

HC-485 Series - Digital I/O LVDT



- RS-485 output
- $\pm 0.25\%$ of FS max ($\pm 0.1\%$ optional) linearity
- 32 devices communicating over 2 wires
- MIN, MAX and TIR readings
- Velocity output
- Internal tare (zero) function
- Stroke ranges from ± 0.05 to ± 3 inches
- IEC IP68 rating to 1,000 PSI [70 bars]

DESCRIPTION

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' option extends the linear stroke range to 150% with $\pm 0.1\%$ linearity.

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 Teflon sleeve allows low-friction travel through the stainless steel boreliner (spool tube). The core rod and the bearing assembly are both field serviceable.

Also see our other models: **DC-EC** (\pm DC voltage), **DC-SE** (single-ended dc voltage), **HCD** (hermetically sealed, bi-polar dc voltage) and the **HCT-IS** (intrinsically safe, 4-20mA, 2-wire loop-powered).

Measurement Specialties, Inc. (NASDAQ MEAS) offers many other types of sensors and signal conditioners. Data sheets can be downloaded from our web site at: <http://www.meas-spec.com/datasheets.aspx>

MEAS acquired Schaevitz Sensors and the **Schaevitz®** trademark in 2000.

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

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PERFORMANCE SPECIFICATIONS

ELECTRICAL SPECIFICATIONS							
Parameter	HC485-050	HC485-125	HC485-250	HC485-500	HC485-1000	HC485-2000	HC485-3000
Stroke range	±0.050 [±1.27]	±0.125 [±3.17]	±0.25 [±6.85]	±0.5 [±12.7]	±1.0 [±25.4]	±2.0 [±50.8]	±3.0 [±76.2]
Stroke range 'EA' option	±0.075 [±1.91]	±0.188 [±4.78]	±0.375 [±9.53]	±0.75 [±19.05]	±1.5 [±38.1]	±3.0 [±76.2]	±4.5 [±114.3]
Temperature 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)						
Linearity, standard	±0.25% of FS, maximum (standard)						
Linearity, 'EA' option	±0.1% of FS, maximum (±0.05% typical)						
Stability	0.1% of Full Range						

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)
NEMA 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

FS: Full Scale is 2X for ±X stroke

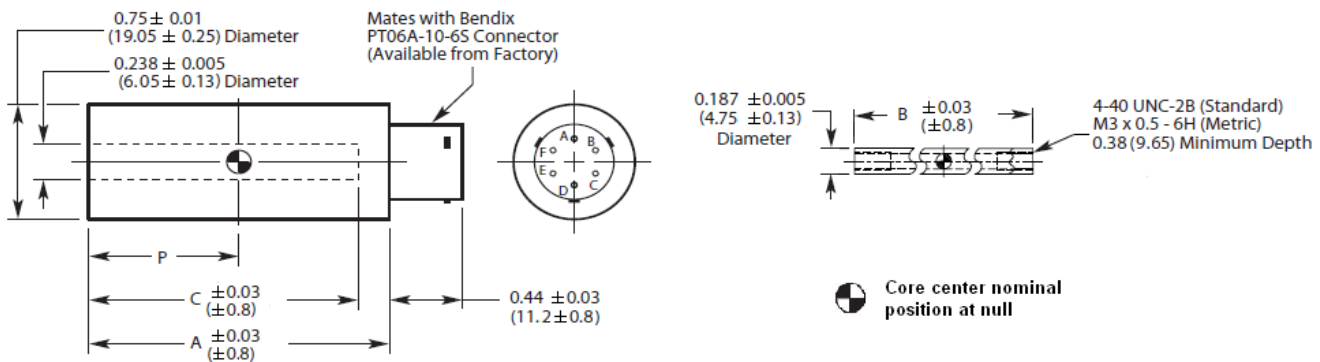
WIRING INFORMATION

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

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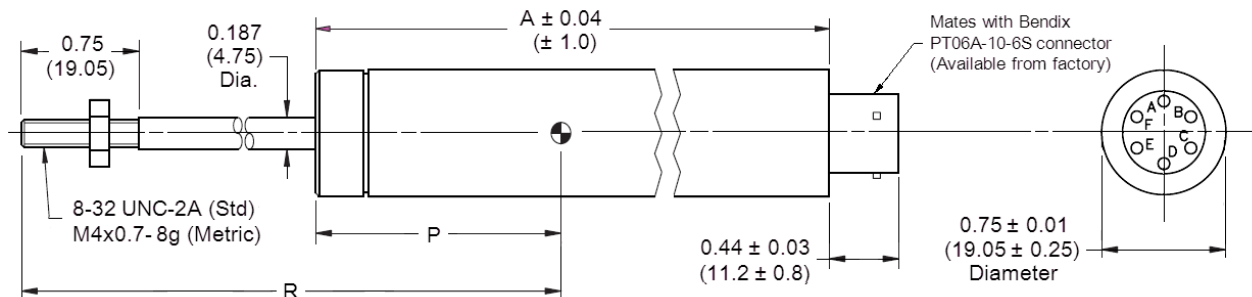
MECHANICAL SPECIFICATIONS, NON-CAPTIVE CORE

	HC485-050	HC485-125	HC485-250	HC485-500	HC485-1000	HC485-2000	HC485-3000
Main body length "A"	3.34 [84.8]	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"	0.585 [14.9]	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"	1.17 [29.7]	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"	0.54 [13.7]	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

	HC485-050	HC485-125	HC485-250	HC485-500	HC485-1000	HC485-2000	HC485-3000
Main body length "A"	3.67 [93.2]	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"	0.84 [21.3]	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"	3.69 [93.7]	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 inches [mm]

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ORDERING INFORMATION

Description	Model	Part Number	Description	Model	Part Number
±0.050 inch LVDT	HC-485-050	02561012-000	±1 inch LVDT	HC-485-1000	02561016-000
±0.125 inch LVDT	HC-485-125	02561013-000	±2 inch LVDT	HC-485-2000	02561017-000
±0.25 inch LVDT	HC-485-250	02561014-000	±3 inch LVDT	HC-485-3000	02561018-000
±0.5 inch LVDT	HC-485-500	02561015-000			
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 (M4x0.7-8g)					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		
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

Note: Refer to our "[Accessories for LVDT's](#)" brochure for LVDT signal conditioning instrumentation and other accessories

TECHNICAL CONTACT INFORMATION

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