GCT SERIES

4 to 20mA loop Gage Heads

SPECIFICATIONS

- **4-20mA loop, two wire operation**
- **Hermetically sealed housing**
- **25 µ-inch [0.6 µm] repeatability**
- **IEC IP68 rating to 1,000 PSI [70 bars]**
- **Stroke ranges from 0.250 up to 2 inches**
- **Reverse polarity protection**
- **Hardened tool steel contact tip**
- **High side load resistance**

The GCT Series heavy-duty gage heads enable high performance in environments containing moisture, dirt, and fluid contaminants. With a spring loaded LVDT, a precision linear bearing, and internal signal conditioning electronics operating on a 4 to 20mA loop, the GCT is ideal for difficult industrial environments and remote locations where sensor power is not readily available and long cable runs are expected. The 4-20mA signal is less susceptible to EMI and RFI interference than low amplitude AC or DC signals.

These robust gage heads allow measurements over stroke ranges from 0 to 0.250 inch [6.35mm] up to 0 to 2 inches [50.8mm]. The spring force is typically 9oz [255 grams] at fully compressed electrical stroke. A removable black-chromed, hardened tool steel tip is threaded (4-48UNF-2A) to the working end. Internal construction prevents the core and shaft from rotating as they move longitudinally. The integral electrical connector (welded) provides for easy installation and allows replacing a damaged cable without sacrificing the sensor. Installation and adjustment are facilitated by an external ½-20 mounting thread and the two locknuts supplied with each unit.

Like in most of our LVDTs, the GCT windings are vacuum impregnated with a specially formulated, high temperature, flexible resin, and the coil assembly is potted inside its housing with a two-component epoxy. This provides excellent protection against hostile environments such as high vibration and shock.

The ruggedness, long life cycle, and very high reliability of the GCT Series provide the lowest cost of ownership over the life of the equipment onto which they are installed. The one-piece front end (barrel which contains the bearing assembly), machined from solid stainless steel bar, coupled with a bronze bushing, has far greater resistance to bending forces and side loads compared to other designs. This is particularly important on the longer stroke versions; it reduces the common risk of probe damage/bending during installation or maintenance of industrial equipment. The GCT Series designs also require fewer parts and weld joints, thereby increasing overall structural integrity and reliability.

FEATURES

- All-welded stainless steel construction
- Resistant to harsh environments
- MS type connector (MIL-C-5015)
- Long cycle life
- Reverse polarity protection
- Calibration certificate supplied with each unit
- Air extend/spring retract available *(Consult factory)*

APPLICATIONS

- Bridge expansion monitoring
- Pipeline vibration monitoring
- Valve position
- Compressor feedback
- Noisy environments / long cable runs
- In-process measurements (feedback loop with PLC or CNC controller)

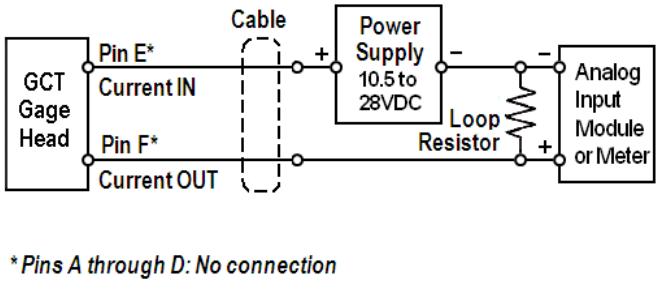
PERFORMANCE SPECIFICATIONS

ELECTRICAL SPECIFICATIONS				
Parameter	**GCT 250**	**GCT 500**	**GCT 1000**	**GCT 2000**
Stroke/gaging range	0.25 [6.4]	0.50 [12.7]	1 [25.4]	2 [50.8]
Sensitivity, mA per inch	64	32	16	8
Loop supply voltage	10.5 to 28VDC			
Output	4 to 20mA, two wire loop (Output increases when core is displaced towards connector)			
Output at null position	12mA (null position is defined as the mid-stroke position)			
Maximum loop resistance	540 ohms @ 24VDC (see loop resistance chart below)			
Non-linearity	±0.5% of FR, maximum			
Output noise and ripple	25 µA RMS maximum			
Repeatability	25 µ-inch [0.6 µm]			
Stability	0.1% of FSO after 30 minute warm up			
Temperature coefficient of sensitivity	0.022%/°F [0.04%/°C]			
Frequency response (dynamic)	15 Hz, maximum			

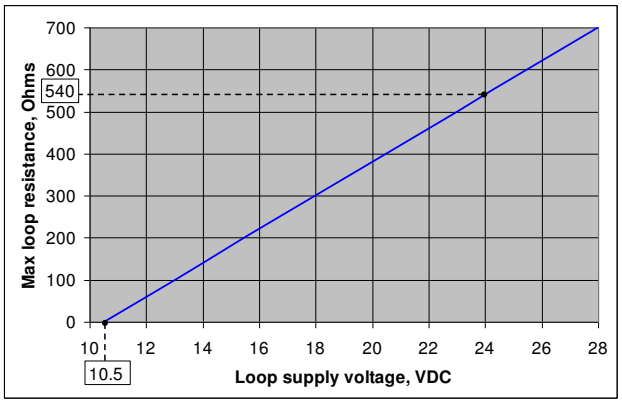
ENVIRONMENTAL SPECIFICATIONS & MATERIALS	
Operating temperature	-13°F to +185°F [-25°C to 85°C]
Survival temperature	-65°F to +250°F [-55°C to 125°C]
Shock survival	250 g (11ms half-sine)
Vibration tolerance	10 g up to 2kHz
Housing material	AISI 400 Series stainless steel
Electrical connector	6-pin MS type connector (MIL-C-5015)
IEC 60529 rating	IP68 to 1,000 PSI [70 bars] with use of proper mating connector plug

Notes:
All values are nominal unless otherwise noted
Dimensions are in inch [mm] unless otherwise noted
FR: Full Range is the stroke range, end to end; FR=S for a 0 to S stroke range
FSO (Full Scale Output): Largest absolute value of the outputs measured at the ends of the range

WIRING SCHEMATIC & LOOP RESISTANCE

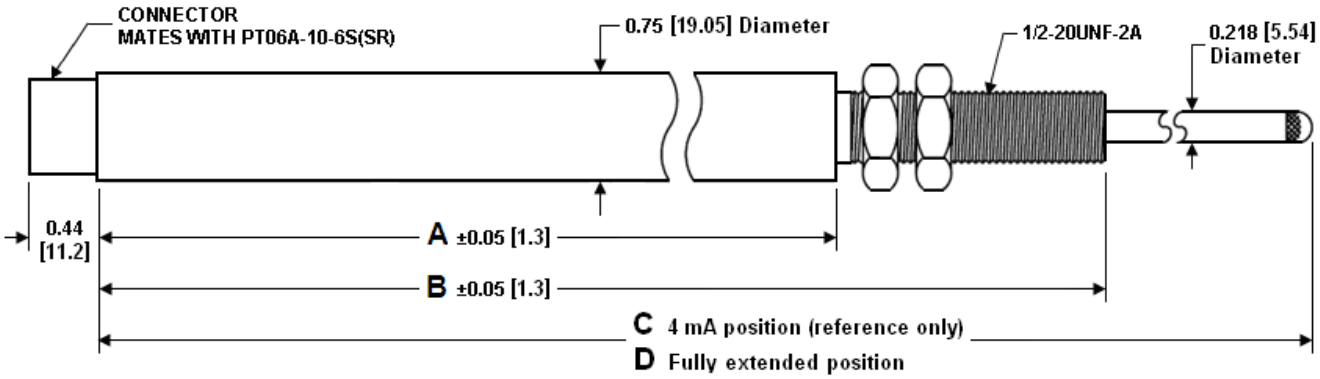


** Pins A through D: No connection*

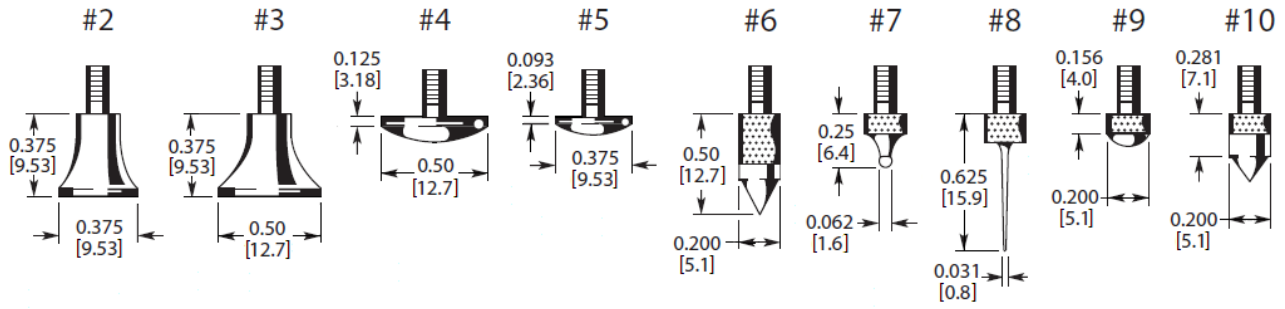


MECHANICAL SPECIFICATIONS

Parameter	GCT 250	GCT 500	GCT 1000	GCT 2000
Stroke/gaging range	0.25 [6.4]	0.50 [12.7]	1 [25.4]	2 [50.8]
Pre-travel	0.20 [5.1]	0.20 [5.1]	0.15 [3.8]	0.20 [5.1]
Over-travel	0.25 [6.3]	0.05 [1.3]	0.20 [5.1]	0.05 [1.3]
Main body length “A”	4.66 [118.4]	5.79 [147.1]	7.20 [182.9]	9.45 [240.0]
Overall body length “B”	6.03 [153.2]	7.15 [181.6]	10.17 [258.3]	12.43 [315.7]
Plunger length “C” (4mA position, reference only)	6.72 [170.7]	7.68 [195.1]	11.97 [304.0]	13.66 [347.0]
Plunger length “D” (fully extended/”4mA” side)	7.06 [179.3]	8.18 [207.8]	12.65 [321.3]	14.9 [378.5]
Spring force	Typically 9oz [255 grams] at fully compressed electrical stroke			



REPLACEMENT/OPTIONAL CONTACT TIPS



Dimensions are in inch [mm]

ORDERING INFORMATION

Description	Model	Part Number
0 to 0.25 inch gage head	GCT 250	72350000-000
0 to 0.5 inch gage head	GCT 500	72350001-000
0 to 1 inch gage head	GCT 1000	72350002-000
0 to 2 inch gage head	GCT 2000	72350003-000
OPTIONS		
Air extend/spring retract gage head *(Consult factory)*	All GC Series	xxxxxxxx-150
ACCESSORIES		
DC power supply (15VDC)	PSD 40-15	02291339-000
Mating connector kit	PT06A-10-6S(SR)	62101011-000
Replacement contact tips	Contact Tip 2	67010005-000
	Contact Tip 3	67010006-000
	Contact Tip 4	67010002-000
	Contact Tip 5	67010007-000
	Contact Tip 6	67010008-000
	Contact Tip 7	67010009-000
	Contact Tip 8	67010010-000
	Contact Tip 9	67010001-000
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