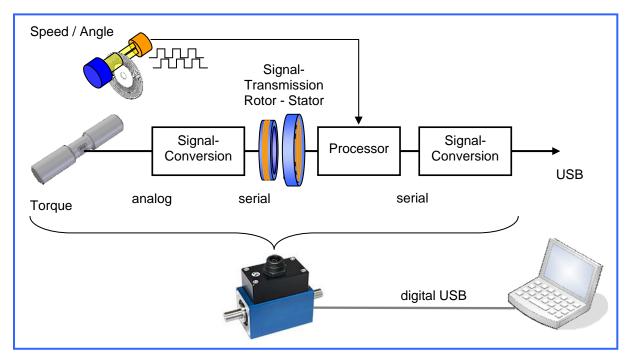# Lorenz Torque Sensor with USB-Connection

The goal of the new rotating torque sensor generation is to allow the user preferably easy handling of measurement technology. This is achieved by consistent advanced development of the existing digital torque sensors. By an easy measurement setup which is producible in very short time, the user can concentrate his focus onto the measuring task. The calibration data which are read-out for the configuration of the measuring software are stored in the sensor.

The sensor connection, which was designed according the plug and play principle, does not require user settings. This allowed an easy and clearly arranged design of the logical configured operational concept of the provided software. Of course, user settings are available for the advanced user. In order to enable further measurements with these settings, they are stored automatically. A standard PC with USB connection is sufficient as a display and evaluation unit. The power consumption of the new sensor generation was strongly reduced and allows supply through an USB connection. The angle and speed measurement was integrated in the measured value transmission as well. No more TTL-signals are available at the sensor output; speed in 1/min or angle of rotation in degree is provided. The principle setup is represented in the chart below.

The full bridge, assembled with strain gauges, transforms the torque into an electrical signal. Speed and angle are optically collected and transformed into pulses. Subsequently the analog torque signal is converted into a serial data signal of 16 bit measured values. The transfer from rotor to stator is carried out by a non-contact rotating transformer. The subsequent processor combines torque, speed or angle into a serial RS232-signal. Finally, the USB-interface is used to transfer the data to the measuring computer. This setup allows up to 2500 measurements/sec. The included software can be installed by the setup-program. This program installs the drivers for the USB-interface and the communication software. The software packet includes the presentation of the measuring data in a chart as a function of time. The measured performance resulting from speed and angle can also be presented graphically. The measuring results can be stored in two different ways: the chart can be stored as a bit-map file, the measured values can be exported as a CSV-file. This enables additional analyses by a customary spreadsheet program.

All dimensions are freely configurable, if necessary. As a composition of the two measured values, additional operators are integrated. Thus, the user does not need expensive measuring amplifiers with complicated handling. This sensor is also ideal for applications in development, tests and for the inspection of production plants.