

GC-485 SERIES

Digital I/O Gage Heads

SPECIFICATIONS

- **RS-485 output**
- **±0.1% of FR maximum (±0.05% typical) linearity**
- **32 devices communicating over 2 wires**
- **MIN, MAX and TIR readings**
- **Velocity output**
- **Internal tare (zero) function**
- **Stroke ranges from ±0.125 to ±1 inch**
- **IEC IP68 rating to 1,000 PSI [70 bars]**

The GC-485 Series heavy-duty, spring loaded gage heads are self-contained, ultra precision, digital I/O devices for high performance measurements in environments containing moisture, dirt, and fluid contaminants. The GC-485 eliminates the need for expensive and error-prone analog to digital conversion by internally converting the analog LVDT signals into engineering units (imperial or metric). The result is a fully calibrated and traceable measurement device, ready for installation, and 100% field interchangeable.

Operating on 8.5 to 30VDC supply, the GC-485 provides an addressable RS-485 loop output (MODBus RTU and ASCII protocols) running at 119kBd baud rate and capable of handling up to 32 devices communicating over two wires. MIN, MAX and TIR readings are sampled and stored internally at a maximum update rate of 600 samples per second, and are provided to the host on demand. A velocity output (inch or mm per second) is also available, while an internal tare (zero) function affords maximum measurement range flexibility.

These robust gage heads feature a removable black-chromed, hardened tool steel tip threaded (4-48UNF-2A) to the working end. Internal construction prevents the core and shaft from rotating as they move longitudinally. The welded electrical connector allows replacement of a damaged cable without sacrificing the sensor. The external ½-20 threads and the two supplied locknuts facilitate installation and adjustment.

Like in most of our LVDTs, the GC-485 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 GC-485 provide a low cost of ownership over the life of the equipment onto which they are installed. The one-piece front end (barrel), machined from solid stainless steel bar, coupled with a bronze bushing, has far greater resistance to side loads compared to other designs; it reduces the risk of probe damage during installation or maintenance. The GC-485 design also require fewer parts and weld joints, thereby increasing overall structural integrity and reliability.

FEATURES

- All-welded stainless steel construction
- MS type connector (MIL-C-5015)
- Hardened tool steel contact tip
- High side load resistance
- Programmable filtering
- Calibration certificate supplied with each unit
- Air extend/spring retract available *(consult factory)*

APPLICATIONS

- Roller Gap Control
- In-process Wet Grinding
- High Density Gaging
- Hand Held Gages
- X-Y Positional Feedback
- Remote Monitoring
- Applications where wiring must be minimized

PERFORMANCE SPECIFICATIONS

ELECTRICAL SPECIFICATIONS				
Parameter	**GC-485 125**	**GC-485 250**	**GC-485 500**	**GC-485 1000**
Stroke/gaging range	±0.125 [±3.17]	±0.25 [±6.85]	±0.5 [±12.7]	±1.0 [±25.4]
Input voltage	8.5 to 30 VDC			
Input current	50mA			
Output	RS-485 (MODBus RTU and ASCII protocols)			
Baud rate	119 kBd			
Output units	Imperial or Metric			
Resolution	15-bit, minimum			
Non-linearity	±0.1% of FR, maximum (±0.05% of FR, typical)			
Repeatability	25 µ-inch [0.6 µm]			
Stability	0.1% of FS			
Temperature coefficient of scale factor	0.025%/°F [0.045%/°C], maximum			
Frequency response (dynamic)	15Hz, maximum			

ENVIRONMENTAL SPECIFICATIONS & MATERIALS	
Operating temperature	-13°F to +185°F [-25°C to +85°C]
Survival temperature	-67°F to +203°F [-55°C to +95°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

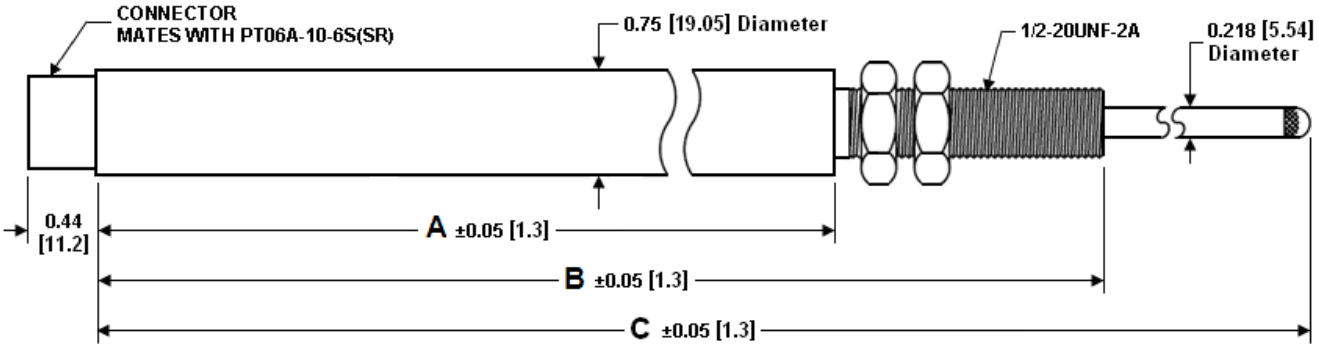
Notes:
All values are nominal unless otherwise noted
Dimensions are in inch [mm] unless otherwise noted
FR: Full Range is the stroke range, end to end; FR=2xS for ±S stroke range

WIRING INFORMATION

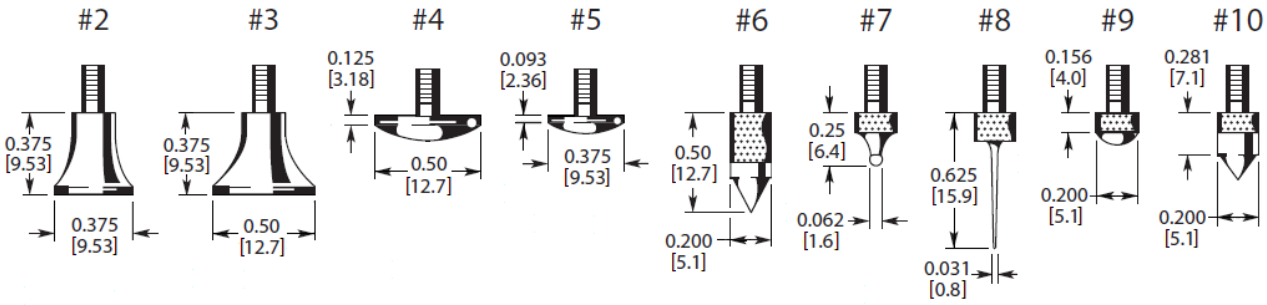
Function	Connector pin
Power IN	E
Common	D
A (-Data)	A
B (+Data)	B

MECHANICAL SPECIFICATIONS

Parameter	GC-485 125	GC-485 250	GC-485 500	GC-485 1000
Stroke/gaging range	±0.125 [±3.17]	±0.25 [±6.85]	±0.5 [±12.7]	±1.0 [±25.4]
Pre-travel	0.28 [7.1]	0.18 [4.6]	0.20 [5.1]	0.10 [2.5]
Over-travel	0.29 [7.4]	0.03 [0.8]	0.35 [8.9]	0.10 [2.5]
Main body length “A”	4.90 [124.5]	5.76 [146.3]	7.46 [189.5]	9.42 [239.2]
Overall body length “B”	6.27 [159.3]	7.13 [181.1]	10.45 [265.4]	12.41 [315.2]
Plunger length “C” (fully extended)	7.30 [185.4]	8.16 [207.3]	12.93 [328.4]	14.87 [377.7]
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
±0.125 inch gage head *(Manual and software available on our web site)*	GC-485 125	02351012-000
±0.25 inch gage head *(Manual and software available on our web site)*	GC-485 250	02351013-000
±0.5 inch gage head *(Manual and software available on our web site)*	GC-485 500	02351014-000
±1.0 inch gage head *(Manual and software available on our web site)*	GC-485 1000	02351015-000
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
	Contact Tip 10	67010011-000

ABOUT MACRO SENSORS

Macro Sensors, founded by Howard A. Schaevitz, has more than three hundred man-years of experience in just one thing: the design and manufacture of LVDTs. We believe that you need solutions, not simply products. When you call us, you get the benefit of our experience and our commitment.

Most products listed are in stock for immediate delivery, and we strive to offer the finest customer service in the industry: technical support from people who understand LVDTs and how to apply them to your benefit, and a commitment to excellent pricing, quality products, and deliveries that you can truly rely on. Macro Sensors also has a comprehensive network of representatives and distributors in the U.S. and around the world to provide you with local support.

We manufacture an enormous array of LVDTs, from modified standards to complete custom designs. Our customers consistently tell us it is Macro Sensors? quality and service that keeps them coming back. Let our experience go to work for you.

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