

## MEMS Capacitive Accelerometer

# ASC OS 325MF



- ▶ Triaxial
- ▶ MF (Medium Frequency; DC to 2.5 kHz)
- ▶ 8 Wire System
- ▶ Stainless Steel Housing
- ▶ Made in Germany



### Features

- ▶ Range:  $\pm 2g$  to  $\pm 200g$
- ▶ 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

ASC's Medium Frequency (MF series) capacitive accelerometers are based on the capacitive sensing technology and produce an analog voltage proportional to the input acceleration. The accelerometers can measure both static (gravity) and dynamic accelerations. ASC's MF series can be used for very low to medium frequency vibration measurements from 0Hz to 2.5kHz. The MF series features a MEMS sensor element where the seismic mass is connected between two conductive capacitor plates. When subjected to an input acceleration, the seismic mass oscillates between the two capacitor plates and there is a change in the capacitance. This change in capacitance is converted via an ASIC (Application Specific Integrated Circuit) into a low impedance analog voltage output signal.

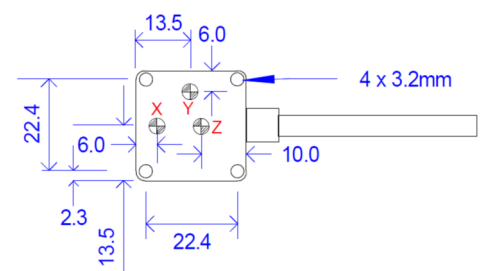
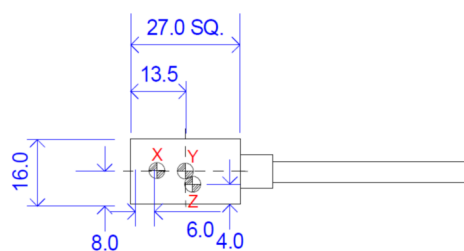
## Description

The model ASC OS 325MF 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 an excellent scale factor temperature coefficient.

The ASC OS 325MF 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 +5VDC to +40VDC.

A very high flexible and rugged cable provides a simple mounting. The ASC OS 325MF is equipped with 1 meter cable as standard.



## Typical Specifications

### DYNAMIC

		Range ( $\pm$ g)						
		2	5	10	30	50	100	200
Sensitivity	mV/g	1350	540	270	90	54	27	13.5
Frequency response: $\pm$ 5%	Hz	700	700	1400	1600	1800	1800	1800
Amplitude non-linearity	% FSO	<0.5						
Transverse sensitivity	%	<3						
Shock limit	g <sub>pk</sub>	6000 (0.1ms, half-sine)						
Recovery time	ms	1						

### ELECTRICAL

Excitation voltage	V DC	5 to 40						
Supply current	mA	15						
Zero acceleration output	$\pm$ mV	50						
Output Impedance	$\Omega$	300						
Isolation		Case Isolated						
Spectral noise	$\mu$ g/ $\sqrt$ Hz	10	20	35	100	170	340	680
Residual / Broadband noise ( $\pm$ 5% frequency range)	$\mu$ V	360	290	360	360	390	390	390

### ENVIRONMENTAL

Temperature coefficient of sensitivity (Thermal sensitivity shift)	%/ $^{\circ}$ C	0.01						
Temperature coefficient of bias (Thermal zero shift)	mg/ $^{\circ}$ C	0.2	0.5	1	3	5	10	20
Operating temperature range	$^{\circ}$ C	-40 to +125						
Storage temperature range	$^{\circ}$ C	-55 to +125						
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; Li9YD11Y; AWG 30; Diameter: $3.6 \pm 0.15$ mm; -15 to +30 $^{\circ}$ C Li6YFC6Y; AWG 30; Diameter: $3.6 \pm 0.15$ mm; -190 to +105 $^{\circ}$ C						

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

Range	2g and 5g	10g	30g	50g to 200g
Sensitivity	at 16Hz and 0.5g	at 80Hz and 5g	at 80Hz and 15g	at 80Hz and 20g
Frequency Response min. 5%	1 to 100Hz	10 to 1400Hz	10 to 1600Hz	10 to 1800Hz

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

Range	2g and 5g	10g	30g	50g to 200g
Sensitivity	at 16Hz and 0.5g	at 80Hz and 5g	at 80Hz and 15g	at 80Hz and 200g
Frequency Response	0.5 to 150Hz	10 to 2000Hz	10 to 2300Hz	10 to 2500Hz

**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 325MF	002	1	A
	Model number	Range (Ex. 050 is 50g)	Cable length (meters)	Connector & Pinout
				A: no connector

\* accredited by the German accreditation body (Deutsche Akkreditierungsstelle, DAKKS) to DIN EN ISO / IEC 17025; the pictured DAKKS-ILAC logo refers exclusively to the accredited service

**ASC GmbH · Advanced Sensors & Calibration**

Ledererstraße 10 · 85276 Pfaffenhofen · Germany · Tel. +49 8441 786547-0 · office@asc-sensors.de

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