

RVIT 15-60/15-120i – Rotary Variable Inductance Transducers



- DC operation
- Non-contact design
- Infinite resolution
- ± 60 degree sensing range
- ± 3.0 VDC or 4-20mA output
- $\pm 0.25\%$ linearity
- Size 15 servo or flange mount
- Anodized aluminum housing

DESCRIPTION

The **RVIT 15-60** and **RVIT 15-120i** are DC operated, non-contact, angular position sensors featuring MEAS proprietary RVIT (Rotary Variable Inductance Transducer) technology. Operating from a single rail DC voltage supply, they provide either a ± 3.0 VDC (RVIT 15-60) or 4-20mA (RVIT 15-120i) output, over a 120 degree angular sensing range.

The RVIT 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 is extremely resistant to environmental disturbances such as EMI and RFI and is compatible for use with most analog position feedback systems.

The RVIT 15-60 and RVIT 15-120i offer exceptional performance at a competitive price along with the interfacing flexibility of the ± 3 VDC and 4-20 mA outputs. The RVIT 15-60 emulates a potentiometer in that the output voltage is ratiometric to the supply voltage, within the limits of the specification. Other standard features include a wide operating temperature range, infinite resolution, and an extremely long rotational life. For higher volume applications, specialized options include special angular sensing ranges, and custom unipolar or bipolar output voltage scaling.

Also see our other DC operated, angular position sensor models, **R60D** (bipolar DC operation, servo size 11 RVIT), **R120LC** (5VDC operation, low cost RVIT) and **R30D** (bipolar DC operated RVDT).

Measurement Specialties, Inc. (NASDAQ MEAS) offers many other types of sensors and signal conditioners. Data sheets

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

FEATURES

- Extremely long rotational life
- Internal voltage regulation
- Shielded ABEC 3 precision bearings
- Rugged aluminum housing
- Flange mount with shaft seal (*optional*)

APPLICATIONS

- Ball valve position
- Throttle level feedback
- Rotary actuator feedback
- Dancer arm position
- Reeler / Dereeler

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PERFORMANCE SPECIFICATIONS

| ELECTRICAL SPECIFICATIONS | | |
|----------------------------|---|-----------------------------------|
| Parameter | RVIT 15-60 | RVIT 15-120i |
| Angular linear Range | ±60 degrees | 0 to 120 degrees |
| Input voltage | 5VDC (4 to 5.5VDC) | 10 to 28VDC (not to exceed 30VDC) |
| Input current | 14mA | 41mA |
| Scale factor | 0.05VDC per angular degree @ 5VDC input | 0.133mA per angular degree |
| Output at range ends | ±3.0VDC | 1 to 5VDC (with 250Ω load) |
| Temp coefficient of output | ±0.02% of FSO per °F [0.036% of FSO per °C], over operating temperature range | |
| Output current | 2mA | 4 to 20mA |
| Output impedance | 1Ω maximum | 250Ω maximum |
| Linearity | ±0.25% of FR | |
| Repeatability & hysteresis | 0.1% of FRO maximum | |
| Frequency response | 25Hz @ -3dB | |

| ENVIRONMENTAL AND MECHANICAL SPECIFICATIONS | |
|---|--|
| Temperature range | 0°F to +170°F [-18°C to 77°C] Operating; -67°F to +257°F [-55°C to 125°C] Storage |
| Bearings | ABEC 3 precision, matched and preloaded |
| Shaft diameter | 3/16 inch [4.76mm] |
| Housing material | Aluminum, black anodize |
| Mounting | Size 15 servo mount BU-ORD (standard) or Flange mount with shaft seal (with accessory) |
| Lead wires | 26AWG , PVC jacket, 12" long (min) |
| Maximum torque | 0.12 inch.ounce-force [8.6 gram-force.cm] |
| Shaft load capability | 10 lb [4.5Kg] axial and radial |
| Electrical connections | 3 conductor cable, AWG 26, under PVC jacket, 12 inches [3 meters] long |
| Weight | 2.5 oz [70grams] |

Notes:

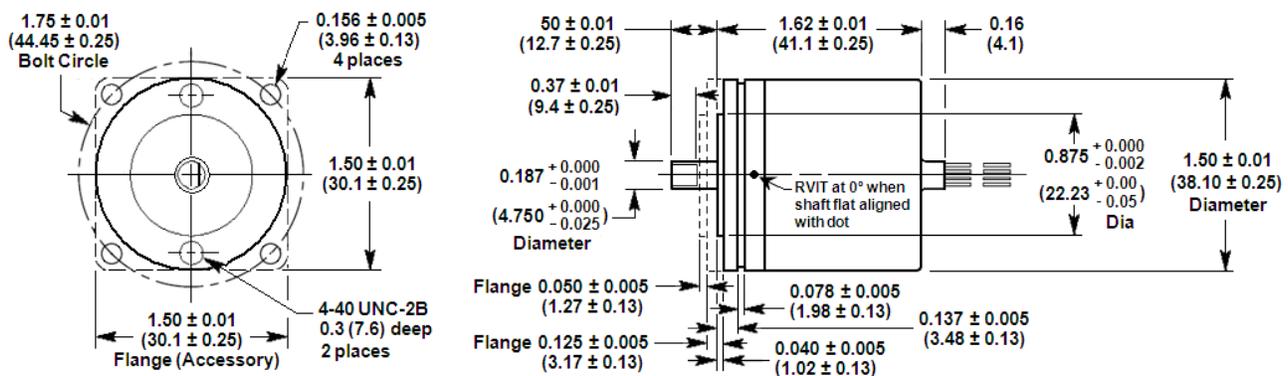
All values are nominal unless otherwise noted

FR (Full Range) is $2 \times A^\circ$ for $\pm A^\circ$ angular range

FRO (Full Range Output) is the algebraic difference between the outputs measured at the range ends ($-A^\circ$ and $+A^\circ$)

FSO (Full Scale Output) is the largest absolute value between the outputs measured at the range ends

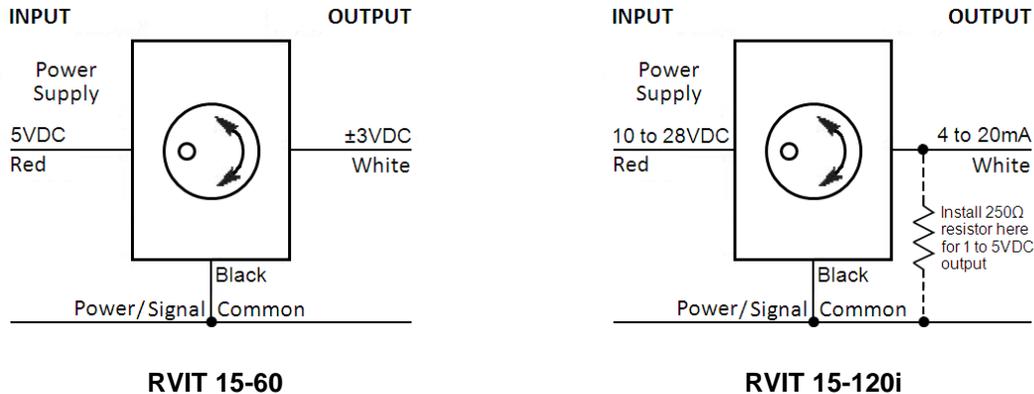
DIMENSIONS



Dimensions are in inches (mm)

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WIRING DIAGRAM



ORDERING INFORMATION

| Description | Model | Part Number |
|--|--------------|--------------|
| RVIT, ±60 degree range, ±3.0VDC output | RVIT 15-60 | 02180000-060 |
| RVIT, 0 to 120 degree range, 4-20mA output | RVIT 15-120i | 02181600-120 |
| ACCESSORIES | | |
| R-FLEX multipurpose coupling kit | R-FLEX | 66530072-000 |
| Flange Mount for RVIT 15 | | 04180029-001 |

Refer to our [“Accessories for RVDT’s and RVIT’s”](#) brochure for other accessories

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