

# High Precision Torque Sensor

## For non-rotating applications

Model 8625

Code:	8625 EN
Delivery:	ex stock / 2 weeks
Warranty:	24 months

**NEW**



- Measurement ranges from 0 ... 0.01 Nm to 0 ... 10 Nm
- Linearity error from  $\leq 0.05$  % F.S.
- Standardized output signal
- Output signal  $\pm 10$  V / USB (optional)
- Tare function, filter and average values configurable
- Optional with burster TEDS

### Application

This high precision torque sensor is designed for both static and dynamic measurements on non-rotating applications. It is particularly suitable for torque measurements on, for instance, extremely small electrical actuating drives and micro-mechanical actuator elements, or for measuring reaction torques e.g. on micro-motors.

The high accuracy of measurement also makes this sensor ideal for use as a reference in many fields of industrial manufacture, or in laboratory research and development projects. Not containing any rotating parts, it requires no maintenance if properly used.

Available accessories include mounting brackets and flange adapters, which enable quick, easy and practical integration of the sensor into existing or newly developed setups and test benches.

Other possible applications:

- ▶ Test setup for precision mechanics
- ▶ Measuring the frictional torque of bearings
- ▶ Measuring the torques applied to vehicle control elements and knobs
- ▶ Acquisition of breakage moments on screw caps

### Description

The strain-gauge based sensor's modular design allows precise configuration for the desired application:

- ▶ mV/V with standardized output signal
- ▶  $\pm 10$  V output signal, configuration via USB
- ▶  $\pm 10$  V output signal, configuration and measurement via USB

With the integrated amplifier option, the sensor directly supplies a voltage signal of  $0 \dots \pm 10$  V that is proportional to the torque. The sensor can be configured via the micro-USB interface, providing access to, for example, a filter frequency setting, averaging, and a tare function. With the USB option, in addition to the voltage output, the measurement function is available via USB as well. The supplied DigiVision software can be used for measuring and storing data, or alternatively drivers for e.g. LabVIEW are available. Integration into custom software is possible via DLL.

The burster TEDS option (electronic data sheet, memory chip with sensor-specific data) allows rapid configuration of compatible evaluation units (instrumentation amplifier, indicator, ...).

**8625 EN**

**Technical Data**

Order Code	End of Measuring Range	Dimensions [mm]						Rel. Non-linearity [% F.S.]	Rel. Hysteresis [% F.S.]	Tolerance of Sensitivity: [% F.S.]	Sensitivity [mV/V]	Maximum axial load [N]	Maximum radial load [N]	Weight [g]
		L	A	B	C	D	E							
8625-4010-VXXXXX	± 0.01 Nm	59	5.5	5.5	5	4	8	0.15	0.15	0.2	0.25	50	1	150
8625-4020-VXXXXX	± 0.02 Nm	59	5.5	5.5	5	4	8	0.1	0.1	0.1	0.25	50	1	150
8625-4050-VXXXXX	± 0.05 Nm	65	8	9	7	6	8	0.1	0.1	0.1	0.5	50	1	150
8625-4100-VXXXXX	± 0.1 Nm	85	18	19	17	8	10	0.05	0.1	0.1	0.5	50	1	180
8625-4200-VXXXXX	± 0.2 Nm	85	18	19	17	8	10	0.05	0.1	0.1	0.5	50	1.5	180
8625-4500-VXXXXX	± 0.5 Nm	85	18	19	17	8	10	0.05	0.1	0.1	0.5	50	2	180
8625-5001-VXXXXX	± 1 Nm	85	18	19	17	8	10	0.05	0.1	0.1	0.5	50	3	190
8625-5002-VXXXXX	± 2 Nm	85	18	19	17	8	10	0.05	0.1	0.1	1.0	50	6	190
8625-5005-VXXXXX	± 5 Nm	85	18	19	17	8	10	0.05	0.1	0.1	1.0	200	15	190
8625-5010-VXXXXX	± 10 Nm	85	18	19	17	10	12	0.05	0.1	0.1	1.0	200	30	210

higher measurement ranges on request

**Technical Data without amplifier**

**Electrical values**

Bridge resistance (full bridge): 1000 Ω  
 Excitation voltage: 5 V  
 Max. excitation voltage: 10 V

**Environmental conditions**

Range of operating and nominal temperature: - 20 °C ... + 80 °C  
 Sensitivity of temperature effects:  
 at zero: ≤ 0.05 Nm 0.020 % F.S./K  
           ≥ 0.1 Nm 0.015 % F.S./K  
 on final value: ≤ 0.05 Nm 0.015 % F.S./K  
                   ≥ 0.1 Nm 0.010 % F.S./K

**Electrical connection**

7 pins plug connection (mating connector included on sensor delivery)

**Technical Data with amplifier/USB**

**Electrical values**

Rated supply voltage range: 5 ... 30 VDC  
 DC power consumption: approx. 1 W  
 Output voltage at ± rated torque: ± 10 V  
 Output resistance: < 500 Ohm  
 Insulation resistance: zero (binding capability)  
 -3 dB cut-off frequency: 5000 Hz  
 Ripple: < 100 mV<sub>ss</sub>  
 Calibration signal: 10.00 VDC

**Environmental conditions**

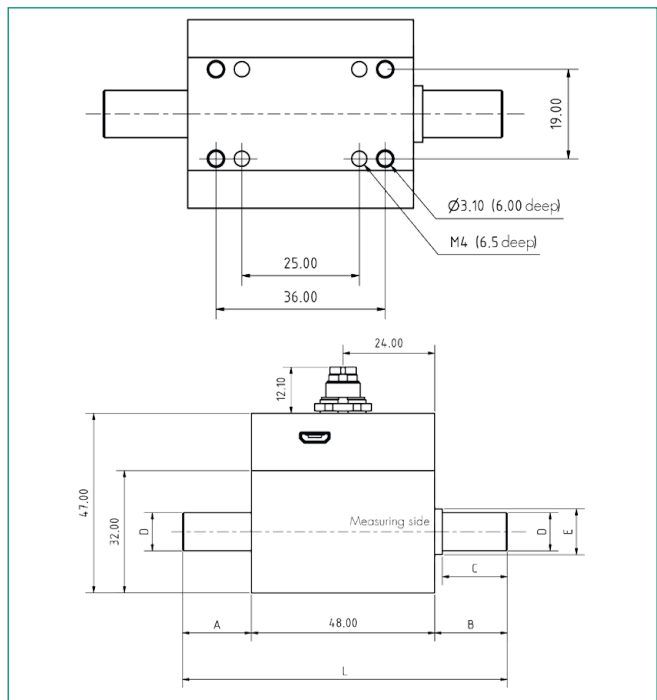
Range of operating and nominal temperature: - 20 °C ... + 60 °C  
 Sensitivity of temperature effects:  
 at zero: ≤ 0.05 Nm 0.020 % F.S./K  
           ≥ 0.1 Nm 0.015 % F.S./K  
 on final value: ≤ 0.05 Nm 0.015 % F.S./K  
                   ≥ 0.1 Nm 0.010 % F.S./K

**Electrical connection**

7-pin miniature connector, additionally micro-USB interface for configuration/measurement (mating connector and USB cable supplied)

**Mechanical values**

Linearity error and hysteresis: refer to tables  
 Dynamic overload safe: up to 70 % from nominal value  
 Twist angle by nominal load: approx. 0.2°  
 Protection class: acc. EN 60529 IP40  
 Max. operation torque ≤ 0.1 Nm: 200 % of nominal torque  
 Max. operation torque ≥ 0.2 Nm: 150 % of nominal torque  
 Breakaway torque: 300 % of nominal torque  
 Alternating load: 70 % of nominal torque  
 Material:  
   housing: made of anodized aluminium  
   shaft ≤ 0.05 Nm: high-strength aluminium 3.1354  
   shaft ≥ 0.1 Nm: steel shell 1.4542  
 Weight: refer to tables  
 Mounting: refer to dimensional drawing



The CAD drawing (3D/2D) for this sensor can be imported online directly into your CAD system. Download via [www.burster.com](http://www.burster.com) or directly at [www.traceparts.com](http://www.traceparts.com).

**Accessories**

- Mating connection **Model 9900-V594**
- Mating connection 90°- angle **Model 9900-V596**
- Connecting cable, length 3 m other end free **Model 99594-000A-0150030**
- Connecting cable for burster desktop instruments with 12-pol, 3 m **Model 99141-594A-0150030**
- for model 9235 and model 9311 **Model 99209-594A-0110030**

**Order Code**

**Torque sensor model 8625-XXXX-V00 □ □ 0**

Output voltage 10 V incl. configuring USB	0
Output voltage 10 V incl. measuring USB	1
non-amplified output	3
non-amplified output with TEDS	4
both round shaft ends	0
mounted flange	4
mounted fixing bracket	7

**Manufacturer Calibration Certificate (WKS)**

Special calibration for clockwise or/and counter clockwise direction torque, 20 % steps of range up and down.