

# Torque measurement

## CENTOR W Easy

Using the CENTOR technology, **the CENTOR W Easy digital torque gauges** have a very large graphic display and show a maximum quantity of information for more efficient measuring: they show the current reading and the peak value at the same time, and a bar graph to show the operator whether they are close to their maximum capacity. If necessary, the backlighting can be used to further enhance reading comfort.

Its advanced measurement chain enables it to use an sampling rate of 1 000 Hertz with a resolution of 1/10 000 FS and a total error of less than 0.5% FS. Many other functions complete the possibilities of the gauge:

**the Set points functions can be used to carry out "OK, NOK" tests: a symbol is shown on the display.**

The fully programmable RS232 output sends the data to a PC.

A digimatic output can be used to feed Mitutoyo statistical printers .



### Technical characteristics

- Operates in Clockwise and anti-clockwise direction
- Accuracy 0.5% FS
- Resolution: 1/10 000 FS
- Peak function in both directions
- Simultaneous display of the peak and the current reading
- Bar graph
- 3 units available: Nm, kg.cm, mNm
- Sampling rate 1 000 Hertz
- Can be used with a pedal
- Tare function
- Auto-off adjustable from 5 to 15 min, can be deactivated
- Programmable set point function
- Two-way RS232 output: transmission of current reading, minimum, or maximum values
- Digimatic output
- 8 hours of operation without recharging.
- Fast charge
- Reversible display
- Backlit display
- Operates on rechargeable batteries
- Low battery indicator
- Memorizes its configuration
- Metal casing with protective elastomer overmould
- Calibration certificate included
- Supplied in a carrying case with a mains adaptor

**With TM "pencil" sensor, very low torque levels:** used to measure very low torque levels. Measurements are made easier by the sensor's lightness.

MODELS	CAPACITIES	RESOLUTIONS
<b>Easy torque gauges with TM sensor</b>		
CNR EA TM-04	0.4 Nm	0.04 mNm
CNR EA TM-07	0.7 Nm	0.07 mNm
<b>Star torque gauges with TM sensor</b>		
CNR ST TM-04	0.4 Nm	0.04 mNm
CNR ST TM-07	0.7 Nm	0.07 mNm

**With TH "handle" sensor, low torque levels:** used to measure low torque levels, screwing torque settings, or operating switches. The sensor is protected mechanically from overloads.

MODELS	CAPACITIES	RESOLUTIONS
<b>Easy torque gauges with TH sensor</b>		
CNR EA TH-0.12	0.12 Nm	0.01 mNm
CNR EA TH-0.3	0.3 Nm	0.03 mNm
CNR EA TH-1.5	1.5 Nm	0.1 mNm
CNR EA TH-6	6 Nm	0.6 mNm
CNR EA TH-12	12 Nm	1 mNm
<b>Star torque gauges with TH sensor</b>		
CNR ST TH-0.12	0.12 Nm	0.01 mNm
CNR ST TH-0.3	0.3 Nm	0.03 mNm
CNR ST TH-1.5	1.5 Nm	0.1 mNm
CNR ST TH-6	6 Nm	0.6 mNm
CNR ST TH-12	12 Nm	1 mNm

# Torque gauges

## CENTOR W Star



Besides having all the functionalities of the CENTOR W Easy, **the CENTOR W Star torque gauge** provides handy further possibilities: the graphic display shows the full graph Torque = C(t). This gives you a general overview of the current test. The torque gauge is able to make several types of calculations on demand (break point, first peak, average, torque at time T, etc.).

**It is equipped with a special sensor recognition system; this means that a single instrument can read different sensors (several capacities, Force or Torque).**

Furthermore, it is possible to freeze its configuration to avoid handling errors. It is the most versatile instrument yet designed for all tests in industrial surroundings.



**With TW "wrench" sensor:** used to measure high torque levels and when the measurements cannot be made in the axis.

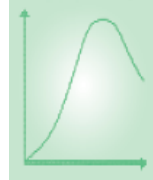
MODELS	CAPACITIES	RESOLUTIONS
<b>Easy torque gauges with TW sensor</b>		
CNR EA TW-15	15 Nm	1.5 mNm
CNR EA TW-60	60 Nm	6 mNm
CNR EA TW-150	150 Nm	0.015 Nm
CNR EA TW-600	600 Nm	0.06 Nm
<b>Star torque gauges with TW sensor</b>		
CNR ST TW-15	15 Nm	1.5 mNm
CNR ST TW-60	60 Nm	6 mNm
CNR ST TW-150	150 Nm	0.015 Nm
CNR ST TW-600	600 Nm	0.06 Nm

**With "cylindrical" sensor:** used to measure torques when the sensor has to be integrated in an assembly.

MODELS	CAPACITIES	RESOLUTIONS
<b>Easy torque gauges with TT sensor</b>		
CNR EA TT-1	1 Nm	0.1 mNm
CNR EA TT-3	3 Nm	0.3 mNm
CNR EA TT-6	6 Nm	0.6 mNm
CNR EA TT-12	12 Nm	0.12 mNm
CNR EA TT-24	24 Nm	2 mNm
CNR EA TT-60	60 Nm	6 mNm
<b>Star torque gauges with TT sensor</b>		
CNR ST TT-1	1 Nm	0.1 mNm
CNR ST TT-3	3 Nm	0.3 mNm
CNR ST TT6	6 Nm	0.6 mNm
CNR ST TT12	12 Nm	1.2 mNm
CNR ST TT24	24 Nm	2.4 mNm
CNR ST TT60	60 Nm	6 mNm

### Technical characteristics

- Operates in Clockwise and anti-clockwise direction
- Accuracy 0.5% FS
- Resolution: 1/10 000 FS
- Peak function in both directions
- Simultaneous display of the peak and the current reading
- Display of the Torque/Time graph
- Calculations of specific points in the graph:
  - Maxima
  - Torque at time T
  - Break point
  - Derivative
  - First peak
  - Torque on opening/closing of contact
  - Average torque
- Memorization of the last graph curve measured.
- Bar graph
- 3 units available: Nm, kg.cm, mNm
- Sampling rate 1 000 Hertz
- Can be used with a pedal
- Tare function
- Auto-off adjustable from 5 to 15 min, can be deactivated
- Programmable set point functions
- Two-way RS232 output: transmission of the current reading, minimum, peak or calculation
- Running transmission of 50 values per second
- Possibility of transmitting the graph curve memorized
- Digimatic output
- Memorization of 2 configurations
- current configuration Protection function (locking)
- Automatic recognition of additional sensors
- Reversible display
- Backlit display
- Operates on rechargeable batteries
- 8 hours of operation without recharging
- Fast charge
- Low battery indicator
- Metal casing with protective elastomer overmould
- Calibration certificate included
- Supplied in a carrying case with a mains adaptor



# Torque measurement

## CENTOR W Dual



Thanks to the possibilities of the instruments in the CENTOR family and in particular the power of the **CENTOR W Dual torque gauge with its combined Force/Torque measurements**, it is possible to show on the same display values provided by multi-components sensors.



By associating a Dual instrument and a TL twin-component Force/Torque sensor, we can easily make combined measurements.



MODELS	FORCE CAPACITIES	FORCE RESOLUTIONS	TORQUE CAPACITIES	TORQUE RESOLUTIONS
CNR DL TF 2	250 N	0.02 N	10 Nm	1mNm
CNR DL TF 5	500 N	0.05 N	15 Nm	1.5 mNm
CNR DL TF 10	1 000 N	0.1 N	20 Nm	2 mNm



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## TWIST torsion test stand



To carry out a precise, repetitive torque measurement, it is often necessary to use a torsion test stand.



**The TWIST, a 1 to 12 NM torsion test stand with combined Torque/Angle measurement** provides this function. The torsion meter enables torsion tests to be made on various samples such as springs, or metal or plastic parts.



It is made up of a horizontal, rigid test stand, with two rails to provide precision guidance.



On the test stand, there are two working heads that are fitted with vertical circular plates.

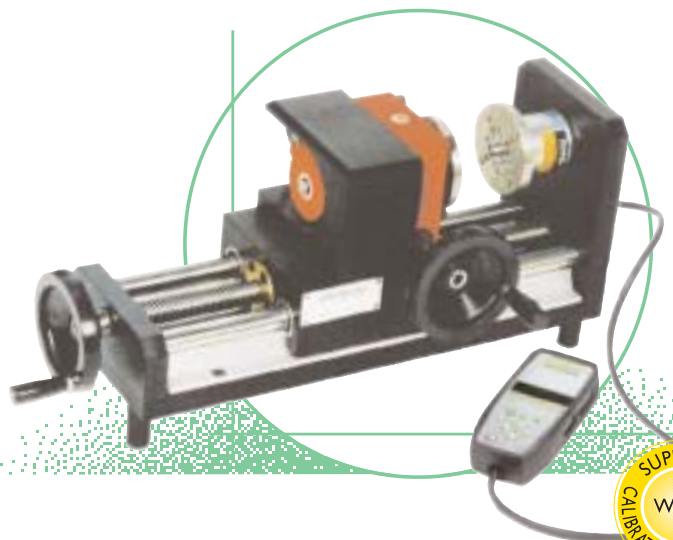


Thanks to its ability to read two sensors at the same time and with a sampling rate of 1 000 Hertz, the CENTOR W Dual makes an ideal test console for the TWIST test stand.

Its calculating power enables it to record values coming from 2 different sensors simultaneously, monitor the set points and make a calculation for each channel.

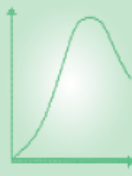
On its display, it shows a Torque/Angle graph curve.

It provides the simplest, most versatile system for dealing with the most wide-ranging torsion tests in the workshop or in the laboratory.



MODELS	TWIST 1	TWIST 6	TWIST 12
Maximum capacity	1 Nm	6 Nm	12 Nm
Torque resolution	0.1 mNm	0.6 mNm	1 mNm
Angle resolution	0.1°	0.1°	0.1°
Space between plates	200 mm	200 mm	200 mm
Overall dimensions			
Height	300 mm	300 mm	300 mm
Width	200 mm	200 mm	200 mm
Length	500 mm	500 mm	500 mm

# Torque gauges



## Additional torque sensors



**The additional torque sensors** are recognized by CENTOR Star force gauge or torque gauge version instruments and they can complete a set of Force/Torque instruments at a very reasonable price.

The sensor characteristics are stored in the memory of an electronic circuit located inside the sensor connector, and they are read by the CENTOR Star instrument, which is automatically configured and becomes a torque gauge without the operator having to make any adjustments.



MODELS	ACCURACY	CAPACITIES	RESOLUTIONS
SPIP TM 0.4	0.5 % FS	0.4 Nm	0.05 mNm
SPIP TM 0.7	0.5 % FS	0.7 Nm	0.07 mNm



MODELS	ACCURACY	CAPACITIES	RESOLUTIONS
SPIP TH 0.12	0.5 % FS	0.12 Nm	0.01 mNm
SPIP TH 0.3	0.5 % FS	0.3 Nm	0.03 mNm
SPIP TH 1.5	0.5 % FS	1.5 Nm	0.1 mNm
SPIP TH 6	0.5 % FS	6 Nm	0.6 mNm
SPIP TH 12	0.5 % FS	12 Nm	1 mNm



MODELS	ACCURACY	CAPACITIES	RESOLUTIONS
SPIP TT 0.05	0.5 % FS	0.05 Nm	0.005 mNm
SPIP TT 0.15	0.5 % FS	0.15 Nm	0.02 mNm
SPIP TT 0.35	0.5 % FS	0.35 Nm	0.03 mNm
SPIP TT 0.75	0.5 % FS	0.75 Nm	0.1 mNm
SPIP TT 1	0.5 % FS	1 Nm	0.1 mNm
SPIP TT 3	0.5 % FS	3 Nm	0.3 mNm
SPIP TT 6	0.5 % FS	6 Nm	0.6 mNm
SPIP TT 12	0.5 % FS	12 Nm	1 mNm
SPIP TT 24	0.5 % FS	24 Nm	2 mNm
SPIP TT 60	0.5 % FS	60 Nm	5 mNm



MODELS	ACCURACY	CAPACITIES	RESOLUTIONS
SPIP TW 15	0.5 % FS	15 Nm	1 mNm
SPIP TW 60	0.5 % FS	60 Nm	6 mNm
SPIP TW 150	0.5 % FS	150 Nm	0.02 Nm
SPIP TW 600	0.5 % FS	600 Nm	0.06 Nm