

Shackle load cell

For load measuring in hoisting devices
with integrated amplifier



Description

Shackle Load Cells are designed for lifting and weighing in rugged or harsh environments. They provide a simple and reliable method of measuring a wide range of weights and loads. The shackle load cell consists of a shackle and a force transducer.

Thin film sensors, produced by very modern manufacturing technology, have all advantages of the conventional bonded foil strain gauges, but without having their substantial disadvantages (temperature drifts of the glue and creeping).

The shackle load cells are simple to install and are available in standard shackle sizes.

Features

- especially for the measurement of tension ropes
- suitable for retrofitting
- integrated amplifier
- IP67
- thin film implants (instead of conventional bonded foil strain gauges)
- corrosion free stainless steel (of the force transducer)
- small temperature drift
- high long term stability
- high shock and vibration resistance
- for dynamic or static measurements
- good repeatability
- easy to install

Measuring ranges

- 7.5, 10, 15 t
- other measuring ranges on request

Applications

- lifting and weighing in rugged or harsh environments

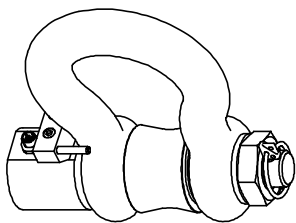
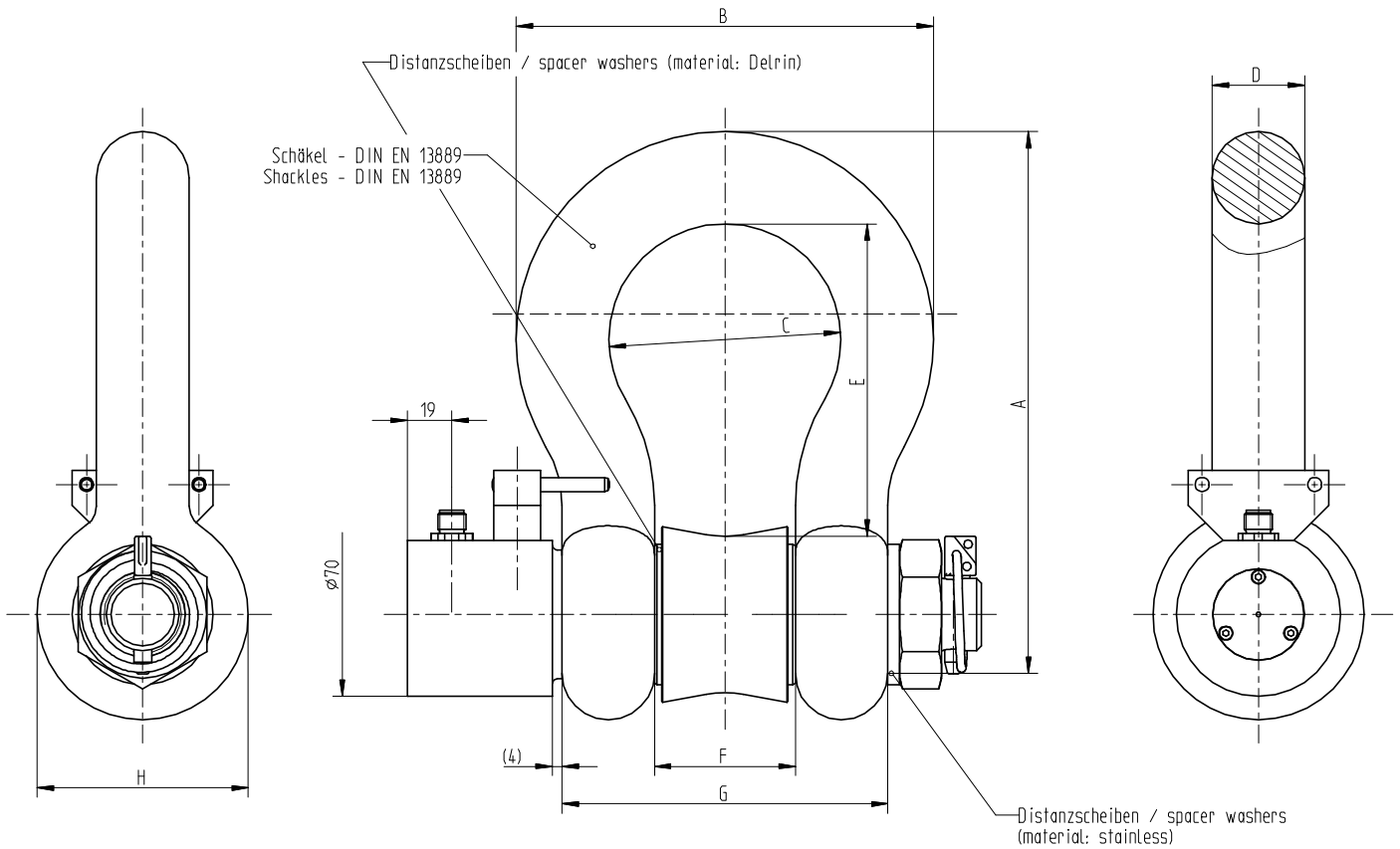
Model: F5302

Technical data

Model	F5302
Nominal load F_{nom}	7,5/ 10/15 t
Limit load	150 % F_{nom}
Breaking load	> 300 % F_{nom}
Combined error	$\leq \pm 1\%$ v. of F.S.
Hysteresis	$\leq \pm 0,2\%$ of F.S.
Creep, 30 min. at F_{nom}	$\leq \pm 0,1\%$ of F.S.
Max. dynamic load	$\pm 80\%$ F_{nom} acc. to DIN 50100
Repeatability	$< \pm 0.05\%$ of F.S.
Nominal temperature range	-20 ... 80 °C
Service temperature range	-40 ... 80°C
Storage temperature	-40 ... 85 °C
Temperature effect	- span - zero signal
	0.2 % F_{nom} / 10K 0.2 % F_{nom} / 10K
Vibration resistance	20g, 100h, 50...150 Hz acc. to DIN EN 60068-2-6
Protection type (acc. to EN 60 529/IEC 529)	IP 67
Noise emission	acc. to EN 61326
Noise immunity	acc. to EN 61326
Electrical protection	reverse voltage, overvoltage and short circuit protection
Analogue output	
- Output signal	4 ... 20 mA; 2-wire 0 ... 10 V DC; 3-wire
- 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	$\leq (U_B - 6 \text{ V}) / 0.024 \text{ A}$ for current output > 10 k Ω for voltage output
- Response time	$\leq 1 \text{ ms}$ (within 10 % ... 90 % F_{nom})
Electrical connection	circular connector M 12x1, 4-pin
Material of measuring device	stainless steel

of F.S. = of Full Scale

Dimensions



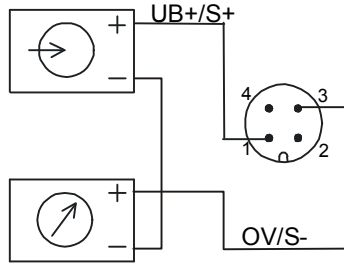
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Nominal load (t)	Shackle carrying capacity (t)	A	B-max	C	D-max	E	F	G-max	H-max
7,5	13,5	240	170	92 ± 5	36,5	120 ± 5	57 ± 4	134	80
10	17	262	183	99 ± 5	39,5	134 ± 5	60 ± 4	143	89
15	25	314	226	126 ± 5	47,0	170 ± 5	74 ± 4	172	104

Electrical connection

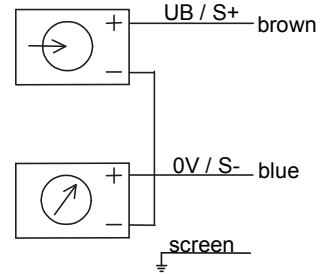
Output signal 4...20mA (2-wire)

Circular connector M12x1, 4-pin



940E01

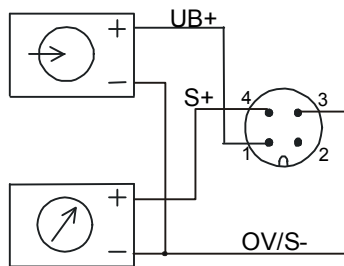
Cable outlet



940E03

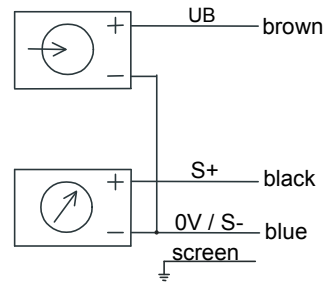
Output signal 0...10V (3-wire)

Circular connector M12x1, 4-pin



940E04

Cable outlet



940E06

Pin configuration of connector M12x1 (4-pin) /

Open cable outlet of the tecsis standard connection cable (STL 288, black)

Analogue output Electrical connection	4...20 mA (2 – wire)		0...10 VDC (3 – wire)	
	pin	cable outlet	pin	cable outlet
Supply: UB+	1	brown	1	brown
Supply: 0V	3	blue	3	blue
Signal: S+	1	brown	4	black
Signal: S-	3	blue	3	blue
⊕	thread M12x1	screen	thread M12x1	screen

Subject of technical changes