# R120LC

## DC Operated Low Cost RVIT

## SPECIFICATIONS

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

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, 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.

## FEATURES

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

## APPLICATIONS

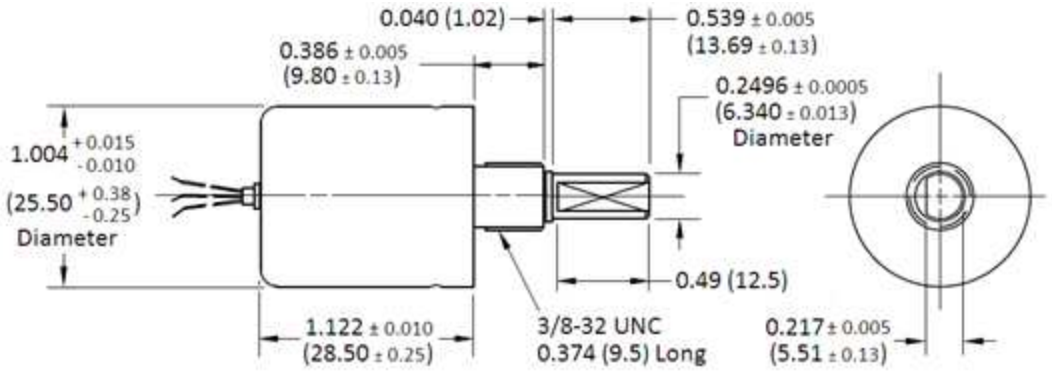
- Valve position
- Fly-by-wire joy-stick position feedback
- General aviation stall warning sensor
- Potentiometer replacement

## PERFORMANCE SPECIFICATIONS

| ELECTRICAL SPECIFICATIONS | |
|---|---|
| Input voltage | 5±0.25 VDC |
| Input current | 21mA maximum |
| Angular range | 0 to 120 degree |
| Non-linearity | ±0.5% of FSO |
| Output at range ends | +0.5 to +4.5 VDC (ratiometric to input voltage) |
| Sensitivity | 6.67mV/V/degree (ratiometric to input voltage) |
| Temp coefficient of output | ±0.02% of FSO per ºF [0.03% of FSO per ºC], over operating temperature range |
| Output current | 5mA maximum |
| Output impedance | 1Ω maximum |
| Non-repeatability and hysteresis | 0.1% of FRO 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] |
| Mechanical angular range | 360 degrees (no stops) |
| 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] |
| Electrical connection | 4 lead wires, 28 AWG , PTFE insulation, 12 inches [30cm] long |
| IEC 60529 rating | IP60 |

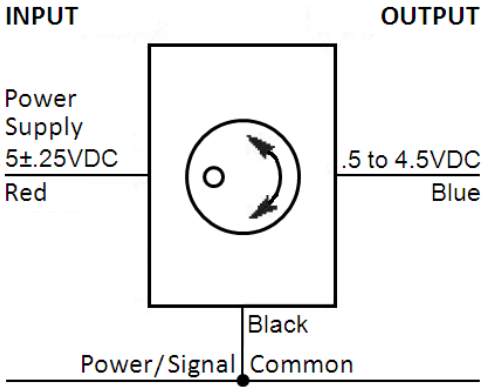
*Notes:*
*All values are nominal unless otherwise noted*
*FSO (Full Scale Output): Largest absolute value of the outputs measured at the ends of the range*
*FRO (Full Range Output): Algebraic difference in outputs measured at the ends of the range*

## DIMENSIONS




*Dimensions are in inch (mm)*

## WIRING INFORMATION




## ORDERING INFORMATION

| Description | Model | Part Number |
|---|---|---|
| RVIT 0-120º | R120LC | 02183000-000 |

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