

# Strain Monitor Type KL66



Strain Monitor KL66 is used as a force and deformation monitoring element for all types of structures

## General

As in all DIGI SENS transducers, an oscillating-wire sensor is used to convert the force/load into an electrical signal. This patented element is able to deliver a signal that can be directly processed by a computer.

## Application

Surveying the stress of any kind of structure like bridges, cranes, machines or tanks. Overload protection for elevators, platform, robots, vehicles, etc.

## Description

The Strain Monitor KL66 is threaded on the structure to be surveyed and allows a precise and reproducible measurement of its stress changes.

Using DIGI SENS vibrating wire technology instead of a strain gauge, means having a simple mechanical mounting combined with a very accurate measurement.



This technology also offers an extremely high resolution.

Deformations of fractions of a  $\mu\text{m}$  can be measured.

Since the KL66 is adapted to the material of the structure to be surveyed, differential thermal expansion has no negative influence on the precision.

The DIGI SENS technology is also standing for a very good long-term stability. Since no organic material is involved in the measurement chain, creeping or other influences are reduced to the minimum.

The KL66 delivers a 5V-TTL frequency signal, proportional to the displacement measured. The frequency is a square root

function of the displacement. In most applications it can be considered linear.

This frequency signal is easy to transmit, immune to perturbations and can be treated directly by any processor.

## Fit and function

The Strain Monitor KL66 is delivered with all fixing parts needed. This allows a simple mounting on the desired structure.

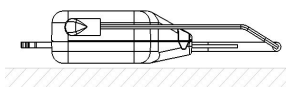
No special tooling is needed. No surface conditioning, no glues drying in clean room condition. No maintenance is needed.

Just tighten the screw and you are ready to measure.

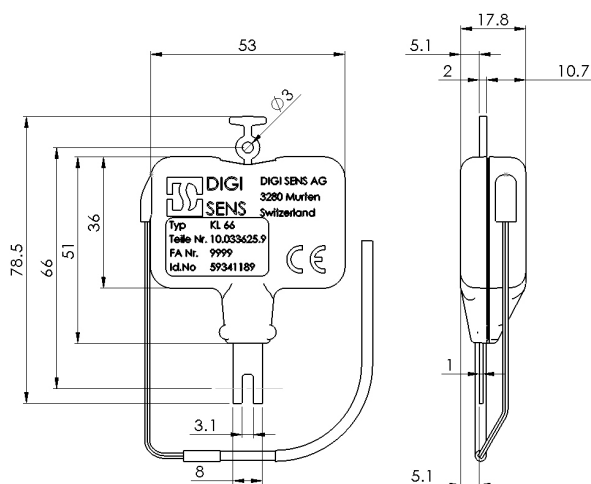
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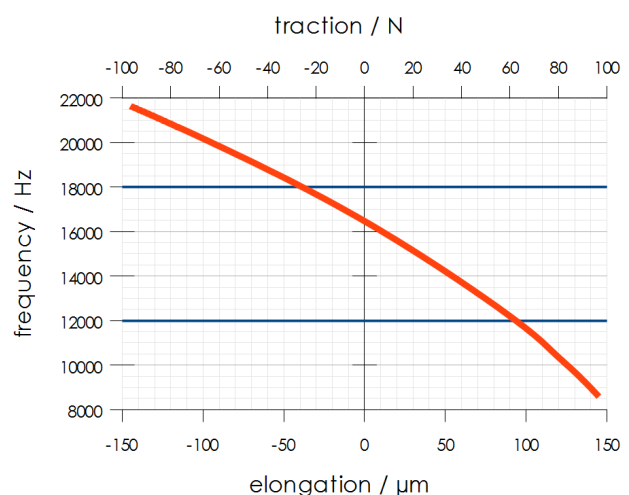
## Technical Data

1. Technical specification				2. Cable	
Dimensions LxWxH	79x53x17.5 mm	Temperature drift of zero on steel	typical $\pm 0.25$ Hz/K	Type	AWM 2464 AWG 26 shielded
Weight (without cable)	20 g	Recommended mounting distance on steel (ex. S235, E295)	64.8mm	Length	6 m
Housing	IP53 according ICE 60529:2001	Temperature mounting distance dependency	$-0.5$ Hz/(K·mm)	Conductors	3
		Temperature influence on span	typical 0.1%/10°K	Cable Connection	white – ground brown – power supply green – string frequency (TTL-compatible)
Power supply	3 to 5 V DC	Vibration sensitivity	According to IEC 68-2-34	Bending radius	15x diameter of cable
Nominal	5 mA(max.10 mA)	Shock resistance	According to IEC 68-2-34	<b>3. Standards</b>	
Overvoltages (UL-Standard): Transient overvoltages according Installation Categories I For mains supply the min. category is II		Hysteresis (for ideal structure)	=2 f.s.d. Hz	residential: EN 61000-6-1 and -3 industrial: EN 61000-6-2 and -4 elevator: EN 12015 and EN12016	
Elongation nominal	+90 / -45 $\mu$ m	Reproducibility (for ideal structure)	=2 f.s.d. Hz	Standards for 593411888 (UL-certified):	
Elongation overload	+135 / -120 $\mu$ m	Relative Air Humidity	$\leq 98\%$ not condensing	USR: UL 61010-1 Second Edition CNR: CAN/CSA-C22.2 No. 61010-1 Second Edition: E311966	
Traction nominal	+60 / -30 N	For UL-Standard: Maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% for relative humidity at 40°C		<b>4. Delivery Condition</b>	
Traction overload	+90 / -80 N	Pollution degree	2	Clip for earthing Fixing screw 3pcs DIN912-M3x6 Fitting instruction	
Signal nominal	12000-18000 Hz (5 V TTL)	Indoor use			
Signal overload	9000-21000 Hz (5 V TTL)	Temperature range (inside UL-specification)	0 to +40°C		
Base frequency	16500 Hz $\pm 500$ Hz				
Sensitivity	$\sim 4$ Hz / $\mu$ e @ 12 kHz $\sim 2$ Hz / $\mu$ e @ 18 kHz				
Functional temperature range	-10 to +70°C				

## Dimensional drawing



## Characteristic (typical)



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