

# GRAD19 series

## Radiation resistant spring-loaded LVDT position sensors

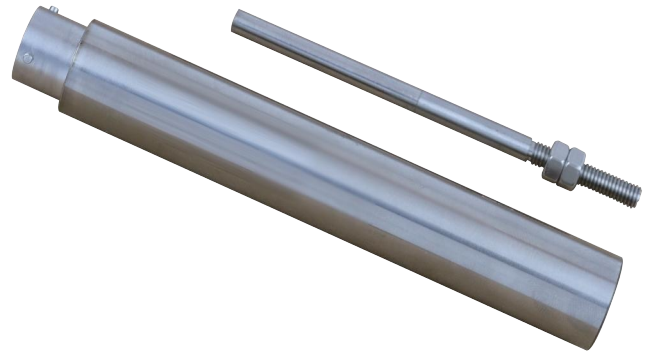
Abek Sensors introduces the GRAD 19 series of high-temperature rebound LVDT displacement sensors that are resistant to nuclear radiation radiation, which are suitable for position measurement applications in the presence of nuclear radiation exposure, such as nuclear fuel assembly pool side inspection, nuclear valve position feedback, superconducting proton accelerator, particle accelerator collimator, etc. The GRAD19 series is produced with special materials and processes, and can work normally at the total irradiation dose of 500kGy ( $5 \times 10^7$  Rad), and the irradiation test of higher irradiation dose is ongoing. The series can also continue to work stably at a high temperature of 200°C.

The GRAD19 series of LVDT position sensors consists of a rebound shaft that operates inside a precision sleeve bearing and is connected to an LVDT core. Thanks to precision sleeve bearings, measurements can be carried out with repeatability of 0.6 microns or more.

The GRAD19 series of position sensors are available in capacities from 2.5 mm to 100 mm. It has the characteristics of high resolution, good repeatability, and low latency.

The GRAD19 series has a variety of specifications for customers to choose from, in addition to the options already provided in the selection table, it can also be customized according to customer requirements in many aspects, including 50 meters of water resistance, thread specifications, cable outlets, joint types and many other mechanical requirements.

In order to facilitate the actual application of the customer, we also supply a variety of accessories to match the sensor, the series of related mounting fixtures, signal processing equipment, cables and other accessories, please contact us for information.



### ● Features

- Radiation resistant dose 500k Gy
- High temperature resistance 200°C
- Range:  $\pm 1$ mm to  $\pm 50$ mm
- Aviation plug with
- Sealed to IEC IP-68 rated
- Linearity:  $< \pm 0.25\%$  FRO

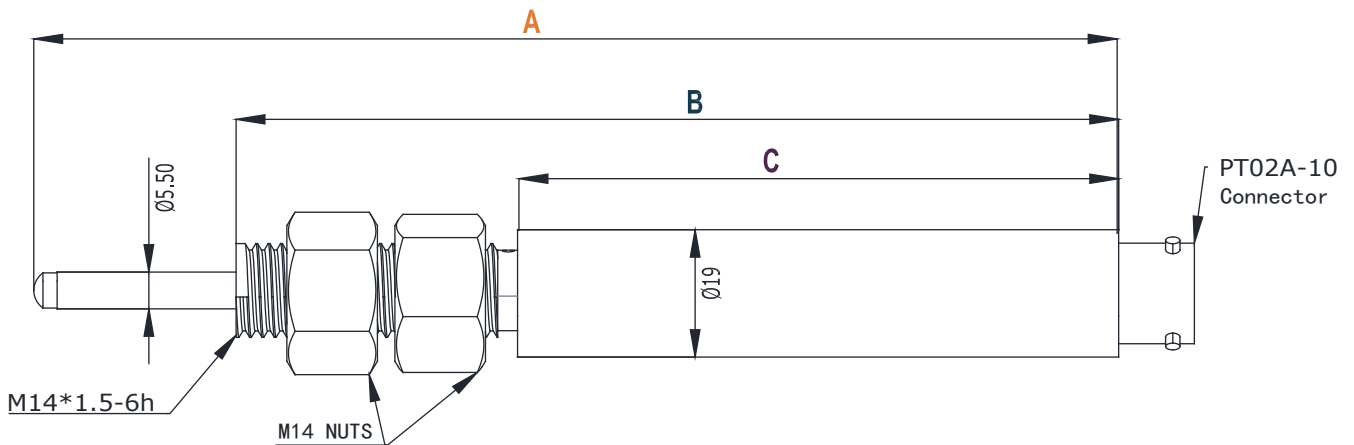
### ● Applications

- Nuclear fuel assembly poolside inspection
- Collimator positioning
- Nuclear-grade valve position feedback
- nuclear power
- Nuclear medicine

● Specifications

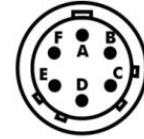
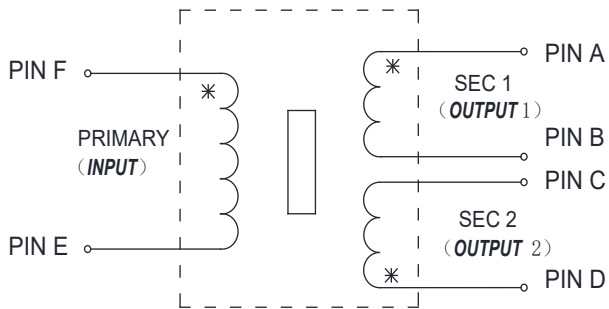
Parameter	Description
Input Voltage:	1to12V AC, 3.0 Vrms (nominal)
Input Frequency:	400 to 10.0 kHz , 2.5kHz (nominal)
Linearity Error:	<±0.25% of FRO
Repeatability Error:	<0.01% of FSO
Hysteresis Error:	<0.01% of FSO
Operating Temperature:	-55°C to +200°C
Thermal Coefficient	-0.02%/°C (nominal)
Shock Survival:	20g, 2 K Hz

● Dimensions



Parameter	Model	GRAD19-000625	GRAD19-001325	GRAD19-002525	GRAD19-005025	GRAD19-010025
Range	mm	±3	±6.5	±12.5	±25	±50
Dimension "A"	mm	136.7	154.7	280.7	344.4	534.3
Dimension "B"	mm	108	126	242.7	280.7	413.6
Dimension "C"	mm	68	86	155	193	279
Sensitivity	mV/V/mm	90	80	25	24	15
Primary Impedance	Ω	≥325	≥1400	≥1200	≥1250	≥2150

## Wiring Information



PT02A-10-6P  
Connector

PIN	Cable color
Pin A	Red
Pin B	Blue
Pin C	Green
Pin D	Black
Pin E	Brown
Pin F	Yellow

CONNECT PINS (B) AND (C) FOR DIFFERENTIAL OUTPUT

## Contact us

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