

## MEMS Capacitive Accelerometer

# ASC OS 315LN



- ▶ Triaxial
- ▶ Ultra Low Noise (LN)
- ▶ High g-Range
- ▶ 8 or 12 Wire System
- ▶ Amplified Output
- ▶ Stainless Steel Housing
- ▶ Made in Germany

### Features

- ▶ Range:  $\pm 2g$  to  $\pm 400g$
- ▶ DC Response
- ▶ Protection Class IP68
- ▶ Salt Water Resistance
- ▶ High Shock Resistance
- ▶ Gas Damped
- ▶ Excellent Bias and Scale Factor Stability
- ▶ Differential Mode

### Options

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

### Applications

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



### 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.

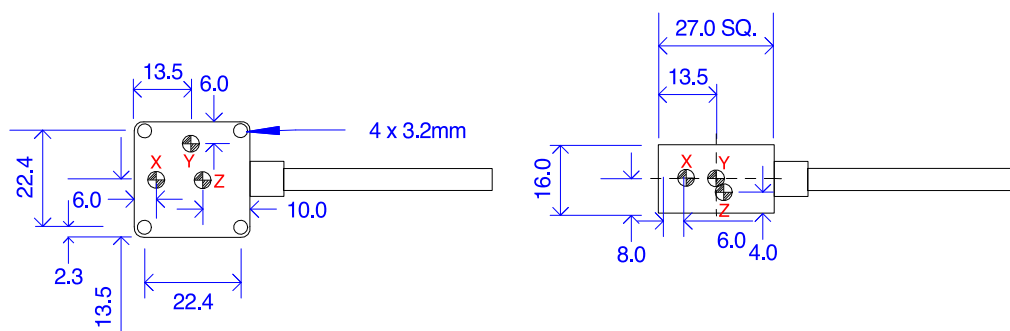
### Description

The model ASC OS 315LN has been developed for the demanding requirements of offshore applications. The robust housing and the connecting cables are suitable for immersion in salt water and are designed to work at 1m water depth.

These ASC accelerometers therefore benefit from the high stability of the chip technology with a low noise level and a low bias and an excellent scale factor temperature coefficient.

The ASC OS 315LN is over a wide temperature range fully compensated and factory calibrated. Because capacitive technology is used, extremely small measuring ranges are possible. The amplified output is easy to use with a data acquisition unit. The signal is independent from the power between +8VDC to +30VDC.

A very high flexible and rugged cable provides a simple mounting. The ASC OS 315LN is equipped with 1 meter cable as standard.



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## Typical Specifications

### DYNAMIC

		Range ( $\pm$ g)							
		2	5	10	25	50	100	200	400
Sensitivity	mV/g	2000	800	400	160	80	40	20	10
Frequency response: $\pm$ 5%	Hz	100	100	300	500	650	650	1000	1000
Amplitude non-linearity	% FSO	<1							
Transverse sensitivity	%	3							
Shock limit	$\pm$ g	2000	2000	4000	4000	4000	4000	4000	4000
Recovery time	ms	<1							

### ELECTRICAL

Excitation voltage	V DC	8-30							
Supply current	mA	10							
Zero acceleration output	$\pm$ mV	150	150	80	80	80	80	80	80
Output Impedance	$\Omega$	100							
Isolation		Case Isolated							
Spectral noise	$\mu$ g/ $\sqrt$ Hz	5	7	10	25	50	100	200	400
Residual / Broadband noise ( $\pm$ 5% frequency range)	$\mu$ V	100	60	70	90	100	100	125	125

### ENVIRONMENTAL

Thermal sensitivity shift	%/ $^{\circ}$ C	0.015							
Thermal zero shift	mg/ $^{\circ}$ C	0.15	0.4	0.75	2	4	7.5	15	30
Operating temperature range	$^{\circ}$ C	-40 $^{\circ}$ C to +100 $^{\circ}$ C							
Storage temperature range	$^{\circ}$ C	-55 $^{\circ}$ C to +125 $^{\circ}$ C							
Humidity/Sealing		IP68							

### PHYSICAL

Sensing element		MEMS Capacitive							
Case material		Stainless Steel							
Connector (at cable end)		Optional							
Mounting		Adhesive / screw holes							
Weight (without cable)	gram	68							
Cable		30 gram/meter; AWG 30, Polyurethane (PUR); Diameter: 4.4mm							

**FACTORY CALIBRATION (SUPPLIED WITH THE SENSOR)**

Range	2g and 5g	10g	25g	50g and 100g	200g and 400g
Sensitivity	at 16Hz and 0.5g	at 80Hz and 5g	at 80Hz and 15g	at 80Hz and 20g	at 80Hz and 20g
Frequency Response	1 to 100Hz	10 to 300Hz	10 to 500Hz	10 to 650Hz	10 to 1000Hz

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

Range	2g and 5g	10g	25g	50g and 100g	200g and 400g
Sensitivity	at 16Hz and 0.5g	at 80Hz and 5g	at 80Hz and 5g	at 80Hz and 20g	at 80Hz and 20g
Frequency Response	0.5 to 150Hz	10 to 500Hz	10 to 800Hz	10 to 1600Hz	10 to 2000Hz

**Cable Code / Pin Configuration***8-wiring-System*

Red            Supply +  
Brown        Supply -

X-Axis:  
White        Signal +  
Grey         Signal -

Y-Axis:  
Yellow       Signal +  
Pink         Signal -

Z-Axis:  
Green        Signal +  
Blue         Signal -

**ORDERING INFORMATION**

ASC	OS 315LN (Low Noise)	002	6	A
	Model number	Range (Ex. 050 is 50g)	Cable length (meters)	Connector & Pinout
				A: no connector

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