

Piezoelectric Force Ring

Description

The F5501 ring-type piezoelectric force sensor uses a high-stability quartz crystal as the sensing element. With its compact form factor and plug-and-play design, it is suitable for measuring both compressive and tensile forces. The preloaded quartz force ring generates a charge proportional to the applied force as the measured load varies. This charge output is converted by a charge amplifier (Model: IN-07) into a proportional voltage signal, which can then be further transmitted to a data acquisition device for acquisition or control. Thanks to its high rigidity and compact structural design, the sensor is particularly well suited for measuring rapidly changing tensile and compressive forces. The measurement results are not significantly affected by the spring-back behavior of the loading mechanism. With the dedicated charge amplifier, the sensor can perform quasi-static force measurements; the amplifier's time constant must be adjusted according to the actual application requirements to ensure measurement accuracy.

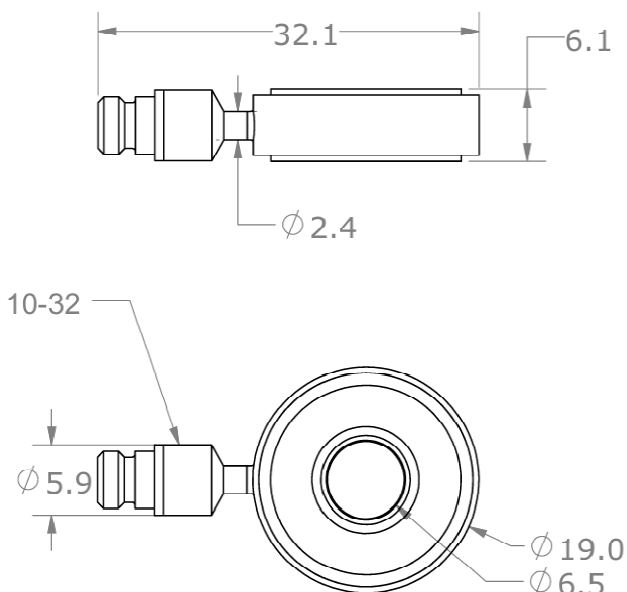


Features

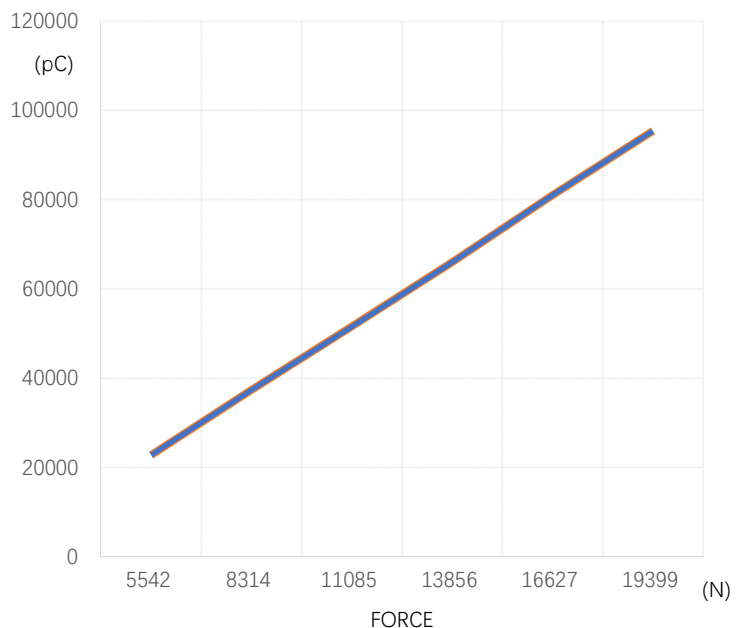
- Rugged and durable
- Stable performance
- Hermetically sealed
- Compact design
- Through-hole design
- Easy to install

Applications

- Robot force measurement systems
- Press monitoring
- Automatic stamping equipment
- Spot welding machinery
- Hydraulic cylinder monitoring
- Dynamic bolt load measurement



LINEARITY CALIBRATION



Specifications

Unless otherwise specified, all typical values below are measured at 24 °C (75 °F).

Item	Specification	Unit
Model	F5501-20KN	
Measuring range	0~20	KN
Sensitivity $\pm 10\%$	4.3	pC/N
Frequency response	20000 max.	Hz
Insulation resistance	10	GΩ
Temperature response -40 to +120 °C	-0.02	%/°C
Operating temperature	-55 to +125	°C
Non-linearity	± 1	% FSO
Overload capacity	25	KN
Protection rating	IP67	
Signal connector	10-32	
Housing material	Stainless steel	
Weight	9.0	Grams

Accessories

1. Calibration data sheet included as standard.
2. Optional Accessories

Item	Description	Option
11P-3	3 m cable with 10-32 to BNC connector	Optional
10P-3	3 m cable with 10-32 to 10-32 connector	Optional
IN-07	Standard charge amplifier	Optional
IN-09	Low-frequency charge amplifier	Optional
IN-3062	8-channel data acquisition system	Optional

Measurement Configuration

Sensor	Cable	Charge amplifier	BNC cable	Data acquisition	Computer
					

Ordering information

F5501	-	20KN
Model	-	Measuring range
F5501	-	20KN = 0~20 KN 5KN = 0~5 KN

