

# Vibrating wire strain gauge for concrete – embedment strain gauge

DBA



The vibrating wire strain gauge type DBA is for direct bury in reinforced concrete or mass concrete. It is commonly used for strain measurements in concrete foundations, piles, bridges, dams, tunnel linings, containment vessels, shafts, power plants, etc. Due to the high level of stability, the length of 250 mm and the large flanges (anchors) the strain gauge is also suitable to measure strain in mass concrete with coarse aggregates.

Deformations respectively strain changes in concrete mass of a structure will have an impact on the flanges/anchors at both ends of the gauge, their distance changes. Due to this, the current state of the vibrating wire (inside the gauge), which is connected to the flanges and held in tension, will change.

For temperature measurements respectively corrections all strain gauges are equipped with a thermistor; optional with a Pt100. The gauge is designed for direct embedment in concrete or gets tied directly to the reinforcement cage.

Advantages	Technical data	DBA 250	DBA 500
<ul style="list-style-type: none"> <li>■ High measuring accuracy even under difficult circumstances</li> <li>■ Long-term stability and high resolution</li> <li>■ Vibrating Wire Sensor, measurement of frequency, strong and robust</li> <li>■ Reliable data transmission via cable over long distances</li> <li>■ Approved and successfully applied instrument</li> </ul>	Length:	254 mm	504 mm
	Weight:	ca. 0.8 kg	ca. 1.2 kg
	Standard measuring range:	2400 $\mu$ strain (0,6 mm/250 mm base)	
	Distribution of measuring range:	customized	
	Active gauge length:	250 mm	500 mm
	Modulus of elasticity:	22.000 N/mm <sup>2</sup>	
	Operating frequency:	approx. 700....1.000 Hz	
	Resolution:	< 0.02 % (0.48 $\mu$ strain)	
	Linearity under calibration conditions FSO:	< $\pm$ 0.5 %	
	Coefficient of thermal expansion of the wire:	11.8 E 10 <sup>-6</sup>	
Operating temperature:	-20...+70 °C		
Temperature sensor standard/optional:	thermistor/PT100		

## Options

- standard version with thermistor, cable pre-attached at factory, standard PE without inner jacket, copper shielding, 4-core cable 4 x 0,5 mm<sup>2</sup>,  $\varnothing$  7,5 mm
- with thermistor, cable pre-attached at factory, standard PE with inner jacket made of PVC, copper shielding, 4-core cable 4 x 0,5 mm<sup>2</sup>,  $\varnothing$  10 mm
- with temperature sensor PT100 DIN B, cable pre-attached at factory, 6-core cable 6 x 0,5 mm<sup>2</sup>,  $\varnothing$  10 mm
- with thermistor, with cable connector for direct measurements, gauge with Lemos 4-pole connector, water pressure-tight
- with temperature sensor PT 100 DIN B, with cable connector for direct measurements, gauge with Lemos 6-pole connector, water pressure-tight
- Standard measuring range 0,6 mm / 250 mm (500 mm), standard set for 25% elongation and 75 % compression
- Other models and measuring ranges available on request

