LIST OF CALIBRATION COEFFICIENTS - EXAMPLE

Customer order:		**Revision:** A	**Print date:** 27.11.2020
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EQUATIONS

STRAIN EQUATION

$$\Delta\varepsilon = \frac{\Delta\lambda - B.\Delta T}{A.\Delta l} + \Delta T.CTE_{SS304}.\Delta l_2$$

$$\Delta\lambda = \frac{\lambda_{act} - \lambda_0}{\lambda_0} \qquad \Delta l = \frac{l_{FAL}}{l_{FFL}}$$

$$\Delta T = (T_{act} - T_0) \qquad \Delta l_2 = \frac{(l_{FAL} - l_{FFL})}{l_{FAL}}$$

Measurand	Description
Δε [με]	Strain shift
$\lambda_{0,inst,strain}$ [nm] **1	Initial strain wavelength
$T_{0,inst}$ [°C] **1	Initial temperature
L_{FAL} [m] **1	Anchoring length
T_{act} [°C] **2	Actual temperature
$\lambda_{act,strain}$ [nm] **2	Actual strain wavelength
L_{FFL} [m]	Free fiber length
CTE [με.°C^{-1}]	Coefficient of thermal expansion

STRING EXPRESSION

Δε = ((Δλ - B * ΔT) / (A * Δl)) + (ΔT * CTE ss304 * Δl2)
Δλ = ((λact - λ0) / λ0) * Δl = l FAL / l FFL
ΔT = (T act- T0)
Δl2 = (l FAL - l FFL) / l FAL

For the determination of the strain sensitivity the free fiber length was used as a basis ***1 To be measured after installation of the sensor* ***2 Measured value during monitoring of the sensor*

CALIBRATION COEFFICIENTS

Nr.	Serial number	Customer code	Product	STRAIN COEFFICIENTS A [με^{-1}]	B [°C^{-1}]	L_{FFL} [m]	CTE [με.°C^{-1}]
1	188277/0001		MS-03; WL: 1514,3nm; LCP-03: 2x1m, 2x FC/APC	7,77996E-07	5,89292E-06	0,110	16