

2 Intelligent Torque Sensors

- Based on Strain Gauge Technology
- Digital and Analog Interfaces



- Rotary Torque/Angle Sensors

- Stationary Torque Sensors

Nominal Measurement Ranges:

 $\pm 0,01 \text{ Nm}$

...

+/- 1000 Nm

- Handheld Torque Sensors

$\pm 0,01 \text{ Nm}$

...

+/- 2 Nm

Torque Sensor Type Nomenclature:

ng-TT - -

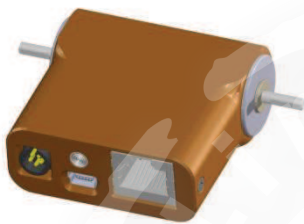
- └ **i** = intelligent (USB + Ethernet + RS-485)
- └ **u** = intelligent (USB)
- └ **a** = analog
- └ **x** = 1/4" hexagon drive
- └ **c** = cylindric shafts
- └ **q** = square drive
- └ Torque measurement range [cNm]
- └ **R** = Rotary
- └ **S** = Stationary
- └ **H** = Handheld
- └ **TT** = Torque Transducer
- └ **ng** = n-gineric Product



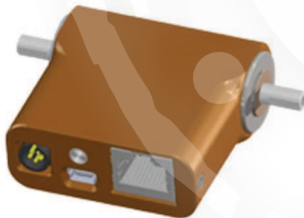
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2.1 Rotary Torque/Angle Sensors ng-TTR-i

- High precision strain gauge based torque sensors
- Brushless energy and signal transmission
- High resolution incremental encoder
- Ultra compact size
- USB Interface
- Ethernet Interface
- *ng-Link* Interface
- Torque window control
- Mechanical overload protection clutch (sensors up to 200 cNm range)
- Standard USB and Ethernet connectors



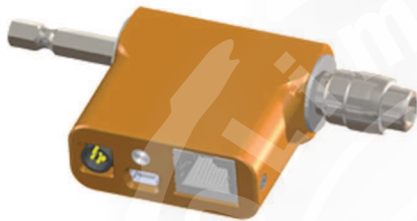
Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00036-01	ng-TTR01-ci	+/- 1	intelligent	✓	3 mm Shaft
01-01-00004-01	ng-TTR02-ci	+/- 2	intelligent	✓	3 mm Shaft
01-01-00005-01	ng-TTR05-ci	+/- 5	intelligent	✓	3 mm Shaft



Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00006-01	ng-TTR10-ci	+/- 10	intelligent	✓	5 mm Shaft
01-01-00003-01	ng-TTR20-ci	+/- 20	intelligent	✓	5 mm Shaft



Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00037-01	ng-TTR50-ci	+/- 50	intelligent	-	8 mm Shaft
01-01-00038-01	ng-TTR100-ci	+/- 100	intelligent	-	8 mm Shaft
01-01-00039-02	ng-TTR200-ci	+/- 200	intelligent	-	8 mm Shaft
01-01-00040-01	ng-TTR500-ci	+/- 500	intelligent	-	8 mm Shaft
01-01-00041-01	ng-TTR1000-ci	+/- 1000	intelligent	-	8 mm Shaft
01-01-00140-02	ng-TTR2000-ci	+/- 2000	intelligent	-	12 mm Shaft

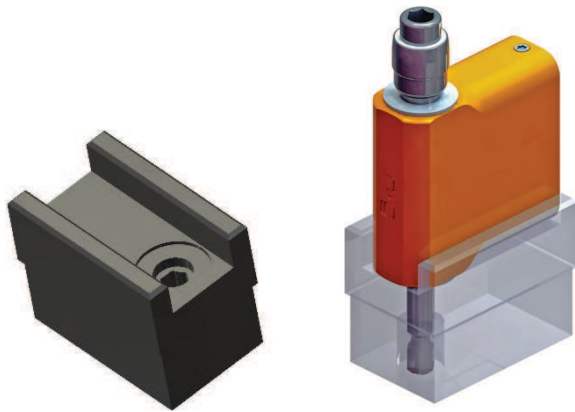


Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00007-01	ng-TTR50-xi	+/- 50	intelligent	✓	1/4" Hexagon
01-01-00008-01	ng-TTR100-xi	+/- 100	intelligent	✓	1/4" Hexagon
01-01-00009-01	ng-TTR200-xi	+/- 200	intelligent	✓	1/4" Hexagon
01-01-00010-01	ng-TTR500-xi	+/- 500	intelligent	-	1/4" Hexagon
01-01-00011-01	ng-TTR1000-xi	+/- 1000	Intelligent	-	1/4" Hexagon
01-01-00074-01	ng-TTR2000-xi	+/- 2000	Intelligent	-	1/4" Hexagon



Article Number	Type	Torque Range Nm	Interface	Overload Protected	Drive
01-01-00407-01	ng-TTR500-qi	+/- 5	Intelligent	-	1/4" Square
01-01-00249-01	ng-TTR2000-qi	+/- 20	Intelligent	-	1/4" Square
01-01-00073-01	ng-TTR5000-qi	+/- 50	Intelligent	-	3/8" Square

Accessories



Sensor Detent ng-TTR ¼" Hexagon

Article Number	01-92-00016-01
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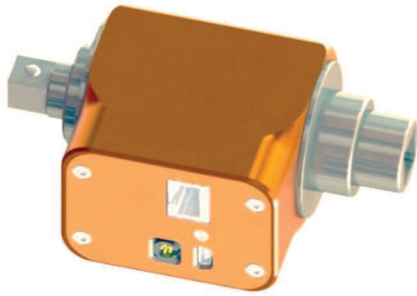


Sensor Detent ⅜" Square

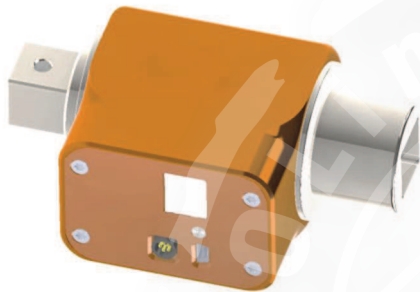
Article Number	01-92-00037-01
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Sensor Detent ½" Square

Article Number	01-92-00036-01
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Article Number	Type	Torque Range Nm	Interface	Overload Protected	Drive
01-01-00149-01	ng-TTR10000-qi	+/- 100	Intelligent	-	1/2" Square
01-01-00189-01	ng-TTR20000-qi	+/- 200	Intelligent	-	1/2" Square



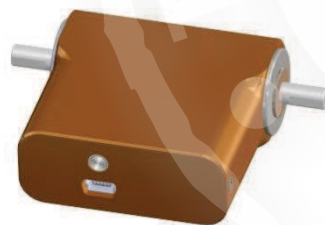
Article Number	Type	Torque Range Nm	Interface	Overload Protected	Drive
01-01-00151-01	ng-TTR50000-qi	+/- 500	Intelligent	-	3/4" Square
01-01-00200-01	ng-TTR100000-qi	+/- 1000	Intelligent	-	1" Square

2.2 Rotary Torque/Angle Sensors ng-TTR-u

- High precision strain gauge based torque sensors
- Brushless energy and signal transmission
- High resolution incremental encoder
- Ultra compact size
- USB Interface
- Torque window control
- Mechanical overload protection clutch (sensors up to 200 cNm range)
- Standard USB connector



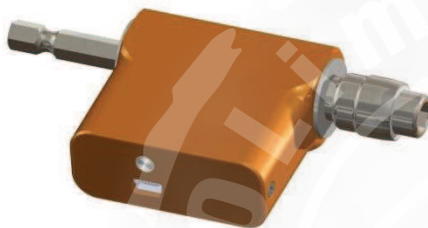
Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00088-01	ng-TTR01-cu	+/- 1	USB	✓	3 mm Shaft
01-01-00089-01	ng-TTR02-cu	+/- 2	USB	✓	3 mm Shaft
01-01-00090-01	ng-TTR05-cu	+/- 5	USB	✓	3 mm Shaft



Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00091-01	ng-TTR10-cu	+/- 10	USB	✓	5 mm Shaft
01-01-00092-01	ng-TTR20-cu	+/- 20	USB	✓	5 mm Shaft



Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00093-01	ng-TTR50-cu	+/- 50	USB	✓	8 mm Shaft
01-01-00094-01	ng-TTR100-cu	+/- 100	USB	✓	8 mm Shaft
01-01-00095-01	ng-TTR200-cu	+/- 200	USB	✓	8 mm Shaft
01-01-00096-01	ng-TTR500-cu	+/- 500	USB	-	8 mm Shaft
01-01-00097-01	ng-TTR1000-cu	+/- 1000	USB	-	8 mm Shaft
01-01-00142-02	ng-TTR2000-cu	+/- 2000	USB	-	12 mm Shaft

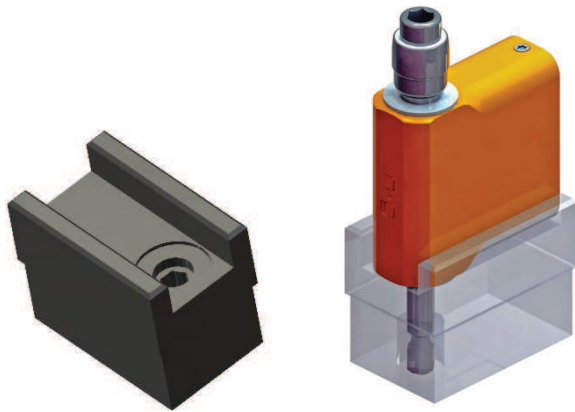


Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00098-01	ng-TTR50-xu	+/- 50	USB	✓	1/4" Hexagon
01-01-00099-01	ng-TTR100-xu	+/- 100	USB	✓	1/4" Hexagon
01-01-00100-01	ng-TTR200-xu	+/- 200	USB	✓	1/4" Hexagon
01-01-00101-01	ng-TTR500-xu	+/- 500	USB	-	1/4" Hexagon
01-01-00102-01	ng-TTR1000-xu	+/- 1000	USB	-	1/4" Hexagon
01-01-00103-01	ng-TTR2000-xu	+/- 2000	USB	-	1/4" Hexagon



Article Number	Type	Torque Range Nm	Interface	Overload Protected	Drive
01-01-00191-01	ng-TTR2000-qu	+/- 20	USB	-	1/4" Square
01-01-00104-01	ng-TTR5000-qu	+/- 50	USB	-	3/8" Square

Accessories



Sensor Detent ng-TTR 1/4" Hexagon

Article Number	01-92-00016-01
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Sensor Detent 3/8" Square

Article Number	01-92-00037-01
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2.3 Rotary Torque/Angle Sensors ng-vTTR

Optimized for the measurement of pulse tools

- High precision strain gauge based torque sensors
- Brushless energy and signal transmission
- High resolution incremental encoder
- Ultra compact size
- Minimized weight and moment of inertia
- Extended RPM range (up to 10.000)
- USB Interface
- Ethernet-Interface
- *ng-Link* Interface
- Torque window control
- Robust threaded connector for USB

Torque Sensor Type Nomenclature:

ng- vTTR-□ □-□□□ □

- i = intelligent
- q = square drive
- Torque Range in cNm
- R = Rotatory
- TT = Torque Transducer
- v = high velocity
- ng = n-gineric Produkt



Article Number	Type	Torque Range Nm	Interface	Overload Protected	Drive
01-01-00330-01	ng-vTTR8000-qi	+/- 80	intelligent	-	½" Square
01-01-00335-01	ng-vTTR16000-qi	+/- 160	intelligent	-	½" Square

Accessories

Cable ng-eTTR / USB-A 1,8 m

Article Number	01-90-00008-01
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2.4 Rotary Torque/Angle Sensors ng-eTTR

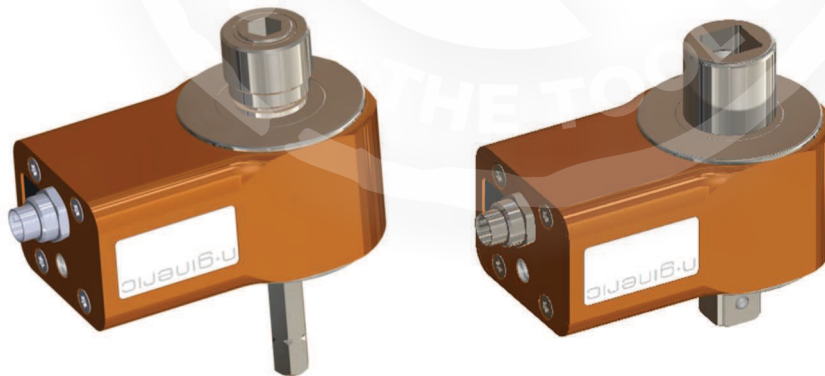
Torque sensors with robust design for the production floor

- High precision strain gauge based torque sensors
- Brushless energy and signal transmission
- Optional high resolution incremental encoder
- Compact size
- USB Interface
- Optional *ng-Link* Interface
- Torque window control
- Robust threaded connector for USB
- Optional mounting flanges

Torque Sensor Type Nomenclature:

ng-eTTR-□ □-□□ □

- └ f = intelligent (USB + Encoder + *ng-Link* + mounting flanges)
- └ r = intelligent (USB + Encoder + *ng-Link*)
- └ u = intelligent (USB + Encoder)
- └ t = torque (USB)
- └ x = hexagon drive
- └ q = square drive
- └ Torque Range in cNm
- └ R = Rotary
- └ TT = Torque Transducer
- └ e = economy
- └ ng = n-gineric Produkt



Article Number	Type	Torque Range Nm	USB	Encoder	ng-Link	Drive
01-01-00197-01	ng-eTTR200-xt	+/- 2	✓	-	-	1/4" Hexagon
01-01-00202-01	ng-eTTR200-xu	+/- 2	✓	✓	-	1/4" Hexagon
01-01-00206-01	ng-eTTR200-xr	+/- 2	✓	✓	✓	1/4" Hexagon
01-01-00196-01	ng-eTTR500-xt	+/- 5	✓	-	-	1/4" Hexagon
01-01-00203-01	ng-eTTR500-xu	+/- 5	✓	✓	-	1/4" Hexagon
01-01-00207-01	ng-eTTR500-xr	+/- 5	✓	✓	✓	1/4" Hexagon
01-01-00195-01	ng-eTTR1000-xt	+/- 10	✓	-	-	1/4" Hexagon
01-01-00204-01	ng-eTTR1000-xu	+/- 10	✓	✓	-	1/4" Hexagon
01-01-00208-01	ng-eTTR1000-xr	+/- 10	✓	✓	✓	1/4" Hexagon
01-01-00201-01	ng-eTTR2000-xt	+/- 20	✓	-	-	1/4" Hexagon
01-01-00205-01	ng-eTTR2000-xu	+/- 20	✓	✓	-	1/4" Hexagon
01-01-00209-01	ng-eTTR2000-xr	+/- 20	✓	✓	✓	1/4" Hexagon
01-01-00288-01	ng-eTTR5000-qt	+/- 50	✓	-	-	3/8" Square
01-01-00159-01	ng-eTTR5000-qu	+/- 50	✓	✓	-	3/8" Square
01-01-00323-01	ng-eTTR5000-qr	+/- 50	✓	✓	✓	3/8" Square

With double-sided mounting flanges



Article Number	Type	Torque Range Nm	USB	Encoder	ng-Link	Drive
01-01-00211-01	ng-eTTR200-xf	+/- 2	✓	✓	✓	1/4" Hexagon
01-01-00212-01	ng-eTTR500-xf	+/- 5	✓	✓	✓	1/4" Hexagon
01-01-00213-01	ng-eTTR1000-xf	+/- 10	✓	✓	✓	1/4" Hexagon
01-01-00214-01	ng-eTTR2000-xf	+/- 20	✓	✓	✓	1/4" Hexagon
01-01-00322-01	ng-eTTR5000-qf	+/- 50	✓	✓	✓	3/8" Square

Accessories

Cable ng-eTTR / USB-A 1,8 m

Article Number	01-90-00008-01
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2.5 Rotary Torque/Angle Sensors ng-TTR-a

Rotary torque sensors with analog + digital Interface

- High precision strain gauge based Torque Sensors
- Brushless energy and signal transmission
- High resolution incremental encoder (2 channel TTL level signals)
- Ultra compact size
- Mechanical overload protection clutch (sensors up to 200 cNm range)
- Calibration data stored in sensor memory
- Analog torque output signal options:
 - 0 to 5 V, zero point at 2.5 V
 - 0 to 10 V, zero point at 5 V
- Power supply 12 V DC +/- 5 %, 150 mA
- USB Interface
- Torque window control (via USB)



Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00048-01	ng-TTR01-ca	+/- 1	analog + USB	✓	3 mm Shaft
01-01-00049-01	ng-TTR02-ca	+/- 2	analog + USB	✓	3 mm Shaft
01-01-00050-01	ng-TTR05-ca	+/- 5	analog + USB	✓	3 mm Shaft



Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00051-01	ng-TTR10-ca	+/- 10	analog + USB	✓	5 mm Shaft
01-01-00052-01	ng-TTR20-ca	+/- 20	analog + USB	✓	5 mm Shaft



Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00053-01	ng-TTR50-ca	+/- 50	analog + USB	✓	8 mm Shaft
01-01-00054-01	ng-TTR100-ca	+/- 100	analog + USB	✓	8 mm Shaft
01-01-00055-01	ng-TTR200-ca	+/- 200	analog + USB	✓	8 mm Shaft
01-01-00056-01	ng-TTR500-ca	+/- 500	analog + USB	-	8 mm Shaft
01-01-00057-01	ng-TTR1000-ca	+/- 1000	analog + USB	-	8 mm Shaft
01-01-00141-02	ng-TTR2000-ca	+/- 2000	analog + USB	-	12 mm Shaft



Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00058-01	ng-TTR50-xa	+/- 50	analog + USB	✓	1/4" Hexagon
01-01-00059-01	ng-TTR100-xa	+/- 100	analog + USB	✓	1/4" Hexagon
01-01-00060-01	ng-TTR200-xa	+/- 200	analog + USB	✓	1/4" Hexagon
01-01-00061-01	ng-TTR500-xa	+/- 500	analog + USB	-	1/4" Hexagon
01-01-00024-01	ng-TTR1000-xa	+/- 1000	analog + USB	-	1/4" Hexagon
01-01-00078-01	ng-TTR2000-xa	+/- 2000	analog + USB	-	1/4" Hexagon

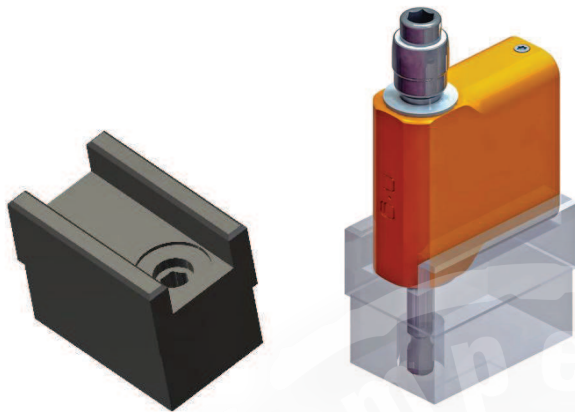


Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00077-01	ng-TTR5000-qa	+/- 5000	analog + USB	-	3/8" Square

Accessories

Sensor cable for analog interface, with single-sided connector, 1.5 meters

Article Number	01-90-00021-01
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Sensor Detent ng-TTR 1/4" Hexagon

Article Number	01-92-00016-01
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2.6 Stationary Torque Sensors ng-TTS-i

- High precision strain gauge based Torque Sensors
- USB Interface
- Ethernet Interface
- *ng-Link* Interface
- Torque window control
- Mechanical overload protection (sensors up to 200 cNm range)
- Standard USB and Ethernet connectors



Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00042-01	ng-TTS01-ci	+/- 1	intelligent	✓	3 mm Bore
01-01-00015-01	ng-TTS02-ci	+/- 2	intelligent	✓	3 mm Bore
01-01-00016-01	ng-TTS05-ci	+/- 5	intelligent	✓	3 mm Bore
01-01-00017-01	ng-TTS10-ci	+/- 10	intelligent	✓	3 mm Bore
01-01-00018-01	ng-TTS20-ci	+/- 20	intelligent	✓	3 mm Bore

Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00019-01	ng-TTS50-xi	+/- 50	intelligent	✓	1/4" Hexagon
01-01-00020-01	ng-TTS100-xi	+/- 100	intelligent	✓	1/4" Hexagon
01-01-00021-01	ng-TTS200-xi	+/- 200	intelligent	✓	1/4" Hexagon
01-01-00022-01	ng-TTS500-xi	+/- 500	intelligent	-	1/4" Hexagon
01-01-00023-01	ng-TTS1000-xi	+/- 1000	intelligent	-	1/4" Hexagon
01-01-00075-01	ng-TTS2000-xi	+/- 2000	intelligent	-	1/4" Hexagon

Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00076-01	ng-TTS5000-qi	+/- 5000	intelligent	-	3/8" Square



Article Number	Type	Torque Range Nm	Interface	Overload Protected	Drive
01-01-00168-02	ng-TTS10000-qi	+/- 100	intelligent	-	1/2" Square



Article Number	Type	Torque Range Nm	Interface	Overload Protected	Drive
01-01-00169-01	ng-TTS20000-qi	+/- 200	intelligent	-	1/2" Square
01-01-00170-01	ng-TTS50000-qi	+/- 500	intelligent	-	3/4 Square
01-01-00210-01	ng-TTS100000-qi	+/- 1000	intelligent	-	1" Square

2.7 Stationary Torque Sensors ng-TTS-u

- High precision strain gauge based Torque Sensors
- USB Interface
- Torque window control
- Mechanical overload protection (sensors up to 200 cNm range)
- Standard USB and Ethernet connectors



Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00105-01	ng-TTS01-cu	+/- 1	USB	✓	3 mm Bore
01-01-00106-01	ng-TTS02-cu	+/- 2	USB	✓	3 mm Bore
01-01-00107-01	ng-TTS05-cu	+/- 5	USB	✓	3 mm Bore
01-01-00108-01	ng-TTS10-cu	+/- 10	USB	✓	3 mm Bore
01-01-00109-01	ng-TTS20-cu	+/- 20	USB	✓	3 mm Bore

Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00110-01	ng-TTS50-xu	+/- 50	USB	✓	1/4" Hexagon
01-01-00111-01	ng-TTS100-xu	+/- 100	USB	✓	1/4" Hexagon
01-01-00112-01	ng-TTS200-xu	+/- 200	USB	✓	1/4" Hexagon
01-01-00113-01	ng-TTS500-xu	+/- 500	USB	-	1/4" Hexagon
01-01-00114-01	ng-TTS1000-xu	+/- 1000	USB	-	1/4" Hexagon
01-01-00115-01	ng-TTS2000-xu	+/- 2000	USB	-	1/4" Hexagon

Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00116-01	ng-TTS5000-qu	+/- 5000	USB	-	3/8" Square



Article Number	Type	Torque Range Nm	Interface	Overload Protected	Drive
01-01-00171-02	ng-TTS10000-qu	+/- 100	USB	-	1/2" Square

2.8 Stationary Torque Sensors ng-eTTS-u

Torque sensors with robust design for the production floor

- High precision strain gauge based torque sensors
- Compact size
- USB Interface
- Optional *ng-Link* Interface
- Torque window control

Torque Sensor Type Nomenclature:

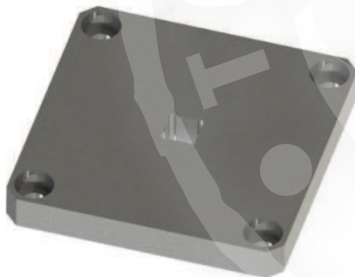
ng-eTTS-□ □-□□ □

- └ r = intelligent (USB + *ng-Link*)
- └ u = intelligent (USB)
- └ q = square drive
- └ Torque Range in cNm
- └ S = stationary
- └ TT = Torque Transducer
- └ e = economy
- └ ng = n·gineric Produkt



Article Number	Type	Torque Range Nm	USB	ng-Link	Drive
01-01-00314-01	ng-eTTS500-qu	+/- 5	✓	-	3/8" Square
01-01-00313-01	ng-eTTS1000-qu	+/- 10	✓	-	3/8" Square
01-01-00312-01	ng-eTTS2000-qu	+/- 20	✓	-	3/8" Square
01-01-00309-01	ng-eTTS5000-qu	+/- 50	✓	-	3/8" Square

Accessories



Sensor Detent 3/8" Square

Article Number	01-92-00037-01
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2.9 Stationary Torque Sensors ng-TTS-a

- High precision strain gauge based Torque Sensors
- Mechanical overload protection (sensors up to 200 cNm range)
- Analog torque output signal options:
 - 0 to 5 V, zero point at 2.5 V
 - 0 to 10 V, zero point at 5 V
- Power supply 12 V DC +/- 5 %, 150 mA



Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00062-01	ng-TTS01-ca	+/- 1	analog	✓	3 mm Bore
01-01-00063-01	ng-TTS02-ca	+/- 2	analog	✓	3 mm Bore
01-01-00035-01	ng-TTS05-ca	+/- 5	analog	✓	3 mm Bore
01-01-00002-01	ng-TTS10-ca	+/- 10	analog	✓	3 mm Bore
01-01-00065-01	ng-TTS20-ca	+/- 20	analog	✓	3 mm Bore

Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00066-01	ng-TTS50-xa	+/- 50	analog	✓	1/4" Hexagon
01-01-00067-01	ng-TTS100-xa	+/- 100	analog	✓	1/4" Hexagon
01-01-00068-01	ng-TTS200-xa	+/- 200	analog	✓	1/4" Hexagon
01-01-00013-01	ng-TTS500-xa	+/- 500	analog	-	1/4" Hexagon
01-01-00014-01	ng-TTS1000-xa	+/- 1000	analog	-	1/4" Hexagon
01-01-00144-01	ng-TTS2000-xa	+/- 2000	analog	-	1/4" Hexagon

Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00145-01	ng-TTS5000-qa	+/- 5000	analog	-	3/8" Square

Accessories

Sensor cable for analog interface, with single-sided connector, 1.5 meters

Article Number	01-90-00021-01
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2.10 Handheld Torque Sensors ng-TTH-i

- High precision strain gauge based torque sensors
- USB Interface
- Ethernet Interface
- *ng-Link* Interface
- Torque window control
- Mechanical overload protection
- Standard USB and Ethernet connectors



Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00030-01	ng-TTH01-ci	+/- 1	intelligent	✓	3 mm Bore
01-01-00031-01	ng-TTH02-ci	+/- 2	intelligent	✓	3 mm Bore
01-01-00032-01	ng-TTH05-ci	+/- 5	intelligent	✓	3 mm Bore
01-01-00033-01	ng-TTH10-ci	+/- 10	intelligent	✓	3 mm Bore
01-01-00034-01	ng-TTH20-ci	+/- 20	intelligent	✓	3 mm Bore



Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00043-01	ng-TTH50-xi	+/- 50	intelligent	✓	1/4" Hexagon
01-01-00044-01	ng-TTH100-xi	+/- 100	intelligent	✓	1/4" Hexagon
01-01-00045-01	ng-TTH200-xi	+/- 200	intelligent	✓	1/4" Hexagon

2.11 Handheld Torque Sensors ng-TTH-u

- High precision strain gauge based torque sensors
- USB Interface
- Torque window control
- Mechanical overload protection
- Standard USB and Ethernet connectors



Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00118-01	ng-TTH01-cu	+/- 1	USB	✓	3 mm Bore
01-01-00119-01	ng-TTH02-cu	+/- 2	USB	✓	3 mm Bore
01-01-00120-01	ng-TTH05-cu	+/- 5	USB	✓	3 mm Bore
01-01-00121-01	ng-TTH10-cu	+/- 10	USB	✓	3 mm Bore
01-01-00122-01	ng-TTH20-cu	+/- 20	USB	✓	3 mm Bore



Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00123-01	ng-TTH50-xu	+/- 50	USB	✓	1/4" Hexagon
01-01-00124-01	ng-TTH100-xu	+/- 100	USB	✓	1/4" Hexagon
01-01-00125-01	ng-TTH200-xu	+/- 200	USB	✓	1/4" Hexagon

2.12 Handheld Torque Sensors ng-TTH-a

- High precision strain gauge based Torque Sensors
- Mechanical overload protection
- Analog torque output signal options:
 - 0 to 5 V, zero point at 2.5 V
 - 0 to 10 V, zero point at 5 V
- Power supply 12 V DC +/- 5 %, 150 mA



Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00025-01	ng-TTH01-ca	+/- 1	analog	✓	3 mm Bore
01-01-00026-01	ng-TTH02-ca	+/- 2	analog	✓	3 mm Bore
01-01-00027-01	ng-TTH05-ca	+/- 5	analog	✓	3 mm Bore
01-01-00028-01	ng-TTH10-ca	+/- 10	analog	✓	3 mm Bore
01-01-00029-01	ng-TTH20-ca	+/- 20	analog	✓	3 mm Bore



Article Number	Type	Torque Range cNm	Interface	Overload Protected	Drive
01-01-00069-01	ng-TTH50-xa	+/- 50	analog	✓	1/4" Hexagon
01-01-00070-01	ng-TTH100-xa	+/- 100	analog	✓	1/4" Hexagon
01-01-00071-01	ng-TTH200-xa	+/- 200	analog	✓	1/4" Hexagon

Accessories

Sensor cable for analog interface, with single-sided connector, 1.5 meters

Article Number	01-90-00021-01
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3 Intelligent Force Sensors

- Based on Strain Gauge Technology
- Digital and Analog Interfaces

Miniature Compression and Tension Force Sensors

Measurement Ranges:

100 N
...
200 kN



The sensor interface is optionally equipped with an input for an incremental encoder to measure the displacement! Please let us know your demands!

Force Sensor Type Nomenclature:

ng-FTS-□ □-□□ □

- **i** = intelligent (USB + Ethernet + RS-485)
- **u** = intelligent (USB)
- **b** = button load cell (compression force)
- **d** = donut shape load cell (compression force)
- **z** = z-shape load cell (compression/tension force)
- Measurement range in N
- **S** = Stationary
- **FT** = Force Transducer
- **ng** = n-gineric Product

3.1 Compression Force Load Cells ng-FTS-bi

- High precision strain gauge based button load cells
- USB interface
- Ethernet interface
- *ng-Link* Interface
- Force window control
- Standard USB and Ethernet connectors



Article Number	Type	Torque Range N	Interface	Size mm	Accuracy Class
01-01-00126-01	ng-FTS100-bi	100	intelligent	Ø 31,8 x 9.9	0.25 %
01-01-00127-01	ng-FTS200-bi	200	intelligent	Ø 31,8 x 9.9	0.25 %
01-01-00128-01	ng-FTS400-bi	400	intelligent	Ø 31,8 x 9.9	0.25 %
01-01-00129-01	ng-FTS1000-bi	1000	intelligent	Ø 31,8 x 9.9	0.25 %



Article Number	Type	Torque Range kN	Interface	Size mm	Accuracy Class
01-01-00130-01	ng-FTS4000-bi	4	intelligent	Ø 31,8 x 9.9	0.5 %
01-01-00131-01	ng-FTS8000-bi	8	intelligent	Ø 31,8 x 9.9	0.5 %
01-01-00132-01	ng-FTS10000-bi	10	intelligent	Ø 31,8 x 9.9	0.5 %

3.2 Compression Force Load Cells ng-FTS-bu

- High precision strain gauge based button load cells
- USB interface
- Force window control
- Standard USB and Ethernet connectors



Article Number	Type	Torque Range N	Interface	Size mm	Accuracy Class
01-01-00133-01	ng-FTS100-bu	100	USB	Ø 31,8 x 9.9	0.25 %
01-01-00134-01	ng-FTS200-bu	200	USB	Ø 31,8 x 9.9	0.25 %
01-01-00135-01	ng-FTS400-bu	400	USB	Ø 31,8 x 9.9	0.25 %
01-01-00136-01	ng-FTS1000-bu	1000	USB	Ø 31,8 x 9.9	0.25 %



Article Number	Type	Torque Range N	Interface	Size mm	Accuracy Class
01-01-00137-01	ng-FTS4000-bu	4000	USB	Ø 31,8 x 9.9	0.5 %
01-01-00138-01	ng-FTS8000-bu	8000	USB	Ø 31,8 x 9.9	0.5 %
01-01-00139-01	ng-FTS10000-bu	10000	USB	Ø 31,8 x 9.9	0.5 %

3.3 Compression Force Load Cells ng-FTS-di

Load cells with bore to be attached to screw joints for clamp force measurement

- High precision strain gauge based button load cells
- USB interface
- Ethernet interface
- *ng-Link* Interface
- Force window control
- Standard USB and Ethernet connectors



Article Number	Type	Torque Range kN	Interface	Size mm	Accuracy Class
01-01-00156-02	ng-FTS1000-di	1	intelligent	Ø 38,0 x 10,0	2 %
01-01-00180-01	ng-FTS2000-di	2	intelligent	Ø 38,0 x 10,0	2 %
01-01-00172-01	ng-FTS5000-di	5	intelligent	Ø 38,0 x 10,0	2 %
01-01-00184-01	ng-FTS10000-di	10	intelligent	Ø 38,0 x 10,0	2 %
01-01-00185-01	ng-FTS20000-di	20	intelligent	Ø 49,0 x 16,0	2 %
01-01-00186-01	ng-FTS50000-di	50	intelligent	Ø 49,0 x 16,0	2 %



Article Number	Type	Torque Range kN	Interface	Size mm	Genauigkeits- klasse
01-01-00157-01	ng-FTS100000-di	100	intelligent	Ø 78,0 x 25,0	2 %
01-01-00167-01	ng-FTS200000-di	200	intelligent	Ø 78,0 x 25,0	2 %