

Tension/compression force transducer with external thread, robust construction



Description

This load cell is used wherever measurements are to be taken directly in the line of force. The actual tension forces in cables and rods can thus, for example, be measured.

With this load cell, the load is applied via the threaded pins which are located on each side of the cylindrical body. The robust structure of the load cell, which is manufactured from stainless steel, also allow it to be used in industrial atmospheres.

The load cells are splash water protected and function reliably even under difficult service conditions.

Note

In order to avoid overloading, it is advantageous to connect the load cell electrically during installation and to monitor the measured value.

The force to be measured must be applied concentrically and free of transverse force.

The load cells are to be mounted on a level surface.

Features

- for tension and compression force measurements
- simple force introduction
- robust design
- simple installation
- Protection class IP 67
- Accuracy 0.1% of full scale value

Measuring ranges

• 0.5 kN ... 1000 kN

Applications

- Plant engineering
- Production lines
- Measurement and monitoring facilities
- Special equipment and machinery construction
- Test benches and production lines

Specific information

- Calibration control: 100% signal (option)
- Load input elements available (option)

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Technical data

Nominal load inkN0.5, 1, 2, 5, 1020, 50, 100, 200, 500, 1000Accuray classcompression, tension tension and compression 0.1% of F.S.Limit load150% F_{nom} ExerciseBreaking load>300% F_{nom} Combined error $\leq \pm 0.2\%$ of F.S.Max. dynamic load $\pm 70\%$ F_{nom} acc. to DIN 50 100Creep, 30 min. at F_{nom} $\leq \pm 0.0\%$ of F.S.Nominal deflection<0.3 mmNominal deflection<0.4 mov2 storage temperature<50 +90°CReference temperature<23°CTemperature influence>span-zero<2 0.25% / 10KProtection type (acc. to EN 60529/IEC 529)IP 67Insulation resistance>2 G ΩInsensibility against component forces70% of nominal valueAnalogue output- Option- Option- Tolerance of span- Electrical connectionCable and y 4-wire- Electrical connectionCable 3m / 4-wireCable 3m / 4-	Model			Options		
Accuray classcompression, tension tension and compression0.1% of F.S. 0.251% of F.S.Limit load150% F_{nom} Breaking load>300% F_{nom} Combined error $\leq \pm 0.2\%$ of F.S.Combined error $\leq \pm 0.2\%$ of F.S.Max. dynamic load $\pm 70\%$ F_{nom} acc. to DIN 50 100Creep, 30 min. at F_{nom} $\leq \pm 0.07\%$ of F.S.Nominal deflection<0.3 mm	Nominal load in kN		0.5, 1, 2, 5, 10		20, 50, 100, 200 500, 1000),
tension and compression0.251% of F.S.Imit load150% F_{nom} Breaking load>300% F_{nom} Combined error $\leq \pm 0.2\%$ of F.S.Max. dynamic load $\pm 70\%$ F_{nom} acc. to DIN 50 100Creep, 30 min. at F_{nom} $\leq \pm 0.07\%$ of F.S.Nominal deflection<0.3 mm	Accuray class compres	sion, tension	0.1% of F.S.			
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Breaking Odd2300% PnomCombined error $\pm 0.2\%$ of F.S.Max. dynamic load $\pm 70\%$ Fnom acc. to DIN 50 100Creep, 30 min. at Fnom $\pm 0.07\%$ of F.S.Nominal deflection<0.3 mm	Limit load		150% F _{nom}			
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Breaking load		>300% Fnom			
Max. dynamic load \pm 70% F_{nom} acc. to DIN 50 100Creep, 30 min. at F_{nom} \pm 0.07% of F.S.Nominal deflection<0.3 mm	Combined error		S± 0.2% 01 F.S.			for either tension or compression force
Creep, 30 min. at F_{nom} $\leq \pm 0.07\%$ of F.S.Nominal deflection<0.3 mm	Max. dynamic load		± 70% F _{nom} acc.			
Nominal deflection<0.3 mmNominal temperature range-10 +70°CService temperature range-30 +85°CStorage temperature-50 +90°CReference temperature23°CTemperature influence-span-zero $\leq \pm 0.25\% / 10K$ Protection type (acc. to EN 60529/IEC 529)IP 67Insulation resistance> 2 G Ω Insensibility against component forces70% of nominal valueAnalogue output2 mV/VOutput signal2 mV/VOptionCable integrated amplifier 0 (4) 20 mA, 0 10 V DCTolerance of span< $\pm 0.1\%$ of F.S.Excitation voltage2 12 V (max. 15 V), 16 32 V DC for cable integrated amplifierElectrical connectionCable 3 m / 4-wireCable 3 m / 4-wire6-pol conectionCable 3 m / 4-wire50 and y 4-wireCable 3 m / 4-wire6-pol conectionCable 3 m / 4-wire6-pol conectionCable 3 m / 4-wire0.0% signalMounting equipmentsee sep. data sheetMaterial of measuring deviceStainless steelWeight (kN) - 0,50,3 kg 0,3 kg- 10,5 kg	Creep, 30 min. at Fnom		≤± 0.07% of F.S.			
Nominal temperature range $-10 \dots +70^{\circ}C$ Service temperature range $-30 \dots +85^{\circ}C$ Storage temperature $-50 \dots +90^{\circ}C$ Reference temperature $23^{\circ}C$ Temperature influence $-span$ $-zero$ $\pm 0.07\% / 10K$ $-zero$ $\pm 0.25\% / 10K$ Protection type (acc. to EN 60529/IEC 529)IP 67Insulation resistance $> 2 G\Omega$ Insensibility against component forces 70% of nominal valueAnalogue output $2 mV/V$ $-$ Output signal $2 mV/V$ $-$ Option $Cable$ integrated amplifier 0 (4) 20 mA, $0 \dots 10 V DC$ $-$ Tolerance of span $< \pm 0.1\%$ of F.S. $2 \dots 12 V (max. 15 V), 16 \dots 32 V DC$ for cable integrated amplifier $-$ Electrical connection $Cable$ integrated amplifier $Cable integrated amplifier- Electrical connectionCable integrated amplifierCable integrated amplifier- Electrical connectionCable is m / 4-wire- Electrical connectionCable is m / 4-wire- Electrical connectionCable is m / 4-wire- Output100\% signalMounting equipmentsee sep. data sheetMaterial of measuring deviceStainless steelWeight (kN)-0,50,3 kg0,5 kg$	Nominal deflection		<0.3 mm			
Service temperature range $-30 \dots +85^{\circ}C$ Storage temperature $-50 \dots +90^{\circ}C$ Reference temperature $23^{\circ}C$ Temperature influence $-span$ $-zero$ $< \pm 0.07\% / 10K$ $-zero$ $< \pm 0.25\% / 10K$ Protection type (acc. to EN 60529/IEC 529)IP 67Insulation resistance> 2 G\OmegaInsensibility against component forces70% of nominal valueAnalogue output2 mV/VOutput signal2 mV/VBridge resistance 350Ω Cable integrated amplifier 0 (4) 20 mA,0 10 V DC- Tolerance of span $< \pm 0.1\%$ of F.S.2 12 V (max. 15 V), 16 32 V DCfor cable integrated amplifier- Electrical connectionCable 3 m / 4-wireCalibration control100% signalMounting equipmentsee sep. data sheetMaterial of measuring deviceStainless steelWeight (kN) $0,3 \text{ kg}$ $-0,5$ $0,3 \text{ kg}$	Nominal temperature range		-10 +70°C			
Storage temperature $-50 \dots +90^{\circ}C$ Reference temperature $23^{\circ}C$ Temperature influence $-span$ $-zero$ $< \pm 0.07\% / 10K$ $-zero$ $< \pm 0.25\% / 10K$ Protection type (acc. to EN 60529/IEC 529)IP 67Insulation resistance> 2 G Ω Insensibility against component forces70% of nominal valueAnalogue output Output signal2 mV/V- Bridge resistance350 Ω - OptionCable integrated amplifier 0 (4) 20 mA, 0 10 V DC- Tolerance of span $< \pm 0.1\%$ of F.S Excitation voltage2 12 V (max. 15 V), 16 32 V DC for cable integrated amplifier- Electrical connectionCable 3 m / 4-wireCalibration control100% signalMounting equipmentsee sep. data sheetMaterial of measuring deviceStainless steelWeight (kN) $- 0,5$ 0,3 kg 0,5 kg	Service temperature range		-30 +85°C			
Reference temperature $23^{\circ}C$ Temperature influence-span-zero $\leq \pm 0.07\% / 10K$ -zero $\leq \pm 0.25\% / 10K$ Protection type (acc. to EN 60529/IEC 529)IP 67Insulation resistance> 2 G Ω Insensibility against component forces70% of nominal valueAnalogue output2 mV/V- Output signal2 mV/V- Bridge resistance350 Ω - OptionCable integrated amplifier 0 (4) 20 mA, 0 10 V DC- Tolerance of span $< \pm 0.1\%$ of F.S Excitation voltage2 12 V (max. 15 V), 16 32 V DC for cable integrated amplifier- Electrical connectionCable integrated amplifierCalibration control100% signalMounting equipmentsee sep. data sheetMaterial of measuring deviceStainless steelWeight (kN) - 0,50,3 kg 0,5 kg	Storage temperature		-50 +90°C			
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$\begin{array}{ c c c c c c c } \hline Insulation resistance & > 2 G \Omega \\ \hline Insensibility against component forces & 70% of nominal value \\ \hline Analogue output & & & & & \\ - Output signal & 2 mV/V & 1 mV/V \\ - Bridge resistance & 350 \Omega \\ - Option & Cable integrated amplifier 0 (4) 20 mA, \\ 0 10 V DC \\ - Tolerance of span & <± 0.1% of F.S. \\ - Excitation voltage & 2 12 V (max. 15 V), 16 32 V DC \\ for cable integrated amplifier \\ - Electrical connection & Cable integrated amplifier \\ - Electrical connection & Cable 3 m / 4-wire & 6-pol conection \\ \hline Mounting equipment & see sep. data sheet & & \\ \hline Material of measuring device & Stainless steel & & \\ \hline Weight (kN) & & \\ - 0,5 & 0,5 & 0,5 kg & \\ \hline \end{array}$	Protection type (acc. to EN 6	60529/IEC 529)	IP 67			
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$\begin{array}{c c} - & Bridge resistance \\ - & Option \\ - & Tolerance of span \\ - & Excitation voltage \\ - & Electrical connection \\ \hline Cable integrated amplifier 0 (4) 20 mA, \\ 0 10 V DC \\ < \pm 0.1\% of F.S. \\ 2 12 V (max. 15 V), 16 32 V DC \\ for cable integrated amplifier \\ \hline Cable 3 m / 4-wire \\ \hline Mounting equipment \\ \hline Material of measuring device \\ \hline Weight (kN) \\ - & 0,5 \\ - & 1 \\ \hline \end{array}$	 Output signal 		2 mV/V		1 mV/V	
- Option Cable integrated amplifier 0 (4) 20 mA, 0 10 V DC - Tolerance of span <± 0.1% of F.S.	 Bridge resistance 		350 Ω			
- Tolerance of span <± 0.1% of F.S.	- Option		Cable integrated 0 10 V DC			
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Calibration control 100% signal Mounting equipment see sep. data sheet Material of measuring device Stainless steel Weight (kN) 0,3 kg - 0,5 0,5 kg	- Electrical connection		Cable 3 m / 4-wir	6-pol conection		
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Material of measuring device Stainless steel Weight (kN) 0,3 kg - 0,5 0,3 kg - 1 0,5 kg	Mounting equipment		see sep. data she	eet		
Weight (kN) 0,3 kg - 0,5 0,3 kg - 1 0,5 kg	Material of measuring device	9	Stainless steel			
- 0,5 0,3 kg - 1 0,5 kg	Weight (kN)					
- 1 0,5 kg	- 0,5		0,3 kg			
	- 1		0,5 kg			
	- 2 - 10 - 20		0,54 Kg			
- 20 0,0 kg	- 20		0,0 Kg			
- 100 1 7 kg	- 50 - 100		1.7 kg			
- 200 3.5 kg	- 200		3.5 kg			
- 500 6.1 kg	- 500		6,1 kg			
- 1000 19,9 kg	- 1000		19,9 kg			

of F.S. = full scale value

Dimensions



Measuring range		Din	Electr. Connection				
[kN]	Α	В	С	øD	E	F	
0.5 / 1 / 2	M 12	22	79	50	20	37	Supply. (-) green
5 / 10	M 12	22	79	50	20	37	Supply. (+) brown
20 / 50	M 20 x 1.5	25	90	59	25	45	Signal (+) yellow
100	M 36 x 3	45	135	64	45	67.5	Signal (-) white
200	M 45 x 3	50	170	79	50	85	Control(option) grey
500	M 60 x 4	80	240	90	80	120	Screen Screen
1000	M 100 x 3	110	300	130	110	150	