OPERATOR GUIDE

Tensitron CX

Cable & Wire Rope Digital Tension Meter

How to Use The Tensitron CX Tension Meter - Step by Step

CX at a Glance	Details
Use case	Static and slowly moving cable tension measurements
Cable diameter	1/16" to 3/4" round cable
Accuracy	+/-2% of full scale
Stored calibrations	Up to 10 factory-set cable materials
Output units	lb, kg, or daN

WHAT THE CX DOES

The Tensitron CX measures tension in cables, wire rope, and other flexible materials quickly and accurately without removing the cable from service. The instrument clamps over the cable with a rotating clamp mechanism, deflects it slightly using three internal rollers, measures the deflection force, and converts it to a tension reading on the digital display. One operator can obtain a reading in seconds.

It is designed for static measurement and slowly moving materials, and covers round cables from 1/16" to 3/4" in diameter. It ships factory-calibrated to the specific cable types specified at order. The model number on the instrument, such as CX-1000, identifies both the unit and its calibrated range.

HOW IT WORKS - THREE-ROLLER DEFLECTION

Inside the CX is a three-roller assembly. When the clamp is closed onto the cable, the two outer rollers support the cable while the center roller applies a measured lateral deflection. The force required to produce that deflection is proportional to the cable tension. Electronics in the unit apply a calibration curve specific to the cable material and diameter, then display the result in lb, kg, or daN.

> **Why model number and material selection matter**
> The deflection-to-tension relationship is different for every cable construction. A 1/4" 7x19 wire rope deflects differently than a 1/4" aircraft cable at the same tension. Using the wrong calibration can produce a wrong reading by 20% to 30% or more. Check the model number and select the correct material before every measurement session.

STEP-BY-STEP OPERATION

The following steps match the sequence shown in the Tensitron CX demonstration video.

Watch the CX Demonstration Video

Scan the QR code or click the link to view the CX setup and measurement walkthrough:
Tensitron CX Tension Meter Demo

Scan to watch

1

Power on and navigate to SETUP

Press and hold the power button. When the display illuminates, use the down-arrow button to scroll through the menu until SETUP is highlighted, then press ENTER.

2

In SETUP, scroll to VERSION - confirm your model number

Inside the Setup menu, scroll to VERSION and press ENTER. The display will show the firmware version, then MODEL, then the unit model number, for example CX-1000. The number in the model, such as 1000, indicates the full-scale range in pounds. Confirm this matches the cable weight range you will be measuring.

Model number check

The demo unit shown in the demonstration video displays Firmware 2.02.135 / Model / CX-1000. If your instrument model number does not match the cable type and load range you are working with, stop and contact Tensitron before proceeding. Using a mismatched model produces invalid readings.

3

Know your cable - check diameter and construction

Before selecting a material in the meter, physically verify the cable you are about to measure. Check the tag, spool label, or spec sheet to confirm diameter and construction, such as 1/4" diameter and 7x19 construction. These two parameters determine which stored calibration is correct. If you are unsure of the cable spec, measure the diameter with calipers before proceeding.

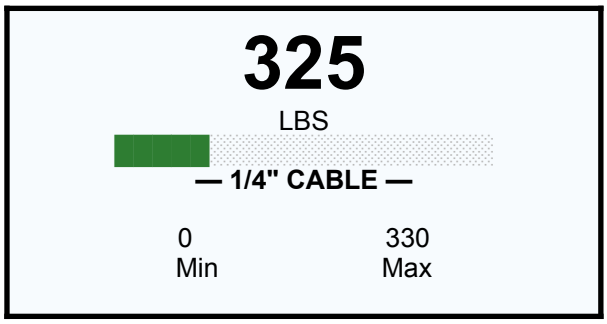
Cable shown in demonstration video

The demo uses 1/4" diameter, 7x19 wire rope. Always verify the cable tag or specification in the field. Never assume the cable construction by appearance alone.

4 **In SETUP, scroll to SELECT MATERIAL - choose the correct cable**

Press ESC to return to the Setup menu, then scroll to SELECT MATERIAL and press ENTER. The display will list the calibrated materials stored in the instrument, up to 10. Scroll until the correct material is highlighted. Press ENTER to confirm the selection. The display will then show the selected material, the measurement units, and the calibrated Min/Max range.

The display after a correct material selection looks like this:



The green bar is a graphical scale showing where the current reading sits between the calibrated minimum and maximum. In this example: 325 LBS on a 0 to 330 lb range.

5 **Rotate the clamp to the open position**

Locate the clamp on the side of the CX body. Rotate it to the fully open position so the cable opening is clear and unobstructed. Do not force the cable into a partially open clamp.

6 **Engage the meter onto the cable**

With the clamp open, bring the CX to the cable and seat it so the cable rests in the roller grooves. The cable should run straight through the instrument, centered on all three rollers. Once seated, carefully rotate the clamp to the closed position.

WARNING: As you close the clamp, watch the display. If the reading immediately jumps to or near the MAX value shown on screen, the cable may be tensioned beyond the meter calibrated range. Remove the meter immediately. Do not exceed the specified maximum tension for your model.

7 **Read the tension on the display**

With the meter fully seated and clamp closed, the display shows the live tension reading in large numerals at the top, with the green bar providing a visual reference against the calibrated range. Hold the instrument steady, perpendicular to the cable, with no side-loading, and allow the reading to stabilize for 1 to 2 seconds on a static cable.

8 **Store the reading**

Press the STORE button, located below the main button row, to capture and hold the current reading. The display will freeze on the stored value. You can store multiple readings in a session and review them, including minimum, maximum, and average, using the scroll buttons.

9 **Remove the meter**

Open the clamp by rotating it back to the open position, then lift the CX straight off the cable. Do not lever or twist the meter as you remove it. Stored readings are retained in memory after removal.

Accuracy specification

The CX accuracy is +/-2% of full scale. For the 1000 lb model, CX-1000, that equals +/-20 lb across the full range. For best results, hold the instrument square to the cable, avoid twisting or pushing along the cable axis, and take 3 to 5 repeated readings to verify consistency.

BUTTON REFERENCE

The CX face has five controls:

Button	Function
OFF / ON toggle	Powers the unit on or off.
ESC	Returns to the previous menu level without saving changes.
ENTER / ZERO	Confirms a menu selection. Also used to zero the display when needed.
Up / Down arrows	Scroll through menu options. Used to navigate SETUP, select materials, and review stored readings.
STORE	Captures the current live reading into memory. Press once to freeze and store.

GETTING ACCURATE READINGS

- Keep the meter square to the cable. Tilting introduces error by changing the effective deflection angle.
- Avoid side-loading. Hold the instrument as if resting it on the cable, not pushing or pulling along the cable axis.
- Measure mid-span. Stay at least 12 inches from any clamp, fitting, or anchor to avoid local friction effects.
- Take 3 to 5 readings. Seat and unseat the meter each time. Consistent results within +/-2% confirm good technique. Larger spread suggests seating inconsistency or cable irregularity.
- Clean the contact points. Wipe roller grooves and the cable surface clean of dirt or corrosion before measuring.

COMMON APPLICATIONS

The CX is suited for larger cables that would exceed the range of the ACX or LX meters. Common uses include:

- Tower and communication structure guy wires
- Elevator cable tension verification
- Train catenary system installation and maintenance
- Aerial telecommunications cable runs
- Zip line and adventure course rigging
- Theater and stage fly systems
- Industrial and utility galvanized wire

SPECIFICATIONS

Parameter	Specification
Cable Diameter Range	1/16" to 3/4" round configuration
Tension Range	Model-dependent. Range equals the number in the model name, for example CX-1000 = 0 to 1,000 lb.
Accuracy	+/-2% of full scale, +/-20 lb for CX-1000
Display Units	lb, kg, or daN, selectable
Calibrations Stored	Up to 10, factory-set to customer cable samples
Model shown in demonstration video	CX-1000, firmware 2.02.135
Cable shown in demonstration video	1/4" diameter, 7x19 wire rope, reading: 325 lb
Standard Rollers	Flanged, 7/8" OD, 3/4" working length
Optional Rollers	2" or 3" cylindrical, Option R, for flat materials
Data Output	Analog, Option A, or RS-232 Serial, Option E
Warranty	One year against factory defects

CALIBRATION AND SERVICE

Annual recalibration is recommended to maintain +/-2% accuracy. Roller wear and electronic drift are not visible to the user. To add a new cable material, send a 10-foot sample to Tensitron. Tensitron will calibrate and add it to your instrument stored list.

Schedule recalibration if readings are inconsistent across repeated measurements, results differ from a reference, rollers show visible wear, or the instrument has been dropped.

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