


## Comparison Table of Force Gauges

### Digital Force Gauges vs. Mechanical Force Gauges

	Mechanical Force Gauge	Digital Force Gauge
<b>Strong Points</b>	<ul style="list-style-type: none"> <li>- Requires no power supply</li> <li>- Highly durable and reliable</li> <li>- Easier to read force transition</li> </ul>	<ul style="list-style-type: none"> <li>- Digital indication avoids misreading</li> <li>- Connectable with PC, easy to analyze force data</li> <li>- Various convenient functions</li> <li>- Fit for impact/breaking test</li> </ul>
<b>Weak Points</b>	<ul style="list-style-type: none"> <li>- Not fit for impact/breaking test</li> <li>- Misreading is more likely to happen</li> </ul>	<ul style="list-style-type: none"> <li>- Not easy to read force transition</li> <li>- Take hours to be charged</li> </ul>

### Mechanical Force Gauges





Model		FB/FS series	PS/PSS series	PSM series	PSH series	UKK/UKT series
<b>Features</b>	<b>Main Feature</b>	Low Cost	High Accuracy	High Accuracy High Resolution	High Accuracy High Capacity	Compact
	<b>Accuracy</b>	✓+	✓++	✓++	✓++	✓+
	<b>Repeatability</b>	✓	✓	✓+	✓	✓
	<b>Handheld Use</b>	✓+	✓+	✓+	✓	✓
	<b>Use with Stand/Fixed</b>	✓+	✓+	✓+	✓+	✓++
<b>Image</b>						
<b>Specifications</b>	<b>Range</b>	10N to 500N	5N to 500N	20N to 500N	500N to 3000N	20N to 300N
	<b>Unit</b>	N *1				
	<b>Direction</b>	Tension&Compression	Tension&Compression	Tension&Compression	Tension&Compression	Tension/Compression
	<b>Accuracy</b>	+/-0.3%F.S.	+/-0.1%F.S.			+/-0.3%F.S.
	<b>Resolution</b>	1/100 *2		1/200 *2		1/100 *2
<b>Func tions</b>	<b>Peak Hold</b>	✓+	✓+	✓+	✓+	✓+
	<b>Zero Reset</b>	✓+	✓+	✓+	✓+	✓+
<b>Accessory</b>	<b>Attachments</b>	6 types *3	8 types *3	8 types *3	6 types *3	UKK: 5 types *3 UKT: 4 types *3

\*1 It is for international models only. Available units for Japanese domestic models are different.

\*2 Some ranges have different resolutions. See specification sheet for details.

\*3 Included types vary depending on the range.

## Digital Force Gauges

Model		DST series	DSV series	ZTS series	ZTA series
Features	Main Features	Simple Low Cost	High Functionality for Handheld	High Functionality High Repeatability	Utmost Functionality High Repeatability
	Accuracy	✓+	✓+	✓+	✓+
	Repeatability	✓+	✓+	✓++	✓++
	Handheld Use	✓+	✓++	✓+	✓+
	Use with Stand	✓+	✓+	✓++	✓++
	Graphing	✓	✓	✓+	✓++
	Output	-	-	✓+	✓++
	Wireless	-	-	✓++	✓++
Image					
Specifications	Range	2 to 1000N		2 to 5000N *1	
	Unit	N (mN, kN), kgf (gf), lbf (ozf) *2		N (mN, kN), kgf (gf), lbf (ozf) *2	
	Direction	Tension, Compression			
	Accuracy	+/- 0.2% F.S. +/- 1 digit			
	Sampling Rate	Max. 1000 times/sec		Max. 2000 times/sec	
	Sensitivity	3 steps		4 steps	
	PC Data Comm. Speed	50Hz		2000Hz	
	Display	4-digit graphic LCD		4-digit graphic organic EL	
	Power	Internal battery, USB charge (AC adapter)		Internal battery, AC adapter	
	Battery	Approx. 30 continuous hours of use (with backlight off) by 4.5 hour charge		Approx. 8 continuous hours of use by 2 hour charge	
Functions	Peak Hold	✓+	✓+	✓++ (Tension&Compression)	✓++ (Tension&Compression)
	2 <sup>nd</sup> Peak	-	-	-	✓+
	Judgement	✓+ (OK only)	✓+ (OK only)	✓++ (OK, NG)	✓++ (OK, NG)
	+NG Alarm	-	-	✓+	✓+
	Reverse Display	✓+	✓+	✓+	✓+
	Reverse +/-	✓+	✓+	✓+	✓+
	Internal Memory	-	✓+ (1000 data)	✓+ (1000 data)	✓+ (1000 data)
	USB Drive	-	-	-	✓+
	Calendar	✓+	✓+	✓+	✓+
	Setting Lock	✓+	✓+	✓+	✓+
	Bar Graph	-	-	✓+	✓+
	Overload Warning	✓++ (w/ precaution alarm)	✓++ (w/ precaution alarm)	✓+	✓+
	Tilt-sensing Alarm	-	✓+	-	-
Language	JP, EN	JP, EN	JP, EN, CN, ES, DE, FR, IT, KO	JP, EN, CN, ES, DE, FR, IT, KO	
Output	USB	✓+	✓+	✓+	✓+
	RS232C	✓+	✓+	✓+	✓+
	Mitutoyo Digimatic	-	-	✓+	✓+
	Analog	-	-	✓+	✓+
	High/Low Set Points	-	-	✓+	✓+
	Sub High/Low Set Points	-	-	-	✓+
	Overload	-	-	✓+	✓+
	Displacement	-	-	-	✓+
Accessories	Software	✓+	✓+	✓+	✓+
	Attachments	6 types *3	6 types *3	8 types *3	8 types *3






\*1 Over 2500N models are in different shape.

\*2 It is for international models. Available units for Japanese domestic models are different.  
Some units are only available with certain ranges.

\*3 Included types vary depending on the range.

## Other Digital Force Gauges and Amplifier Comparison Table

Followings are separated sensor models to connect load cell(s) to an amplifier.

Model		Separate sensor ZTS series	Separate sensor ZTA series	eZT	FA Plus 2	eFA Plus 2
Features	Main Features	Sensor-separate type digital force gauge. Sensors are not interchangeable.	Sensor-separate type digital force gauge. Sensors are not interchangeable.	Sensor interchangeable amplifier to connect load cells without adjustment. (*eZ-Connect load cells)	Ideal for integration into facilities due to the box shaped design. Easy to combine with external devices such as PLC using the equipped output functions.	In addition to function of FA Plus2, Sensors are interchangeable without adjustment.
	Accuracy *1	✓+	✓+	✓	✓+	✓
	Repeatability	✓++	✓++	✓++	✓++	✓++
	Handheld Use	✓	✓	✓	-	-
	Use with Stand *2	✓	✓	✓	✓	✓
	Sensor interchanging	-	-	✓++	-	✓++
	Graphing	✓+	✓++	✓++	✓++	✓++
	Output	✓+	✓++	✓++	✓++	✓++
Wireless	✓++	✓++	✓++	✓++	✓++	
Image						
Specifications	Range*3	2 to 20kN				
	Unit*4	N(mN,kN), kgf (gf), lbf (ozf)	N (kN), kgf (gf), lbf (ozf), N-m(N-cm), kgf-m(kgf-cm), lbf-in (ozf-in)	N (kN), kgf (gf), lbf (ozf), N-m(N-cm), kgf-m(kgf-cm), lbf-in (ozf-in)	N(mN,kN), kgf (gf), lbf (ozf)	
	Direction*3	Tension & Compression		Tension/compression/torque	Tension & Compression	Tension/compression/torque
	Accuracy *1	The accuracy of the connecting load cell		The accuracy of the connecting load cell + Accuracy of eZT(±0.2%F.S.)	The accuracy of the connecting load cell	The accuracy of the connecting load cell + ±0.2% F.S.
	Sampling Rate	Max. 2000 times/sec				
	Sensitivity	4 steps				
	PC Data Communication Speed	2000Hz				
	Display	4-digit graphic organic EL				
	Use	8 hours			-	
	Charge	2 hours			-	
	Power	Internal battery, AC adapter			100V to 240V (*5)	
Functions		Basic functions are the same as ZTS series. See specification sheet for details.	Basic functions are the same as ZTA series. See specification sheet for details.	Basic functions are the same as ZTA series. See specification sheet for details.	See specification sheet for details.	See specification sheet for details.

\*1 Accuracy varies depending on the sensor to use with. See specification sheet for details of load cells.

\*2 Some sensors cannot be mounted. Contact us for details.

\*3 Range and direction depend on the sensor model. See specification sheet of load cells for details.

\*4 It is for international models. Available units for Japanese domestic models are different.

Some units are only available with certain ranges.

\*5 Option of industrial power DC+24V is available. (option: -DC)

**[Cautions]**

- These products are designed for measurement purpose only.
- This is only a guide. Exceptions may occur under certain environment and conditions.
- The contents may be changed without prior notice.
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