



LIST OF CALIBRATION COEFFICIENTS

Customer order: Revision: A Print date: 23.03.2022
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EQUATIONS

ACCELERATION EQUATION

$$\alpha [g] = \frac{\Delta\lambda_{offset} - (\lambda_{FBG,2} - \lambda_{FBG,1})}{C_{sens}}$$

STRING EXPRESSION

$$\alpha = (\Delta\lambda_{offset} - (\lambda_{FBG,2} - \lambda_{FBG,1})) / C_{sens}$$

Measurand	Unit	Specification	Value	Measurand	Description
Sensitivity flatness *2	dB	<2	PAS	α [g]	Acceleration
Phase flatness	°	<10	PAS	$\lambda_{FBG,1}$ [nm]	Measured WL
Resonance frequency	Hz	>250	PAS	$\lambda_{FBG,2}$ [nm]	Measured WL
Cross axis sensitivity	dB	<-30	PAS	C_{sens} [nm/g]	Acceleration sensitivity
				$\Delta\lambda_{offset}$ [nm] *1	To be determinet after installation *1

*1) Measuring FBG wavelengths and offset

The used wavelength values for the above mentioned calibration formula are only valid for the orientation in which the accelerometer is calibrated. The individual FBG wavelength values of the accelerometer at rest are dependent on orientation due to the acting of gravitational forces. In order to measure these values the accelerometer should be placed in the desired orientation and unlocked (see unlocking guide) before measuring the wavelength values of the FBG's at rest. The difference between these two wavelengths is the wavelength offset at rest, which is compared to the wavelength offset during measurements in order to determine the acceleration.

*2) Reference at 50Hz

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Nr.	Serial number	WL [nm]	Product	ACCELERATION COEFFICIENTS	
				C_{sens} [nm/g]	Sensitivity *2 1100 target value [pm/g]
1	215891/0001	1513/1518		1,310660	1310,660
2	215891/0001	1533/1538	Triaxial acelerometer with SAA-04 3-axis Mounting block, SC/APC Terminal and Pigtail of 10m length	1,321640	1321,640
3	215891/0001	1543/1548		1,351970	1351,970