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BTM-400PLUS Belt Tension Meter

CHECK-LINE® BTM-400PLUS

The BTM-400PLUS measures the static tension of flat, V and ribbed belts of rubber, leather, fabric and composite materials accurately by measuring the natural frequency (Hz) of a segment of the belt. Just tap the section you want to measure while facing the sensor to that section then convert it into tension units of newtons (N) or pounds force (lbf).



The instrument uses a pulsed ruby red light source to measure the natural frequency of the vibrating belt. Unlike competitive models, the BTM-400PLUS is NOT affected by ambient noise, providing quick reliable results in all production and field applications.

Maximum measurement frequency 800 Hz, however most belts will break near 400Hz

Supplied with both *plug-in* and *cable-connected* sensors

Features

- Includes two (2) separate Sensors – a *plug-in type* for one-handed operation and a *cable-connected type* for measuring belts with limited access space

- Compact, easy-to-use design
- Readings unaffected by nearby magnetic fields or noise
- Displays tension in newtons (N) or pounds force (lbf) or natural frequency in Hertz (Hz) - selectable
- Displays Menu in English, German, Spanish, Portuguese, French or Italian & others - selectable

Complete Kit



The BTM-400PLUS is supplied as a complete kit, including:

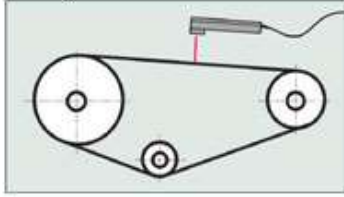
- BTM-400PLUS belt tension meter
- plug-in sensor
- cable connected sensor
- 9-volt battery
- instruction manual
- delivered in a foam-fitted, hard plastic carrying case.

Specifications

Measuring Range*	10 - 800 Hz
Accuracy**	± 5% or better
Casing	ABS Plastic
Display	2 line LCD, 16 characters per line
Power Supply:	9V battery
Calibration Certificate	Included
Input ranges:	Free stand length: up to 9.99 m Belt mass: up to 9.999 kg/m
Temperature Ranges:	Operation: +10 °C ... 50 °C Transport: -5 °C ... +50 °C
Air humidity	85% RH, max.
Housing:	Plastic (ABS)
Dimensions:	126 x 80 x 37 (LxWxH)
Weight net (gross)	Approx. 170 g (approx. 660 g)
Warranty:	2 years

Typical Applications

The belt tension, or vibrating frequency, should be measured near the mid-point of the longest free belt span between drive pulleys.



External Probe Dimensions



*BTM-400PLUS can measure up to 800 Hz, however most belts will break near 400Hz

**Static tension (T) accuracy depends on the precision of entered values for *free belt span* (L), *density* (d) and *natural frequency* (f) of the vibrating free belt span that has been plucked or struck, as noted in the relationship: $T = 4dL^2f^2$. Note that highest accuracy is achieved in the *frequency* mode where readings are accurate to <1%, ± 1 Hz.