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Displacement Sensors**

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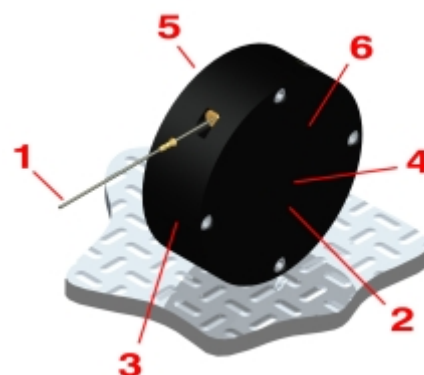
Data Sheet - Series 173, 174, 175 and 176 Subminiature Position Transducer

Subminiature Size, Easy Mounting

Shaded characteristics are verified during production and test. All others are for REFERENCE and information only.

Key Features

1. 6.5-Inch (165-mm) Maximum Travel (Series 176)
2. Analog Signal Using Precision Conductive Plastic Potentiometer
3. AccuTrak™ Grooved Drum for Enhanced Repeatability
4. Bearing-Mounted Rotating Components
5. Optional Flexible Mounting Bases
6. DirectConnect™ Sensor-To-Drum Technology = Zero Backlash, No Torsion Springs or Clutches



Potentiometer Specifications

Potentiometer Type	1-turn, precision, conductive plastic
Resistance: Value, Tolerance	5K ohms, $\pm 10\%$
Travel: Electrical, Mechanical	340°, 340° min
Mechanical Life	100 million shaft revolutions min
Output Signal	analog signal from 0 to supply voltage (voltage divider circuit)
Power Rating	1.0 W at 158° F (70° C)
Supply Current	12 mA max
Supply Voltage	35 VDC max (using voltage divider circuit)
Independent Linearity Error	$\pm 0.5\%$ max per VRCI-P-100A
Output Smoothness	0.1% max
Insulation Resistance	1000 Mohms at 500 VDC min
Dielectric Strength	1000 VDC min
Resolution	infinite signal
Operating Temperature	-85° to +257° F (-65° to +125° C)
Shock, Vibration	100 g for 6 ms, 10 to 2000 Hz at 15 g per Mil-R-39023
Temperature Coefficient	± 400 ppm/°C max

Other Specifications

Case Materials	precision-machined anodized 2024 aluminum				
Displacement Cable	0.018-inch (0.46-mm) dia., 7-by-7 stranded stainless steel, 40-lb (177-N) min breaking strength				
Displacement Cable Hardware	1 each of 300196 loop sleeve , 300292 copper sleeve , 300688 ball-end plug , 300495 pull ring , 805-5 snap swivel, size 5 ; all items provided uncrimped				
Series	173 (Opt. 1)	173 (Opt. 2)	174	175	176
Nominal Mass	1 oz (28 g)	1 oz (28 g)	2 oz (57 g)	3 oz (85 g)	4 oz (113 g)
Displ. Cable Tension (Nom., Min)	0.5 oz (0.1 N)	2 oz (0.6 N)	3 oz (0.8 N)	2 oz (0.6 N)	2.5 oz (0.7 N)
Displ. Cable Tension (Nom., Max)	4 oz (1.1 N)	10 oz (2.8 N)	12 oz (3.3 N)	10 oz (2.8 N)	8 oz (2.2 N)
Displ. Cable Accel. (Nom., Max)	8 g	17 g	9 g	8 g	6 g
Environmental Protection	NEMA 3S / IP 54, DO-160D (ED-14D) Env. Cat. E1E1ABSHXFDXSAXXXXXXXXXXX				

Model Numbers and Ordering Codes

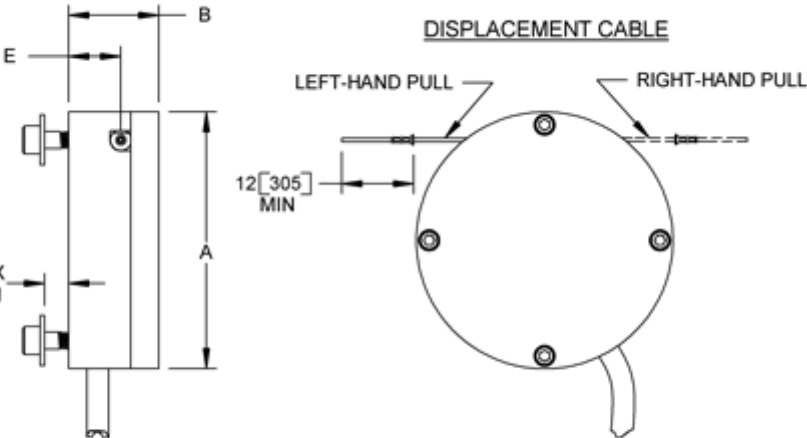
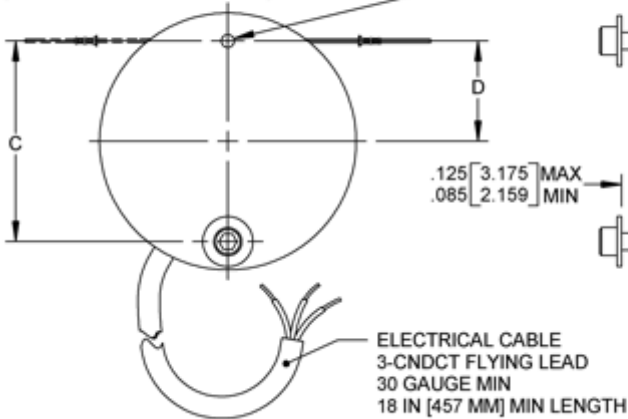
173-0241-abc	position transducer (3.00-inch (76-mm) range)
174-0321-abc	position transducer (4.00-inch (102-mm) range)
175-0401-abc	position transducer (5.00-inch (127-mm) range)
176-0521-abc	position transducer (6.50-inch (165-mm) range)
Example: 173-0241-L2N (left-hand displacement cable pull, cable tension: -020, no base)	

Variable	Value	Description
a	L	left-hand displacement cable pull
	R	right-hand displacement cable pull
b	1	cable tension: -010 (173 only)
	2	cable tension: -020 (173 only)
	3	cable tension: -030 (174, 175, and 176 only)
c	N	no base
	C	base: L (173 only); pn 173015
	D	base: L (174/175 only); pn 174015
	E	base: L (176 only); pn 176015

Drawing

SERIES 173, 174, 175 - 2X 2-56 UNC THREADED MNTG HOLES
(PROVIDED WITH FLAT WASHERS AND 2-56 UNC x 1/4 INCH SOCKET HEAD CAP SCREWS, 5/64 SOCKET)

SERIES 176 - 2X 4-40 UNC THREADED MNTG HOLES
(PROVIDED WITH FLAT WASHERS AND 4-40 UNC x 1/4 INCH SOCKET HEAD CAP SCREWS, 3/32 SOCKET)
(SCREW REMOVED FOR CLARITY)



SERIES	A	B	C	D	E
173	1.28 [32.5]	.45 [11.4]	1.00 [25.4]	.50 [12.7]	.260 [6.60]
174	1.705 [43.31]	.49 [12.5]	1.425 [36.20]	.713 [18.1]	.260 [6.60]
175	1.99 [50.5]	.52 [13.2]	1.425 [36.20]	.845 [21.46]	.275 [6.99]
176	2.46 [63.3]	.52 [13.2]	1.425 [36.20]	1.104 [28.04]	.275 [6.99]

Electrical Connection for Increasing Output with Displacement Cable Extraction		
Left-Hand Pull black white red	Right-Hand Pull red white black	Signal input, V+ output, signal, S+ ground, common, V-, S-

For crimping of hardware to displacement cable, consider the [160001-01 installation kit](#).

Need something not shown? Complete a [Custom Solution Request](#).

All dimensions are REFERENCE and are in inches [mm] • Data Sheet Series 173-176 REV.-

Semi-custom part numbers are indicated by an extra variable, (-X) at the end of the part number.

Example: 17-_-_-_-abc-x. The -x indicates a semi-custom unit. The product definition and build data are defined in the "Special Instruction" section of the Job Traveler.

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