HC-485 SERIES

Digital I/O LVDT

SPECIFICATIONS

- **RS-485 output**
- **±0.25% of FR max (±0.1% optional) linearity**
- **32 devices communicating over 2 wires**
- **MIN, MAX and TIR readings**
- **Velocity output**
- **Internal tare (zero) function**
- **Stroke ranges from ±0.125 to ±3 inches**
- **IEC IP68 rating to 1,000 PSI [70 bars]**

FEATURES

- All-welded stainless steel construction
- MS type connector (MIL-C-5015)
- MOD-Bus RTU & ASCII protocols
- Programmable filtering
- Velocity output
- Field interchangeable
- Calibration certificate supplied with each unit

APPLICATIONS

- Process control
- Valve position feedback
- Roller gap
- Automated test systems
- X-Y Positional Feedback
- Remote Monitoring
- Applications where wiring must be minimized

The HC-485 Series of heavy-duty LVDTs are self-contained, ultra precision, digital I/O devices for high performance measurements in environments containing moisture, dirt, and fluid contaminants. The HC-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 30 VDC supply, the HC-485 provides an addressable RS-485 (2-wire) digital 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 set-up flexibility.

MEAS offers accessories and options such as mating connector plugs, imperial or metric threaded core, guided core, and captive core. The 'EA' (Extended Accuracy) option extends the linear stroke range to 150% with ±0.1% linearity.

Like in most of our LVDTs, the HC-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.

Captive core option: The HC-485 features an optional captive core design that greatly simplifies installation. The core rod and bearing assembly includes a Bronze bearing on the front end for self-alignment, while a PTFE sleeve allows low-friction travel through the stainless steel boreliner (spool tube). The core rod and the bearing assemblies are both field serviceable.

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PERFORMANCE SPECIFICATIONS

ELECTRICAL SPECIFICATIONS						
Parameter	**HC-485 125**	**HC-485 250**	**HC-485 500**	**HC-485 1000**	**HC-485 2000**	**HC-485 3000**
Stroke range, STD	±0.125 [±3.17]	±0.25 [±6.85]	±0.5 [±12.7]	±1.0 [±25.4]	±2.0 [±50.8]	±3.0 [±76.2]
Linearity, standard	±0.25% of FR, maximum					
Stroke range, 'EA'	±0.188 [±4.78]	±0.375 [±9.53]	±0.75 [±19.05]	±1.5 [±38.1]	±3.0 [±76.2]	±4.5 [±114.3]
Linearity, 'EA' option	±0.1% of FR, maximum (±0.05% typical)					
Temp. coefficient of scale factor	0.025%/°F [0.05%/°C], maximum					
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)					
Stability	0.1% of FR					
Bandwidth (digital filtering)	Programmable to 1, 50, 100, or 200+ Hertz, rapid roll-off					

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

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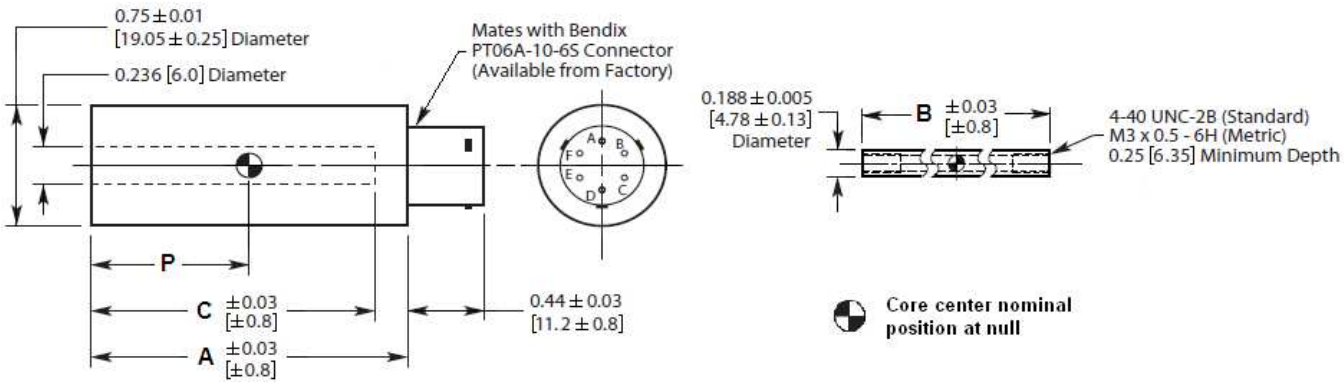
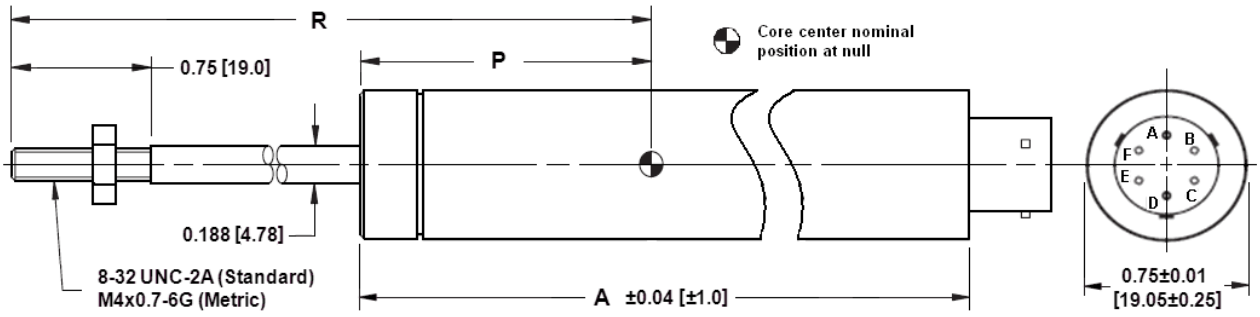
MECHANICAL SPECIFICATIONS – NON CAPTIVE CORE (STANDARD)

Parameter	HC-485 125	HC-485 250	HC-485 500	HC-485 1000	HC-485 2000	HC-485 3000
Main body length “A”	4.39 [111.5]	5.51 [140.0]	6.92 [175.8]	9.18 [233.2]	12.66 [321.6]	17.63 [447.8]
Core length “B”	1.10 [27.9]	1.80 [45.7]	3.00 [76.2]	3.80 [96.5]	5.30 [134.6]	6.20 [157.5]
Bore depth “C”	2.01 [51.1]	2.87 [72.9]	4.56 [115.8]	6.82 [173.2]	10.30 [261.6]	15.27 [387.9]
Core center @ null “P”	0.96 [24.4]	1.38 [35.1]	2.23 [56.6]	3.22 [81.8]	4.91 [124.7]	7.59 [192.8]



MECHANICAL SPECIFICATIONS – CAPTIVE CORE OPTION

Parameter	HC-485 125	HC-485 250	HC-485 500	HC-485 1000	HC-485 2000	HC-485 3000
Main body length “A”	4.72 [119.9]	5.84 [148.3]	7.25 [184.2]	9.51 [241.6]	12.99 [329.9]	17.96 [456.2]
Core center at null “P”	1.26 [32.0]	1.68 [42.7]	2.54 [64.5]	3.52 [89.4]	5.22 [132.6]	7.90 [200.7]
Core rod position at null “R”	4.28 [108.7]	4.75 [120.7]	6.04 [153.4]	7.90 [200.7]	10.52 [267.2]	15.27 [387.9]



Dimensions are in inch [mm]

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ORDERING INFORMATION

Description	Model	Part Number		Description	Model	Part Number
±0.125 inch LVDT	HC-485 125	02561013-000		±1 inch LVDT	HC-485 1000	02561016-000
±0.25 inch LVDT	HC-485 250	02561014-000		±2 inch LVDT	HC-485 2000	02561017-000
±0.5 inch LVDT	HC-485 500	02561015-000		±3 inch LVDT	HC-485 3000	02561018-000

OPTIONS	
Extended Accuracy 'EA' (150% stroke range, ±0.1% linearity)	XXXXXXXX-002
Metric threaded core (M3 x 0.5-6H)	XXXXXXXX-006
Guided core	XXXXXXXX-010
Captive core	XXXXXXXX-200
Captive core, metric threaded extension (M4x0.7-6G)	XXXXXXXX-206

Note: *Add multiple option dash numbers together to determine proper ordering suffix*
Example: HC-485 1000, ±1 inch, 'EA', captive core, metric, P/N 02561016-208

ACCESSORIES		
DC power supply (15VDC)	Model PSD 40-15	02291339-000
Core connecting rod, 6 inches long, 4-40 threads		05282946-006
Core connecting rod, 12 inches long, 4-40 threads		05282946-012
Core connecting rod, 24 inches long, 4-40 threads		05282946-024
Core connecting rod, 36 inches long, 4-40 threads		05282946-036
Core connecting rod, 6 inches long, M3x0.5 metric threads		05282977-006
Core connecting rod, 12 inches long, M3x0.5 metric threads		05282977-012
Mounting block		04560950-000
Mating connector kit	PT06A-10-6S(SR)	62101011-000

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