

## MEMS Capacitive Accelerometer

# ASC 3511LN



- ▶ Uniaxial
- ▶ Ultra Low Noise (LN)
- ▶ High g-Range
- ▶ 4 Wire System
- ▶ Amplified Output
- ▶ Made in Germany

### Features

- ▶ Range:  $\pm 2g$  to  $\pm 400g$
- ▶ DC Response
- ▶ High Shock Resistance
- ▶ Gas Damped
- ▶ Excellent Bias and Scale Factor Stability
- ▶ Differential Mode

### Options

- ▶ Customised Cable Length
- ▶ Customised Connector
- ▶ TEDS Module

### Applications

- ▶ Structural Monitoring and Testing
- ▶ Endurance Testing
- ▶ Brake Test
- ▶ Vibration Monitoring
- ▶ Civil Engineering
- ▶ Modal Analysis
- ▶ Vehicle Testing
- ▶ Automotive Ride Quality & Comfort
- ▶ Railway Engineering
- ▶ Flutter Test

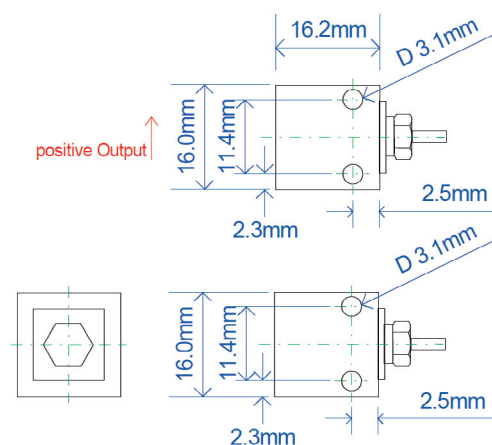
### Capacitive MEMS Technology

The accelerometers are based on a capacitive MEMS technology and can be used in a low frequency response up from 0Hz. Inside the sensor element, the seismic mass is connected with two conductive capacitor plates. If the seismic mass oscillates between the two capacitor plates the capacitance will change. This capacitance change is converted via an ASIC (Application Specific Integrated Circuit) into an analog signal.

### Description

The model ASC 3511LN is an uniaxial accelerometer based on capacitive technology. It is over a wide temperature range fully compensated and factory calibrated. The sensor can be mounted by screws or can be glued. The amplified output is easy to use with a data acquisition unit.

The signal is independent from the power between +6VDC to +40VDC. The housing is made of hard anodized aluminium. A very high flexible and rugged cable and the cube form of the sensor provide a simple mounting, even on delicate positions. As standard, the ASC 3511LN is equipped with 2m integrated cable. Please see cable configuration.



## Typical Specifications

### ASC 3511LN

#### DYNAMIC

Measurement Range	g	±2	±5	±10	±25	±50	±100	±200	±400
Sensitivity	mV/g	2000	800	400	160	80	40	20	10
Frequency Response: ±5%	Hz	0 to 100	0 to 100	0 to 300	0 to 500	0 to 650	0 to 650	0 to 1000	0 to 1000
Amplitude Non-Linearity	% FSO	<0.5							
Transverse Sensitivity	%	typ. 1, max. 3							
Shock Limit	g <sub>pk</sub>	2000	2000	5000	5000	5000	5000	5000	5000

#### ELECTRICAL

Excitation Voltage	V DC	6-40							
Supply Current	mA	10							
Zero Acceleration Output	±mV	80	80	40	40	40	40	40	40
Output Impedance	Ω	90							
Isolation		Case Isolated							
Spectral Noise	µg/√Hz	7	12	18	25	50	100	200	400
Residual / Broadband Noise (±5% Frequency Range)	µV	140	95	125	90	100	100	125	125

#### ENVIRONMENTAL

Thermal Sensitivity Shift	%/°C	0.02							
Thermal Zero Shift	mg/°C	0.8	2	4	10	20	40	80	160
Operating Temperature Range	°C	-40°C to +100°C							
Storage Temperature Range	°C	-55°C to +125°C							
Protection Class		IP65							

#### PHYSICAL

Sensing Element		MEMS Capacitive							
Case Material		Aluminium							
Connector (at cable end)		Optional							
Mounting		Adhesive / screw holes							
Weight (without cable)	gram	22							
Cable # 12300		13 gram/meter PUR; Li12YD11Y 5*0.06mm <sup>2</sup> (AWG30); Diameter: 3 ±0.1mm							

#### CABLE CODE / PIN CONFIGURATION

	Red: Supply +	Black: GND/Supply -
	Green: Signal +	White: Signal -

## ASC 3511LN

### FACTORY CALIBRATION (SUPPLIED WITH THE SENSOR)

Measurement Range	2g and 5g	10g	25g	50g and 100g	200g and 400g
Sensitivity	5m/s <sup>2</sup> @16Hz	50m/s <sup>2</sup> @80Hz	100m/s <sup>2</sup> @80Hz	200m/s <sup>2</sup> @80Hz	200m/s <sup>2</sup> @80Hz
Frequency Response	1 to 100Hz	10 to 300Hz	10 to 500Hz	10 to 650Hz	10 to 1000Hz

### CALIBRATION DIN ISO 17025 (ORDER SEPARATELY)\*

Measurement Range	2g and 5g	10g	25g	50g and 100g	200g and 400g
Sensitivity	5m/s <sup>2</sup> @16Hz	50m/s <sup>2</sup> @80Hz	100m/s <sup>2</sup> at 80Hz	200m/s <sup>2</sup> @80Hz	200m/s <sup>2</sup> @80Hz
Frequency Response	0.5 to 150Hz	10 to 500Hz	10 to 800Hz	10 to 1600Hz	10 to 2000Hz

Conversion Factor: 1g<sub>n</sub> corresponds to 9,80665 m/s<sup>2</sup>

### ORDERING INFORMATION

ASC	3511LN (Low Noise)	002	6	A
	Model Number	Range (Ex. 050 is 50g)	Cable Length (meters)	Connector & Pinout
				A: no connector

Example: ASC 3511LN-002-6A

### QUALITY

- ▶ ASC GmbH is ISO 9001:2015 certified.
- ▶ The Deutsche Akkreditierungsstelle GmbH (DAkkS) has awarded to our calibration laboratory the DIN EN ISO/IEC 17025:2018 accreditation for calibrations and has confirmed our competence to perform calibrations in the field of mechanical acceleration measurements. The pictured DAkkS-ILAC logo refers exclusively to the accredited service.
- ▶ All ASC products are CE-compliant.

### ASC GmbH

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