

Industrial Piezoelectric Accelerometer



ASC P311A15 / ASC P311A25

- ▶ Uniaxial
- ▶ IEPE (Integrated Electronic Piezoelectric)
- ▶ Stainless Steel Housing
- ▶ Voltage Output
- ▶ IP68

Features

- ▶ $\pm 32g$, $\pm 80g$, $\pm 160g$,
Dynamic Ranges
- ▶ High Resonance
- ▶ Wide Bandwidth ($\pm 1db$,
6kHz)
- ▶ Excellent Price-Performance
Ratio
- ▶ Side Connector or Top
Connector

Options

- ▶ Customised Cable Length
- ▶ Metric Mounting Studs
- ▶ $\pm 5\%$ Tolerance on Sensitivity
(Precision Models)
- ▶ DAkkS Calibration

Applications

- ▶ Railway Engineering
- ▶ Gearbox Monitoring
- ▶ Rotating Machinery
Monitoring
- ▶ Steel Mills
- ▶ Paper and Pulp Industry
- ▶ Food Processing Industry



ASC P311A15

ASC P311A25

Piezoelectric IEPE Technology

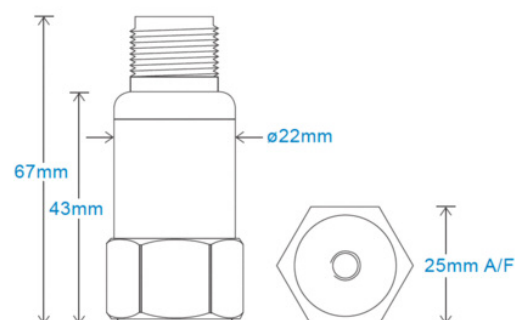
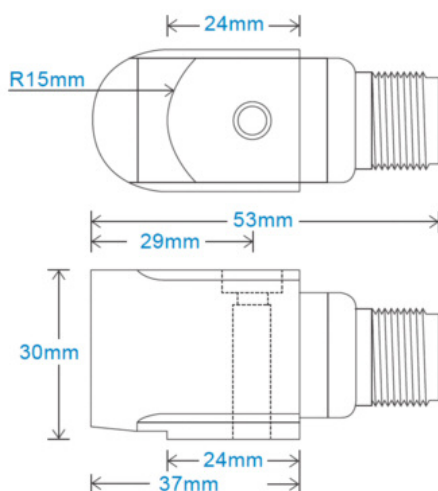
ASC's Industrial accelerometers are made of piezoelectric ceramics and are usable over a wide frequency range from 0.2Hz to 10kHz. The accelerometers are IEPE (Integrated Electronics PiezoElectric) sensors that produce an output voltage proportional to the input acceleration. The sensors feature a built-in preamplifier and a charge to voltage converter that transforms the high-impedance charge output from the piezoelectric ceramic (Lead Zirconate Titanate, PZT) into a low-impedance voltage output able to drive long cables. ASC's IEPE sensors operate on a constant-current supply and use a simple two-wire coaxial cable for power input and signal output.

Description

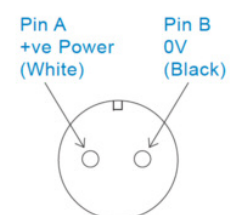
ASC's IEPE Industrial accelerometers, P311A15 and P311A25, are analog voltage output sensors. These piezoelectric vibration sensors are used typically in condition monitoring and structural health monitoring applications. The sensors are based on a piezoelectric compression design, which provides high rigidity and excellent shock resistance.

ASC's Industrial accelerometers, P311A15 and P311A25, feature a rugged stainless steel housing that is corrosion proof and chemical resistant. Types P311A15 and P311A25 operate over a wide temperature range from -55°C to $+140^{\circ}\text{C}$. The sensors are environmentally sealed to IP68 grade and can withstand shocks up to $5000g$'s. The industry standard 2-pin MIL-C-5015 type top and side exit connectors provide flexible mounting options. The sensors can be optionally fitted with an integral cable.

ASC Type P311A15 has a side exit connector and Type P311A25 has a top exit connector. The standard versions have a measuring range of $\pm 80g$ (Sensitivity: 100mV/g) and a $\frac{1}{4}$ "-28 UNF mounting thread. For flexibility in mounting, metric mounting studs and threads (M6/M8/M10) are available as options.



Connection Details



Typical Specifications

MODEL NUMBER: ASC P311A15 / ASC P311A25

Type: Piezoelectric IEPE Accelerometer

		Range (\pm g)		
		32	80	160
Sensitivity (\pm 10%)	mV/g	250	100	50
	\pm 0.5dB	P311A15 & P311A25: 0.5 to 2.5k		
Frequency response:	\pm 1dB	P311A15 & P311A25: 0.5 to 6k		
	\pm 3dB	P311A15 & P311A25: 0.2 to 10k		
Resonance frequency	kHz	P311A15	20	
		P311A25	22	
Transverse sensitivity (Max.)	%	<5		
Shock limit	g	5000		
Output Polarity	Acceleration in the direction of the arrow (see outline drawing) generates a positive output			

ELECTRICAL

Excitation voltage	V DC	20 to 26
Supply current	mA	0.5 to 8
Bias Voltage	V DC	11 \pm 3 (in full temperature range)
Output Impedance (Max.)	Ω	200
Settling time	sec	2
Isolation		Case Isolated
Insulation resistance	M Ω	>100 (at 500V)
Max. Broadband noise	milli g	0.2

ENVIRONMENTAL

Operating & Storage temperature range	$^{\circ}$ C	-55 to +140
Sealing		IP68

PHYSICAL

Sensing element		PZT
Case material		Stainless Steel
Connector		2-pin MIL-C-5015
Mounting		Adhesive / Stud
Mounting thread		P311A15: 1/4"-28 UNF (Male)
		P311A25: 1/4"-28 UNF (Female)
Mounting torque	N-m	8
Weight (without cable)	gram	ASC P311A15: 185
		ASC P311A25: 125
Cable		Optional (Polyurethane / Braided / Silicon)

FACTORY CALIBRATION (SUPPLIED WITH THE SENSOR)

Range	32g	80g	160g
Sensitivity	at 160Hz and 2g		at 160Hz and 15g
Frequency Response	80Hz to 6kHz		

CALIBRATION DIN ISO 17025¹ (ORDER SEPARATELY)²

Range	32g	80g	160g
Frequency Response	I: 1Hz to 100Hz (Long-stroke shaker calibration) II: 80Hz to 10kHz (High-frequency shaker calibration)		

ORDERING INFORMATION

ASC P311A15		
or	Y	XXX
ASC P311A25		
Industrial Sensor Type	Sensitivity tolerance	Sensitivity
Side connector: P311A15	Y: 5% tolerance	050: 50mV/g (±160g range)
or	on sensitivity	100: 100mV/g (±80g range)
Top connector: P311A25	(precision models)	250: 250mV/g (±32g range)

ACCESSORIES

ASC P311A15	ASC P311A25
Mounting Thread for Centre Bolt	Mounting Studs
06: M6x1mm Male	06: ¼"-28 UNF Male to M6x1mm Male
08: M8x1.25mm Male	08: ¼"-28 UNF Male to M8x1.25mm Male
	10: ¼"-28 UNF Male to M10x1.5mm Male

CABLE

KPI	X	YYY
	(PUR/Braided/Silicon)	
Cable assembly for Industrial Uniaxial IEPE accelerometers	1: Polyurethane (PUR) -40°C to +90°C; IP68; Oil resistant High abrasion and tear resistance	001: 1m
2-pin MIL to open-ended	Recommended for petrochemical industry	
	2: Braided ETFE Stainless steel braided armour; ETFE -65°C to +150°C; IP65; Durable Recommended for steel industry	005: 5m
	7: Silicon -50°C to +150°C; IP68 High flexibility and temperature resistance Recommended for paper, marine or food industry	010: 10m

¹ accredited by the German accreditation body (Deutsche Akkreditierungsstelle, DAkkS) to DIN EN ISO / IEC 17025

² Only available on precision models

ASC GmbH · Advanced Sensors Calibration

Ledererstraße 10 · 85276 Pfaffenhofen · Germany · Tel. +49 (0) 8441 786 547 -0 · office@asc-sensors.de

All data, information, statements, photographs and graphic illustrations made in this data sheet are without any obligation and raise no liabilities to or form part of any sales contracts of ASC GmbH or any affiliates for components referred to herein. © ASC GmbH 2011. All rights reserved. No part of this copyrighted work may be reproduced, modified or distributed in any form or by any means, or stored in any database or retrieval system, without the prior written permission of ASC GmbH or its affiliates. Any such unauthorized use for any purpose is a violation of the relevant copyright laws. Revision April 2016

