



LIST OF CALIBRATION COEFFICIENTS - EXAMPLE

Customer order: Revision: A Print date: 09.12.2020
 Quality supervisor: tsalat@sylex.sk Production supervisor: mmucka@sylex.sk

EQUATIONS

STRAIN EQUATION

$$\Delta\varepsilon = \frac{\Delta\lambda - B \cdot \Delta T}{A}$$

$$\Delta\lambda = \frac{\lambda_{act} - \lambda_0}{\lambda_0} \quad \Delta T = (T_{act} - T_0)$$

STRING EXPRESSION

$$\Delta\varepsilon = ((\Delta\lambda - B \cdot \Delta T) / A)$$

$$\Delta\lambda = ((\lambda_{act} - \lambda_0) / \lambda_0)$$

$$\Delta T = (T_{act} - T_0)$$

For the determination of the strain sensitivity the free fiber length was used as a basis

CALIBRATION COEFFICIENTS

Nr.	Serial number	Customer code	Product	STRAIN COEFFICIENTS			TEMPERATURE COEFFICIENTS			
				A [$\mu\varepsilon^{-1}$]	B [$^{\circ}C^{-1}$]	L _{FLL} [m]	T _{S1} [$^{\circ}C$]	T _{S2} [$^{\circ}C$]	T _{S3} [$^{\circ}C$]	$\lambda_{T,ref}$ [nm]
1	193077/0001		SDS-01; WL: 1539,9/1540,9nm, LCP-03: 2x1mtr, 2x FC/APC	7,69636E-07	5,89292E-06	0,03	-1,86937E+06	5,31386E+04	2,25040E+01	1539,65589

TEMPERATURE EQUATION

$$T = T_{S1} \left(\frac{\lambda_{T,act} - \lambda_{T,ref}}{\lambda_{T,ref}} \right)^2 + T_{S2} \left(\frac{\lambda_{T,act} - \lambda_{T,ref}}{\lambda_{T,ref}} \right) + T_{S3}$$

Measurand	Description
T [$^{\circ}C$]	Temperature
$\lambda_{T,act}$ [nm] **1	Actual temp. wavelength
$\lambda_{T,ref}$ [nm]	Reference temp. wavelength
T _{S1} [$^{\circ}C$]	Temperature sensitivity 1
T _{S2} [$^{\circ}C$]	Temperature sensitivity 2
T _{S3} [$^{\circ}C$]	Temperature sensitivity 3

STRING EXPRESSION

$$T = Ts1*((\lambda_{T,act} - \lambda_{T,ref})/\lambda_{T,ref})^2 + Ts2*((\lambda_{T,act} - \lambda_{T,ref})/\lambda_{T,ref}) + Ts3$$

**1 To be measured after installation of the

**2 Measured value during monitoring of the sensor