Tension/compression force transducer S-type F2351, F23CA

with thin film sensor

Accuracy: ≤ 0.2 %
Measuring range: 2 kN up to 50 kN
Output signals: 4...20 mA, 2-wire system
0...10 VDC, 3-wire system
Optional: ATEX/IECEX, UL
Version: available acc. to

Description

The S-type is a conventional design of tension/compression force transducer. It has internal threads which allow force to be easily introduced via suitable swivel heads.

The factory-internal calibration is performed in tension and compression directions: 4…20 mA and 0…10 V respectively. The zero signal is thus around 12 mA and 5V respectively. Calibrations in the tension or compression direction only are of course possible at no extra charge.

The S-type has a connector plug on the broad side of the body. With an angled cable socket, the cable runs parallel to the direction of force. This allows space-saving and protected installation on plant and machinery.

ATEX/IECEX (Option)
Only equipment and protective systems with the corresponding certification and markings are to be put into operation in potentially explosive areas. Our force transducers with a thin-film measuring cell and integrated amplifier now have approval according to directive 94/9/EC in equipment group II (non-mining products), category 2G for zones 1 and 2 (gases). Other zones are available on request.

UL-Certification (Option)
tecsis force transducers are also available with UL approval.

Features

- Thin film implants
- Stainless steel (1.4542)
- Integrated amplifier
- Small temperature drift
- High long term stability
- High shock and vibration resistance
- For dynamic or static measurements
- Good repeatability
- Easy assembley
- Very small effect of temperature gradient

Certification (Option)

- ATEX/IECEX
  for Zone 1 and 2
  II 2G Ex ib IIC T4/T3
- UL (Underwriters Laboratories)

Measuring ranges

Tension/compression forces
from 2 kN to 50 kN

Applications

- Hoisting gear
- Engagement forces in machinery
- Automated manufacturing
- Construction of plant and machinery

ATEX/IECEX (Option)

- Mining
- Chemical and petrochemical industries
- Dedusting and filtration units

tecsis GmbH
Carl-Legien Str. 40
D-63073 Offenbach / Main
Tel.: +49 69 5806-0
Sales national
Fax: +49 69 5806-170
Sales international
Fax: +49 69 5806-177
e-Mail: info@tecsis.de
Internet: www.tecsis.de

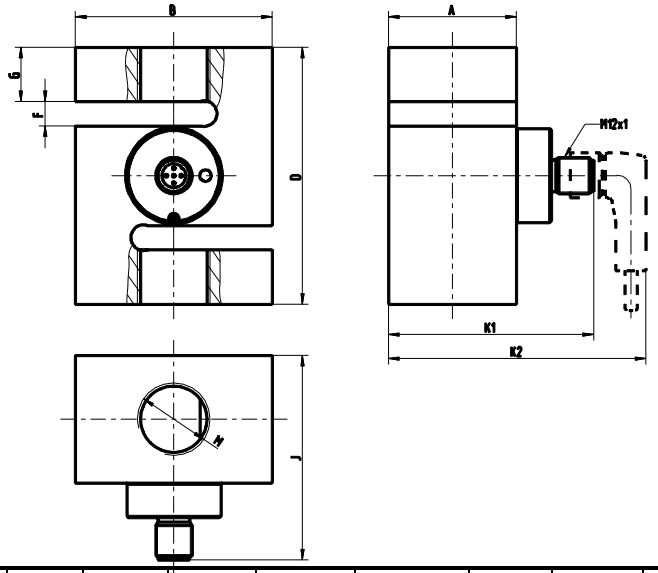
Technical data

Model	F2351	F23CA
Nominal force F_{nom}	2 / 3 / 5 / 10 / 20 / 30 / 50 kN	
Limiting force	150% F_{nom}	
Breaking strength	> 300% F_{nom}	
Combined error	≤± 0.2% of F.S.	
Relative reversal span (hysteresis)	<±0.1% of F.S.	
Permissible oscillation width	±50 % F_{nom} accord. to DIN 50100	
Creep, 30 min. at F_{nom}	≤±0.1% of F.S.	
Nominal measuring distance	< 0.5 mm	
Nominal temperature range	-20 … +80°C	
Working temperature range	-40 … +80°C	
Storage temperature range	-40 … +85°C	
Temperature sensitivity - characteristic - zero signal	≤±0.2% of F.S. /10K ≤±0.2% of F.S. /10K	
Vibration immunity	20g, 100h, 50...150Hz accord. to DIN EN 60068-2-6	
Degree of protection (accord. to EN 60 529 / IEC 529)	IP 67	
Emitted interference	to EN 61326	
Interference immunity	to EN 61326	
Insulation resistance	> 5 GΩ / 50V	
Types of electrical protection	Reversed polarity, overvoltage and short-circuit protection	
Analogue output		
- Output signal (output signal range: F.S.)	4 … 20 mA – 2-wire system (4 (compression) … 20 (tension) mA) 0 ... 10 V – 3-wire system (0 (compression) … 10 (tension) V)	
- Current consumption	Current output 4 … 20 mA: signal current;Voltage output approx. 8 mA	
- Power requirement	10 ... 30 V DC for current output 14 … 30 V DC for voltage output	
- Burden	≤ (UB-6 V) / 0.024 A for current output > 10 kΩ for voltage output	
- Response time	≤ 1 ms (within 10% to 90% F_{nom})	
- Electrical connection	Round connector M 12x1, 4-pole	
Material of measuring body	Stainless steel	
Certification		UL, ⟨Ex⟩II 2G Ex ib IIC T4/T3[1)]

F.S. = Measuring range full-scale value, F_{nom}= Nominal Load

[1)] The force transducers with ignition protection type "ib" must only be supplied using galvanically-isolated power supplies.
Suitable supply isolators are also optionally available: EZE08X030003 (1-channel) und EZE08X03000x (2-channel).

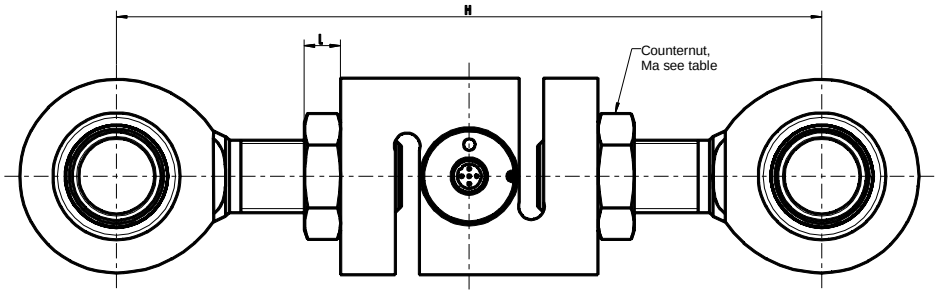
Dimensions



Nom. force in kN	A	B	D	F	G	H	J	K1	K2	L	M	Ma (Nm)*
2 /3 / 5	20	33	67	5.6	7.9	155±2	47.4	45.5	64.5	6	M12	max. 60
10 / 20 / 30	42.2	65	85	8	18	233±2	69.6	67.7	86.7	12	M24x2	max. 500
50	63	75	85	7	17.8	233±2	94.1	92.2	111.2	12	M24x2	max. 500

* Do not transfer torque via the force transducer

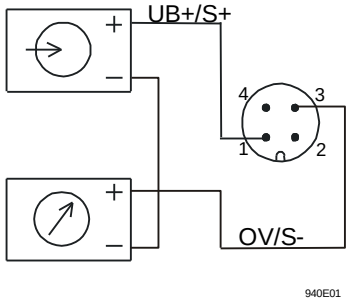
Fitting dimensions



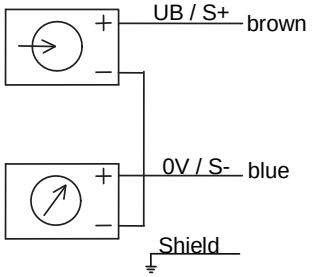
Electrical connection

Output 4..20mA (2-wire system)

Round connector M12x1, 4-pole

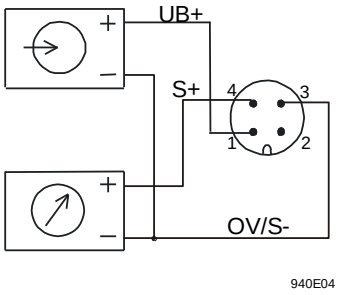


Cable outlet

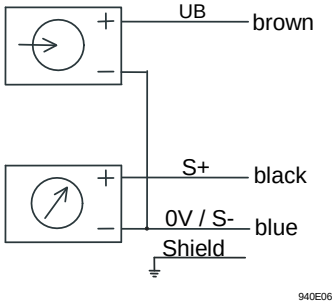


Output 0...10V (3-wire system)

Round connector M12x1, 4-pole



Cable outlet



Connector pin assignment M12x1 (4-pole) /
Open cable end of tecsis standard connecting cable (STL 288, black)

Pin	Cable	4...20 mA 2 – wire	0...10 VDC 3 – wire
1	brown	UB+/S+	UB+
2	white	-	-
3	blue	OV/S-	OV/S-
4	black	-	S+
Thread M12x1	Screen	⏚	⏚

Subject to technical changes