

Tension link

With thin-film technology up to 6 MN

Models F7301, F73C1



WIKA data sheet FO 51.19

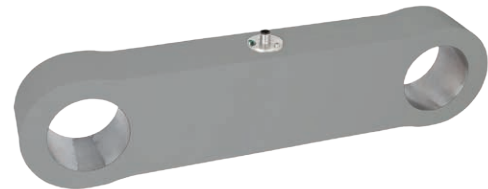


Applications

- Crawler cranes, mobile cranes, harbour cranes, for recording load and torque
- Conveyor systems
- Drives and winches
- Cable winch measurement
- Ship-lifting facilities

Special features

- Fine-grained structural steel with high-quality surface protection or in corrosion-resistant stainless steel version
- High long-term stability, high shock and vibration resistance
- For dynamic and static measurements
- Excellent reproducibility



Tension link from fine-grained structural steel, model F7301



Redundant stainless steel tension link, model F73C1

Description

Tension force transducers are manufactured in accordance with the specific requirements of our customers from high-strength, fine-grained structural steels or stainless steels and are provided with high-quality surface protection.

The measuring body is designed using the latest F.E.M. (Finite Element Method) calculation methods and enables an accurate prediction of the expected measurement accuracy of the tension force transducer in the application.

The registration of the tensile or compressive force is using the latest thin-film technology which, through miniaturisation, can be placed precisely in the force flux and thus delivers high-precision measuring results. The integration of redundant measuring systems in the smallest space thus enables a simple upgrade to two-channel sensor

technology to fulfil safety requirements, e.g. per EN13849, without changing the exterior geometry of the tension force transducer.

Our new integrated amplifier series is tailor-made to fulfil your safety requirements from pl-c to pl-e and, through robust EMC design, satisfies far beyond the 200V/m limit.

Other geometries, rated loads and electrical outputs can be realised on request.

Accuracy

≤ 0.25 %

Measuring ranges

0 ... 5 kN to 0 ... 10,000 kN

Safety

In accordance with IEC 61508 and EN 13849-1 from SIL 1 to SIL 3, and pl-c to pl-e

Output

4 ... 20 mA, 0 ... 10 V

CANopen[®], CANopen Safety

Explosion-protected version ATEX / IECEx (optional)

- Drilling and deep drilling rigs
- Offshore
- Chemical and petrochemical industries
- Dust removal and filtration systems
- For zone 1 and 2 II 2G Ex ib IIC T4/T3

Specifications in accordance with VDI/VDE/DKD 2638

Models	F7301, F73C1
Rated force F_{nom}	5 ... 10,000 kN
Force Limit F_L	150 % F_{nom} *
Breaking force F_B	> 300 % F_{nom} *
Relative linearity error $d_{lin}^{1)}$	≤ 0.25 % of F.S. *
Relative reversibility error (hysteresis) v	
Relative repeatability error in unchanged mounting position b_{rg}	≤ 0.10 % of F.S.
Relative creep, 30 min. at F_{nom}	
Rated temperature $B_{T, nom}$	-40 ... + 80° C (optional 120° C)
Storage temperature $B_{T, S}$	-50 ... + 100° C (optional 125° C)
Temperature effect on <ul style="list-style-type: none">■ characteristic value, TK_c■ zero signal, TK_0	0.035 %/10K
Vibration resistance	20 g, 100 h, 50 ... 150 Hz in accordance with EN 60068-2-6
Protection type	IP67 / IP69k in accordance with EN/IEC 60529
Noise emission	In accordance with EN 55011
Noise immunity	In accordance with EN 61326-1/DIN EN 61326-2-3
Safety integrity level	pl-c, pl-d, pl-e, SIL I, II, III in accordance with EN 13849-1 and IEC 61508
Electrical protection	Reverse polarity, overvoltage and short-circuit protection
Analogue output signal	4 ... 20 mA, 2- and 3-wire 0 ... 10 V, 3-wire *
Digital output signal	CANopen [®] , (CiA DS-301, DS 404), CANopen Safety (CiA DS-304) *
Current supply	2-wire: < 3 mA, 3-wire: < 40 mA, voltage output: < 10 mA
Supply voltage	DC 9 ... 36 V for output 4 ... 20 mA, 14 ... 30 V for output 0 ... 10 V
Burden	≤ (UB-6 V) / 0.024 A for output 4 ... 20 mA 10 kΩ for output 0 ... 10 V
Response time	Up to ≤ 1ms (within 10 ... 90 % of FS)
Electrical connection	Circular connector M12 x 1, 4-pin or 5-pin Bayonet CIR02R-14S-7P, Bayonet DIN 72585 * Cable with IP69K threaded connection
Material	Fine-grained steel with surface protection, stainless steel
Explosion-protected version (optional) ¹⁾	⊕ II 2G Ex ib IIC T4/T3

* others on request

1) The force transducers with ignition protection type "ib" should only be powered using galvanically isolated repeater power supplies.
Suitable repeater power supplies (optional): EZE08X030003 (1-channel) and EZE08X03000x (2-channel).

of F.S. = of Full Scale

Standard connector assignment M12 x 1, 4- or 5-pin
Open cable end of the standard tecsis connection cable (STL 288, black)

Pin	Cable	4 ... 20 mA 2-wire	4 ... 20 mA 3-wire	0 ... 10 V 3-wire	Pin	CANopen®
1	Brown	DC 9 ... 36 V	DC 9 ... 36 V	DC 14 ... 30 V	1	Shield
2	White	-	-	-	2	DC 9 ... 36 V
3	Blue	4 ... 20 mA	Ground	Ground	3	Ground
4	Black	-	4 ... 20 mA	0 ... 10 V	4	CAN high
5	-	-	-	-	5	CAN low
M12 x 1 thread	Shield	-	-	-	-	-

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