivity 10.0 to 99.9 pC/ (m/s ²),
		multiply above figures by 1/10
Vibra	ation frequency range	
P	Piezoelectric	
	Acceleration	1 Hz to 20 kHz ± 5 %
	Velocity	1 Hz to 3 Hz ± 10 %, 3 Hz to 3 kHz ± 5 %
	Displacement	1 Hz to 3 Hz ± 20 %, 3 Hz to 500 Hz ± 10 %
Filte		
	Piezoelectric	
1.	High-pass filter (HPF)	1, 3, 10, 20, 50 Hz (-10 % point, 3rd-order)
	Low-pass filter (LPF)	100, 300, 1 k, 3 k, 10 kHz (-10 % point, 3rd-order)
Dion	blay characteristics	100, 300, 1 K, 3 K, 10 KH2 (-10 % point, 314-01der)
_	MS	True RMS
	-	
	quivalent peak (EQ PEAK)	RMS × √2
	Equivalent peak-to-peak EQ P-P)	RMS peak × 2
N	/laximum value hold	Holds maximum value in selected mode at selected display characteristic
Ρ	eak hold	Holds peak of acceleration waveform
Comparator function		Based on level evaluation
Comparator level setting		In steps of 2 % of full-scale range
	Delay time setting	0 to 9 s in 1-s steps
	Auto reset time	0 to 90 s in 1-s steps, ON, OFF
	Comparator output	Open-collector output (maximum applied voltage 24 V,
	parties output	maximum drive current 25 mA)
		Buzzer output (on/off selectable), LCD flashing
	functions	Bazzor output (on/on selectable), cob hashing
_	Bar graph	Linear scale, value sampled every 100 ms
IV	leasurement value	4-digit numeric display (average of 20 instantaneous value samples
-		taken at 100 ms intervals, display updated every 2 seconds)
	Aeasurement mode	Display characteristics, filter, battery capacity (3-stage indication
	bration	
Calib		0.030 to 0.999 pC/ (m/s2), 1.00 to 9.99 pC/ (m/s2), 10.0 to 99.9 pC/ (m/s2
Calit A	Accelerometer sensitivity	
Calit A	Calibration output	Signal for external equipment calibration
Calib A		
Calib A	Calibration output	

	uts		-								
A	C output		Range full-scale 2 V, output impedance 600 Ω , BNC connected								
	Output voltag	,	су								
	Piezoelectric (unit electrical characteristics, 80 Hz)										
	Acceleration Range full-scale ± 2 %										
	Velocit	ty	Range full-scale ± 3 %								
	Displa	Rang	ge full-so	ale ±	5 %						
D	DC output			Range full-scale 2 V, output impedance 600 Ω, BNC connect							
	Output voltag	je accura	• • • • •								
	Piezoelec	tric (unit e	electri	cal char	acteri	stics, 8	30 Hz)				
	Accele	Rand	ae full-so	ale ±	2 %						
	Velocit	Rand	, ae full-so	ale ±	3 %						
	Displa		ge full-so								
Noise	e level (typical)			,							
			meter	input, s	ensitiv	vitv 5.0)) /Oq 0(m/s ²)		
	loise level with accelerometer input, sensitivity 5.00 pC/ (m/s ²)										
	Measuremen range	t Measure mode			HPF		.PF	Display		Noise leve	
	Acceleration		0.3		OFF		OFF		RMS	0.004 m/s ²	
	Velocit	3	3		1 Hz		OFF		RMS	0.1 mm/s	
	Displacemen				1 Hz		OFF		RMS	0.015 mm	
	Displacement 0.0		3 10 Hz OFF RMS 0.0003 mm								
	Displacement	0.0		101	lz	C	DFF		RMS	0.0003 mm	
N	oise level (exa		-							0.0003 mm	
N	oise level (exa		h piez	zoelectri	c acce			nnec			
N	oise level (exa	Measureme mode Acceleration	h piez	zoelectri asurement ge 0.3	c acce H Of	elerom PF F	LPF	nnec -	ted Display RMS	Noise leve 0.0034 m/s	
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	oise level (exa Accelerometer type PV-85 PV-90B	Imple) wit Measureme mode Acceleration Velocity Displacement Acceleration Velocity	h piez nt Mea rang	zoelectri asurement ge 0.3 3 0.03 3 30	C acce H OF 10 0F 10	PF FF Hz Hz FF Hz	LPF OFF OFF OFF OFF	nnec = = = =	ted Display RMS RMS RMS RMS RMS	Noise leve 0.0034 m/s 0.004 mm/ 0.0002 mm 0.133 m/s 0.17 mm/s	
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Optional accessories

Name	Model				
AC adapter	NC-98E				
Piezoelectric accelerometer	Various				
Standard Cable	VP-51 series (2 m and up)				
Vibration meter preamplifier	VP-26A				
Vibration meter extension cable	EC-02S series (3 m and up)				
BNC-BNC Coaxial Cable	EC-90 series (2 m and up)				
Interface cable	5WKR4030				



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