

Key features of the ELF system include:

- Real-time data capture/display
- Simple and storable calibration
- Multi-point calibration
- ASCII output to data analysis programs
- Eight sampling rates to 200Hz
- High-speed option to 5.7kHz
- "Movie" recording and saving
- Capability to tare a load
- Adjustable sensitivity
- Internal triggering



Physical Properties	B201	HT201
Thickness / Dicke	0.208 ±0.025 mm	0.208 ±0.025 mm
Length / Länge	229 mm (9")	197 mm (7.75")
Width / Breite	14 mm	14 mm
Sensing Area / Fläche	d=9.53 mm	d=9.53 mm
Connector / Stecker	3-pin	3-pin
Substrate / Material	Polyester (Mylar)	Polyamid (Kapton)
Typical Performance		
Linearity Error / Linearität	+/- 5%	+/- 3%
Repeatability / Wiederholgen.	+/- 2.5% FS @80% Force	+/- 2.5% FS @80% Force
Hysteresis / Hysterese	4.5 % FS @70% Force	7% depend on Temp.
Drift / Kriechen, Driften	<5% per log. time scale	<5% per log. time scale
Response Time / Ansprechzeit	<5 microsecond	<5 microsecond
Operating Temperatures	-9 to +60°C	-28 to +216°C
Temperature Sensitivity	0.36% / °C	0.36% / °C
Force Ranges / Bereiche	B201.L 4-110N (25lb)	HT201.L 0-22N (5lb)
	B201.M 110-667N (150lb)	HT201.M 0-110N (25lb)
	B201.H 667-4448N (1000lb) *	HT201.H 0-440N (100lb) *

System Description:

The ELF (Economic Load & Force) and Multi-Handle ELFTM (MELFTM) system combines FlexiForce® single-element force sensors with advanced electronics and Windows-based software to create a cost-effective force and load measurement system that is powerful, cost-effective, and user-friendly. Both systems include Windows®-compatible software, serial-interface electronics, and three B201. Simple to install, the ELF system comes complete with ELF software, three sensors (one from each of the offered force ranges), and one data acquisition handle. The handle connects to a standard serial port, quickly turning your computer into a force measurement instrument. The ELF force measurement system exclusively utilizes FlexiForce sensors. These sensors have a patented interconnect to the ELF hardware. The ELF system allows you to view and record one channel of force data, while the MELF System enables you to view and record up to 16 channels of force data with FlexiForce single-point sensors.

Optional Features:

ELF LabView VI Driver Software- interface ELF System with LabView and make the most of the data you acquire.

Multi-Handle Capability- need to view data from more than one sensor at a time? The Multi-Handle ELF (MELF) Software option lets you view and save force data *from up to sixteen points at a time.*

High-Speed Option- with High-Speed software, you can select from sampling rates as high as 5.7 kHz



ELF single-handle screen display



MELF multi-handle screen display

FAQ

What is the resolution of the ELF system? Elf electronics includes an 8-Bit (256 levels) A/D converter. In order to estimate sensor resolution, divide the maximum force range of the sensor by 256. (E.g. 25 lbs, which equals about 55kg, divided by 256 = 0.47lbs = .215kg = 215g).

What is the maximum speed of the ELF System? The maximum speed is 200 Hz with the standard ELF System, and 5760 Hz with the Hi-Speed ELF. The capture speed in each system is adjustable.

Can I use more than one sensor at a time? Yes, with the Multi-Handle ELF (MELF) software and appropriate number of handles, you can use up to 16 sensors at a time.

Why do you need to condition the FlexiForce sensor? You should always condition the sensor prior to testing because the sensor's output changes the first few times it is loaded. By loading the sensor before your calibration, you will ensure that the sensor is producing repeatable results for your calibration and testing. It will also produce a repeatable drift curve. You can condition the sensor by loading it at 110% of your maximum load for a few cycles.

Why do I need to calibrate the sensor? With the ELF system, calibrating the sensor will allow you to choose force units and adjust the sensitivity based on a known load to achieve the best resolution. If you increase the sensitivity of the sensor, the maximum force range essentially shortens, giving you greater resolution.

What is the maximum period of not using the sensor before you have to recondition it? You should recondition the sensor if you haven't used it in several weeks. Please note that the more you recondition it, the better it should perform.

Are the FlexiForce sensors waterproof? No, the sensors are not designed for use under water.

What is a puck/shim and do I need to use it? A puck, or shim, is an object placed between the sensing area and load (like cheese between two pieces of bread) to ensure that the sensor captures 100% of the applied load if the contacting surface is larger than the sensor diameter and to reduce high pressure for point load applications. The applied pressure should be between 1 and 10,000 PSI. If the applied force is small, e.g. 30 grams, a puck should be used to reduce the area to achieve at least 1 PSI. For applied loads that are high but have a very small area, a puck should be used to reduce PSI to below 10,000. For best results, the loaded area or puck should be between 70% (a diameter of 0.263", or area of 0.077in²) and 100% of the sensing area but can be reduced to achieve results as described above. Plastic pucks are recommended, as they are pliable but not too soft.

What material is best to use? Plastic is recommended, but you can use metal and rubber as well. The material used should not induce a large shear force on the sensor when a normal load is applied.

How rough can the load surface be? Use your best judgment, keeping in mind that a sharp point on the surface would likely puncture the sensor.

What surface is best to use underneath the sensor? A flat, smooth surface is ideal.