Torque Sensor
Read Out Unit

Quick Start Guide

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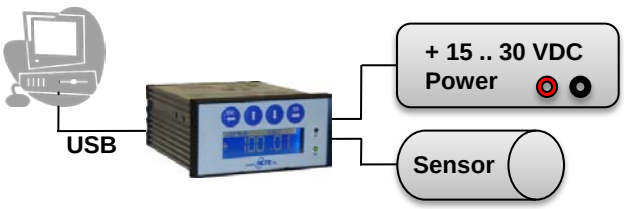
1. Short description

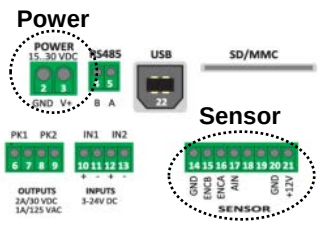
This document is a short guide for connecting and using the read out unit together with standard NCTE torque sensor families.

2. Basic connection diagram



- On Windows the read out unit is installed as HID and does not require special drivers.
- The MG-ME1 PC Software runs as is and needs no further installation. It can be downloaded at www.ncte.com.

	Read Out Unit		DC Power Supply
Power	**Pin**	**Label**	**Description**
	3	V+	Supply Voltage + (+15 .. 30 VDC)
	2	GND	Supply Voltage – (GND)

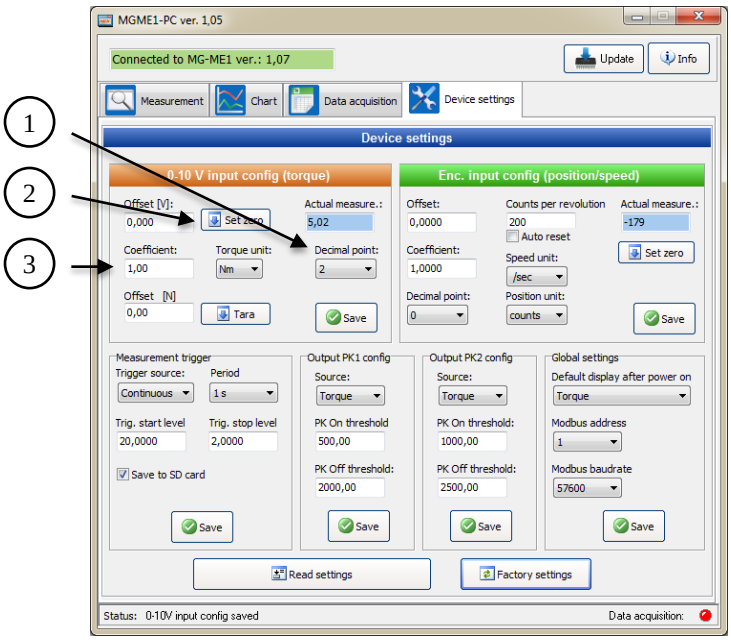





	Read Out Unit		Sensor Series 2000 (*Connector: Binder Series 712*)			Sensor Series 3000 / 4000 (*Connector: Binder Series 423/723/425*)			Sensor Series 7000 (*Connector: Binder Series M16 Connector IP67*)		
Sensor	**Pin**	**Label**	**Pin**	**Color**	**Description**	**Pin**	**Color**	**Description**	**Pin**	**Color**	**Description**
	14	a. GND	-	-	-	D	Yellow	Analog GND	E	Grey	Analog GND
	15	ENCB	-	-	-	H	Red	Angle Ch B	D	Yellow	Angle Channel B
	16	ENCA	-	-	-	F	Pink	Angle Ch A	C	Green	Angle Channel A
	17	AIN	2	Brown	Signal Output V_{out}	C	Green	Analog Out	F	Pink	Analog voltage signal output
	20	GND	3	Black	Ground	B	Brown	Ground GND	G	Blue	Ground GND
	21	+12V	1	White	Supply voltage V_{CC}	S	White	Supply voltage V_{CC}	H	Red	Supply voltage V_{CC}

3. Basic configuration (using MG-ME1 PC Software)

Torque Input:



1. Select decimal precision for torque display and data recording and press the **[Save]** button.
2. While sensor is unloaded (zero torque) press the **[Set zero]** button. This determines the zero point of the analog Signal (usually ≈ 2.5 V or ≈ 5 V)
3. Input Coefficient and press the **[Save]** button. The coefficient can be calculated using the slope value of the calibration certificate as follows:

Calibration Certificate
Page 2

Messdaten / Measurement data

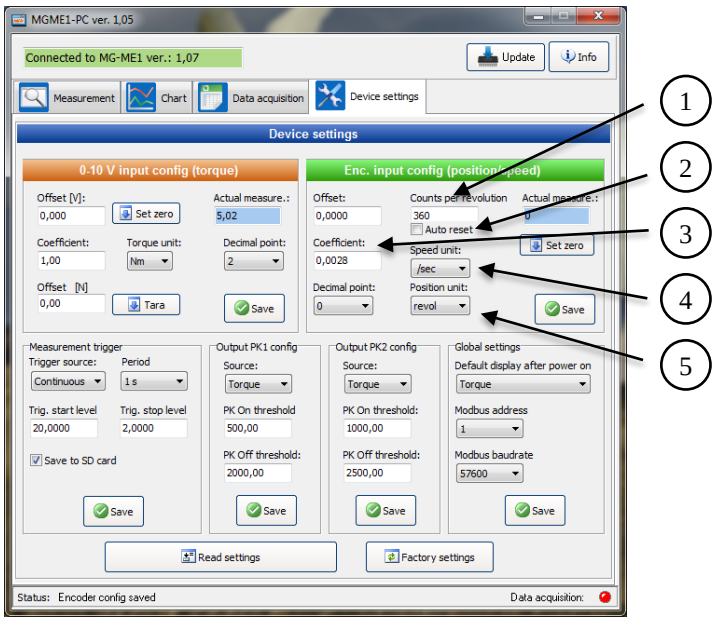
Steigung *Slope*	40,02 mV/Nm
Achsenabschnitt *Offset*	5,279 V
max. erlaubte	

$$Coefficient = \frac{1}{Slope} \times 1000$$

Example:

$$Coefficient = \frac{1}{40.02 \frac{mV}{Nm}} \times 1000 = 24.9875 \frac{Nm}{V}$$

Encoder Input:



1. Input the encoders no. of pulses per revolution and press the **[Save]** button.
2. Activate the “Auto reset” Check Box and press the **[Save]** button. When active the position value is reset to 0 after a full revolution.
3. Input the coefficient for speed and position calculation and press the **[Save]** button. The coefficient can be calculated as follows:

$$Coefficient = \frac{1}{Counts\_per\_revolution}$$

Example:

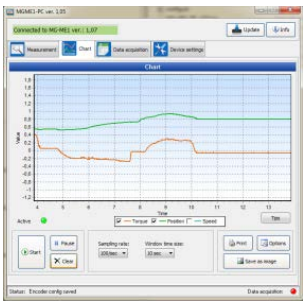
$$Coefficient = \frac{1}{360} \approx 2.7777777777e-3$$

4. Select the time unit for the speed display and press the **[Save]** button.
5. Set the position unit to “Revol” (=revolution) and press the **[Save]** button.

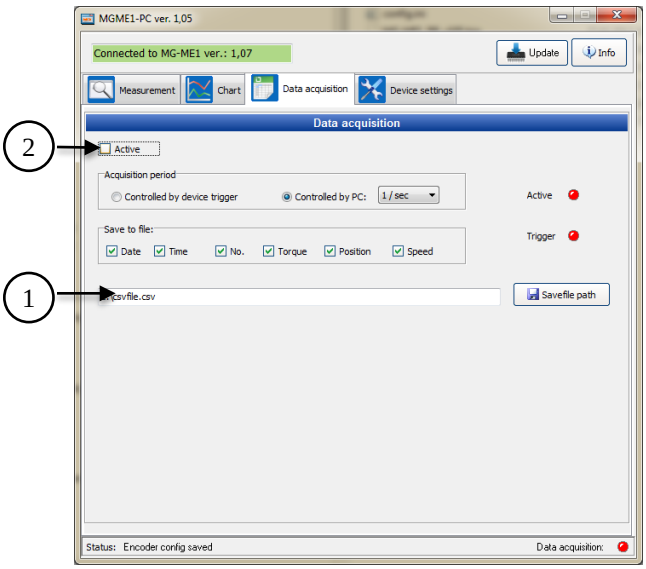
4. Measurement data displays

The PC Software has two tabs which can display live measurement data

- “Measurement” tab: numerical displays
- “Chart” tab: data plot with various editable properties, print option and image export.



5. Setting up data acquisition (PC)



1. Press **[Save file path]** and select both path and name for the csv-file.
2. Check the check box in order to start the aqusition. *If the file already exists, new data will be appended at the end of the file.*

6. Contact

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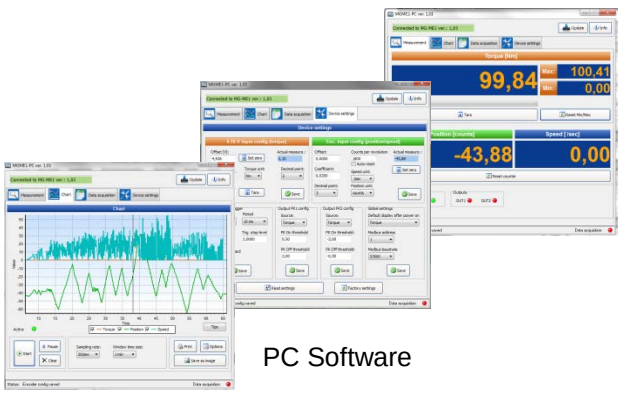

PC Software