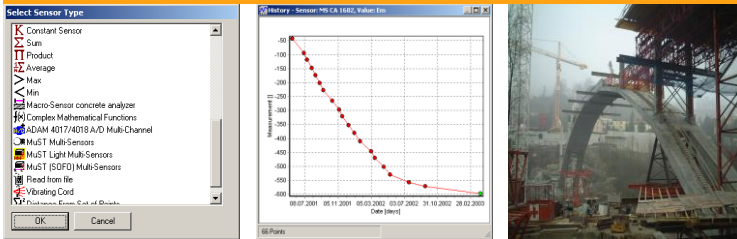


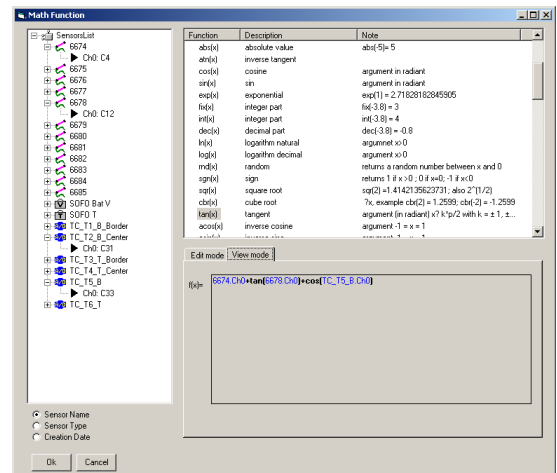
20.1030 SDB PRO

Plug-in for SDB Software



GENERAL DESCRIPTION

The SDB Pro software is part of the SDB suite. It simplifies data interpretation, visualization and analysis using real-time calculated virtual sensors called macro-sensors. It also allows managing the measurements of other sensors, such as: MuST, ADAM, Read From File, Vibrating wire sensors, etc.



TECHNICAL DESCRIPTION

The “measurement” value of a macro-sensor is obtained by applying a mathematical functions (defined by the user) to the measurements carried out by real sensors (SOFO, MuST, thermocouples, etc.), and stored in a SDB database. The definition of macro-sensors is performed using a user-friendly interface. The representation and properties of this sensor are the same as for real sensors, i.e. they can be visualized in tables and diagrams, and even further used to obtain higher level macro-sensors. In this way meaningful macro-sensors can be created such as average curvature sensor (obtained from two parallel sensors), average shear strain sensor (obtained from two crossed sensors), thermal strain sensor (obtained from temperature measurement), load sensor (obtained as difference between total strain and thermal strain), etc.

SDB PRO also includes an advanced Concrete Analyzer Sensor which gives the possibility to compare the theoretical deformations due to shrinkage and creep with the real measured behavior of a concrete element.

With SDB Pro Software it is possible to extract more information from the monitoring data in real-time. In addition, if used in conjunction with the View Software, it is possible to generate pre-warnings or warnings based on complex calculation of the measured data.

FEATURES

- SDB compatible
- Fully compatible with all SMARTEC monitoring systems and sensors
- Simplifies real-time interpretation, visualization and analysis of measurements
- Combines real sensors using complex mathematical functions to create more powerful sensors
- Allows the measurements of MuST, ADAM, Read From File, Vibrating wire sensors
- Real-time calculation and presentation of indirectly measured parameters such as:
 - Concrete Analyzer
 - Curvature
 - Average shear strain
 - Thermal induced strain
 - Temperature corrected strain
 - Loads

SDB PRO SENSORS

MuST Sensors	Allows the measurement of the FBG sensors connected to the MuST reading unit	
MuST SOFO Sensors	Allows the measurement of the SOFO sensors connected to the MuST reading unit	
Thermocouples	Allows to measure at the same time all the thermocouples connected to an ADAM module	
Vibrating wires	Allows the measurement of the vibrating wire sensors	
Complex Mathematical Function	Allows to define complex mathematical sensor using as variables the reading of the standard sensors	
Read From File	Allows to read the measurements directly from a text file	
Concrete Analyzer	This sensor is designed to help interpretation of the results of average strain measurements performed on concrete members using the SOFO system	
Sum	$F(s) = \sum_{i=1}^n K_i * S_i$	Linear combination of sensors S_i using user-defined coefficients k_i , $i=1$ to n
Product	$F(s) = \prod_{i=1}^n S_i^{C_i}$	Product of sensors S_i powered with user-defined exponents c_i , $i=1$ to n
Max	$F(s) = \max(S_i)_{i=1,n}$	Maximum value of sensors subset S_i , $i=1$ to n
Min	$F(s) = \min(S_i)_{i=1,n}$	Minimum value of sensors subset S_i , $i=1$ to n
Average	$F(s) = \frac{\sum_{i=1}^n S_i}{n}$	Average value of the sensors S_i , $i=1$ to n

SDB PRO ALLOWS BETWEEN OTHERS THE CALCULATION OF THE FOLLOWING PARAMETERS:

Average measured strains	Bending moments	$\epsilon \mathbf{E}_m$ Average theoretical Strain
Thermal induced strains	Curvatures	$E \mathbf{E}_s$ Theoretical Strain due to load
Temperature corrected strains	Stiffness	$\mathbf{E}_\varphi T$ Theoretical Creep
Creep and shrinkage effect isolation	Gradients	$E \mathbf{E}_T$ Theoretical Thermal Strain
Normal forces	Shear Forces	$E \mathbf{E}_{sh}$ Theoretical Total Shrinkage

ORDERING INFORMATION

SDB Pro requires SDB software plus a hardware key provided by Smartec.