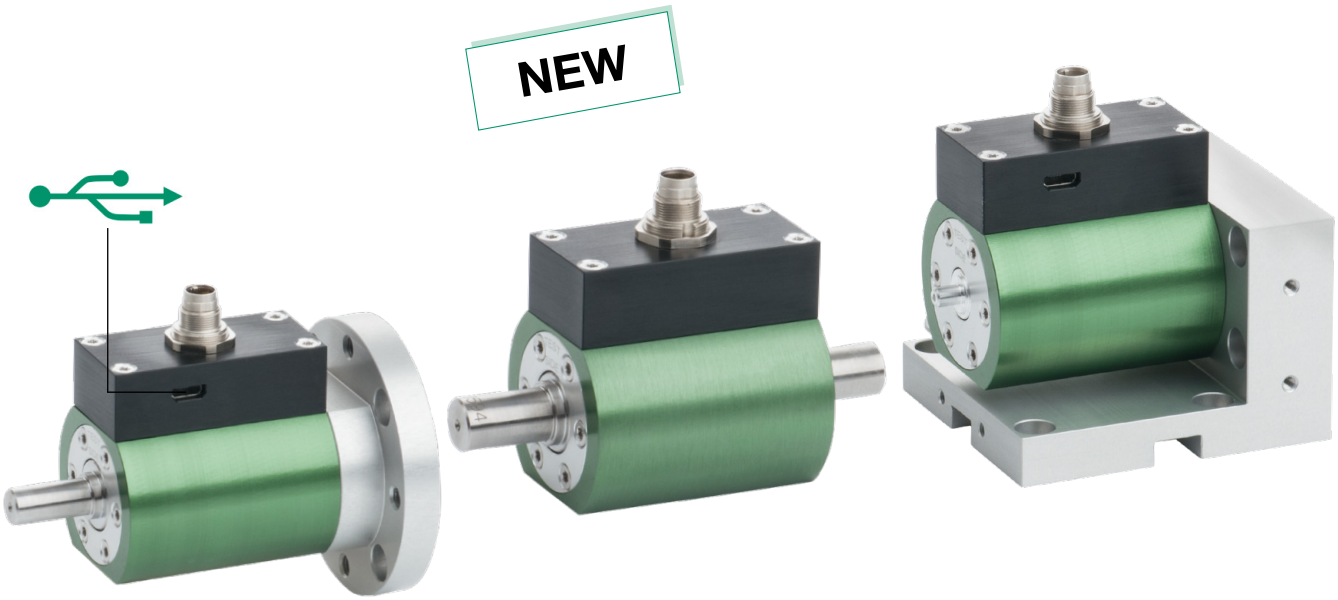
High Precision Torque Sensor

For non-rotating applications

Model 8625

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



burster TEDS

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

8625 EN

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 as well as 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
- ► ± 10 V output signal, configuration via USB
- ► ± 10 V output signal, configuration and measurement via USB

With the integrated amplifier option, the sensor directly supplies a voltage signal of 0 ... ± 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 additionally 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, ...).

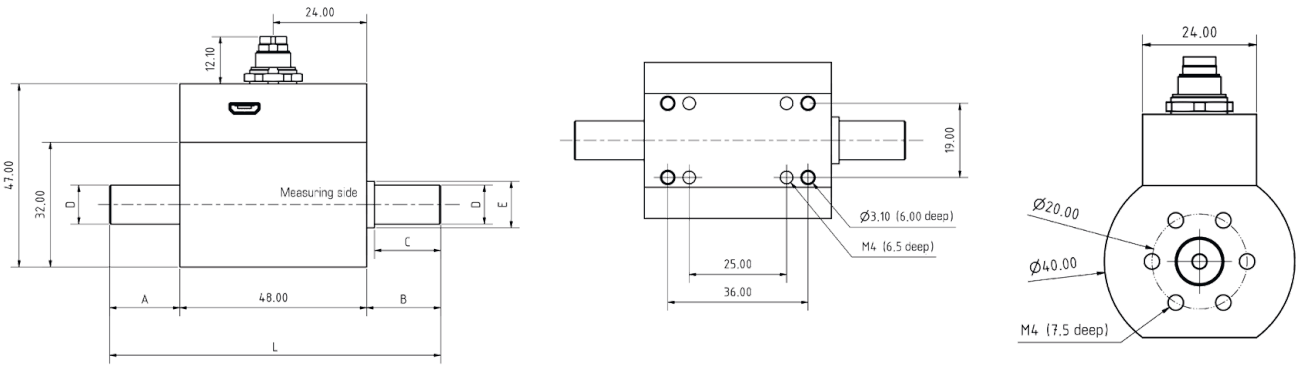
burster praezisionsmesstechnik gmbh & co kg Germany
Talstr. 1-5 · Gernsbach 76593 · Phone +49-7224-6450
www.burster.com
info@burster.com

Technical Data

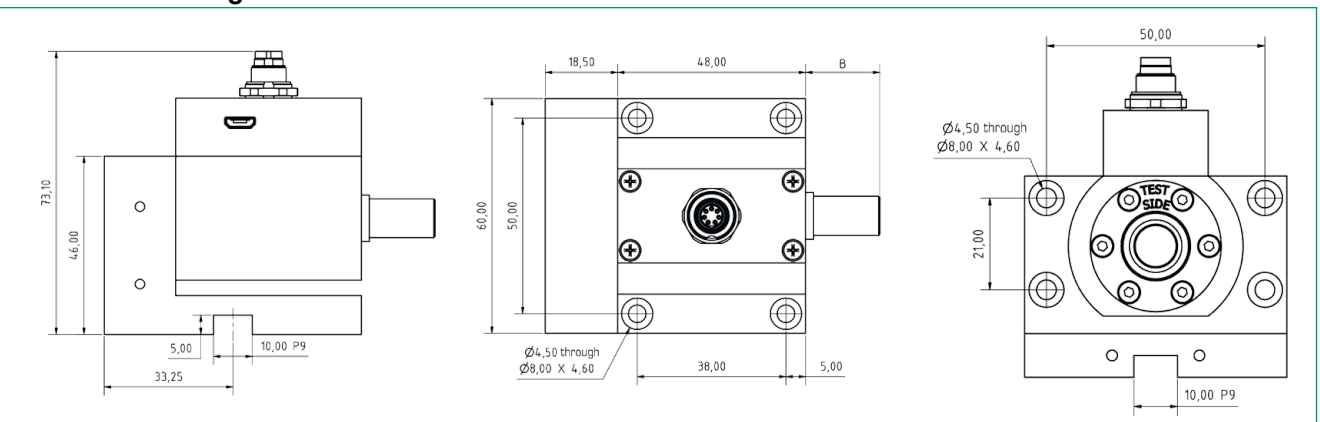
Order code	Measurement Range	Dimensions [mm]					
		L	A	B	C	D	E
8625-4010-VXXXXX	0 ... ± 0.01 Nm	59	5,5	5,5	5	4	8
8625-4020-VXXXXX	0 ... ± 0.02 Nm	59	5,5	5,5	5	4	8
8625-4050-VXXXXX	0 ... ± 0.05 Nm	65	8	9	7	6	8
8625-4100-VXXXXX	0 ... ± 0.1 Nm	85	18	19	17	8	10
8625-4200-VXXXXX	0 ... ± 0.2 Nm	85	18	19	17	8	10
8625-4500-VXXXXX	0 ... ± 0.5 Nm	85	18	19	17	8	10
8625-5001-VXXXXX	0 ... ± 1 Nm	85	18	19	17	8	10
8625-5002-VXXXXX	0 ... ± 2 Nm	85	18	19	17	8	10
8625-5005-VXXXXX	0 ... ± 5 Nm	85	18	19	17	8	10
8625-5010-VXXXXX	0 ... ± 10 Nm	85	18	19	17	10	12

higher measurement ranges on request

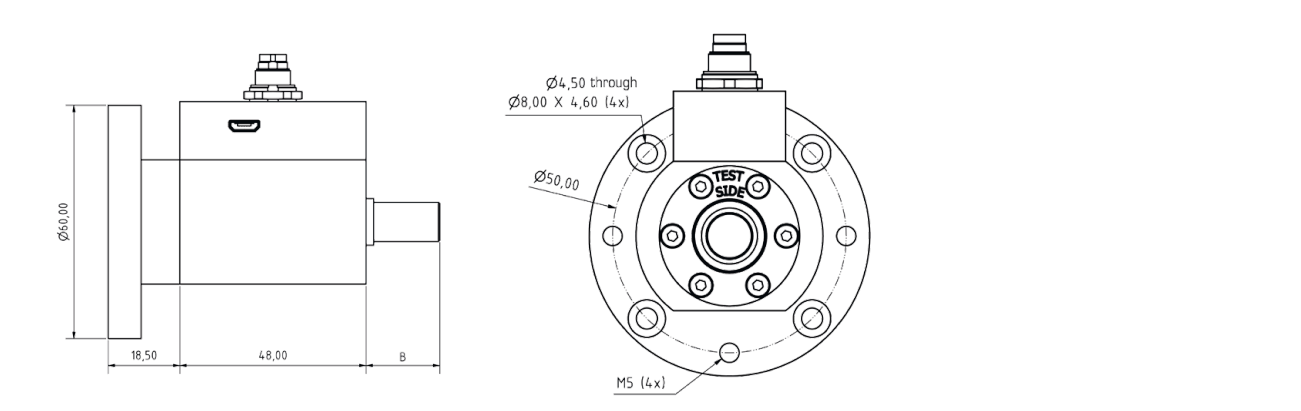
Dimensional drawing standard sensor



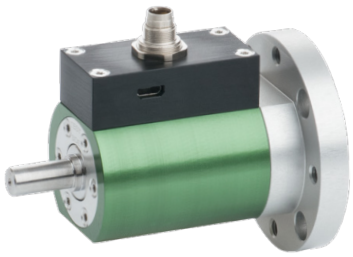
Dimensional drawing bracket-mounted model



Dimensional drawing flange-mounted model



Flange-mounted model



The flange adapter allows easy integration of the sensor in existing equipment with a flange connection. When ordered with the sensor, the flange adapter comes pre-fitted; please refer to order code.

Alternatively it can be ordered separately as an accessory. Model 8625-Z001

Please refer to the accessories data sheet for further technical details.

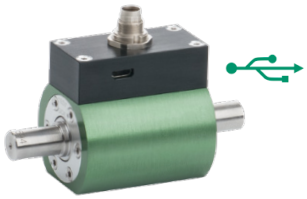
Bracket-mounted model

The bracket provides a quick-to-fit and stable fixture for the sensor. When ordered with the sensor, the bracket comes pre-fitted; please refer to order code.

Alternatively it can be ordered separately as an accessory. Model 8625-Z002

Please refer to the accessories data sheet for further technical details.

Torque sensor with built-in USB port (option)



This sensor model comes with a USB port in addition to the 0 ... ± 10 V output.

Two versions are available:

- ± 10 V output signal, USB used solely for configuration
- ± 10 V output signal, USB used for both configuration and measurement

When a USB-based measurement is launched, the analog output signal is disabled because it is not possible to use both forms of output simultaneously.

Metal-bellows coupling, 8691 series, accessory

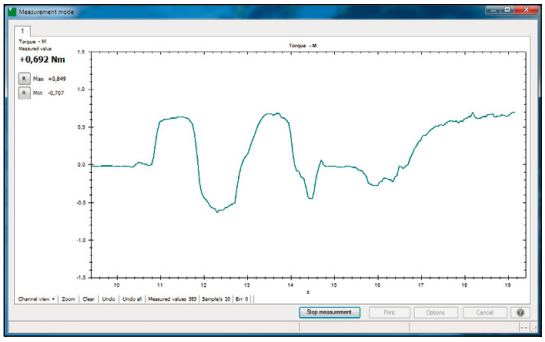
Metal-bellows couplings provide optimum misalignment correction. For the best possible misalignment correction, we recommend torsionally rigid metal-bellows couplings. These couplings feature extremely high torsional stiffness under applied torque and extremely low restoring forces. The clamp fasteners come in two parts for easy and reliable fitting/removal.

Please refer to the accessories data sheet for further technical details.

DigiVision configuration and analysis software

DigiVision Features

- ► Can be used to actuate tare function, with value stored in sensor
- ► Configuration options for averaging and filters; value stored in sensor
- ► Intuitive user interface
- ► Automatic sensor identification
- ► Sensor calibration data readout



DigiVision Light PC software

DigiVision configuration and analysis software (supplied with sensor) **Model 8625-P001**

DigiVision Standard PC software

DigiVision configuration and analysis software; up to 400 measurements/s for up to 16 channels **Model 8625-P100**

DigiVision Professional PC software

DigiVision configuration and analysis software with additional configurable maths channel; up to 32 channels **Model 8625-P200**

USB measurement option

- ► Numerical & graphical display and measurement of the physical torque value
- ► Practical start and stop trigger functions
- ► 4 limits can be configured for each measurement channel
- ► MIN/MAX value acquisition
- ► Automatic scaling
- ► Measurement reports can be saved as Excel or PDF file
- ► Archive viewer for displaying sets of curves
- ► Full version allows multichannel measurements, even with different sensors (e.g. 9206, 8661)

burster praezisionsmesstechnik gmbh & co kg Germany
Talstr. 1-5 · Gernsbach 76593 · Phone +49-7224-6450
www.burster.com
info@burster.com

Technical Data

Order Code	End of Measuring Range	Rel. Non-linearity [% F.S.]	Rel. Hysteresis [% F.S.]	Tolerance of Sensitivity: [% F.S.]	Sensi-tivity [mV/V]	Maximum Axial Load [N]	Maximum Radial Load [N]	Spring Constant [Nm/rad]	Mass Moment of Inertia Measuring side [10^{-6} kg*m^2]	Weight [g]
8625-4010-VXXXXX	± 0.01 Nm	0.15	0.15	0.2	0.25	50	1	5	0.022	150
8625-4020-VXXXXX	± 0.02 Nm	0.1	0.1	0.1	0.25	50	1	8	0.026	150
8625-4050-VXXXXX	± 0.05 Nm	0.1	0.1	0.1	0.5	50	1	10	0.059	150
8625-4100-VXXXXX	± 0.1 Nm	0.05	0.1	0.1	0.5	50	1	18	0.749	180
8625-4200-VXXXXX	± 0.2 Nm	0.05	0.1	0.1	0.5	50	1.5	41	0.812	180
8625-4500-VXXXXX	± 0.5 Nm	0.05	0.1	0.1	0.5	50	2	115	0.886	180
8625-5001-VXXXXX	± 1 Nm	0.05	0.1	0.1	0.5	50	3	261	1.15	190
8625-5002-VXXXXX	± 2 Nm	0.05	0.1	0.1	1.0	50	6	304	1.17	190
8625-5005-VXXXXX	± 5 Nm	0.05	0.1	0.1	1.0	200	15	1242	1.44	190
8625-5010-VXXXXX	± 10 Nm	0.05	0.1	0.1	1.0	200	30	2604	2.2	210

Higher measuring 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 (or 5 V via USB)
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:	< 50 mV_{ss}
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
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

Mounting instructions

- ▶ make sure the connecting shaft is exactly aligned
- ▶ suitable couplings must be used to prevent any forces arising from a parallel or angular offset of the shafts
- ▶ do not exceed the permitted axial and radial forces during fitting and operation
- ▶ follow the mounting instructions when fitting the flange adapter or bracket to an existing sensor
- ▶ please refer to our operating instructions for detailed information (www.burster.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 pin socket, 3 m	**Model 99141-594A-0150030**
for model 9235 and model 9311	**Model 99209-594A-0150030**

Order code

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

Output voltage 10 V incl. configuring USB	0
Output voltage 10 V incl. configuring and measuring USB	1
Output signal standardized, mV/V	3
Output signal standardized, mV/V with TEDS	4
both round shaft ends	0
flange-mounted	4
bracket-mounted	7

Order information

8625 with 10 Nm measurement range, ± 10 V output signal, USB port, measurement via USB, flange-mounted, including 8661-P001 measurement and analysis software **8625-5010-V00140**

Manufacturer Calibration Certificate (WKS)

Calibration of a sensor or a measuring chain, clockwise and/or counterclockwise torque in 20 % steps, increasing and decreasing.

German-accredited DAkkS calibration

The DAkkS calibration certificate (in accordance with German Calibration Service DKD-R 6-1 guidelines, clockwise and/or anticlockwise torque) includes at least three measurement cycles in steps of 10% of the measurement range, rising and falling.

Please ask for out new torque brochure or take a look at **www.burster.com**