HCT Series – 4 to 20mA loop LVDT Transmitter

- **4-20mA, 2-wire current loop operation**
- **Stroke ranges from 0.25 to 10 inches**
- **Hermetically sealed, all welded**
- **Stainless steel housing**
- **MS style connector**
- **Shock and vibration tolerant**
- **IEC IP68 rating to 1,000 PSI [70 bars]**
- **Captive core option** ***(most models)***

DESCRIPTION

The HCT Series LVDT transmitters are the perfect choice for high performance measurements in environments containing moisture, dirt, and fluid contaminants. Operating on a +10.5 to +28VDC loop voltage, the HCT delivers a smooth 4-20mA current loop output. True hermetic sealing of the coil assembly and electronics provides premium protection against adverse environments.

The integral electrical connector (welded, glass-sealed MS type) provides for easy installation and allows replacing a damaged cable without sacrificing the sensor.

Available in a number of standard linear measurement ranges from 0.25 to 10 inches, the HCT is ideal for process industries and power plant applications, or wherever high accuracy measurements are required in electrically noisy environments. The 2-wire 4-20mA current loop output is compatible with most PLCs.

Like in most of our LVDTs, the HCT 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 HCT features an optional captive core design (available for most models) 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.

Also see our other position transmitter models; **CTS-420** (linear/rotary, remote sensor operation), **PTS-420** (rugged, splash-proof housing) and **GCT** (heavy-duty gage head).

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

- 4-20mA current loop output
- All-welded stainless steel construction
- MS type connector (MIL-C-5015)
- Imperial or metric threaded core
- Reverse polarity protection
- Calibration certificate supplied with each unit

APPLICATIONS

- Process industries
- Power plants
- Valve position monitoring
- Rolling mill roller gap feedback
- Ideal for electrically noisy environments
- Outdoor use with long cable

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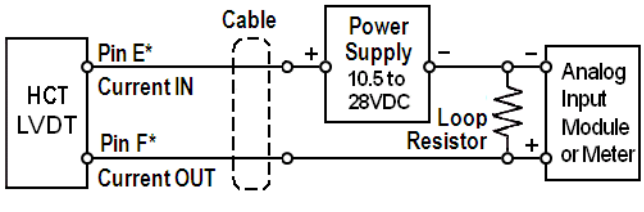
PERFORMANCE SPECIFICATIONS

ELECTRICAL SPECIFICATIONS						
Parameter	**HCT 250**	**HCT 500**	**HCT 1000**	**HCT 2000**	**HCT 5000**	**HCT 10000**
Stroke range	0.25 [6.35]	0.5 [12.7]	1 [25.4]	2 [50.8]	5 [127]	10 [254]
Sensitivity, mA/inch [mA/mm]	64 [2.52]	32 [1.26]	16 [0.63]	8 [0.315]	3.2 [0.126]	1.6 [0.063]
Non-linearity, % of FR max.	±0.5%					±1%
Temp. coefficient of sensitivity	0.022%/℉ [0.04%/℃]					
Loop supply voltage	+10.5 to +28VDC					
Output	4 to 20mA (Output increases when the core is displaced from null towards the connector)					
Output at null position	12mA (null position is defined as the mid-stroke position)					
Max loop resistance	540 ohms @ +24VDC (see loop resistance chart below)					
Output noise and ripple	25 µA, peak-to-peak maximum					
Stability	0.05% of FSO, after 30 minute warm up					
Frequency response	50Hz @ -3db					

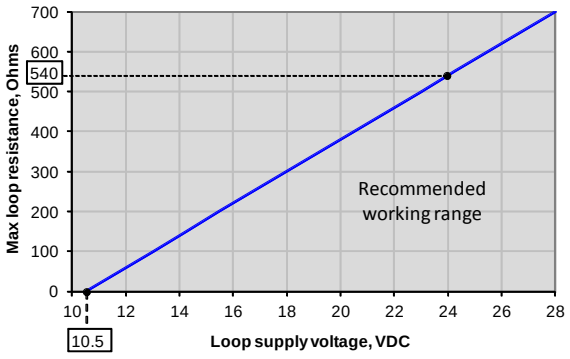
ENVIRONMENTAL AND MATERIAL SPECIFICATIONS	
Operating temperature range	-13°F to +185°F [-25°C to +85°C]
Survival temperature	-65℉ to +25 0℉ [- 55℃ to 125℃]
Shock survival	250 g (11ms half-sine)
Vibration tolerance	10 g up to 2kHz
Housing material	AISI 400 Series stainless steel
Electrical connector	6-pin 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
FR: Full Range is the stroke range, end to end; FR=S for 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 RESITANCE CHART



** Pins A through D: No connection*



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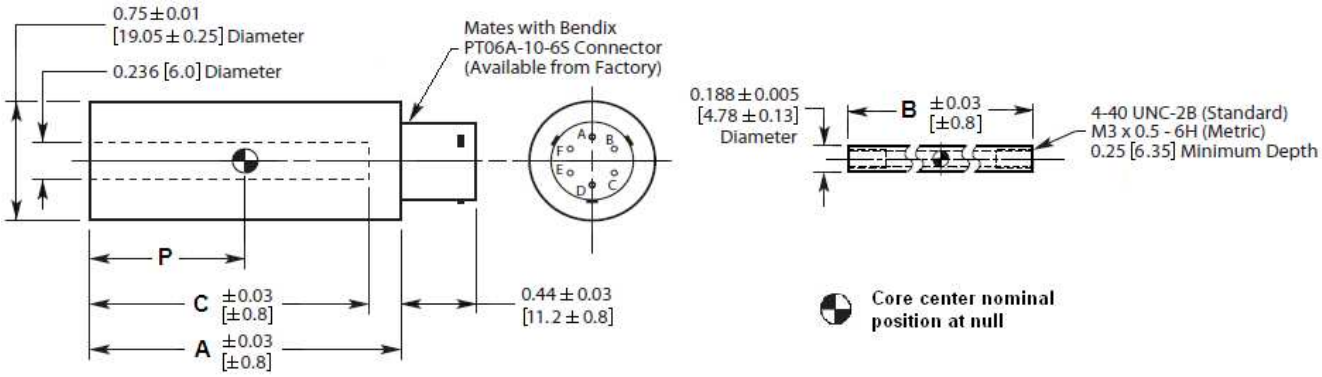
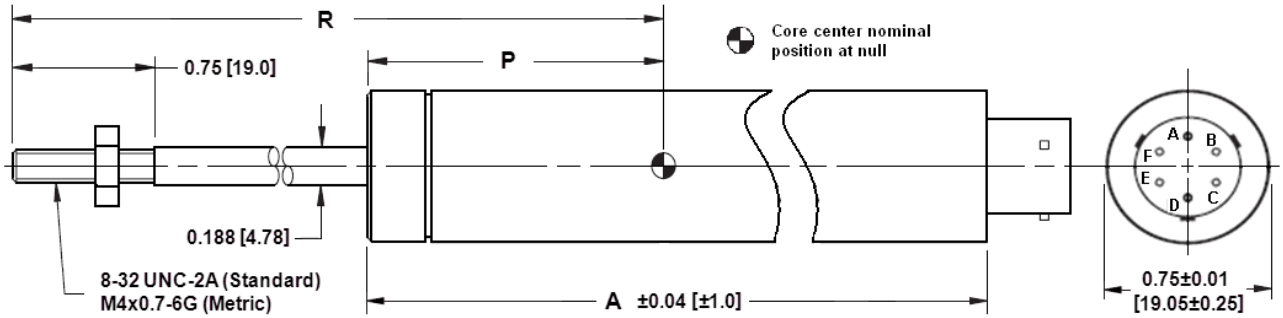
MECHANICAL SPECIFICATIONS – NON CAPTIVE CORE (STANDARD)

Parameter	HCT 250	HCT 500	HCT 1000	HCT 2000	HCT 5000	HCT 10000
Main body length “A”	4.39 [111.4]	5.51 [140]	6.92 [175.8]	9.18 [233.1]	12.28 [311.9]	21.59 [548.3]
Core length “B”	1.25 [31.8]	1.80 [45.7]	3.00 [76.2]	3.80 [96.5]	3.80 [96.5]	6.2 [157.5]
Bore depth “C”	1.91 [48.5]	3.11 [79.0]	4.46 [113.3]	6.72 [170.7]	9.90 [251.5]	19.22 [488.2]
Core center at null “P”	0.96 [24.4]	1.52 [38.6]	2.23 [56.6]	3.36 [85.2]	4.91 [124.7]	9.56 [242.8]
Weight, body, oz [gram]	3.04 [86]	3.63 [103]	4.38 [124]	5.38 [153]	6.51 [185]	12.93 [367]
Weight, core, oz [gram]	0.11 [3]	0.18 [5]	0.29 [8]	0.38 [11]	0.38 [11]	0.62 [18]



MECHANICAL SPECIFICATIONS – CAPTIVE CORE OPTION

Parameter	HCT 250	HCT 500	HCT 1000	HCT 2000	HCT 5000
Main body length “A”	4.72 [119.9]	5.84 [148.3]	7.25 [184.2]	9.51 [241.6]	12.62 [320.5]
Core center at null “P”	1.30 [33.0]	1.86 [47.2]	2.57 [65.3]	3.68 [93.5]	5.25 [133.4]
Core rod position at null “R”	4.36 [110.7]	4.75 [120.7]	6.04 [153.4]	7.87 [199.9]	12.36 [313.9]
Weight, oz [gram]	3.74 [106]	4.66 [132]	5.47 [155]	6.85 [194]	9.6 [272]



Dimensions are in inch [mm]

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ORDERING INFORMATION

Description	Model	Part Number
0.25 inch LVDT	HCT 250	02561020-000
0.5 inch LVDT	HCT 500	02561021-000
1 inch LVDT	HCT 1000	02561022-000

Description	Model	Part Number
2 inch LVDT	HCT 2000	02561023-000
5 inch LVDT	HCT 5000	02561024-000
10 inch LVDT	HCT 10000	02561025-000

OPTIONS		
Description	**Comments**	**Part Number**
Metric threaded core (M3 x 0.5-6H)	Non-captive core models	xxxxxxxx-006
Captive core	HCT 250 through 5000 only	xxxxxxxx-200
Captive core with metric threaded extension (M4x0.7-6G)		xxxxxxxx-206

ACCESSORIES		
Description	**Model**	**Part Number**
DC power supply (15VDC)	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

Refer to our "Accessories for LVDTs" data sheet for our LVDT signal conditioning instrumentation and other accessories.

TECHNICAL CONTACT INFORMATION

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