FORCEBIT SENSOR SOLUTIONS

FORCEBIT

Wireless, add-on sensor measuring torque, bending moments and angular speed/acceleration/displacement on rotary drives

FORCEbit is a **compact, plug-and-play sensor** designed to measure and stream **torsional and bending loads**, as well as **angular displacement, velocity, and acceleration**. Strain gauge-based, it uses a **flexible spring** that deforms with the axis under load, ensuring **accurate measurement**. Its easy-to-install, add-on design requires no modifications to existing systems, making it ideal for retrofitting.

Why FORCEbit stands out:

- **No mechanical filter**: Unlike traditional torque sensors, FORCEbit captures the full range of load data, providing more precise insights
- **Easy Installation**: No system modifications needed, enabling fast implementation
- **Accurate load monitoring**: Provides essential data on torsional loads, bending, and angle monitoring for performance assessment

FORCEbit streamlines prototyping and optimization, giving you the critical data needed to **improve equipment performance, efficiency, and durability**. Perfect for industries focused on high-performance, sustainable solutions.

Choose precision, simplicity, and convenience with our innovative sensor solution.

Torque range	adapted to shaft	**Space requirements**	35 mm axially, 16 mm radially
Temperature accuracy	0.5°C	**Weight**	<200 g @ 32 mm diameter
Ang. displacement accuracy	0.25° for horizontal shafts	**Operating temperature**	-40°C to 60°C
Sampling rate	up to 4 kHz	**Shaft diameter range**	25 - 120 mm
Resolution	12-bit	**Allowable variation**	1 mm
Time synchronization	10 µs	**RPM**	5000 RPM @ d=50 mm
Data format	.csv or .h5	**Autonomy (rechargeable)**	50 hours @ 4 kHz

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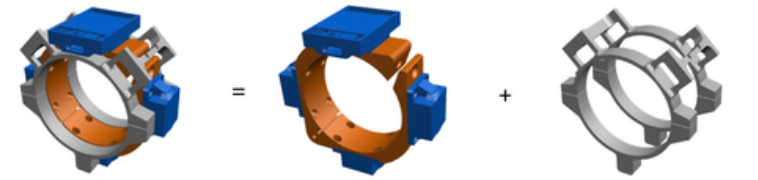
Sensor modularity

The FORCEbit sensor is a modular system that consists of a TELbit wireless telemetry system and an instrumented spine. The wireless telemetry system can be re-used within a certain diameter range while the spine is for a given diameter.



Combined torque sensing solution = TELbit + FORCEbit spine with strain gauges

type	diameter range [mm]
TELbit_2530	25-30
TELbit_3060	30-60
TELbit_6090	60-90
TELbit_90120	90-120

Diameter [mm]	Maximum measurable speed [RPM]	Maximum allowable speed [RPM]
25	6700	9000
30	6200	9000
50	5000	7500
70	4250	6375
90	3750	5625
120	3320	5000
150	3000	4500
180	2750	4125
210	2600	3900

Installation procedure

A Forcebit sensor can be mounted easily onto a shaft. The collar is secured with a single bolt, while the Forcebit spine is fastened using four bolts.

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