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Torque sensor

Type 5413 -1030/..

With fixed measuring shaft

The torque sensors operate according to the strain gauge principle and supply a passive analog output signal in mV/V.

- Measuring range of 0.2 N·m to 2 000 N·m
- SCHATZ AUTOCODE identification
- Connecting cable, fixed
- Standardized mechanical square connections DIN 3121 (size dependent on measuring range)
- Suitable for pulse tools

Description

Robust static torque sensor Type 5413-1030/.. for measuring torques. The torque sensor measuring shaft is equipped with strain gauges and is protected by a metal housing.
Adaptation or connection of the test item is made by means of an internal square drive; torque support is ensured by means of a mounting flange for fixed mounting.
All connections for supply and signal transmission are hard-wired, making the torque sensor insensitive to vibration.
The connection cable (5 m) is fixed.
The integrated SCHATZ AUTOCODE system enables the sensor to be automatically detected and calibrated when it is connected to appropriately equipped measuring systems.

The torque sensors are delivered with a quality certificate.
Upon request, the torque sensors are calibrated with traceability in our DAkkS-accredited calibration lab.

Application

The torque sensors with fixed measuring shafts are particularly suitable for static testing of components, workpieces and torque wrenches as well as for dynamic testing of fastening assembly tools in conjunction with a screw sleeve (mechanical joint simulator).
The torque sensor is mounted on workbenches or test benches with the mounting flange in order to determine torques in the workshop or in the lab.
It can also be mounted on a work cart to carry out regular random checks directly in production, regardless of the workpiece.
In conjunction with a hand crank system and the measuring and evaluation unit INSPECTpro, torque wrenches can be calibrated in accordance with VDI/VDE 2645 Part 2.
With the appropriate adaptations, the torque sensor can be modified for the respective application.

Application areas for the sensors:
- Static torque testing of components, workpieces and tools
- Calibration of torque wrenches
- Capability testing of fastening assembly tools

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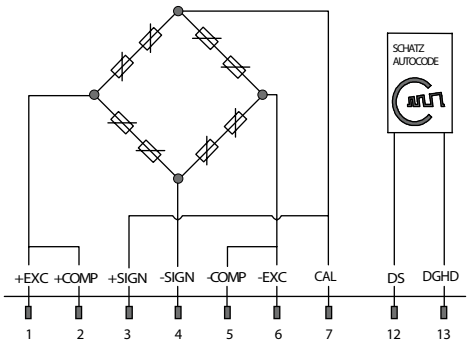
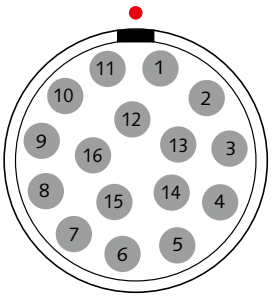
Technical data

Basic mechanical / electrical data for the sensors	
Maximum service torque	1.2 x nominal torque (20 % overload)
Maximum permitted torque	1.5 x nominal torque (50 % overload)
Bridge resistance	350 Ω
Calibration resistance	40 kΩ (+/- 0.1 %)
Nominal characteristic value	2 mV/V
Nominal supply voltage	5 V
Supply voltage operating range	2.5 ... 10 V
Operating temp. range (Nominal temp. range)	10 ... 40 °C
Service temp. range	0 ... 50 °C
Storage temp. range	-20 ... 70 °C
Relative humidity	max. 70 %, non-bedewing / non-condensing
Housing material	Steel
Level of protection	IP 40
Electrical connection	
Connecting cable	fixed, 5 m
Connector	ODU: S12 L0C-P16PFG0

Torque measuring bridge of torque sensors



ODU Pin assignment



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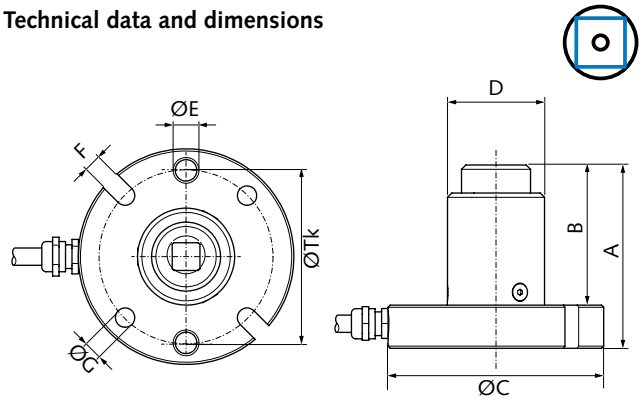
Technical data and dimensions



Type 5413-1030/..	../1	../5	../10	../20	../50
Nominal value	1 N·m	5 N·m	10 N·m	20 N·m	50 N·m
Square drive	1/4″	1/4″	1/4″	1/4″	3/8″
Maximum permitted axial force	20 N	100 N	200 N	400 N	1 000 N
Maximum permitted bending	0.07 N·m	0.20 N·m	0.20 N·m	0.40 N·m	1.00 N·m
Achievable meas. uncertainty acc. to DIN EN ISO 51309	≤ 0.5 %				
Overload protection	Multi position engagement			Single position engagement	—
Dimensions					
A	77.5 mm	93.0 mm	93.0 mm	96.5 mm	85.0 mm
B	65.5 mm	73.0 mm	73.0 mm	76.0 mm	65.0 mm
C	80.0 mm	100.0 mm	100.0 mm	100.0 mm	100.0 mm
D	40.0 mm	49.0 mm	49.0 mm	50.0 mm	45.0 mm
E	6.6 mm H12	10.0 mm H7	10.0 mm H7	10.0 mm H7	10.0 mm H7
F	6.6 mm	9.0 mm	9.0 mm	9.0 mm	9.0 mm
G	—	9.0 mm	9.0 mm	9.0 mm	9.0 mm
Tk	70.0 mm	80.0 mm	80.0 mm	80.0 mm	80.0 mm
Weight	0.9 kg	1.7 kg	1.7 kg	1.7 kg	1.9 kg

Type 5413-1030/..	../100	../200	../500	../1k	../2k
Nominal value	100 N·m	200 N·m	500 N·m	1 000 N·m	2 000 N·m
Square drive	1/2″	1/2″	3/4″	1″	1 1/2″
Maximum permitted axial force	1 000 N	2 000 N	2 500 N	2 500 N	2 500 N
Maximum permitted bending	2.00 N·m	2.50 N·m	8.00 N·m	16.00 N·m	16.00 N·m
Achievable meas. uncertainty acc. to DIN EN ISO 51309	≤ 0.5 %			≤ 1 %	
Overload protection	—			—	
Dimensions					
A	85.0 mm	85.0 mm	122.0 mm	122.0 mm	165.0 mm
B	65.0 mm	65.0 mm	102.0 mm	102.0 mm	140.0 mm
C	100.0 mm	100.0 mm	120.0 mm	120.0 mm	150.0 mm
D	45.0 mm	45.0 mm	57.0 mm	57.0 mm	88.0 mm
E	10.0 mm H7	10.0 mm H7	10.0 mm H7	10.0 mm H7	12.0 mm H7
F	9.0 mm	9.0 mm	9.0 mm	9.0 mm	11.0 mm
G	9.0 mm	9.0 mm	9.0 mm	9.0 mm	11.0 mm
Tk	80.0 mm	80.0 mm	100.0 mm	100.0 mm	120.0 mm
Weight	1.9 kg	1.9 kg	2.5 kg	3.8 kg	5.7 kg

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