

R120LC – DC Operated Low Cost RVIT



- Low cost
- 5VDC supply voltage
- 0 to 120 degree sensing range
- Non-contact design
- ¼ inch shaft diameter
- Ratiometric output
- No wear potentiometer replacement
- Light weight

DESCRIPTION

The **R120LC** RVIT (Rotary Variable Inductance Transducer) is a cost efficient, DC operated non-contact angular position sensor. It provides a smooth 0.5 to 4.5VDC output, ratiometric to the supply voltage and proportional to angular position over the 120 degree sensing range. The R120LC utilizes non-contacting, differential inductive technology, and does not suffer the wear problems experienced by potentiometers.

The R120LC proprietary design utilizes a set of four printed circuit coils and a light-weight conductive spoiler to achieve superior performance with a low moment of inertia. During operation, the light weight spoiler rotates with the transducer shaft, differentially altering the inductance of the printed circuit planar coils. The resulting unbalance is precisely measured using a patented autoplex circuit. This signal is then converted to a linear DC output voltage proportional to the angle of the rotor shaft. The digital circuit provides resistance to environmental disturbances such as EMI and RFI disturbances and is ideally suited to the most rigorous industrial applications.

Calibrated over the full 120 degree sensing range, the R120LC offers exceptional performance at a cost effective price. It also features a wide operating temperature range, infinite resolution, and an extremely long rotational cycle life.

Also see our other models, **RVIT-15 Series** (single ended DC operation, voltage or current output), **R60D** (bipolar DC operation), and the **R30D** (DC operated RVDT).

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

- Precision ball bearings
- Infinite resolution
- Low moment of inertia
- Long term reliability
- Wide operating temperature range

APPLICATIONS

- Valve position
- Fly-by-wire joy-stick position feedback
- General aviation stall warning sensor
- Potentiometer replacement

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PERFORMANCE SPECIFICATIONS

ELECTRICAL SPECIFICATIONS	
Input voltage	5 ± 0.25 VDC
Input current	21mA maximum
Angular (linear) range	0 to 120 degree
Linearity	±0.5% of FSO
Output at range ends	+0.5 to +4.5 VDC
Scale factor	6.67mV/V/° (ratiometric to input voltage)
Temp coefficient of scale factor	±0.02% per degree F [±0.036% per degree C] over operating temperature range
Output current	5mA maximum
Output impedance	1Ω maximum
Non-repeatability and hysteresis	0.1% of FSO maximum
Frequency response	200 HZ @ -3 dB

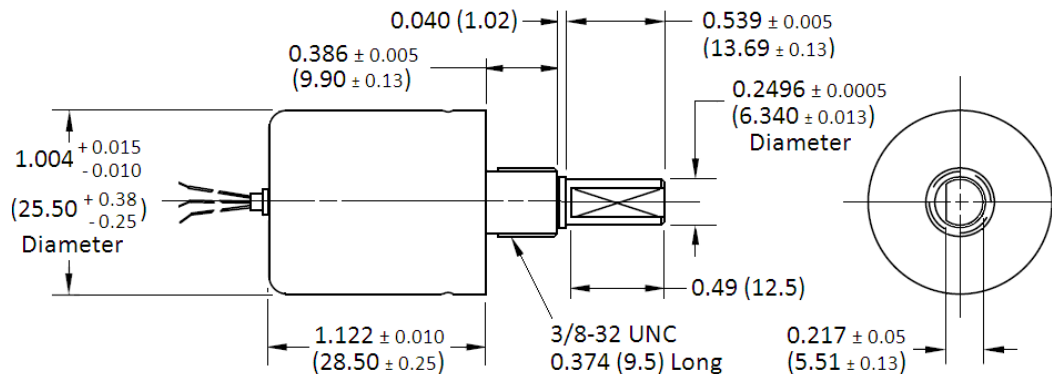
ENVIRONMENTAL AND MECHANICAL SPECIFICATIONS	
Operating temperature range	-13°F to +185°F [-25°C to 85°C]
Storage temperature range	-67°F to +257°F [-55°C to 125°C]
Bearings	ABEC 3 precision
Shaft diameter	¼ inch [6.3mm]
Torque	0.12 inch.ounce-force [8.6 gram-force.cm]
Weight	1.2oz [34gm]
Lead wires	4 lead wires, 28 AWG , Teflon insulation, 12 inches [3 meters] long

Notes:

All values are nominal unless otherwise noted

FSO: Full Scale Output is the output at the high voltage range end

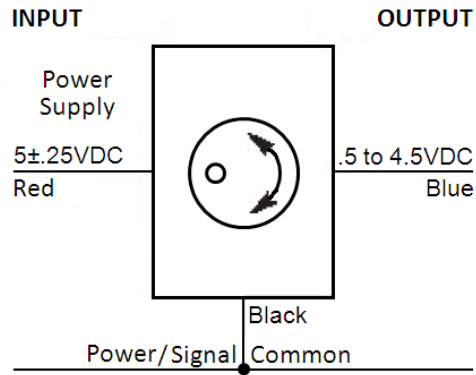
DIMENSIONS



Dimensions are in inches (mm)

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WIRING DIAGRAM



ORDERING INFORMATION

Description	Model	Part Number
RVIT 0-120°	R120LC	02183000-000

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