

# Force measurement

## CENTOR First

**NEW**



Simple and yet complete, **the CENTOR First** uses efficient technology to simplify force measurements, in tension and compression.

A big display shows the force measured in tension or compression in the unit selected by the operator: Newtons, Kilograms or Pounds. The bar graph completes the measurement.

The 4 keys make it very easy to use this force gauge and access the essential functions: measurement of the peak tension or compression value, resetting to zero, and changing the measurement units. It is an ideal tool for basic tests during production. Its metal casing, protected by an elastomer overmould, gives it exceptional strength.

The internal sensor stands up to an overload of 200% of its maximum capacity.

**Simple, precise, robust, supplied with its carrying case, mains adaptor and certificate, ready for use, it is the basic tool for force measurement.**



### Technical characteristics

- Operates in Tension and compression
- Accuracy 0.25% FS
- Resolution: 0.1 N
- Peak function for tension and compression
- Bar graph
- 3 units available: N, kg, Lbs
- Sampling rate 1 000 Hertz
- Tare function
- Auto-off 15 min
- Reversible display
- Sensor protected from overloads up to 200% of its capacity
- Operates on rechargeable batteries
- Low battery indicator
- Memorizes its configuration
- 8 hours of operation without recharging
- Metal casing with protective elastomer overmould
- Threaded fixing holes on the back for use on test stand
- Calibration certificate included
- Supplied in a carrying case with mains adaptor and accessories

MODELS	CAPACITIES	RESOLUTIONS
CNR FT 100	100 N	0.1 N
CNR FT 250	250 N	0.1 N
CNR FT 500	500 N	0.1 N

*A complete instrument, supplied ready to measure*



# Force gauges



## CENTOR Easy



With its very large graphic display, **the CENTOR Easy** shows a maximum quantity of information for more efficient measuring: for example, it shows the current value and the peak value at the same time, and displays a bar graph to show the operator whether it is close to its maximum capacity. If necessary, the backlighting can be used to further enhance reading comfort.

Its highly efficient measurement chain enables it to use a sampling rate of 1 000 Hertz with a resolution of 1/10 000 FS and a total error of less than 0.1% 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 and a signal can be used to stop a motorized test stand and protect the sensor (cable available on request).**

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

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

**Designed to be at home in industrial environments, it is an ideal tool for production tests.**



### Technical characteristics

- Operates in Tension and compression
- Accuracy 0.1% FS
- Resolution: 1/10 000 FS
- Peak function for tension and compression
- Simultaneous display of the peak and the current reading
- Bar graph
- 5 units available: N, kg, Lbs, g, Oz
- Sampling rate 1 000 Hertz
- Can be used with a external foot switch
- 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, as desired
- Digimatic output
- 8 hours of operation without recharging.
- Fast charge
- Reversible display
- Backlit display
- Sensor protected from overloads up to 200% of its capacity
- Operates on rechargeable batteries
- Low battery indicator
- Memorizes its configuration
- Metal casing with protective elastomer overmould
- Threaded fixing holes on the back for use on test stand
- Calibration certificate included
- Supplied in a carrying case with mains adaptor and accessories

MODELS	CAPACITIES	RESOLUTIONS
CNR EA 10	10 N	0.001 N
CNR EA 25	25 N	0.002 N
CNR EA 50	50 N	0.005 N
CNR EA 100	100 N	0.01 N
CNR EA 250	250 N	0.02 N
CNR EA 500	500 N	0.05 N
CNR EA 1000	1 000 N	0.1 N

*Record your measurements using MS-Excel with our RSIC data capture software and personalize your test reports:*

# Force measurement

## CENTOR Star

**The CENTOR Star** is the most advanced force gauge currently available; **it has become the benchmark tool for force measurement.** Besides having all the functionalities of the CENTOR Easy, it also provides handy further possibilities: the graphic display shows the full graph Force = F(t). This gives you a general overview of the current test. The force gauge is able to make several types of calculations on demand (break point, first peak, average, force at time T, etc.), and some calculations can also be used to control the motorized test stand.

**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.

### Technical characteristics

- Operates in Tension and compression
- Accuracy 0.1% FS
- Resolution: 1/10 000 FS
- Peak function for tension and compression
- Simultaneous display of the peak and the current reading
- Display of the Force/Time graph
- Calculations of specific points in the graph:
  - Maxima
  - Force at time T
  - Break point
  - Derivative
  - First peak
  - Force on opening/closing of contact
  - Average force
- Memorization of the last graph curve measured
- Bar graph
- 5 units available: N, kg, Lbs, g, Oz
- 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
- Protection function (blocking) for the current configuration
- Automatic recognition of additional sensors
- Reversible display
- Backlit display
- Sensor protected from overloads up to 200% of its capacity
- Operates on rechargeable batteries
- 8 hours of operation without recharging
- Fast charge
- Low battery indicator
- Metal casing with protective elastomer overmould
- Threaded fixing holes on the back for use on test stand
- Calibration certificate included
- Supplied in a carrying case with mains adaptor and set of accessories



MODELS	CAPACITIES	RESOLUTIONS
CNR ST 5	5 N	0.0005 N
CNR ST 10	10 N	0.001 N
CNR ST 25	25 N	0.002 N
CNR ST 50	50 N	0.005 N
CNR ST 100	100 N	0.01 N
CNR ST 250	250 N	0.02 N
CNR ST 500	500 N	0.05 N
CNR ST 1000	1 000 N	0.1 N

*Use its automatic recognition of external sensors to transform your force gauge into a torque gauge*



# Force gauges

## CENTOR Dual



Thanks to its ability to read two sensors simultaneously with a sampling rate of 1 000 Hertz, **the CENTOR Dual** is a real test console. It has all the functions of an STAR force gauge, **but its calculation power enables it to record values sent by 2 different sensors simultaneously**, monitor set points and make a calculation on each channel. It can also show an F1/F2 graph or a Force/Displacement graph on its display, because it is also able to read potentiometric rulers and incremental encoders.

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

### Technical characteristics

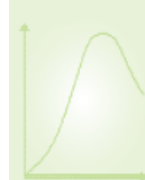
- Simultaneous readings on 2 channels
- Operates in Tension and compression
- Accuracy 0.1% FS
- Resolution: 1/10 000 FS
- Peak function for tension and compression
- Simultaneous display of the peak and the current reading
- Display of the Force/Displacement graph
- Calculations of specific points in the graph for each channel:
  - Maxima
  - Force at time T
  - Break point
  - Derivative
  - First peak
  - Force on opening/closing of contact
  - Average force
  - Force for a given displacement
- Memorization of the last graph curve measured
- Bar graph
- 5 units available: N, kg, Lbs, g, Oz
- Sampling rate 1 000 Hertz
- Can be used with a pedal
- Tare function, separate on each channel
- Automatic tare possible at the beginning of the graph curve
- Auto-off adjustable from 5 to 15 min, can be deactivated
- Programmable set point functions for each channel
- Full two-way RS232 output
- Running transmission of 25 value pairs per second
- Possibility of transmitting the graph curve memorized
- Digimatic output
- Memorization of 2 configurations
- Protection function for the current configuration
- Automatic recognition of additional force or torque sensors
- Recognition of incremental displacement sensors (angular encoders or linear rulers)
- Reversible display
- Backlit display
- Sensor protected from overloads up to 200% of its capacity
- Operates on rechargeable batteries
- 8 hours of operation without recharging
- Fast charge
- Low battery indicator
- Metal casing with protective elastomer overmould
- Threaded fixing holes on the back for use on test stand
- Calibration certificate included
- Supplied in a carrying case with mains adaptor and set of accessories



MODELS	CAPACITIES	RESOLUTIONS
CNR DL 5	5 N	0.0005 N
CNR DL 10	10 N	0.001 N
CNR DL 25	25 N	0.002 N
CNR DL 50	50 N	0.005 N
CNR DL 100	100 N	0.01 N
CNR DL 250	250 N	0.02 N
CNR DL 500	500 N	0.05 N
CNR DL 1000	1 000 N	0.1 N



Also available  
in a tabletop  
casing



# Force measurement

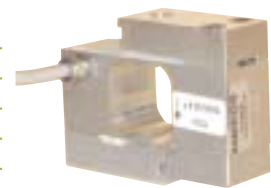
## Additional force sensors

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

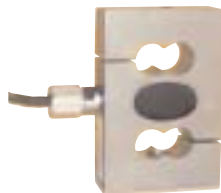
The sensor characteristics are stored in the memory of an electronic circuit located inside the sensor connector. When the CENTOR Star or Dual instrument is switched on, the information is transmitted to the central memory and the instrument is automatically configured: it takes into account the type of sensor, its maximum capacity and its calibration data without the operator having to make any calibration adjustments.

### STANDARD sensors, general purpose, tension and compression

MODELS	ACCURACY	CAPACITIES	RESOLUTION	INFORMATION
SIIP S2-20	0.1% FS	20 N	0.002 N	Height: 60 mm
SIIP S2-50	0.1% FS	50 N	0.005 N	Width: 80 mm
SIIP S2-100	0.1% FS	100 N	0.01 N	Thickness: 26 mm
SIIP S2-200	0.1% FS	200 N	0.02 N	Thread: M8
SIIP S2-500	0.1% FS	500 N	0.05 N	Protection IP65
SIIP S2-1000	0.1% FS	1 000 N	0.1 N	Protection from overloads



SIIP S2



SIIP S9

### STANDARD sensors, heavy loads, tension and compression

MODELS	ACCURACY	CAPACITIES	RESOLUTIONS	H	W	THICKNESS	THREAD
SIIP S9-2	0.1% FS	2 KN	0.2 N	88 mm	58 mm	24 mm	M 12
SIIP S9-5	0.1% FS	5 KN	0.5 N	88 mm	58 mm	24 mm	M 12
SIIP S9-10	0.1% FS	10 KN	1 N	88 mm	58 mm	24 mm	M 12
SIIP S9-20	0.1% FS	20 KN	2 N	100 mm	70 mm	31 mm	M 24 x 2
SIIP S9-50	0.1% FS	50 KN	5 N	100 mm	77 mm	37 mm	M 24 x 2

### MINIATURE sensors, tension and compression

MODELS	ACCURACY	CAPACITIES	DIAMETERS	HEIGHTS	THICKNESSES
SIIP L165-100	0.5 % FS	0 100 N	26 mm	8 mm x 2	13 mm
SIIP L165-250	0.5 % FS	0 250 N	26 mm	8 mm x 2	13 mm
SIIP L165-500	0.5 % FS	0 500 N	26 mm	8 mm x 2	13 mm
SIIP L165-1000	0.5 % FS	0 1,000 N	26 mm	8 mm x 2	13 mm
SIIP L165-2500	0.5 % FS	0 2,500 N	26 mm	8 mm x 2	13 mm
SIIP L165-5000	0.5 % FS	0 5,000 N	26 mm	8 mm x 2	13 mm
SIIP L165-10K	0.5 % FS	0 10 KN	26 mm	10 mm x 2	18,5 mm



SIIP L165

High capacities: on request



SIIP L161

### SUB-MINIATURE sensors, compression only

MODELS	ACCURACY	CAPACITIES	DIAMETERS	HEIGHTS
SIIP L161-50	0.5 % FS	0 50 N	10 mm	5 mm
SIIP L161-100	0.5 % FS	0 100 N	10 mm	5 mm
SIIP L161-250	0.5 % FS	0 250 N	10 mm	5 mm

### MINIATURE sensors, compression only

MODELS	ACCURACY	CAPACITIES	DIAMETERS	HEIGHTS
SIIP L163-50	0.5 % FS	0 50 N	20 mm	7 mm
SIIP L163-100	0.5 % FS	0 100 N	20 mm	7 mm
SIIP L163-250	0.5 % FS	0 250 N	20 mm	7 mm
SIIP L163-500	0.5 % FS	0 500 N	20 mm	7 mm
SIIP L163-1K	0.5 % FS	0 1 000 N	20 mm	7 mm
SIIP L163-2,5K	0.5 % FS	0 2 500 N	20 mm	7 mm
SIIP L163-5K	0.5 % FS	0 5 000 N	20 mm	7 mm



SIIP L163



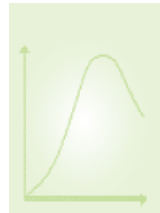
SIIP L160

### MINIATURE HIGH-CAPACITY sensors, compression only

MODELS	ACCURACY	CAPACITIES	DIAMETERS	HEIGHTS
SIIP L160-5K	0.5 % FS	0 5 000 N	32 mm	11 mm
SIIP L160-10K	0.5 % FS	0 10 KN	32 mm	11 mm
SIIP L160-25K	0.5 % FS	0 22 KN	38 mm	16 mm
SIIP L160-50K	0.5 % FS	0 45 KN	38 mm	16 mm

Special sensors on request

# Other elements



## Accessories

### Plates

Several types of plate to suit each type of test:

- AC PL 20A - Compression plate, 20 mm, aluminium
- AC PL 50A - Compression plate, 50 mm, aluminium
- AC PL 50S - Compression plate, 50 mm, steel
- AC PL 100A - Compression plate, 100 mm, aluminium
- AC PL 100S - Compression plate, 100 mm, steel
- AC PLA1 - Compression plate, self-adjustable



Mini grip



### Gripping fixtures

#### AC MAC 500 - Mini grip

All-purpose accessory for gripping cables or terminals. Stands up to forces of 500 N, grip opening 5 mm. Removable grips.

#### AC MAC 5KN - Wedge grip

All-purpose accessory for gripping cables or terminals. Stands up to forces of 5 000 N, grip opening 10 mm. Removable grips.

#### AC PINCE - Pin Vice

Ideal for small components, grip opening 5 mm, maximum force 100 N.

#### AC MRPLAT - Film & paper grip

Used for paper, film or fabric samples, width 100 mm, grip opening 4 mm, maximum force 500 N.

Wedge grip



Pin Vice



Film & paper grip



Grips for force gauges



### Grips for force gauges

AC POIGD - Straight handle

AC POIGP - Revolver handle

AC POIGG - Side handle.

### Accessories for cables

#### AC COSSE - Terminal carousel

Fitted with numerous slots of regularly increasing sizes, these accessories hold assembled terminals, instant terminal placing, stands up to a force of 500 N.

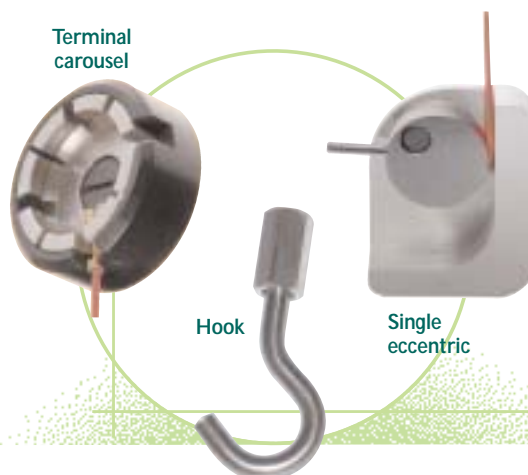
#### AC EXCENT - Single eccentric

Grips cables without damaging the sheathing, stands up to a force of 500 N.

#### AC CRC - Hook

Hook, max admissible force 1 000 N.

Terminal carousel



Hook

Single eccentric