Strain Monitor Type ED21/KL66

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

General

As in all DIGISENS transoscillatingducers, an 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 precise a and reproducible measurement of its stress changes. Using DIGISENS vibrating wire technology instead of a strain gauge, means having a simple mechanical mounting combined with a very accurate measurement.

This technology also offers extremely an high resolution.



Deformations of fractions of a µm can be measured. Since the KL66 is adapted to the material of the structure to be differential surveyed, thermal expansion has no negative influence on the precision.

DIGISENS The technology also is 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.

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

Just tighten the screw and are ready YOU to measure.

Strain Monitor Type ED21/KL66



Technical Data

Dimensions LxWxH79x53x17.5 mmTemperature diff of zero on steeltypical ± 0.25 Hz/KType AWM 2464 AWG 26 unshielded or AWG 26 (replacement)Weight (without cable)20 gRecommended mounting distance on steel (ex. \$235, E295)LengthA WG 26 (replacement)Musing occording IEC 60529:2001Imperature mounting -0.5 Hz/K mmLength6 m or 8.5mFemperature orientation for IP3 Power supply3.5 VDC (opt. 24 V)Temperature mounting -0.5 Hz/K mmLength6 m or 8.5mRequirements on the power supply unit: · Stort-ficuit current: <8 A · For devices with UL certification: NEC Class 2Shock resistanceAccording to ICE 68-2.34Imperature influence on spanImperature influence on spanImperature influenceImperature <b< th=""><th>1. Technical specification</th><th></th><th></th><th colspan="4">2. Cable</th></b<>	1. Technical specification			2. Cable				
Weight (without cable) 20 g Recommended mounting 64.8mm AWG 26 (replacement) Housing [P531'] according IEC 60529:2001 adstance dependency Length 6 m or 8.5m Important control primetrion for IP33 Temperature mounting 0.5 Hz/(Kmm) Length 6 m or 8.5m Important control primetrion for IP33 Temperature mounting 0.5 Hz/(Kmm) Length 6 m or 8.5m Power supply 3-5 VDC (opt. 24 V) Temperature influence on span frequency Important control	Dimensions LxWxH 79x53x17.5 mm	Temperature drift of zero on steel	typical ±0.25 Hz/K	Туре А	AWM	2464 A 64 AW(WG 26 shie G 26 unshie	elded or elded or
HousingIPS3/II according IEC 60529:2001IPS3/II Temperature mounting -0.5 Hz/(K·mm) distance dependencyLength6 m or 8.5m or 35 mm (replacement)Import of the IPS3according IEC 60529:2001Temperature mounting -0.5 Hz/(K·mm) distance dependencyLength6 m or 8.5m or 35 mm (replacement)Import of the IPS3according IEC 60529:2001Temperature mounting -0.5 Hz/(K·mm) distance dependencyLength6 m or 8.5m or 35 mm (replacement)Power supply3-5 VDC (opt. 24 V)Temperature mounting -0.5 Hz/(K·mm) influence on spanLength $a m or 8.5m$ or 35 mm (replacement)Power supply3-5 VDC (opt. 24 V)Temperature mounting -0.5 Hz/(K·mm) influence on spanLength $a m or 8.5m$ or 35 mm (replacement)Power supply3-5 VDC (opt. 24 V)Temperature mounting -0.5 Hz/(K·mm) influence on span $a m or 8.5m$ Power supply3-5 VDC (opt. 24 V)Shock resistanceAccording to ICE 68-2-34 $a m i n = 2 m m m m m m m m m m m m m m m m m m$	Weight (without cable) 20 g	Recommended mo	unting 64.8mm			AWG	26 (replac	cement)
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Requirements on the power supply unit: Shock resistance According to ICE 68-2:34 VCC bn 3 3 2 Yeau gn 2 1 3 3 2 Nominal 5 mA (max.10 mA) Hysteresis = 2 f.s.d. Hzi? Bending radius 15x diameter of cable Overvoltages (UL-Standard): Relative ≤98% not condensing Installation Categories I Shadards for ED21/KL66 (10.037840.3, 10.037127.1) (UL-certified) Pollution degree 2 Standards for ED21/KL66 (10.037840.3, 10.037127.1) (UL-certified) Power Supply ¹⁹ : 3-5 VDC max 10mA If and and the for your outload +90 / -45 µm Indoor use Indoor use USR: UL 61010-1 Second Edition CNR: CAN/CSA-C22.2 No. 61010-1 Standards for ED21/KL66 (10.037840.3, 10.038747.0, 10.037127.1) (UL-certified) Power Supply ¹⁹ : 3-5 VDC max 10mA Indoor use USR: UL 61010-1 Second Edition CNR: CAN/CSA-C22.2 No. 61010-1 Second Edition: E313793 Signal nominal 12000-18000 Hz (5 V TTL) Second Edition: E313793 Standards for ED21/KL66 (10.037840.3, 10.038747.0, 10.037127.1) (UL-certified) Sensitivity ~4 Hz / µɛ @ 12 kHz ~2 Hz / µɛ @ 18 kHz Clip for earthing Fixing screew 3pcs DIN912-M3x6 Shirthing instruction MTBF 13'000'000 h Fixing instruction <t< td=""><td>Power supply 3-5 VDC (opt. 24 V)</td><td>Vibration sensitivity</td><td>According to ICE 68-2-34</td><td>GND</td><td>wh</td><td>1</td><td>2</td><td>1</td></t<>	Power supply 3-5 VDC (opt. 24 V)	Vibration sensitivity	According to ICE 68-2-34	GND	wh	1	2	1
$ \begin{array}{c} -\text{Class PS2 as per IEC 62368-1 - or - Limited Power Source (LPS) as per IEC 60950-1 \\ -\text{Short-circuit current: < 8 A} \\ -\text{ For devices with UL certification: NEC Class 2} \\ \text{Nominal S mA (max.10 mA)} \\ \hline \text{Overvoltages (UL-Standard): } \\ \text{Transient overvoltages according Installation Categories I} \\ \text{For mains supply the min. category is II} \\ \text{Elongation nominal +90 / -45 } \mum \\ \text{Elongation nominal +00 / -30 N} \\ \text{Traction nominal +00 / -80 N} \\ \text{Signal nominal 12000-18000 Hz (5 V TTL) } \\ \text{Sensitivity -4 Hz / \mu\epsilon \otimes 12 \text{ kHz} \\ -2 \text{ Hz / } \mu\epsilon \otimes 12 \text{ kHz} \\ -2 $	Requirements on the power supply unit:	s on the power supply unit: s per IEC 62368-1 – or – Limited LCE 68-2-	According to	VCC	bn	3	3	2
 Short-circuit current: < 8 A For devices with UL certification: NEC Class 2 Nominal 5 mA (max.10 mA) Overvoltages (UL-Standard): Transient overvoltages according Installation Categories I For mains supply the min. category is II Elongation nominal +90 / -45 µm Elongation overload +135 / -120 µm Relative ≤98% not condensing Air Humidity Pollution degree Indoor use Indoor use Power Supply 1^a: 3-5 VDC max 10mA USR: UL 61010-1 Second Edition CNR: CAN/CSA-C22.2 No. 61010-1 Second Edition: E313793 Standards Scope of Delivery Clip for earthing Fixing screw 3pcs DIN912-M3x6 Fitting instruction MTBF 13'000'000 h Functional -10 to +70°C 	· Class PS2 as per IEC 62368-1 – or – Limited Power Source (LPS) as per IEC 60950-1		ICE 68-2-34	frequ	gn	2	1	3
Nominal5 mA (max.10 mA)Reproducibility= 2 f.s.d. Hz(2)3. StandardsOvervoltages (UL-Standard): Transient overvoltages according Installation Categories I For mains supply the min. category is IIRelative Pollution degree≤98% not condensing Air Humidityresidential: EN 61000-6-1 and -3 industrial: EN 61000-6-2 and -4 elevator: EN 12015 and EN12016Elongation nominal Elongation overload+90 / -45 µm +135 / -120 µmPollution degree2Traction nominal Traction overload+60 / -30 N +90 / -80 NIndoor useUSR: UL 61010-1 Second Edition CNR: CAN/CSA-C22.2 No. 61010-1 Second Edition: E313793Signal nominal Signal overload12000-18000 Hz (5 V TTL) signal overload16500 Hz ±500 Hz = 18 KHz ~2 Hz / µc @ 12 kHz ~2 Hz / µc @ 18 KHz4. Scope of DeliverySensitivity~4 Hz / µc @ 12 kHz ~2 Hz / µc @ 18 kHz ~2 Hz / µc @ 18 kHz-10 to +70°CClip for earthing Fixing screw 3pcs DIN912-M3x6 Fitting instruction Shrinking tube (replacement only)	 Short-circuit current: < 8 A For devices with UL certification: NEC Class 2 	Hysteresis (for ideal structure)	= 2 f.s.d. Hz ⁽²⁾	Bending	g radius		15x d	iameter of cable
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Traction nominal Traction overload+60 / -30 N +90 / -80 NUSR: UL 61010-1 Second Edition CNR: CAN/CSA-C22.2 No. 61010-1 Second Edition: E313793Signal nominal Signal overload12000-18000 Hz (5 V TTL) 9000-21000 Hz (5 V TTL)4. Scope of DeliveryBase frequency16500 Hz ±500 Hz -2 Hz / με @ 12 kHz -2 Hz / με @ 18 kHzClip for earthing Fixing screw 3pcs DIN912-M3x6 Fitting instruction Shrinking tube (replacement only)MTBF13'000'000 hFunctional temperature range-10 to +70°C	Elongation nominal +90 / -45 μm Elongation overload +135 / -120 μm	Indoor use		10.038/4/.0, 10.03/12/.1) (UL-certified) Power Supply ⁽³⁾ : 3-5 VDC max 10mA				
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Sensitivity~4 Hz / με @ 12 kHz ~2 Hz / με @ 18 kHzClip for earthing Fixing screw 3pcs DIN912-M3x6 Fitting instruction Shrinking tube (replacement only)MTBF13'000'000 hFunctional temperature range-10 to +70°C	Base frequency 16500 Hz ±500 Hz			4. Scop	e of De	livery		
MTBF 13'000'000 h Shrinking tube (replacement only) Functional -10 to +70°C temperature range	Sensitivity ~4 Hz / με @ 12 kHz ~2 Hz / με @ 18 kHz			Clip for Fixing so Fitting ir	earthin crew 3p nstructio	g ocs DIN on	912-M3x6	
Functional -10 to +70°C temperature range	MTBF 13'000'000 h			Shrinkin	g tube	(replac	cement on	ly)
	Functional -10 to +70°C temperature range							

If the equipment is used in a manner not sp ecified by the manufacturer, the protection provided by the equipment may be impaired

Into evaluated by UL full scale deviation The device is intended to be supplied by an isolated Limited Energy Source per UL61010-1 or Limited Power Source per UL60950-1/UL62368-1 or Class 2 per NEC

Strain Monitor Type ED21/KL66



Dimensional drawing



Т

f = 1/T

 T_1

Output signal









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